SWAAAC Evidence-Based Practice

Modeling/Aided Language Stimulation

The following is a collection of peer-reviewed journal articles addressing the use of modeling or Aided Language Stimulation to facilitate the acquisition of language skills in students with Complex Communication Needs who use AAC systems. The intent of this document is to provide some foundational information for the implementation of evidence-based practice. Please contact the SWAAAC office if you would like to add an article to this resource.

**This document contains a variety of resources including, but not limited to peer-reviewed journal articles, magazine articles, academic papers, and conference proceedings. It is the responsibility of the reader to evaluate the sources and use their best judgment with regard to EBP applications*

Summary:

-all journal articles listed below demonstrate gains with the application of modeling/ALS. Areas of gain include pragmatics, semantics/vocabulary acquisition, syntax and morphology.

AAC Modeling Intervention Research Review
-Samuel C. Sennott, Janice C. Light, and David McNaughton
Abstract: A systematic review of research on the effects of interventions that include communication partner modeling of aided augmentative and alternative communication (AAC) on the language acquisition of individuals with complex communication needs was conducted. Included studies incorporated AAC modeling as a primary component of the intervention, defined as the communication partners (a) modeling aided AAC as they speak and (b) participating in the context of a naturalistic communication interaction. This review used a best-evidence approach, including nine single-case studies, with 31 participants, and 70 replications, and one quasi-experimental randomized group design study, including 63 participants. The results of the review indicated that AAC modeling intervention packages led to meaningful linguistic gains across four areas including (a) pragmatics, marked by increases in communication turns; (b) semantics, marked by receptive and expressive vocabulary increases; (c) syntax, marked by multi-symbol turn increases; and (d) morphology, marked by increases in target morphology structures. (Sennott, Light, & McNaughton, 2016)

The Effect of Aided Language Stimulation on Vocabulary Acquisition in Children with Little or No Functional Speech
-Shakila Dada, Erna Alant
Purpose: To describe the nature and frequency
of the aided language stimulation program and determine the effects of a 3-week-long aided language stimulation program on the vocabulary acquisition skills of children with little or no functional speech (LNFS).
Method: Four children participated in this single subject, multiple-probe study across activities. The aided language stimulation program comprised 3 activities: arts and crafts, food preparation, and story time activity. Each activity was

repeated over the duration of 5 subsequent sessions. Eight target vocabulary items were taught within each activity. The acquisition of all 24 target items was probed throughout the duration of the 3-weekintervention period.
Results: The frequency and nature of the aided language stimulation provided met the criterion of being used 70% of the time and providing aided language stimulation with an 80:20 ratio of statements to questions. The results indicated that all 4 participants acquired the target vocabulary items. There were, however, variations in the rate of acquisition.
Conclusions: This study explores the impact of aided language stimulation on vocabulary acquisition in children. The most important clinical implication of this study is that a 3-week intervention program in aided language stimulation was sufficient to facilitate the comprehension of at least 24 vocabulary items in 4 children with LNFS. (Dada & Alant, 2009)

Use of aided language stimulation to improve syntactic performance during a weeklong intervention program
-Joan Bruno & David Trembath
Abstract: This pilot study assessed the performance of nine children, aged 4;8 – 14;5, who used augmentative and alternative communication (AAC) systems before and after a weeklong aided language stimulation intervention program. Pre/post test data were analyzed to evaluate the participants' syntactic complexity when using (a) a manual communication board and (b) a dynamic display speech generating device (DD-SGD). Results indicate that most participants improved their syntactic performance and that these gains were more pronounced when the participants used a manual communication board as compared with a DD-SGD. There was considerable individual variation in performance. (Bruno & Trembath, 2006)

The effectiveness of aided augmented input techniques for persons with developmental disabilities: a systematic review
-Anna A. Allen, Ralf W. Schlosser, Kristofer L. Brock and Howard C. Shane
ABSTRACT: When working with individuals with little or no functional speech, clinicians often recommend that communication partners use the client's augmentative and alternative communication (AAC) device when speaking to the client. This is broadly known as "augmented input" and is thought to enhance the client's learning of language form and content. The purpose of this systematic review was to determine the effects of augmented input on communication outcomes in persons with developmental disabilities and persons with childhood apraxia of speech who use aided AAC. Nineteen studies met the inclusion criteria. Each included study was reviewed in terms of participant characteristics, terminology used, symbol format, augmented input characteristics, outcomes measured, effectiveness, and study quality. Results indicate that augmented input can improve single-word vocabulary skills and expression of multi-symbol utterances; however, comprehension beyond the single word level has not been explored. Additionally, it is difficult to form conclusions about the effect of augmented input on specific diagnostic populations. Directions for future research are posited. (Allen, Schlosser, Brock, & Shane, 2017)

Using Aided AAC Models, Recasts, and Contrastive Targets to Teach Grammatical Morphemes to Children Who Use AAC
-Cathy Binger, Molly Maguire-Marshall, Jennifer Kent-Walsh
Purpose: The purpose of the investigation was to evaluate the effects of using aided augmentative and alternative communication (AAC) modeling and recasting on the expression of grammatical morphemes with children who used AAC.
Method: A single-subject, multiple-probe, across-targets design was used for the study. Three participants were each taught to use 3 grammatical structures. Intervention consisted of aided AAC models and recasts during storybook reading tasks.
Results: All three children readily began using the targeted grammatical morphemes. However, none of the participants maintained use of the first morpheme. Error analyses revealed that the children either omitted the targeted morpheme or replaced it with another morpheme. To address this issue, a second intervention phase was implemented for the targets that were not maintained. During this phase, various grammatical morphemes were contrasted with each other (e.g., past tense –ed vs. possessive's). Following the second intervention phase, participants maintained all targets.

