

Simulated AAC Language Intervention: Pilot Investigation Targeting Receptive Locative Concepts

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Background Information

- There are approximately 2 million Americans who are unable to meet all of their communication needs using natural speech. These individuals may have developmental disabilities (e.g., Cerebral Palsy), degenerative diseases (e.g., Amyotrophic Lateral Sclerosis), or acquired conditions (e.g., Traumatic Brain Injury).
- Augmentative and alternative communication (AAC) options (e.g., computerized voice output devices, communication boards/books) can provide these individuals with alternate avenues for meeting their communication needs.
- Relative to their typically developing peers, children who require the use of AAC have been identified as having altered, and at times impoverished: (a) world experiences, and (b) linguistic input (e.g., Blockberger & Sutton, 2003).
- This alarming finding has led several authors to argue that such limiting experiences may be at least partially to blame for the delayed vocabulary comprehension skills identified in many children who use AAC (e.g., Light, 1997; Nelson, 1992).
- Despite the potential benefits of implementing receptive vocabulary interventions with children who use AAC, there has been a lack of documented evidence-based procedures for improving the language.

Purpose

Research Objective

- To address this critical problem, this pilot investigation sought to examine the efficacy of a simulated pet shop intervention designed to target comprehension of locative concepts for children using AAC.
- Specifically, the purpose of this investigation was to document the following prior to modifying the intervention for testing with children using AAC:
 - Typically developing children's
 - reactions to the virtual reality intervention program
 - performance on the testing probes in the simulated environment

Method

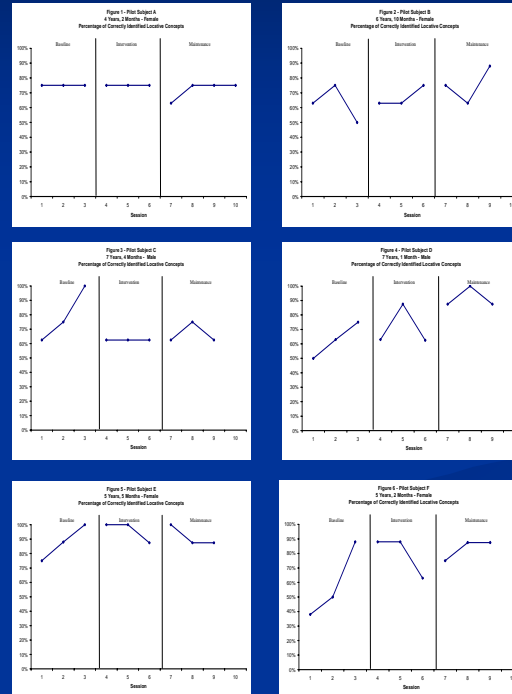
Design

- Eight targeted locative concepts: in, on, over, under, behind, in front, beside, and between, were presented within three 10-minute 'play' sessions in a virtual pet shop.
- Each play session was presented in a 'hide and seek' storyline requiring participants to interact with three virtual animals (a turtle, a cat or a snake) in three different rooms within the pet store.
- The animals demonstrated an example of one of the eight targeted locative concepts (e.g. make the cat go 'in' the kennel).
- The testing sequences were designed using fish illustrating one of the eight locative concepts. Participants were asked to 'find the fish who is (e.g. beside) the boat' within a field of four fish tanks for each probe.

Participants

- Six typically developing children (ages 4;2 – 7;4) who demonstrated an understanding of all eight targeted locative concepts prior to intervention activities participated.

Preliminary Results



	Nonverbally-Relabeled Locative Concepts								Total	
	Behind	Beside	Between	In	On	Over	Under	In Front		
Target Concept										
In Front	0	3	13	2	0	6	1	13	35	
Behind	0	0	14	0	2	3	1	4	24	
Beside	0	0	0	0	0	0	0	0	0	
Between	0	0	0	0	0	0	0	0	0	
In	0	0	0	0	0	0	0	0	0	
On	0	0	0	0	0	0	0	0	0	
Over	0	0	0	0	0	0	0	0	0	
Under	0	0	0	0	0	0	0	0	0	

Sample Stimuli



Summary of Results

- The present pilot investigation was critical to the development of the virtual pet shop intervention activities and testing probes.
- This investigation suggested that simulation interventions have the potential to serve as powerful intervention tools given that each of the participants expressed their interest and excitement in interacting within the virtual environment.
- It was not surprising that no obvious trends of increasing or decreasing participant performance were noted, given that the participating children were documented to have acquired the targeted concepts previously.
- The variability in performance was judged to be primarily a result of the representations of in front, behind, and beside that involved considerable subjectivity in interpretation within the testing probes.

Future Research Directions

- Modifications to Present Intervention
 - To increase participant interest in the intervention program.
 - E.g., addition of three-dimensional components, more interactivity.
 - To increase the reliability of the testing procedures.
 - E.g., modifications to ambiguous target concept illustrations.

Acknowledgements

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