Aided Language Stimulation:
Research to Practice
ATIA Orlando 2010

Overview

• Definition of Aided Language Stimulation
• Research and Theory
• In-Practice
• Autism

What is Aided Language Stimulation?

Aided Language Stimulation

• A language stimulation approach in which the facilitator points out picture symbols on the child’s communication display in conjunction with all ongoing language stimulation. Through the modeling process, the concept of using the pictorial symbols interactively is demonstrated for the individual.

• Goossens’, Crain, & Elder (1992)

ALS Assumes:

• AAC users learn language the same way typical children use language - through natural interaction in a language immersion environment

Input
Spoken language development

Output

Spoken Language

Child Learning Aided Symbols

Spoken Language

Aided Language

Gayle Porter, 2004
ALS Assumes:

• Used with an AAC system that has enough generative language vocabulary to be able to say what you want to say, when you want to say it.

What are you modeling?

• Modeling more than - “this symbol means this”

What are you modeling?

• Modeling operational use

What are you modeling?

• Modeling operational use

What are you modeling?

• Modeling mistakes and repair strategies

ALS Assumes:

• Modeling Language in Natural Contexts - All the Time - Language is Not an Activity

• Not just performing a script - Communication is Messy

What are you modeling?

• Modeling ideas of what to say, when (broad range of communicative functions)

• Modeling syntax and pragmatics

Gayle Porter, 2004
Evidence Based Practice:
Research as well as Years of Clinical Experience

Theory and Research

Rationale

Learning and Using Language

<table>
<thead>
<tr>
<th>Language Development (Adamson, 1995)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7m Babbling</td>
</tr>
<tr>
<td>13m First words</td>
</tr>
<tr>
<td>15m 10 words</td>
</tr>
<tr>
<td>20m 50 words</td>
</tr>
<tr>
<td>21m Word combinations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>It happens</th>
<th>Its important</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does it happen?</td>
<td>Important elements?</td>
</tr>
</tbody>
</table>

Outside-In

- Skinner, 1957
- MacWhinney, 2000 and Bates, 2000
- Tomasello, 2003

Inside-Out

- Chomsky, 1995
- Pinker, 2000

Rationale

3 AAC users need input

Research Questions

• What is the effect of aided language stimulation on the communication performance of individuals with AAC needs?
  • Who is being served and what is the nature of the intervention?
  • What is the context and outcome of the intervention?
  • Is the research evidence substantial enough to call aided language stimulation an evidence based practice?

1 Language Development

2 Language Input

How do AAC users learn to use AAC?

Input is important

Appropriate input for AAC users?

Aided language stimulation

Photo: [www.flickr.com/photos/kimblahg/24383817/thumbnail/]
Methods

- **Inclusion Criteria**
  - IV was aided language stimulation
  - English peer reviewed journal (1989-present)
- **Search**
  - Psych Info, ERIC, Ancestral search of AAC journal
  - Email inquiry

Results

- **Light tech paper display**
- **High tech computer displays**

Communication Performance Effects

<table>
<thead>
<tr>
<th>Study</th>
<th>Type</th>
<th>Range of age and disability</th>
<th>Context was primarily play activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goosens’ (1989)</td>
<td>Beginning expressive</td>
<td>Large: 199 symbols</td>
<td>Low number of linguistic models (4 to 30)</td>
</tr>
<tr>
<td>Romski, Sevcik, Robinson, &amp; Bakman (1995)</td>
<td>Beginning expressive</td>
<td>2 patterns: beginning: 20+ advanced: 100+</td>
<td>Increases in receptive and expressive communication</td>
</tr>
<tr>
<td>Cafiero (2001)</td>
<td>Beginning expressive</td>
<td>Moderate: 29 symbols, 67 board</td>
<td></td>
</tr>
<tr>
<td>Beck, Stoner, &amp; Dennis (2008)</td>
<td>Beginning expressive</td>
<td>Moderate increases</td>
<td></td>
</tr>
</tbody>
</table>

