

**THE EFFECTS OF AIDED AAC
MODELING ON THE EXPRESSION OF
MULTI-SYMBOL MESSAGES BY
CHILDREN WHO USE AAC**

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Introduction

- Over 11% of preschoolers who receive special ed services in the U.S. require **AAC** (Binger & Light, 2003).
- Preschoolers who require **AAC** are at risk for all aspects of development, including language development (e.g., Lund, 2001)

- Finding ways to support the language acquisition of children who use AAC is a primary goal of intervention (e.g., Light, 1997)

- One critical stage of language development is the transition from single- to multi-symbol messages

- Many children who use AAC
 - have difficulty transitioning from single-symbol to multi-symbol messages
 - rely on telegraphic messages to communicate (e.g., Light, Binger, & Kelford Smith, 1994; Smith & Grove, 2003; von Tetzchner & Martinsen, 1996)

- Aided AAC models may help children with this transition
 - Use the child's AAC system to model use of AAC
 - Provide spoken input too (typically grammatically complete)
 - E.g., {*More MORE*}{*Cookie COOKIE*} *Giraffe has more cookies*

- Many intervention programs recommend providing models using the child's AAC system (e.g., Goossens', 1989; Johnston et al., 2003; Kent-Walsh, 2003; Ronski & Sevcik, 1996)
- However, no one has ***isolated*** the impact of aided AAC modeling
 - Don't know if aided AAC modeling is a critical component of intervention programs
- Further, no one has designed Ix to specifically facilitate early multi-symbol messages

Research Questions


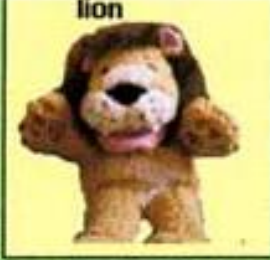
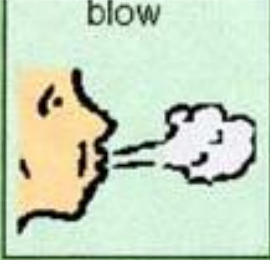


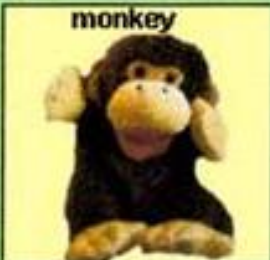


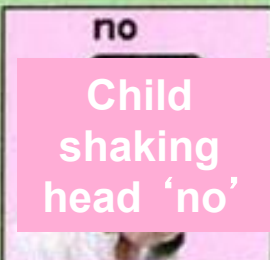


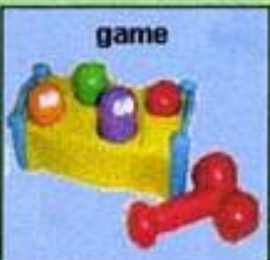



- What is the effect of using aided AAC models on
 - the use of multi-symbol messages by preschoolers who use AAC
 - the participants' generalization of multi-symbol messages to new play scenarios when aided AAC models are no longer provided
 - the participants' generalization of multi-symbol messages to new play scenarios with the continued support of aided AAC models
 - the participants' maintenance of multi-symbol messages after intervention has ceased?

Method

- Design
 - Single subject, multiple probe research design (Tawney & Gast, 1984) across one set of three participants
 - All used voice output systems
 - Second study using same design with two additional participants
 - Both used light tech communication boards

- Participants
 - Were between 3;5-4;6
 - Required AAC to communicate
 - Had congenital speech disorders
 - Variety of disabilities
 - Had expressive vocabularies of at least 25 words
 - Comprehended 2-symbol utterances
 - Identified target graphic symbols
 - Had adequate vision and hearing

- **Materials**
 - Play scenarios used as context for ix
 - AAC Systems
 - 15 symbols per scenario
 - Photos and PCS

<p>more</p>  <p>Child signing MORE</p>	<p>lion</p> 	<p>blow</p> 	<p>balloon</p> 
<p>alldone</p>  <p>Child signing ALLDONE</p>	<p>monkey</p> 	<p>give</p> 	<p>present</p> 
<p>no</p>  <p>Child shaking head 'no'</p>	<p>tiger</p> 	<p>play</p> 	<p>game</p> 
<p>Cathy</p> 	<p>Nathan</p> <p>Picture of Child (head & shoulders)</p> 	<p>want</p>  <p>Child signing WANT</p>	

- **Ix Procedures**
 - Researcher provided aided AAC models by
 - (a) touching two-symbol combinations of key words on the child's AAC system
 - (b) providing a spoken model that reflected
 - the child's communicative intent and/or
 - the events taking place during play

- Measures
 - Dependent Variable
 - frequency of multi-symbol messages produced by the participants during each 15-minute play period

Results

- Four of the five preschoolers met the criterion for success
 - 2 = voice output; 2 = communication board
- All produced a variety of unique symbol combinations
- All produced a range of semantic-syntactic categories

Word Order

- Most participants adhered to English word order patterns for most of their productions
- Timmy demonstrated difficulties with agent + action + object combinations

A Special Case: Robyn

- Did not meet criterion
- Two additional intervention phases conducted
 - Ix 2: New play routines, switched to light tech communication boards
 - Ix 3: Multimodal AAC models
- No notable improvements in performance

Discussion

- Aided AAC modeling successful for 4 of 5 participants
 - Support for the need to include aided AAC models in ix programs
 - Support for the ability of preschoolers who use AAC to produce symbol combinations

- Effective for 2 children using voice output systems and 2 using communication boards
- Most participants adhered to English word order patterns
 - Difficulties quickly resolved with Timmy
- A range of variables may have affected Robyn's performance

- Children produced a wide range of
 - semantic-syntactic categories
 - different symbol combinations

Generalization & Maintenance

- All 4 participants who met criterion
 - Generalized to new play contexts
 - Maintained ability to produce symbol combinations 2 months after ix

Limitations

- Few participants
- Did not control for type of model
 - E.g., expansion versus recast
- Same instructor for each child
- Generalization contexts very similar

Directions for Future Research

- Include children with different profiles
 - Significant motor impairments
 - Significant cognitive impairments
 - Autism
- Instruct other interventionists
- Investigate use of prompts
- Teach other linguistic structures

Conclusions

- Aided AAC modeling
 - Effective for teaching some preschoolers who use AAC to produce symbol combinations
 - Can promote maintenance and generalization of symbol combinations
 - Effective for promoting generative language production