

Language Development and Disorders in AAC: Translating Knowledge into Practice Part 2

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Session Objectives

- Learn to apply their knowledge of language development and disorders to goal setting in AAC intervention
- Develop an awareness of the complex variables associated with setting AAC language goals for children with a range of disabilities.

Key Terms

- Speech-Language Pathologist
- Augmentative and Alternative Communication
- Language vs. Communication
 - Language is a system of gestures, grammar, signs, sounds, symbols, or words, which is used to represent and communicate concepts, ideas, meanings, and thoughts.
 - Communication is the process of exchanging information usually via a common system of symbols.

Basic Goal of Language Intervention

- "... to facilitate communication functioning and to minimize the existing or potential social, behavioral, and academic penalties associated with children's language deficits. (Fey et al., 1995)

Basic Goals Underlying AAC Intervention Communication

- Participation within the classroom
- Preprogrammed messages, scripts
- Pragmatic competence

Language

- Achieving core competencies
- Single words enabling self-generated messages
 - Grammatical competence
- Pragmatic competence

- Question for Language Interventionist

How do we best facilitate the child's development of grammar in a manner that is mindful of other problems the child has or can be projected to develop?

10 Principles of Grammatical Intervention for Children with SLI

- 1. "...help the child achieve greater facility in the comprehension and use of syntax and morphology in the service of conversation, ...in both written and spoken modalities. "
- 2. Grammatical form should rarely be the *only* goal that is targeted in an intervention program.
- 3. Select intermediate goals in an effort to stimulate the child's language acquisition process rather than to teach specific language forms.
- 4. The specific goals of grammatical intervention must be based upon the child's "functional readiness" and need for the targeted forms.
- 5. Manipulate the social, physical, and linguistic context to create more frequent opportunities for grammatical targets.
- 6. Exploit ... the written modality to develop appropriate contexts for specific intervention targets.
- 7. Manipulate the discourse so that targeted forms are rendered more salient in pragmatically felicitous contexts.
- 8. Systematically contrast forms used by the child with more mature forms from the adult grammar, using sentence recasts.
- 9. Avoid telegraphic speech ...
- 10. Use elicited imitation to make targeted forms more salient and to give the child practice with ... patterns that are difficult to produce

AAC Intervention Issues

- Many users of AAC systems do not demonstrate "mature" syntactical performance
- Language and Literacy are related
- Academic "success" is predicated upon language and literacy performance
- We must determine for whom, and when, syntactical competency should be an intervention goal?
- Inappropriate goals can lead to negative outcomes

AAC Intervention Issues

- Considerations affecting language development in AAC
 - Acquisition of aided language may both differ and share qualities with typical language development
 - Linguistic
 - Communicative
 - Cognitive processes
 - "Planned" vs. "Natural" course (i.e., environment dependent)
 - Possible constraints on intervention - thereby acquisition - caused by prejudices and inappropriate understanding of development

“Planned vs. Natural Course”

- Opportunities for communication may be reduced,
- Adults who design their systems select the child’s lexicon,
- Adults decide when they provide the child access to his/her communication system.
- Communication displays may or may not include words across all grammatical classes and they also may or may not include grammatical morphemes.
- Children dependent upon graphic symbols as their mode of communication have few, if any, models for learning to develop language through use of an aided language system.

What Influences the Output Strategy?

- Linguistically structured input, and not modality, is the critical factor required to trigger language acquisition
 - Speaking Child - Typical input consists of the full language model
 - Input offers a direct match for development of expressive language
 - In AAC - Typical input consists of the full language model in speech, w/ occasional realization of lexical items, usually content words in the aided language modality.
 - Input offers only a limited basis for the development of expressive language (Loncke, Clibbens, Arvidson, & Lloyd, 1999)

Aided Language Input

- Communication partner uses AAC to provide language input
 - Provides a model for AAC system use
 - Illustrates the use and power of the system
 - Demonstrates that AAC is a functional and powerful means of communication
- Strategies for building comprehension and expression within the aided modality
 - Augmented Communication Input (Ronski, 2002)
 - Aided Language Stimulation (Goossens’, Crain and Elder, 1992)
 - Modeling (Bruno, 1986)

AAC Intervention Issues

Bimodal Situation of Language Learning

- Definition
 - Harnessing of more than one modality for the purposes of communication
 - Message Form - Recoded
 - Learns the rules governing word order in spoken input. Output is generated from this base.
 - Message Form - Reformed
 - Disregards word order of input, failing to match it in their output.
- Issues Effecting Acquisition of Language for AAC Users

- Unanswered Questions
 - How much asymmetry can the system tolerate?
 - What properties need to be present in the input for structural aspects of language to develop?
 - What properties need to be available in the language output for a child to develop or demonstrate their linguistic competence?
 - How interdependent are these properties?
 - What is the impact of voice-output in early development?

