The Success of an Aided Language Stimulation Training Video for Communication Partners Working with Children with Autism Spectrum Disorders

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Honors Research Project

The Success of an Aided Language Stimulation Training Video for Communication Partners

Working with Children with Autism Spectrum Disorders

Hannah Peterson

The University of Akron
Abstract

Aided language stimulation (ALS) is an effective intervention method for nonverbal children with autism spectrum disorders (ASD) learning to use an augmentative-alternative communication system to communicate with others. Communication partners can use ALS to stimulate the use of the augmentative alternative communication (AAC) system. The purpose of this paper is to develop a research study that will be completed in the future to determine the success of an ALS training video. The intended participants of the study include 30 special education teachers who work with children with ASD who use Proloquo2go formatted AAC systems. The participants of the study will be randomly divided into a control group and an experimental group. The experimental group will watch the ALS training video and be instructed to use ALS to promote the use of the AAC system in the therapy session. The results of the study will be gathered and analyzed by comparing the average use of ALS by the experimental group to the control group. The researcher hypothesizes that the ALS training video will be an effective method to instruct special education teachers and aides on ALS for student with ASD.
Chapter I

Introduction

In today’s society, autism spectrum disorder (ASD) has become a common condition. As of 2015, 1 in 68 children are diagnosed with ASD (Ganz, 2015). According to the American Psychiatric Association (2013), people with ASD are typically diagnosed by the meeting the following requirements:

<table>
<thead>
<tr>
<th>Deficits in social communication and interaction in all of these manifestations</th>
<th>Social-emotional reciprocity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nonverbal communication behaviors</td>
</tr>
<tr>
<td></td>
<td>Developing, maintaining, and understanding relationships.</td>
</tr>
<tr>
<td>Restricted, repetitive patterns of behavior, interests or activities in at least two of these manifestations:</td>
<td>Stereotyped or repetitive motor movements, use of objects or speech</td>
</tr>
<tr>
<td></td>
<td>Insistence on sameness, inflexible attachment to routines, or rehearsed patterns of verbal and nonverbal behavior.</td>
</tr>
<tr>
<td></td>
<td>Highly restricted and fixated interests</td>
</tr>
<tr>
<td></td>
<td>Hyper- or hypo-reactivity to unusual interests and sensory input of the environment</td>
</tr>
</tbody>
</table>

*Figure 1.* Table defining Autism Spectrum Disorders.
SUCCESS OF AIDED LANGUAGE STIMULATION

Not only do individuals with ASD have social-communication, approximately 60% have apraxia of speech (Marili, Andrianopoulos, Velleman, & Foreman, 2004), which prevents them from expressing their wants, needs, thoughts, and ideas (ASHA, 2016).

Because individuals with ASD typically experience communication deficits, speech-language pathologists (SLPs) provide treatment, which often focuses on speech, language, and literacy skills. When individuals with ASD are unable to express themselves verbally, SLPs recommend augmentative and alternative communication (AAC) systems to supplement or enhance communication skills and enable functional communication (ASHA, 2016; Vento-Wilson, McGuire, & Ostergren, 2015). AAC systems can include unaided no-technology systems such as head nods or facial expressions; aided low-technology systems such as picture communication or eye-gaze boards; or high-technology systems such as iPads with Proloquo2Go (Vento-Wilson et al., 2015).

One communication strategy designed to teach individuals with ASD how to communicate using AAC and learn symbol meanings is aided language stimulation (ALS). ALS is implemented by a communication partner (e.g., teacher, SLP, parent, aide), who speaks and simultaneously models the use of the AAC system to the client during ongoing communicative interactions (Dada & Alant, 2009). After using ALS, the communication partner encourages the client to respond similarly using his own AAC system (Beck, Stoner, & Dennis, 2009). Research has shown, ALS is an effective strategy and can be used to increase symbol comprehension, production, and proficiency during everyday situations (Bruno, & Trembath, 2006).

