SETT Framework, MODELER, and PODD AAC Intervention in Elementary Grades

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Abstract

We report positive outcomes for a pilot augmentative and alternative communication (AAC) intervention incorporating the Student, Environment, Tasks, and Tools Framework (SETT), Pragmatic Organization Dynamic Display (PODD) Communication Books, and the Model, Encourage, Respond (MODELER) strategy to support the communication development of elementary school-aged students. Communication is a vital tool for humans in moving through their world. Unfortunately, people who lack communication are rarely taught communication in the way that typical children acquire language, through naturalistic experiences where there is rich input and interaction with an expressive communication system that is perceptible and usable to the individual. As a result, communication rarely expands to be fully generalized. This investigation included an interdisciplinary person-centered planning process to help two school-aged students with complex communication needs develop AAC in a pilot study with an AB format preliminary pilot study in preparation for a single-case design study.

Keywords

Augmentative and Alternative Communication, AAC, SETT Framework, MODELER, PODD

Introduction

Communication is valuable for interacting socially, developing friendships, making requests, and expressing knowledge. It is a skill that is useful in interpersonal interactions across environments, including school, work, and home life (Van Tatenhove). Students who lack functional communication skills are more likely to struggle academically and exhibit behavior issues than their typical peers (Beukelman & Mirenda). These communication skills also impact an individual's adaptive, daily living, and social skills (Alzrayer, Banda, & Koul). For individuals who are unable to use natural speech as a primary means of communication, known as people with complex communication needs (CCN), augmentative and alternative communication (AAC) systems are means with which they can access language typical to that of their peers (Beukelman & Mirenda). However, it is often challenging to provide a rich language acquisition environment for children learning to use AAC because of the large knowledge and skill gaps their primary communication partners often possess. One promising approach to close this gap is communication partner instruction in AAC modeling (Mirenda; Sennott, Light, & McNaughton).

Model, Encourage, Respond (MODELER)

In response to the need to raise the skill and performance of communication partners implementing AAC interventions, Model, Encourage, Respond (MODELER) is an instructional strategy built around shared experiences with the communication partner 1) modeling the AAC system the child uses to express themselves, 2) encouraging the child to respond through techniques such as providing wait time and 3) responding to the communication attempt using techniques such as modeling AAC with an expansion or conversational recast (Sennott & Mason). MODELER was derived from the results of a systematic review of AAC modeling

(Sennott, Light, & McNaughton) and this method more closely resembles the way children who develop language typically communicate with the people in their life. MODELER is typically coupled with a person-centered planning process using the Student, Environments, Tasks, and Tools (SETT) Framework (Zabala). MODELER interventions planned using the SETT Framework can use various assistive technology aides and AAC systems and in this study the Pragmatic Organization Dynamic Display (PODD) (Porter) was used (see Figure 1).
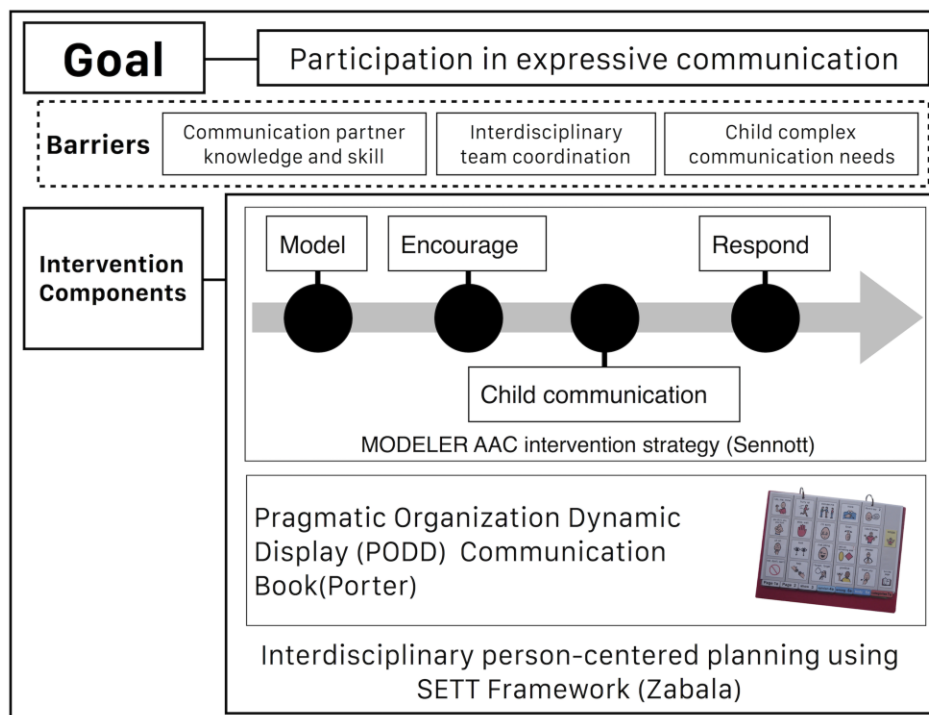

Fig.1. Study intervention model towards the goal of expressive communication skills

SETT Framework

The Student, Environments, Tasks, and Tools (SETT) Framework, developed by Joy Zabala, was designed to act as a guide, or framework, rather than a concrete protocol to follow. In developing the SETT Framework, Zabala shared a way for teams to organize their thinking as they gather key information about the student or individual being served, the relevant aspects of the environments they are engaging in, the tasks that the student is required to do in order to

participate in the environment, and a description of the tools that have been used previously.