Issues Effecting Acquisition of Language for AAC Users

- Structural Regularities in Graphic Communication
 - Semantic bypasses
 - Phonological similarity
 - Word modification markers
 - Dominance or Co-construction

Issues Effecting Acquisition of Language for AAC Users

- Developmental Patterns in Use of Graphic Symbols
 - Effect of age on the use of word order
 - Use of standard English order increased w/ age
 - Youngest children
 - Single sign utterances
 - Attempted to encode action information verb-label
 - Older children
 - Produced more multi-unit sequences
 - Transitioned onto standard English word order

Issues Effecting Acquisition of Language for AAC Users

- Language Development
 - Normal
 - Development follows a predictable course
 - Delayed
 - Develops skills according to this predicable course, but at a slower rate
 - Disordered
 - An impairment in comprehension and/or use of spoken, written and/or other symbol system that may involve the form, content and/or function in any combination

Issues Effecting Acquisition of Language

- Language Disorder
 - Deviant development
 - May occur in a wide range of settings
 - Cause: dysfunction of brain centers for language and cognition
 - Language Etiologies
 - Specific Language Impairment

- Cognitively Impaired
- Autism
- Acquired Brain Injury

Language Etiologies

- Specific Language Impairment
 - Hearing w/in normal limits
 - No organic abnormalities
 - Cognition w/in normal limits
 - Impairments specific to language
 - Excessive use of single word utterances
 - Greater omissions of verb inflections e.g., past tense (-ed), present tense (-s)
 - Less complex verb phrases

Language Etiologies

- Cognitively Impaired
 - Language difficulties greater than matched typical children
 - Shorter, less complex sentences
 - Restricted word meanings
 - Slow vocabulary growth

Language Etiologies

- Autism
 - Pragmatic language impairment
 - Shorter less complex sentences
 - Restricted word meanings
 - Slow vocabulary growth

AAC Research Needs

- Studies are needed to help clarify whether graphic symbol communication should be considered as a *linguistic phenomenon* (i.e., with intrinsic and coherent organization) separate from spoken language or as a *translation of spoken language* (i.e., with direct links to spoken language).

Acquisition of Language by AAC Users

Hypothesis

Aided AAC performance is a translation of spoken language. AAC users recode language on the basis of their language abilities.

- Normal (acquired disability)
 - Age appropriate aided output
- Language Delayed (developmental disability)
 - Develops skills in the predictable order, but at a slower rate
- Language Disordered
 - Deviant development of language form, content and/or use

and their aided output is further impacted by

- Factors related to a “Planned” vs. “Natural” course
- Cognition
- Age
- Diagnosis, Neurological status

AAC Intervention- Goal Setting

1. Can the selected intervention approach positively impact of the development of syntactic skills?
2. Is progress related to cognition, and/or diagnosis?

Intervention Study

- Intervention Study
 - Camp Chatterbox, Pennsylvania - 2003
 - Perform Pre/Post testing to determine whether participation in an intensive therapy program using aided-language stimulation results in a significant change in campers’ syntactical performance when using a
 - Manual topic board, or a
 - Navigational device

Methodology

- Subjects - N=9
 - Expressive Language Skills ≤ 3.0

Methodology

- CSH Test
 - Field Size & Number
 - Grammatical Encoding
 - Categorization Skills
- Pretest
 - CSH Subtest for Syntactical Performance
 - CSH Subtest for Navigational Skills

Methodology

- Intervention
 - Campers grouped according to age and ability.
 - Use Aided Language Stimulation (ALS) for all treatment sessions for 5 consecutive days;
 - Modeled utterances were 1 “step” above present performance as defined on pretest
 - One 45 min. session w/ topic board (arts & crafts)
 - Recreational activity between interventions
 - One 45 min. session w/ navigational device (Tx)
 - Half of children received navigational training before topic board training

and the other half reversed the intervention.

