



### Introduction

- Many individuals who have acquired or were born with multiple disabilities are frequently left without ways to communicate effectively (McAfoose, 2002).
- Augmentative-alternative communication (AAC) is a means to supplement and/or replace verbal and/or written communication.
- Techniques used to access an AAC device:
  - Direct selection
    - pointing or eye gaze
  - Indirect selection/scanning:
    - Use of one or two switches for scanning
    - Final selection of type(s) of switches and scanning technique based on physical, motor control and sensory skills

### Purpose

- To determine the effects of using a problem-solving strategy with matching tasks on accuracy of two-switch auditory scanning for a child who uses an augmentative-alternative communication device to supplement his communication

### Methods

- Participant
  - 12 year old male who presented cerebral palsy and cortical vision impairments
- Tasks:
  - Simple content matching task
    - Single letter (e.g., a, b, c, d)
    - Complex content matching task
  - Letter groups (a-d, e-h, i-n, o-t, u-z)
- Experimental design:
  - Single subject multiple baseline design across two matching tasks
- Procedures:
  - Baseline phase: No intervention; stable or decreasing baseline
  - Intervention phase: Problem solving strategy introduced on first behavior while second behavior remained in baseline
- Data analysis: Spontaneous, accurate use of two-switch auditory scanning

### Results

Figure 1. Percentage Correct for the Baseline and Intervention Phases for the Average Accuracy of Combined 'Move' and 'Want' Switch Hits During the Simple Matching Task.

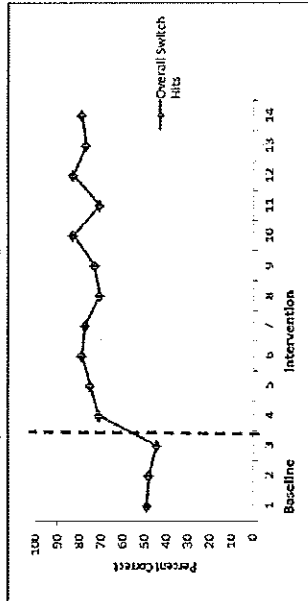
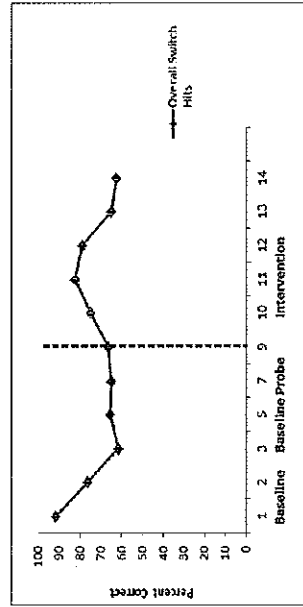


Figure 2. Percentage Correct for the Baseline and Intervention Phases for the Average Accuracy of Combined 'Move' and 'Want' Switch Hits During the Complex Matching Task.



### Results Summary

- Figure 1
  - Accuracy of switch hits: Baseline (47%) Intervention (76.22%)
- Figure 2
  - Accuracy of switch hits: Baseline (72%) Baseline Probe (64.87%) decreasing baseline Intervention (73%)

### Discussion

- Current results support:
  - Research of LeBlanc and Barker (1982) for the use of two-switch step scanning for some children with cerebral palsy who have difficulty using automatic scanning
  - Findings of Light (1993) and Woods (2008) related to the use of a systematic teaching procedure
  - Current study adds to the literature base and provides additional support for the use of two-switch scanning combined with auditory scanning for those individuals with visual impairments

### Future Research

- Further assessment of effects of length of auditory stimuli and accuracy of matching when child using auditory scanning (e.g., "Find b, versus "Find a to d.")
- Current participant performed slightly better on longer stimuli especially when correct response was in the first position on page
- Problem-solving strategy should be extended to more functional communication tasks involving navigation of communication pages or use of an auditory scanning keyboard for written communication
- Further research on single-switch automatic scanning versus two-switch scanning for children with spastic cerebral palsy is warranted
- Further studies using auditory scanning with single-and two-switch scanning should be completed

### References

- LeBlanc, M., & Barker, M. (1982). *A comparative study of control and display design principles, which affect efficient use of communication aids by the severely physically disabled*. (Final Report), Washington D.C.: U.S. Department of Education (G008100458).
- Light, J. (1993). Teaching automatic linear scanning for computer access: A case study of a preschooler with severe physical and communication disabilities. *Journal of Special Education and Technology*, 12, 125-134.
- McAfoose, L. (2002). Introduction to auditory scanning. *Building Blocks*, 1, 1-34.
- Woods, S. (2008). *Effectiveness of a strategy for teaching two-switch auditory scanning for computer use*. (Graduate research paper). Available from Fort Hays State University, (UMI No. 2007.17)