<table>
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<th>Range of age and disability</th>
<th>Context was primarily play activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drager, Postal, Carrolus, Castellano, Gagliano, &amp; Glynn (2006)</td>
<td>Beginning Receptive</td>
<td>Expressive and Receptive gains -12 target words</td>
<td></td>
</tr>
<tr>
<td>Dada &amp; Alant (2009)</td>
<td>Beginning Receptive</td>
<td>Receptive most of 24 target words</td>
<td></td>
</tr>
<tr>
<td>Bruno &amp; Trembath (2006)</td>
<td>Advancing Expressive</td>
<td>Multi-symbol increases</td>
<td></td>
</tr>
<tr>
<td>Binger &amp; Light (2007)</td>
<td>Advancing Expressive</td>
<td>Large Multi-symbol increases</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

1  Evidenced based practice
2  Connection to theory
3  Future Research

Evidence Based Practice

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 single subject research studies</td>
<td>Lack of adequate experimental design</td>
</tr>
<tr>
<td>3 with adequate experimental control</td>
<td>Lack of procedural fidelity checks</td>
</tr>
<tr>
<td>All studies report moderate to large positive gains.</td>
<td>Relatively small number of studies and participants</td>
</tr>
<tr>
<td>Results obtained are within practitioner range</td>
<td></td>
</tr>
</tbody>
</table>

Connection to Theory

• With input, there were language gains
• Main finding is that input is impoverished for AAC users.
• There were gains with a minimum number of linguistic models.

Future Research

• Replications and a progression to a more balanced model.
• words and multi-symbol
• balanced instruction
• Increased levels of immersion
• New technologies and alternate access

ALS with Scanners (and other complex access strategies)

• Children who use scanning (light and/or high tech), often have very little opportunity to observe others using similar systems to communicate

Juggling for the Child and Communication Partner
Caution:
Just because access is difficult - doesn't mean that language should be watered down

Scanners have the same need to develop language in natural contexts through immersion

“Light Tech” Communication Book for Language

Switch Play to Develop Motor Skills

Eventually: Combine Motor and Language Skills to Operate a Communication Device

Communication Partners have to learn to speak AAC first

Be Kind to Yourself

Developing Habits: Takes Practice!

• Shared beliefs

• Learning to have system always within reach
Developing Habits: Takes Practice!

- Repetition with intent, purpose and variation
- Not hard, just takes practice
  (three year olds can do it)

Direct Model

- Models target item for scanner
- Models “road map” to combine vocabulary
- Reduces verbal clutter of scan

Model Access method - some of the time

- full
- partial

- model initiating
- model self-talk
- light tech & high tech
- model talking to others in front of the child

How long will we talk to children, giving receptive input, before we expect them to start ‘talking’?

1 week? 3 months?
1 month? 6 months?

- Speed up Scan with Column or Group Scan
- Expand upon what the child says
How many times do you think the typical 1-year-old has heard ‘Daddy’ modeled before s/he says it??

‘Daddy?’ ‘Daddy!’

‘Daddy!’

* * * * * *

100? 1000? 5000??

Upping the Numbers
Increasing Motivation
Use PEERS

Communication Circles

- many circles, all over the country
- Vanessa’s Circle
  - started with 8 students
  - each semester 6 new students get trained
  - Vanessa picks students (w/ teacher’s approval)
  - waiting list

When Circle Started

- had device for 2 years
- recently achieved good access
- knew about 15 words (in therapy)
- used about 3 words

Peer Training Strategies

Linguistic: games
- Magic 8 ball (Am I crazy? Will I go swimming?)
- Silly Sentences (I can _____; I won’t ________)
- Gossip Girl (_______ likes ________)
- Tic Tac Talk

‘Cheat Sheets’ ... aka ‘Smart Charts!’

The class is doing a unit on family relationships, so the partner has prepared a visual list of where to find symbols for Unity™ (ex: Vantage)
The class is talking about a field trip, and discussing places to go, and describing things they might see. The partner holds up popsicle sticks with ‘Places’ and ‘Describe’ on them for cueing.

**Social: Turntaking & Filling Nonobligatory Turns**
- talk about the research - to Vanessa and communication circle
- practice with conversations
- good news / bad news
- every partner, every day

Jackie & the Dog Poo

Eric: Late Again

Eric: Point Guard

**Partner Roles**
- Communication partners - just listen & interact naturally
- Co-Conspirator - work with Vanessa to pick gossip, etc.
- Modeler - aided language stim
- Point Guard - use laser cue

**Use of Modeled Language**

Phone call from Vanessa’s special education director

. . . . . .