Given the potential ALS has for improving communication skills in individuals who use AAC, it is important for communication partners to incorporate ALS into daily communication interactions. According to Quinn, Beukelman and Thiessen (2015), 96% of communication
partners, also called AAC facilitators, are family, friends, or caregivers. Only 4% of AAC facilitators are trained professional interventionists. In order to teach and encourage the use of AAC, non-professional facilitators require instruction and training from professionals to develop a high level of competence in AAC systems and strategies (Quinn et al., 2015). Unfortunately, professionals are not adequately trained in all aspects of AAC devices, language systems, and intervention strategies, and this lack of training renders them unable to teach clients and facilitators how to use AAC (Ballin, Balandin, Togher, & Stancliffe, 2009).

In addition, non-professional AAC facilitators have reported a lack of training in AAC systems, training that would be needed to fulfill their roles (Quinn et al., 2015). According to a study completed by Quinn, Beukelman, and Thiessen (2015), non-professional facilitators primarily received instruction on how to use the technological features of AAC devices (e.g., charging, adding icons) and not on intervention strategies. In addition to limited training, instruction typically occurs in face-to-face formats (Quinn et al., 2015). When face-to-face trainings occur, trainers express concern about scheduling and reimbursement issues (Kent-Walsh, Murza, Malani, & Binger, 2015). The challenges associated with face-to-face trainings as well as a limited availability of trained professionals create a demand for new instructional approaches, such as video modeling. These new training approaches have the potential to assist non-professional communication partners learn how to promote the use of AAC devices, language systems, and intervention strategies (Kent-Walsh et al., 2015).

The purpose of this project is to design a video modeling demonstration video that can be used to train non-professional AAC communication partners to use ALS. The research question is:
Can video modeling be used to teach non-professional communication partners to use ALS during simulated interactions using an iPad and Proloquo2Go?

It is hypothesized that video modeling will be an effective method to train a non-professional communication partner to use ALS during simulated interactions with an AAC system.
Chapter II

Literature Review

Aided language stimulation. Aided language stimulation (ALS) is an intervention strategy in which a communication partner models the use of an AAC system when interacting with clients during ongoing communication (Dada & Alant, 2009). During ALS intervention, a communication partner exposes the client to a wide range of symbol and spoken stimuli (Harris & Reichle, 2004). ALS is one strategy designed to increase receptive and expressive language abilities and is effective in increasing symbol comprehension and symbol production (Dada & Alant, 2009).

According to Harris and Reichle (2004), the implementation of ALS increased symbol comprehension and production in three functionally nonspeaking children with moderate cognitive disabilities. The children participated in ALS activities with twelve or more new vocabulary items during a three phase study that included baseline testing, intervention, and maintenance activities (Harris & Reichle, 2004).

During the baseline phase, communication partners interacted with the children without using ALS during a scripted routine to help determine the comprehension and production of symbols (Harris & Reichle, 2004). The interventionist placed a communication board in front of the child and randomized the position of the symbols for each session. During the scripted baseline phase, personal and demonstrative pronouns were the target objectives. The experimenter referred to the objects four times during each baseline session, thus 12 objects and 12 graphic symbols were used during the baseline phase. In order to determine each symbol comprehension and production during the baseline phase, six objects were placed in front of the child, two distractor objects and four target objects (Harris & Reichle, 2004). During each
session of the baseline phase, the experimenter probed each target object twice and then proceeded to record the number of correct responses. For all of the baseline tests, the experimenter did not correct wrong responses or give corrective feedback. ALS was presented to the child during the intervention phase using a scripted routine designed for a preferred activity (Harris & Reichle, 2004). During the intervention, a communication board was placed in front of the child’s face with various symbols were displayed in random positions. Throughout intervention, the experimenter probed symbol comprehension daily during each scripted routine. In order to probe the production of graphic symbols, probes were implemented every two to four days as described in the baseline phase. During the intervention for the comprehension of exclusively graphic symbols and exclusively spoken symbols, the experimenter used probes to determine the child’s response to these symbols. The experimenter began these probes once the child met the criteria for the comprehension of graphic and spoken stimuli. Finally, during the maintenance phase, probes were implemented to the procedures used in the baseline and intervention phases (Harris & Reichle, 2004).