Methodology

- Post Test
 - Final day of program - (after lunch)
 - Same measures as the pretest for both conditions
 - CSH Subtest for Syntactical Performance
 - Topic board
 - CSH Subtest for Navigational Skills
 - Dynamic Display (VOCA) device
 - Testing clinician differed from treating clinician

Results –

Summary/Discussion

- A intensive therapy program using ALS can result in changes in (MLU) when using manual boards, but not for navigational devices
 - Cognition appeared to be a factor influencing progress
 - 3 Campers PPVT - SS>85 – appeared to make developmental changes
 - Complexity of the Board (i.e., # of symbols) may impact performance for SS < 85
 - Age is an obvious variable

Learning Language vs Learning a Skill

- Manual Topic Board should be easier than Navigational device
- Campers SS <85 may have learned a skill not language
 - Generalization to functional language activity did not occur
 - Intensive therapy can make a difference in navigational skills across camper abilities

Case Studies-Cerebral Palsy

Delayed/Normal vs. Disordered Language

Down Syndrome

- Broad IQ range -
 - Near normal -> severe
 - Average 45-55 range
- Language is more impaired than cognitive functions (Tager-Flusberg, 1999)
- Pragmatics is area of strength (Coggins, Carpenter & Owens, 1983)

Pragmatic Functioning in

Down Syndrome

- Children w/ Downs expressed the same range of “communicative intents” as matched normally developing children (Coggins, Carpenter & Owens, 1983)
 - Made relatively fewer requests than normal peers
 - Comments, protests, and answers were relatively equal
- Communication focused more on social interaction than to regulate the

environment

- Ability to maintain a topic over an increasing # of turns was higher than matched peers (Bloom, Rocissano, & Hood, 1976; Brown, 1980, Beeghly, Weiss-Perry, & Cicchetti, 1990).

Lexical Development in Down Syndrome

- The early words of children with Down syndrome are similar to those of normally developing children in that they label objects at a basic level (i.e., car, dog) rather than the subordinate (i.e., BMW, terrier) or superordinate (i.e., vehicle, animal)
- Older children w/ Down's often continued to name pictures at the basic level
- Children w/ Down syndrome demonstrate good categorization skills at the "basic level"

(Tager-Flusberg, 1999)

Syntactic and Morphological Development in Down Syndrome

- Down children w/ IQ below 50 may not combine words until they are 5 or 6 (i.e., 2.5 -3 M.A.)
- These children may never move beyond early stages of grammatical development
- Relative to the size of their vocabulary, they use shorter and simpler sentences (i.e., generally don't go beyond an MLU of 3)
- Development *does* continue beyond adolescence

Syntactic and Morphological Development in Down Syndrome

- Language is disordered not delayed Demonstrate difficulties in passivization
 - Reduced comprehension of reflexive pronouns
 - These difficulties do not necessarily stem from low levels of intellectual development (i.e. not found in WS subjects)
 - Linguistic development lags behind cognitive development
 - Morphosyntax lags behind lexical knowledge and pragmatics

Patterns of Language in Down Syndrome

- Problems in language development and use cannot be explained by intellectual impairment alone
 - Tend to be more passive and show less initiation in interactions
 - Instances of deviant auditory processing
 - Strength in visual processing
 - Often demonstrate good pragmatic skills

Case Study - Down Syndrome

Case Study-Apraxia- Delayed Language

Case Studies-Schizencephaly- Delayed Language/Disordered

Closing Comments

Hypothesis

- Aided AAC performance is a translation of spoken language whereby users of AAC recode language reflecting their language abilities
 - Language Delayed
 - Develop skills in the predictable order, but at a slower rate
 - Language Disordered
 - Demonstrate deviant development of language form, content and/or use
- Aided output is further impacted by
 - Factors related to a “Planned vs. “Natural” course
 - Cognition,
 - Age
 - Diagnosis, Neurological status

Closing Comments

Hypothesis

- There may be a “Critical Period” during which we can *distinguish* between who may be -
Language Delayed vs Language Disordered
- The “Critical Period may occur somewhere between
7 - 8 years of age
- May be related in part to visual development (i.e., memory and sequencing)

Closing Comments

Belief

- AAC intervention goals must be supported by our knowledge of normal language acquisition and patterns of language performance within various language etiologies.
- It is unlikely that AAC users can exceed the language milestones achieved by their speaking peers who demonstrate language disorders.

References (Contained within Handout for Part 1)