Each area of the framework is guided by person-centered planning questions that get at the heart

of each of the following areas: student, environment, tasks, and tools that can be revisited

cyclically (Zabala, Bowser, & Korsten).

Pragmatic Organization Dynamic Display (PODD)

The Pragmatic Organization Dynamic Display (PODD) system created by Gayle Porter is

both a method and tool for AAC intervention. While PODDs are frequently thought of as paper-

based books or run on computer or tablet based AAC systems, the PODD system incorporates a

method and approach towards the goal of generalized AAC usage. Porter defines the goal of

AAC as, "for the person to meet his/her varied communication requirements as intelligibly,

specifically, efficiently, independently and in as socially valued a manner as possible in order to

understand others and to be understood (pg. 6)." To briefly summarize the approach, Porter

advocates for aided language stimulation/ AAC modeling for authentic purposes in natural

environments and an acronym (AARCH), standing for Autonomy (e.g. express own intentions),

Accessibility, Requirements, Competence (e.g. across communication domains), and Habits (e.g.

see the child, see the communication system). PODD books and computer based systems

include a range of beneficial features for consistent navigation, efficient vocabulary arrangement,

a range of pragmatic functions, predictably associated vocabulary, lists for adding vocabulary,

and various access methods.

Research Question

The study investigated the following research question, "What is the impact of using the

MODELER strategy to promote use of the Pragmatically Organized Dynamic Display (PODD)

(Porter) AAC system for students with complex communication needs in grades K-5 on the mean length of utterances and communication turns per session?"

Discussion

Setting and Participants

The study took place in and around a large urban city in the Pacific Northwest. The participants were primarily placed in a first-grade communication behavior classroom, and the sessions took place in the classroom and in the speech center. The participants were selected based on student parental permission and teacher willingness to participate in this Master's Degree project research study. In order to be included in this study, participants were required to meet the following criteria: (1) The students were to be school-aged; (2) They must have complex communication needs; and (3) Must be willing to participate in a SETT meeting with the parents, researcher, and the intervention package trained adult.

Sarah, a seven-year-old female elementary school student, was a first-grade student with Autism Spectrum Disorder. During her SETT meeting, the team expressed a desire to support her in communicating her needs and wants. Sarah engaged in self-harming behaviors at school and home which prompts ongoing concern for her safety; she has also been observed hitting teachers or peers in close proximity when upset or rejecting an activity. It is believed that the underlying factor for these behaviors is directly linked to her inability to communicate what she wants. She has very limited verbal skills and most of her phrases are echolalic or simple request like "all done" or "yes or no." Prior to intervention, Sarah was using a communication app on an iPad, but use was inconsistent between home and school which made it hard for her to learn how to use her AAC device efficiently. Additional concerns addressed at her SETT meeting suggested that Sarah struggled to view the iPad as part of her communication since it is utilized as a choice for

free time and play. The suggested solution would be to designate an iPad solely for communication.

Robert, a seven-year-old female elementary school student, was also a first-grade student with Autism Spectrum Disorder. During his SETT meeting, his parents and the school team expressed a desire to support his ability to communicate his needs such as needing bathroom assistance, but also make requests when needed. The team was concerned that his lack of motivation with communication devices would interfere with his ability to excel. Prior to intervention, Robert was using a communication device on an iPad. This system was used only once a day, and due to the inconsistency in use Robert would only use this in one setting so his knowledge for the device was very little. He had a history of verbalizing some words, primarily echolalic phrases spoken by other people around him and not autonomous expressions of his wants, needs, or thoughts.

Research Design

This study was conducted as a AB format preliminary pilot study to prepare for a future single-case design experimental design of the MODELER technique when implemented with students with complex language needs using PODD based AAC. The dependent variable in this study was an increase in average symbolic communication turns through speech, AAC, sign or gestures. The independent variable in this study was the MODELER technique used to teach the participants how to appropriately express communication using their AAC methods as a language tool. The intervention used multiple visual representations in order to communicate, with the PODD AAC system as the primary tool. Throughout the baseline and intervention, a weekly observation was conducted to ensure communication partners' accountability and implementation fidelity.

Procedures

The study baseline and intervention duration was approximately four to six weeks. Throughout baseline, each participant used his or her pre-intervention modes of communication while engaging in a selected preferred activity. Choices for activities were selected based on student preferences and background knowledge about activities which have been previously enjoyed during speech lessons. The communication partner followed regular routines for speech lessons during baseline.