Throughout the study, a graduate student in speech-language pathology served as an independent observer, who had experience with children with cognitive disabilities. This observer recorded the children’s responses and integrity of the treatment. As a result, each child responded to exclusively graphic and spoken stimuli for symbol set 1 with nearly equal response for symbol set 2 and 3 (Harris & Reichle, 2004). Therefore, ALS was found to be an effective intervention method for increasing symbol comprehension and production when treating the three functionally nonspeaking children who had a moderate cognitive disability (Harris & Reichle, 2004).
Similar to Harris and Reichle, Dada and Alant (2009) researched the effect of ALS on the vocabulary of four children with little to no functional speech. The purpose of the study was to observe the effect that a 5-session ALS intervention program had on the acquisition of a child’s targeted vocabulary. The study was conducted at a school for children with cognitive impairments. The research study was designed for four participants as a single-subject, multiple probe study across three activities. The intervention was applied to all four participants simultaneously over a three-week period. During the intervention sessions, the participants were seated in a semicircle in front of the communication board with the therapist sitting next to it and being able to make eye contact with each participant. Throughout the pre-assessment phase of the study, the participants were identified and completed pre-intervention language assessments to describe the participants’ language abilities (Dada & Alant, 2009).

Once the pre-assessment phase was complete, three baseline measures were provided for the 24 target vocabulary items for each participant. The target vocabulary items were the same across all participants. A probe test was then used to establish the baseline and to individually probe each participant’s acquisition of the target vocabulary items outside of ALS context. During the intervention, a total of 24 target vocabulary items were taught to the participants using ALS (Dada & Alant, 2009). The entire intervention involved the use of ALS with a therapist pointing to the symbols on the communication board and providing spoken language stimulation. Throughout the intervention, the therapist did not involve the use of AAC devices due to the participants’ lack of previous AAC intervention. The independent variable throughout the intervention was the ALS provided during the five sessions and the dependent variable was the number of target items correctly identified when the child responded to verbal stimuli (Dada & Alant, 2009).
After recording each intervention session, the researcher analyzed the data from the study based on three measures, which monitored the intervention’s accuracy. The researchers collected data on the frequency of ALS, the ratio of statements to questions for each session, and the total number of times the therapist used the target vocabulary item while pointing to the symbol on the communication board (Dada & Alant, 2009). The results of the study showed the children increased their symbol comprehension. During the baseline phase, the participants obtained a 0/8 or 1/8 accuracy level. However after intervention, each participant produced 7/8 or 8/8 accuracy level (Dada & Alant, 2009). Not only did their vocabulary skills increase, but also their skill level remained unchanged three weeks after the intervention ended. The results of the study indicated the use of ALS was effective and sufficient in facilitating the comprehension of various vocabulary items in the children (Dada & Alant, 2009).

**Video modeling.** Due to advances and increased availability of technology, video modeling has become an easy to use and effective training method for overcoming boundaries such as distance and time (Collins, Higbee, & Salzberg, 2009). Video modeling is an intervention strategy in which an individual watches a demonstration video of a specific skill or intervention and is taught to imitate that skill in a similar situation (Bellini & Akullian, 2007). Video modeling has been used to teach a variety of skills including behavior-management strategies, counseling strategies, reductive behavior plans, functional analyses and social skills (Collins et al., 2009).

According to a study completed by Collins, Higbee, and Salzberg (2009), video modeling serves as a way to train communication partners to improve the use of behavioral strategies. In their study, the researchers observed the behavioral strategies used by direct-care staff members of a community residential program, who worked with individuals with intellectual disabilities.
The participants in the study all had high school diplomas and received no academic training in behavior analysis. The researchers in the study used written instructions for problem-solving training sessions, three-minute DVD video models and a list of scripted responses, which the researcher used in response to participants’ prompts during the role-play. There were four different versions of each DVD video model based on the gender of each participant and of the client with whom they worked. Each script and video model used situations similar to those encountered by the direct-care staff and the clients in the home (Collins, et al., 2009).