More Info? My website!
www.aacintervention.com

CTG 09 Handouts
Augmented Input Strategies (AlgS, NAL, ALM, SAL) for Autism Spectrum Disorders: Rationale

- Visual processing
- Recognition vs memory for language retrieval
- ABA
- Motor Issues
- Behavioral Issues
- Robust Vocabularies

**ALgS + ABA = Natural Aided Language**

- The way I do “AAC Business” – “mother tongue method”
- Coined in 1994 with merging of Goossens’ Crain & Elder’s Aided Language Stimulation and Koegel & Koegel’s Natural Language Paradigm
- Enable practitioner to scientifically define protocols and scientifically measure outcomes

**Contemporary ABA: NLP > PRT**

- Lovaas (1992): Not possible to teach language through discrete trial training
- NLP (Natural Language Paradigm) merging of naturalistic speech-only based language interventions with strict discrete trial training language training
- Koegel & Koegel: Children with autism acquired, maintained and generalized more functional language with NLP

**Pivotal Response Treatments (PRT)**

- NLP now called PRT
- Strongest ABA research base for ASD with 100+ published studies
- Addresses skills that have dramatic positive effects on other skills
- Includes communicative initiations, responses

**Features of PRT**

- Use child choice
- Share control
- Reinforce & acknowledge all communicative attempts
- Mix mastered language with novel language at ratio of at least 4:1
- Use Intrinsic reinforcers
- Define protocols; measure outcomes

**PRT + AAC = NAL**

- Select activity that is reinforcing
- Share communicative control with partner
- Include vocabulary that is both familiar and novel
- Model the vocabulary naturally
- Reinforce all attempts to communicate: speech, vocalizations, aided & unaided AAC
- Define communication partner protocols and measure non-speaking partner outcomes
Natural Aided Language

- Communication partner must be active
- Language is modeled naturally through:
  - Acknowledging
  - Reiterating
  - Enhancing
  - Expanding

Augmented Input & ASD

- Decreased behavioral difficulties
- Increased communicative lexicon
- Provided a window on cognition
- Raised expectations and curriculum

Supporting NAL in the Real World: Communication Partnerships

- Engineered Environment Checklist (PreK/Primary and Middle/High)
- Natural Aided Language Communication Partner Inventory
- Natural Aided Language Comboard Checklist
- Group Instruction with AAC Checklist

NAL Communication Board Checklist

<table>
<thead>
<tr>
<th>Did the language board include</th>
<th>Board 1 (date)</th>
<th>Board 2 (date)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity specific vocabulary?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core vocabulary?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving vocabulary?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requesting vocabulary?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminating vocabulary?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mix of novel and familiar vocabulary?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student-specific vocabulary?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

%

NAL Communication Partner Checklist

<table>
<thead>
<tr>
<th>Did the partner</th>
<th>Baseline</th>
<th>Probe #1</th>
<th>Probe #2</th>
<th>Probe #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforcing activity?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint with</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Main control?</td>
<td></td>
<td></td>
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<tr>
<td>Activities:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reiterates with AAC?</td>
<td></td>
<td></td>
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<tr>
<td>Expand with</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Core &amp; essential</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TEACCH &amp; support</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Social &amp; visual targets</td>
<td></td>
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</tbody>
</table>

Aided Language & Group Instruction for ASD

<table>
<thead>
<tr>
<th>Critical Features</th>
<th>Baseline</th>
<th>Probe #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitator is auditory &amp; visual focus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students grouped by engagement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity is reinforcing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hands-on opportunities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comboards for each student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 facilitators are quiet; use AAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 facilitators reiterate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 expand language of 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large increase visuals for intense input</td>
<td></td>
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</tr>
</tbody>
</table>
Measuring Outcomes

- Importance of the communication partnership
- PODDS as the model
- Engineering the environment
- Creating communication opportunities

The Augmented Input Strategies for ASD: The Sticky Questions

- How important is the static display? What about dynamic display AAC?
- How can we train communication partners completely so that they can provide augmented input?
- What is a reasonable amount of time to give augmented input? months? Years?
- What is the language development trajectory for communicators with ASD receiving augmented input?

It’s not what you know, it’s what you do that counts

References


References


References

