A Case Study in Autism Intervention: A Novel Conversational Approach

Jaime Andrews, Jennifer Francois
Faculty: Kathy Coufal
Department of Communication Sciences and Disorders

Abstract. The purpose of this clinical case study is to determine the effect of using scripted verbal prompts to elicit prepositions and verbal requests from a young boy with Autism. RESEARCH QUESTION: Can specific, scripted prompts targeting prepositions and requesting increase the spontaneous use of prepositions and requesting during highly structured Lego therapy activities? METHOD: The clinician working with this child used a hierarchy of specific, scripted prompts to elicit receptive and expressive use of prepositions and increased use of communication acts (e.g. requesting assistance, requesting more information). The hierarchy consisted of first visual prompts, then verbal prompts, then visual and verbal prompts, and finally a model. The prompts were scripted to achieve consistency in prompting, using either questions or open-ended "carrier phrases." RESULTS: The child demonstrated a significant increase in use of the targeted words and communication acts, with a decrease in prompts as intervention progressed. Additionally, less structured prompts were needed to elicit targets.

Introduction

DH is an 8:9 (years:months) old boy diagnosed with Autism Spectrum Disorder. He has been receiving individual and group therapy at the Wichita State University Evelyn Hendren Cassat Speech-Language-Hearing Clinic (WSU SLH Clinic) for fifteen semesters. In the summer of 2011, he was introduced to Lego© therapy, an intervention tool using a highly preferred activity (i.e., Legos©) to target social and language goals with peers during Lego© building activities. In September of 2011, DH continued to struggle with expressive and receptive use of prepositions and communication acts (e.g., requesting) during this activity. Questions emerged regarding how to increase the spontaneous use of prepositions and communication acts during Lego© therapy activities.

Discrete-trial training, prompt-fading techniques, and time delay prompting have been repeatedly demonstrated as effective in teaching language skills and structures to children with autism [1,2,3,4,5]. Visual cueing systems have been shown to facilitate syntactic and pragmatic use of language [4]. Additionally, use of preferred items or activities as natural (intrinsic) reinforcers may increase the likelihood of generalization [2]. Furthermore, deficits in social-interactive skills are a hallmark of persons with autism [6]. These, too, can be improved through targeted interventions such as Lego© therapy [7].

Experiment

Prepositions and opportunities for requesting were integrated throughout the weekly, one hour and fifteen minute therapy sessions using direct instruction, priming activities, and a hierarchy of prompts including visual prompts, verbal prompts, visual and verbal prompts, and modeling. After reviewing taped therapy sessions, a series of specific prompts and "carrier phrases" to target receptive and expressive use of prepositions (including *on, on top of, through, (in) between, around, on the sides, on the end, next to, beside, in the middle, under, in the corner,* and *across*) and communication acts (including requesting more information, clarification, assistance, an item, or more of an item) was devised. The hierarchy was as follows: spontaneous, visual prompt, verbal prompt, visual and verbal prompt, model. Visual prompting included the use of a laminated page with a stick figure that incorporated a thought and speech bubble. Within these visual representations, the clinician wrote cues about the communication breakdown or a carrier phrase (e.g., "Put the...") of what to say. Verbal prompts were highly structured at the outset, using specific carrier phrases such as "Put the..." followed by a pause or questions such as "Where does it (the Lego© piece) go?" Visual and verbal prompting involved the combination of pointing to a visual while saying a verbal prompt. Models were the completed, necessary phrase (e.g., "Put the red brick in the corner.") given verbally and/or visually. The hierarchy of prompting began with the least explicit (visual prompt) and, if DH did not respond, increased through the hierarchy to the most explicit on the continuum (model).

Additionally, each session was structured to target the prepositions and communication acts across multiple activities. Sessions began with drill work and direct instruction of expressive and receptive prepositions, which included the use of toys and household objects such as cups, pencils, erasers, and small balls. Using the same prepositions needed for that day's Lego© build, the clinician asked ten expressive questions (e.g., "Where is the eraser?"), providing a word bank of the targeted prepositions, and ten receptive instructions (e.g., "Put the paper clip under the box."). As the semester progressed, DH was asked to direct the clinician in placing objects, with the clinician purposely placing the objects incorrectly to check for understanding. Next, DH and his peer participated in a Relationship Development Intervention (RDI) activity. RDI is a curriculum designed to promote peer interaction, cooperation, and problem solving. The clinicians also incorporated the targeted prepositions into the activity. For example, DH and his peer would go on a clue hunt together, directing each other to clues that contained one or more of the prepositions (e.g., "The next clue is between the tree and the flag."). Following RDI, DH and his peer participated in a brief game that did not

specifically target prepositions or requesting but continued to promote peer interaction and problem solving. Finally, the clients participated in a Lego© build using step-by-step directions. The "engineer" directed the "builder" where to place the Lego© pieces, and the "builder" made requests to understand and follow the "engineer's" instructions.

Data was collected during the Lego© activities at the end of each session to determine if DH would increase his spontaneous, independent, and correct use of prepositions and communication acts. It was hypothesized that given a hierarchical set of specific, "carrier phrase" prompts and additional activities, including priming and direct instruction, overall interaction and completion of Lego© builds would improve.

Results

Spontaneous use of communication acts increased from 3 to 41 as "engineer" and to 15 as "builder." Prepositions used during the final Lego© build (as "engineer") included *inside, on the end, in front of, in the middle,* and *next to*. Only one prompt (verbal) was used on the final Lego© build. Additionally, DH demonstrated more appropriate joint attention which included watching his peer and giving careful corrections and encouragement (e.g., "Put it...no, on the other side. Left just a little," "You got it!," "Keep doing that, keep it up, keep it up!," "Perfect."). Mother reported that prior to this intervention, upwards of 90% of his utterances were scripts. She has since noted an increased use of spontaneous utterances, evidencing some generalization from the interventions. (See Table 1)

Discussion

Results indicate that intervention increased use of prepositions and communication acts, decreased overall need for prompts, and reduced the explicitness of prompts (i.e., began with mostly modeling and visual and verbal prompts, ended with mostly spontaneous use, visual, or verbal prompts). These improvements, however, could be related to the persistent targeting of prepositions and communication acts throughout each session in a variety of contexts (e.g., drill work/direct instruction, RDI activities, Lego© activities). Further research is needed to investigate the effects of prompts and preferred activities within a variety of contexts and teaching strategies (e.g., direct instruction versus naturalistic teaching strategies). This case study indicates an overall effectiveness of a hierarchy of prompts to increase spontaneous communication acts and use of prepositions, though it may not have been the sole contributing factor in the final outcomes.

Conclusions

Using a specific hierarchy of prompts coupled with direct instruction, as well as other activities targeting the same prepositions, communication acts increased the spontaneous use of prepositions and communication acts (e.g., requesting assistance, clarification). Additionally, overall use of prompts decreased throughout the semester and necessary prompts were less explicit in nature.

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Table 1: Use of Prompts During Lego© Builds

	Receptive Prepositions			Expressive Prepositions			Communication Acts		
	Baseline	Final	Difference	Baseline	Final	Difference	Baseline	Final	Difference
Model	4	2	-2	2	0	-2	0	0	0
Visual & Verbal	4	2	-2	13	1	-12	9	0	-9
Verbal	1	3	+2	14	5	-9	11	5	-6
Visual	5	4	-1	15	2	-13	15	2	-13
Spontaneous	2	10	+8	1	18	+17	3	41	+38

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