The video models encouraged the direct-care staff to use the problem-solving intervention methods emphasized during formal training sessions. The problem-solving intervention included seven steps: prompt the client to participate, prompt the client to go somewhere quiet, prompt the client to identify the problem, prompt the client to identify three potential solutions, prompt the client to identify one programmed or natural consequence for themselves in each situation, prompt the client to identify at least one programmed or natural consequences for others in each situation, and prompt the client to identify the best solution (Collins et al., 2009). Prior to the study, the participants had received training on problem-solving intervention methods by their residential manager and were provided written descriptions of the procedures. As a baseline for this study, the participants were prompted by the data collector to engage in role-play with the researcher, who would be acting as the client using scripted responses. Throughout the treatment phase, the clients viewed a video model before participating in a problem-solving role-play situation similar to the baseline role-play, using the same scripted responses (Collins et al., 2009). Throughout the study, maintenance probes were used for each participant once two to four weeks after reaching the performance criteria. This criterion was met when the participant correctly used problem-solving intervention during the
role-play situations at least 90% of the time for three consecutive video-modeling sessions (Collins et al., 2009).

The results from this study show the mean use of problem-solving steps in appropriate situations used by direct-care staff members of a community residential program increased from 38% to 91% after the staff members watched the video modeling demonstrations. Thus, the use of video modeling to train the staff on appropriate intervention methods allows for a decrease in training time and an effective training tool for new staff (Collins et al., 2009). This study shows video modeling demonstrations can effectively train adults and communication partners how to complete appropriate intervention. Thus, creating a video model will accurately train non-professional AAC communication partners how to use ALS.

In summary, ALS serves as an important and effective intervention method for increasing symbol comprehension and production when treating a functionally nonspeaking child with a moderate intellectual disability and for facilitating the comprehension of various vocabulary items in the children (Harris & Reichle, 2004; Dada & Alant, 2008). Therefore, ALS is an important intervention strategy for communication partners to use when interacting with a non-verbal client with ASD. In addition, video modeling serves as an efficient training resource for adults and staff members when learning how to resolve various situations (Collins et al., 2009). Thus, a training video on how to properly use ALS when communicating with someone who uses an AAC system can serve as an effective training method for both professional and non-professional communication partners.
Chapter III

Methods

Participants. The intended participants for this study will consist of 30 non-SLP communication partners of children with ASD, who use a Proloquo2go formatted AAC system in elementary school. These communication partners will be special education teachers or aides in Summit County elementary schools, who aid children with ASD using a Proloquo2go formatted AAC system. The participants will have little to no previous knowledge on ALS. All Summit County elementary schools will be contacted via email for a list of special education teachers and aides that educate children with ASD using a Proloquo2go formatted AAC system. From the lists provided, the teachers and aides in each school will be contacted and asked to participate in this five-week research study.

Thirty participants will be randomly selected from these lists. Once the 30 teachers and aides are notified that they were selected, they will be randomly placed into the experimental group or the control group by pulling their names out of a bucket.

Research Design. To conduct the research, the participants will be randomly selected and placed into either the control group or the experimental group. This research design was selected because it is a well-designed and effective plan to provide the most accurate results. The randomly assigned control and experimental groups allow for the results to be easily compared by having a baseline from the beginning and end of the experimental group and a baseline developed by the control group. The 30 participants allow for a larger pool of participants to confirm that the results are consistent across the participants in the experimental group.
Procedures

**Development of Video Model** The researcher was trained on ALS through observations, readings and mentoring. Before selecting participants, an ALS training video script was written based on the researcher’s training. The video script and the link to the video can be found in the Appendix. Following the development of the script, an iPad Mini with Proloquo2go software from the University of Akron’s AAC Lab was programmed to match the examples demonstrated throughout the training video. The training video will consist of (a) a brief description of ALS and its importance in teaching a child to communicate, (b) a concise overview of the Proloquo2go AAC software, and (c) two different examples of how to use ALS to encourage the child to use the AAC system when reading a book and playing a game. The video was recorded using a video camera and edited using iMovie. The video was uploaded to YouTube for easy access.