Conclusions: Aided AAC models and recasts may be used as part of intervention packages designed to help children acquire production of grammatical morphemes; however, it is important to provide contrasts of grammatical forms to ensure acquisition. Theoretical and clinical implications are discussed. (Binger, Maguire-Marshall, & Kent-Walsh, 2011)

Impact of aided AAC interventions on speech comprehension of children with neurodevelopmental disabilities: A critically appraised topic

-Marianne Elmquist, Jessica Simacek, Adele F. Dimian, Joe Reichle

Abstract: A critically appraised topic (CAT) is one form of rapid review that can be particularly useful for informing practice. The purpose of this CAT was twofold: to determine (a) the impact of aided augmentative and alternative communication interventions on speech and graphic symbol comprehension in children, aged birth-18 years with neurodevelopmental disabilities and (b) whether there are any potential learner characteristics that serve as moderators or mediators regarding intervention outcomes. In addition to the methodology, the authors present and discuss the findings of this CAT. The authors propose an update to this CAT in January 2022. (Elmquist, Simacek, Dimian, & Reichle, 2019)

Language Development of Individuals Who Require Aided Communication: Reflections on State of the Science and Future Research Directions

-Martine M. Smith

Abstract

Language acquisition theories differ in the importance they assign to production as a learning mechanism. This review summarizes some of the theoretical issues linked to this debate and considers their implications for children with severe speech and physical impairments. The unique aspects of the language-learning contexts of these children are explored. Drawing largely on papers published within the journal *Augmentative and Alternative Communication*, this review summarizes features of language development that have been described over the past 3 decades and considers how these findings might illuminate our understanding of language development across both spoken and aided modalities. Implications for assessment, intervention and for further research are suggested. (Smith, 2015)

Facilitating Vocabulary in Toddlers Using AAC: A Preliminary Study Comparing Focused Stimulation and Augmented Input

-Patti L. Solomon-Rice, PhD, CCC-SLP and Gloria Soto, PhD

Abstract

Toddlers benefiting from augmentative and alternative communication (AAC) often demonstrate delayed expressive vocabulary. However, a paucity of AAC intervention research exists for children under the age of 3. There have also been few AAC studies comparing language intervention techniques across children of any age. This study investigated two intervention techniques on the expressive vocabulary of three toddlers who were beginning AAC users. In one condition (focused stimulation), the speech-language pathologist (SLP) verbally modeled each target word 10 times during an intervention session. In the other condition (augmented input), the SLP modeled each target word 10 times during an intervention session by simultaneously speaking the word and using the child's AAC system. The results revealed the participants' expressive vocabulary improved during both conditions and was sustained and generalized for two of the three toddlers. The study provides preliminary, empirically based guidelines to consider during communication intervention with toddlers who are learning to use AAC. (Solomon-RIce, PhD & Soto, PhD, 2014)

The effect of aided AAC modeling on the expression of multi-symbol messages by preschoolers who use AAC

-Cathy Binger & Janice Light

Abstract

A single subject, multiple probe design across participants was used to evaluate the impact of using aided AAC modeling to support multi-symbol message production. Five preschoolers (three who used voice output communication systems, two who used non-electronic communication boards) participated in the study. Aided AAC models were provided by pointing to two symbols on the child's aided AAC system and then providing a grammatically complete spoken model while engaging in play activities. Four of the five

preschoolers learned to consistently produce multi-symbol messages; the fifth did not demonstrate consistent gains. The four preschoolers who met criterion all evidenced long-term use of symbol combinations and generalized use of symbol combinations to novel play routines. Results, clinical implications, and future research directions are discussed. (Binger & Light , 2007)

The Impact of Aided Language Stimulation on Symbol Comprehension and Production in Children With Moderate Cognitive Disabilities

-Michael D. Harris, Joe Reichle

Over the past decade, aided language stimulation has emerged as a strategy to promote both symbol comprehension and symbol production among individuals who use graphic mode communication systems. During aided language stimulation, an interventionist points to a graphic symbol while simultaneously producing the corresponding spoken word during natural communicative exchanges. The purpose of this study was to determine the impact of aided language stimulation on children

with moderate cognitive disabilities. Three preschool children with moderate cognitive disabilities who were functionally nonspeaking participated in the investigation. The investigator implemented a multiple-probe design across symbol sets/activities. Elicited probes were used to determine whether the children increased their comprehension and production of graphic symbols. Results indicated that all 3 children displayed increased symbol comprehension and production following the implementation of aided language stimulation. (Harris & Reichle, 2004)

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