




## Communication Partner Instruction in AAC: A Systematic Review

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## Disclosure Statements

- The first and second authors of this presentation have no financial or nonfinancial relationships relevant to the content of this presentation.
- The third and fourth authors of this presentation have some financial relationships relevant to the content of this presentation in the form of research grant funding from internal and external sources to conduct some of the research reviewed in the current presentation.

• NB. Analyses contained in the present presentation are preliminary in nature.

## Background

- Clients with complex communication needs face opportunity barriers (e.g., Beukelman & Mirenda, 2012)
- Both the individual using AAC and his/her communication partner must adapt to the needs of each other (Mirenda, Iacono, & Williams, 1990; Schepis & Reid, 2003)
- Communication partners often do not naturally provide the necessary support for individuals using AAC to functionally communicate in nature environments.
  - E.g., Partners often dominate interactions, interrupt, and ask primarily yes/no questions (Cumley & Beukelman, 1992; Kent-Walsh & McNaughton, 2005)
- Partners can be taught how to better facilitate the communication of individuals who use AAC (Ben Chaabane, Alber-Morgan & DeBar, 2009; Binger, Kent-Walsh, Ewing, & Taylor, 2010; Kent-Walsh, Binger, & Hasham, 2010)

## Statement of the Problem

- There is a growing body of literature examining the effectiveness of varying communication partner instruction programs.

## Purpose

- Systematic review of contemporary AAC literature to determine effects of partner instruction on communication outcomes for children and adults with complex communication needs.

## Criteria for Inclusion and Exclusion of Studies

- Title and Abstract Stage
  - Criteria to move to the next stage of evaluation:
    - **Participants**
      - Clients: Children or adults of any age using any form of aided communication
      - Partners: Children or adults of any age
    - **Intervention**
      - Partner instruction
        - Some form of treatment, education, intervention, coaching, or training for communication partners of individuals using aided AAC
    - **Outcome Measures**
      - At least one primary outcome relating to some type of language or communication measure for clients using AAC (excluding explicit reading and writing outcomes)

### Criteria for Inclusion and Exclusion of Studies

- Full Text Stage
  - Full texts of the advanced citations were then reviewed to determine if they met the following additional criteria:
    - **Research Design**
      - Include RCTs, QEDs, or SCEDs
      - Case studies & pre-experimental designs excluded
    - **Publication Status**
      - Published and unpublished studies eligible for inclusion
    - **Country of Origin and Language of Publication**
      - Studies conducted in any country and written in any language eligible

### Search Strategy

- 8 Electronic Databases
  - ERIC
  - PsycInfo
  - Dissertations and Theses
  - Linguistics and Language Behavior Abstracts
  - Education Research Complete
  - Education Full Text
  - PubMed
  - Web of Science

### Search Strategy

	Search Terms
	treat* OR therapy OR interven* OR instruct* OR train* OR educat* OR coach*
AND	
	AAC OR "augmentative and alternative communication" OR "augmentative communication" OR "complex communicat**"
AND	
	partner OR parent* OR peer OR teacher OR educator OR guardian OR paraeducator OR pare-educator OR paraprofessional OR para-professional OR spouse OR facilitator OR caregiver

\*For all databases except Proquest Dissertations and Theses and Web of Science these terms were used as keyword terms (the limiter was not specified). Without limiting the terms in Diss/Theses over 10,000 citations were retrieved. Therefore, the second set of terms (i.e., AAC...) were set as subject terms. Web of Science requires a limiter. Thus, we used topic limiters.

### Search Flow Chart

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    graph TD
      A[8 databases searched] --> B[2,110 citations reviewed at the title/abstract level]
      B --> C[44 citations reviewed at the full-text level]
      B --> D[2,074 excluded]
      C --> E[17 included studies Through Dec 2013]
      C --> F[27 excluded]
    
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### Included Studies

Ben Chaabane, Alber-Morgan & DeBar (2009)	Kent-Walsh, Binger, & Hasham (2010).
Binger, Kent-Walsh, Berens, Del Camp & Rivera (2008)	Nunes & Hanline (2005).
Binger, Kent-Walsh, Ewing & Taylor (2010)	Park, Alber-Morgan & Cannell-Malone (2010)
Bingham, Spooner & Browder (2007)	Romski, et al. (2010)
Carter & Maxwell (1998)	Rosa-Lugo & Kent-Walsh (2008)
Dastilo & Light (1993)	Siebel (1999)
Garrison-Harrell, Kamps & Kravits (1997)	Trottier, Kamp & Mirenda (2011)
Hunt, Alwell & Goetz, L. (1991)	Westover (2010)
Kent-Walsh (2003)	