**Data Collection** In order to determine the success of the video, the following data will be collected from the randomized groups. Both groups will be observed for the first session with the student to develop a baseline. The researcher will videotape that first and final session to see the increase in the use of ALS. The researcher will tally the amount of ALS used in the first session and the last session. Once the baseline has been determined, the experimental group will watch the ALS training video before each of the following four sessions with the student acting as a child with ASD. After the baseline is developed, the control group will be observed over the last four therapy sessions encouraging the student’s use of the AAC system. This allows the researcher to set a baseline for the experimental group and controlled group to be compared to after their training.
**Intervention** The special education teachers will interact with the student during five separate sessions, where they will encourage the student to use the AAC system to communicate. During each session, the participants will be encouraging the student to use the AAC device while making box pudding. A different flavor of box pudding will be used in each individual session, but will be consistent across the participants. Vanilla, Caramel, Red Velvet, Butterscotch and Chocolate box pudding flavors will be used.

The controlled group participants will be instructed to help the student make the box pudding, while encouraging them to use their AAC system to communicate. At the beginning of each session throughout the five weeks, they will receive the same instructions from the researcher. The instructions will be to make the box of pudding with the nonverbal student using the AAC system and encourage them to communicate using the AAC system. The observer will videotape the first and fifth sessions and tally the use of ALS by the control participants during those sessions.

During the first session, the special education teachers and aides in the experimental group will receive the same instructions as the control group. These instructions will be to make the box of pudding with the student using the AAC system and encourage the student to communicate using the AAC system. The experimental group will be recorded during the first session to develop a baseline and the researcher will tally the number of times ALS was used during that session. Before each of the subsequent four sessions, the experimental group will watch the ALS training video once on an iPad to instruct them how to accurately use ALS to encourage the child to communicate using the AAC system. Following the ALS training video, the researcher will instruct the participant to make the box of pudding with the student using the AAC system and use ALS to encourage the student to use the AAC system to communicate. The
researcher will videotape the final session. Once again, the researcher will tally the number of times the communication partner uses ALS when communicating with the child.
Chapter IV

Results

A posttest analysis of the amount of ALS used will be collected to determine the effectiveness of the ALS training video. The results will then be analyzed to compare the amount of ALS used by the participants in the experimental group during the first and final sessions. A percentage increase in the use of ALS will be calculated for each participant in the experimental group and will be averaged to determine the overall increase in ALS after watching the ALS training video. The use of ALS in the first and final sessions of the participants in the control group will also be collected and a percentage of the amount of ALS used by each participant will be found. The 15 percentages collected in the control group will be averaged to find the total percentage of ALS used when no ALS training has occurred. The percentages from the control group and the experimental group will be compared to determine the success of the training video.

The expected results for this study include an increase in the percentage of ALS used by the experimental group from the first session to the fifth session. This will show the effectiveness of watching the ALS training video before therapy. The results will also show an increase in the amount of ALS used by the experimental group compared to the control group.
Chapter V

Discussion

This study was designed to develop a successful ALS training video to teach communication partners, specifically teachers and aides of elementary school children with ASD who use a Proloquo2go formatted AAC system. ALS is a successful intervention method for communication partners to utilize to increase the use of an AAC system when interacting with a nonverbal child with ASD. Many communication partners are unaware of how to implement ALS and lack the availability to attend a face-to-face training session. Therefore, the creation of an ALS training video is an effective and efficient way to properly train communication partners on ALS. This study is important to develop a training video that can effectively train communication partners, specifically special education elementary school teachers and aides, how to use ALS. Limitations of this study many include, a coordinating schedules with the special education teachers and aides, the researcher and the undergraduate student to complete the five sessions; getting enough participants to agree to complete this study; and the potential of participants dropping out of the study due to time conflicts.
References


Appendices

Appendix A:

ALS Video Link:  https://youtu.be/XvO8ExcQ65A
Appendix B:

ALS Video Script

Introduction:

H: Hi, in this video, I am going to discuss the importance of aided language stimulation and train a communication partner to use aided language simulation when communicating with a child who has autism spectrum disorders, who uses an augmentative and alternative communication system or AAC system, similar to the one that I have here.