The first step for the intervention was to conduct a SETT framework meeting (Zabala, Bowser, & Korsten) with the parents, teacher, and researchers. Upon having this meeting, the group collectively decided which method of AAC would work best for the student's intervention and best fit their needs for communication. Both communication partners in the study who worked with the participants participated in a specially designed one-day introductory PODD training for the Universal Design Lab Teaching, Technology, and Theory Project conducted by Linda Burkhart. The communication partner also received training on the MODELER strategy until they fully understood the expectations regarding the consistency and fidelity of the strategy. A training session was performed with the communication partner and participant by the researcher to ensure the MODELER strategy was implemented correctly. The communication partner did not initiate any intervention until they were fully comfortable with the MODELER strategy used with AAC.

Data Collection

During intervention, the AAC system selected during the SETT meeting was used. The participant selected a preferred activity like they did during baseline, then the communication partner or interventionist used the MODELER technique to demonstrate the use of AAC with the

participant. All sessions were conducted either during the participant's regular speech time or within their elementary school classroom. Data was collected during the academic day in a variety of settings. A language sample of interaction around a preferred activity was filmed and a five-minute clip was coded for the number of communication turns in that period. Internal validity was maintained by having an independent researcher who had not interacted with the participants' code 40% of the videos and comparing the data from the interventionist with the coder's data. Internal validity was maintained if the coding data reflected the same results for 80% of the scores. Coding scores reliably matched with over 90% accuracy.

Results

Prior to implementing intervention, all participants had limited choices for communication. A positive change in participant behavior was observed throughout the video based language samples and in anecdotal observations of the students throughout their days in the study. During baseline, all participants struggled to maintain focused attention that aligned with the planned activity with the communication partner. After intervention was initiated, participants began to become more engaged in the activity during the session and spontaneous communication began to emerge. The results of this short-term study demonstrate initial positive impacts on autonomous expressive communication.

Individual participant results overview

In one instance that vividly demonstrated the benefits of the intervention, Sarah was able to work through a personal problem with use of her AAC system and make a connection to her communication partner. In the language sample analysis, Sarah took an average of 10.33 communication turns during baseline, all of which were verbal, with an average MLU of 1.2

words. During intervention, she increased to 13.8 communication turns. Modes included 1 using AAC, .6 using gestures, and 12.4 verbal, with an average MLU of 1.55 words.

During baseline, Robert would pick a couple of books of his choice, but during the sessions he would have no way to verbalize what he saw in the books. For instance, during one baseline session he refused to finish the full session and got up, walked away, and refused to return to the session. Once intervention sessions started, Robert was showing progress in being able to express himself. In the language sample analysis, Robert took an average of 1.33 communication turns during baseline, all of which were verbal, with an average MLU of .7 words. During intervention, he took an average of 6 communication turns. Modes included AAC as well as verbalization and average MLU increased to 1.38 words.

Table 1. Participant Results Summary

Participant Information	Sarah (F), Age 7, 1st Grade	Robert (M), Age 7, 1st Grade
Special Ed Eligibility	Autism Spectrum Disorder	Autism Spectrum Disorder
Pre-intervention Communication	Simple echolalic verbalization, very limited iPad use	Simple echolalic verbalization, very limited iPad use
General EdInclusion	0% of day	0% of day
AAC Used for Intervention	PODD book & picture symbols printed from Proloquo2Go	PODD book & picture symbols printed from Proloquo2Go
Average Baseline Turns	10.3	1.3
Average Intervention Turns	13.8	6

Conclusions

Most children develop language rapidly between birth and age five. Yet, for a variety of reasons, many children with CCN do not develop language at that pace. Our participants fit that profile and this inquiry was an initial step in a line of research that studies both using the emerging practice of the MODELER strategy with the popular PODD approach to AAC. These

initial positive results documenting increased symbolic communication using PODD by the participants points to the need to extend this research further. The researchers have worked directly with each participant's support staff to provide plans for continued use of both MODELER and the AAC systems used in the study. Participants are expected to continue to increase in both communication turns and MLU as they gain more familiarity with the AAC systems and see the role it plays in their life. Suggested next steps include training other classroom staff and professionals in contact with the participants as well as parents/guardians so that they might engage in more meaningful communication. Participants would benefit from increased use of the AAC system with modeling throughout their school day to promote generalization. The students in this study showed promising initial expressive communication gains.

In future research, a longer-term investigation of student development of communication competence using MODELER with PODD would offer a clearer picture of how MODELER and PODD effect the development of AAC for communication purposes. Additionally, more robust communication outcome measures, monitoring the range of what students are saying would offer insight into how MODELER affects student's abilities to use the full range of communication types. Future research can explore continuing to monitor the progression of the range of pragmatic functions expressed, vocabulary used, the child's MLU, and specific syntax and morphology structures used.

In summary, we see the value of providing enriching educational experiences for school-aged children who have complex communication needs as a way of translating into self-initiated and spontaneous outcomes with peer and teacher communication. The iPad and tablets have become popular tools for AAC intervention (Alzrayer, Banda, & Koul; Mirenda). However,

it appears that despite increased access, the knowledge and skill of communication partners

remains a substantial barrier to creating rich language learning environments for children with

complex communication needs. At the individual team level and at the broader district, state, and

national levels, we as an AAC community need to systematically close these gaps by increasing

efforts towards ensuring all children develop expressive communication autonomy.

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