### Number of Participants Across Included Studies by Age Group

Participant Client's Age Group	n
Preschool <5 years old	15
School Age 5-12 years old	33
Adolescent 12-17 years old	1
Adult 18+	2
<b>Total</b>	<b>51</b>

### Data Extraction

- All included studies were double coded by the primary and secondary authors
- Percentage of non-overlapping data (PND) was calculated for each outcome measure in single subject experimental design studies
- Any conflicts were resolved to consensus by discussion between the coders & third party consultation

### Results

- 1 group design study
  - Romski, Sevcik, Adamson, Cheslock, Smith, Barker & Bakeman, 2010
- 16 single subject experimental design studies

### Results

- 1 group design study (Romski, et al., 2010)
  - Mean # of Vocabulary Words
    - Significantly lower for Spoken Communication Group than for Augmented Input & Output Groups following intervention
    - No significant group differences across groups following intervention

Figure 1. Vocabulary size means for augmented communication input (AC-I), augmented communication output (AC-O), and spoken communication (SC) intervention groups at Sessions 18 and 24. Black indicates that only on augmented word was used, white that only a spoken word was used, and gray that both an augmented and spoken word were used.

Above diagram as seen in Romski et al., 2010.

Figure 1. Vocabulary size means for augmented communication input (AC-I), augmented communication output (AC-O), and spoken communication (SC) intervention groups at Sessions 18 and 24. Black indicates that only on augmented word was used, white that only a spoken word was used, and gray that both an augmented and spoken word were used.

### Interpretation of PND Scores

- 16 single subject experimental design studies
  - Overall PND=67%

PND range	Interpretation
PND < 50%	Unreliable treatment
PND 50% - 70%	Questionable effectiveness
PND 70% - 90%	Fairly effective
PND > 90%	Highly effective

Wendt, 2009

### Mean PND Scores by Partner Instruction Approach

Instructional Approach	Mean PND	n
Strategy Instruction	97%	22
Other: Single Skill or Variety of Instructional Techniques	70%	29

### Mean PND Scores by Instructional Content

Instructional Content	Mean PND	n
All 5 components	100%	19
4 components	52%	9
3 components	78%	12
2 components	78%	11

\* 5 Components: Descriptive overview, modeling, verbal practice, guided practice, role play

### Mean PND Scores by Type of Aided AAC System

Outcome Category	Mean PND	n
High-tech SGD	98%	14
Mid-Tech SGD	92%	10
Low-Tech SGD	69%	27

### Mean PND Scores by Treatment Integrity

Treatment Integrity	Mean PND	n
Fidelity >90%	88%	28
Fidelity Not Reported	73%	23

### Mean PND Scores by Outcome Category

Outcome Category	PND	N (# times outcome measured)
Pragmatic	62%	123
Semantic	100%	10
Syntactic	100%	10

### Mean PND by Age of Clients with Complex Communication Needs

Age Group	PND	n
Preschool <5 years old	87.6%	15
School Age 5-12 years old	79%	33
Adolescent 12-17 years old	58%	1
Adult 18+	85%	2

### Mean PND by Diagnosis

Age Group	PND	n
Autism Spectrum Disorder	66%	17
Intellectual Disability or Down syndrome	86%	12
Cerebral Palsy	82%	9
Childhood Apraxia of Speech	100%	2
Developmentally Delayed	100%	4
Multiple disabilities	90%	4
Other	100%	3

- ### Conclusions
- Systematic strategy instruction to teach partners most effective
  - Highly effective intervention for individuals using high and low tech AAC; questionable effectiveness for no-tech AAC
  - Questionable effectiveness for individuals with ASD (66%); higher effectiveness with other disability groups (PND 82%-100%)
  - Additional research on semantic and syntactic outcomes warranted
  - Additional research with adolescents and adults who use AAC warranted
  - Further discussion about uniformity with data reporting and outcome definitions

## Next Steps

- Currently:
  - Reanalyzing data using IRD statistic.
  - Analyzing methodological quality

## Questions



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