Brief overview of ALS:

H: Aided language stimulation is a communication strategy designed to teach individuals how to communicate using their AAC system. With this strategy, a communication partner models the use of the AAC system while interacting with the child, who is learning how to use his or her device. For example, if I want to encourage the child to use the device to indicate it is her turn to bounce the basketball, I would model “my turn” on her AAC system when I want to take a turn with the ball. With this the child is encouraged to use the device to ask for the ball back and say “my turn” to get the ball back. With aided language stimulation, the child is encouraged to respond to the communication partner using the AAC system as it was modeled to her. Aided language stimulation is designed to increase the child’s receptive and expressive language and their symbol comprehension and production on the AAC system.

Brief Proloquo2Go Lesson:

H: Aided language stimulation can be used across a wide variety of AAC systems. The system used in this training video is Proloquo2Go. Proloquo2Go is an AAC application designed using Crescendo vocabulary. It splits words up between core words and fringe words. Core words are the words that the child uses the most to create a sentence such as pronouns and common verbs.
The fringe words are based on the vocabulary needed for the individual child typically revolving around their daily activities, frequently used feelings, foods, people, and so on. The fringe words are typically placed into categorical folders that include those words and the common pronouns and verbs related to that category.

Using ALS when reading a book:

**H:** I am now going to demonstrate how to use aided language stimulation when reading a book to the child and asking ‘Wh’ questions about the book.

**H:** Do you want to read the “If You Give a Mouse a Cookie” *(press Mouse on device)* or the “Five Little Monkeys Jumping on the Bed” *(press Monkey on device)*?

**C:** Presses mouse on device

**H:** “If You Give a Mouse a Cookie” Okay. *Begins reading “If You Give a Mouse a Cookie”*

What does the mouse want, a cookie *(press cookie)* or chips *(press chips)*?

**C:** Presses cookie

**H:** Good job. *(continue reading “If You Give a Mouse a Cookie”) What does he use the straw for, to drink milk *(press milk on the device)* or water *(press water on device)*?

**C:** Presses milk on device

**H:** Milk, good job. *(continue reading “If You Give a Mouse a Cookie”) What does he sweep with? Does he sweep with a vacuum *(press vacuum on device)* or a broom *(press broom on the device)*?

**C:** Presses broom on device

**H:** Nice job. *(continue reading “If You Give a Mouse a Cookie”) What color crayon is he using there, green *(press green on the device)* or purple *(press purple on the device)*?

**C:** Presses green on device
H: Green, nice job. *(continue reading “If You Give a Mouse a Cookie”)* Good job, we’re all done with the book.

Using ALS when playing with the child:

**H: Talking to camera:** Now, I am going to demonstrate using aided language stimulation in a play activity.

**Talking to client:** Now would you like to play with bubbles *(press bubbles on device)* or a ball *(press ball on device)*? Which one?

**C:** Presses ball

**H:** Okay, here you go *(gives child ball).*

*Let the child play with the ball for a few seconds.*

**H:** Can I have a turn with the device, can it be my turn *(press “my turn” on device).*

**C:** Gives ball to Hannah

**H:** Thank you *(play with ball)*, do you want it to be your turn? Say “my turn.”

**C:** Presses “my turn”

**H:** There you go. *(Gives ball back to client)* Good job.

**Overview:**

**H:** This video was designed to help communication partners accurately carry out aided language stimulation. Although I only demonstrated two examples of how to use aided language stimulation, this therapy technique can be used across a variety of settings. Aided language stimulation is a well-designed technique to teach a child how to use the device in a very natural and practical environment.