

**Teaching Partner-Focused Questions To Students Who Use Augmentative  
Communication To Initiate and Lengthen Their Communication Experiences**

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## Abstract

Students that use augmentative communication often have a hard time breaking into conversations, initiating conversations and then being able to sustain a conversation. Students that use augmentative communication (ACC) need training in not only the use of the machine but in social communication rules, and in strategies on how to bypass functional limitations in the augmentative device. Just giving them the device will not make them competent communicators. This study involved procedures to teach students partner-focused questions in an attempt to increase the use of their ACC devices in social communication with others. The training provided to participants in the use of partner-focused questions did increase the number of such questions these students used. However, the most dramatic finding was the marked increase in extension statements or questions used by the participants.

## Teaching Partner-Focused Questions To Students Who Use Augmentative Communication to Initiate and Lengthen Their Communication Experiences

Students with exceptionalities can experience a wide variety of learning and behavior problems in the schools. One of the most common problems they can experience is related to communication. Communication problems also referred to as speech and/or language problems are typically present in students who have learning disabilities, autism, mental retardation, hearing impairments or physical impairments such as cerebral palsy.

Augmentative Communication (ACC) can involve methods or materials that allow individuals to communicate, often through the means of speech synthesis. These methods or materials can be 'high-tech' or 'low-tech'. With advances in technology a number of electronic devices have been developed that 'speak' when keys or buttons are pressed. Other low-tech devices may involve materials such as pictures or words that students point to that allows them to respond to questions or directives. An important consideration is finding the means by which individuals with disabilities can use these tools to communicate most effectively.

There are a number of issues and concerns relevant to the use of ACC devices. A first step is for a team, made up of school staff, parents and the student themselves, to determine what kind of device will work best for the student. This will involve assessing the student as well as examining currently available ACC devices. The device selected needs to work in a reliable way, be durable, portable and easy to use. Most importantly the device needs to communicate clearly; listeners need to be able to understand what the user is 'saying'. Further, individuals need to be able to use these devices in functional, social ways in natural environments.

An important concern is that students who use augmentative communication have a hard time breaking into conversations, initiating conversations and then being able to sustain a conversation. Students that use augmentative communication need training in not only the use of the machine but in social rules, and in strategies on how to bypass functional limitations in the augmentative device. Just giving them the device will not make them competent communicators (Light & Binger, 1998).

Students need training in several aspects including how to break into conversations, knowing which phrases are most appropriate for what context, and that they need to show an interest in the person they are talking to. Socio-relational skills were defined by Light (1996) as skills demonstrating an interest in others. Teaching students the skills that allow them to show an interest in their communicating partners is vital to help make those students competent communicators. One way to help address these concerns is through the use of partner-focused questions, or questions that are focused on the needs or interests of a communicative partner.

A study conducted by Light, Binger, Agate, and Ramsay (1999) stated that with direct instruction on how to use partner-focused questions adults were able to improve their communication competency and were able to generalize it and maintain those skills. An article by Ratcliffe, Cress, and Soto (1997) discuss how augmentative communication is a

process. They go on to say that students need training on how to manage conversations with friends. Students, parents, teachers, caregivers all have asked for support in and best practices in teaching the student that uses augmentative communication the best methods to become competent communicators.

### Purpose of Study

The purpose of this study is to evaluate the use of an instructional program that will teach students to use partner-focused questions to initiate conversations and then to lengthen the conversation. Three research questions were identified:

1. Will the use of partner-focused questions increase the number of instances that the student initiates conversation in a natural setting?
2. Will the use of partner-focused questions increase the number of questions and or responses that the student produces in a conversation? These will be referred to as extensions and will refer to if a communication partner answered the partner-focused question would the participant follow up with a second partner-focused question or would they answer a question that the communicating partner asked them.
3. Does the age, gender, type of device or exceptionality make a difference in the number of partner-focused questions used by students that use augmentative communications devices?

For the purpose of this investigation partner-focused questions were defined as: questions that an individual asks his or her communication partners about their thoughts, feelings, and experiences (Light & Binger, 1998). Initiations were defined as short phrases that the student using the voice output device might say (using the device) to initiate a conversation with a communication partner either a peer or an adult (i.e. “Hi, how are you”, “what are you up to”. Extensions were defined as a second partner-focused question or answer to a question that the communicating partner has asked to extend the turn taking in a conversation between two people communicating.

### Review of Related Literature

Augmentative and alternative communication (ACC) is any form of communication (other than oral speech) that is used to express ideas, wants, thoughts, and needs. Using symbols, gestures, pictures, electronic devices, or writing are all considered ACC. ACC is used by students or adults that have severe speech or language problems or delays, or their language output is not easily understood or functional by all persons they communicate with. These systems are used to help these students express themselves; they may increase feelings of self-worth and may increase social interaction. ACC

systems are generally divided into two categories; unaided and aided communication systems. Examples of unaided would be gestures, body language, sign language, communication boards. Examples of aided would be electronic devices that provide voice output. These devices may display letter, words, phrases or symbols to help the student construct their messages. Our three students used electronic devices that used a combination of letters, words and symbols to help the student construct their messages or to make choices. These students needed strategies that would help them continue to learn to use their devices in functional and social ways that will help them to have their wants and needs met, and would allow them to share their ideas and thoughts.

Augmentative and alternative communication can encompass the use of low tech or high tech communication devices. One example of a low tech device may be the use of pictures to help a student make of choice of a leisure activity being offered. A high tech device may be an electronic machine with a touch window, that has up to 200 pictures and voice phrases programmed into the device that the student may access through touching a button, or a touch window or even access it through a screen that would be able to pick up a light pointer from across the room or an eye gaze software.

A review of the current literature on ACC revealed a number of studies that discuss the different components of speech. The use of different devices has been reviewed as well as how one should go about choosing a device for a particular student. The literature review also provided suggestions on the prerequisite skills needed to use augmentative devices and the different environments that the devices should be used in. Studies were reviewed that showed the best practices in teaching students that use augmentative communication devices and tools. Two studies were found that specifically addressed the use of partner-focused questions, the focus of this study.

### Components of Speech

An investigation by Mar and Sall (1999) cited different profiles of students where they noted different communication behaviors. Through their observations, they identified seven communication profiles. Communication Profile I accounting for 10% of the sample, characterized students who used nonsymbolic, non-intentional, and generally reactive or reflexive behaviors. Communication Profile II which Accounted for 20% of the sample included individuals who communicated using simple specific responses and single expressions. Students whose skills could be described by Communication Profile III comprised 40% of the sample and were those students who could use basic symbols, form simple combinations of symbols, and direct their interactions toward others. Communication Profile IV, making up 22% of the sample, described individuals whose skills include extended use of symbols, awareness of social context, and brief social exchanges. In Communication Profiles V to VII, which characterized 8% of the sample, communication involves formal use of symbols, complex sentence structures, and deliberate and reciprocal interactions. Although higher level communication skills are generally associated with higher cognitive abilities or developmental levels, as noted by Wetherby, Yonclas, and Bryan (1989) in a study of the communication profiles of language-impaired preschool children, the results of this study suggested that among individuals with severe cognitive disabilities, there is not a simple relationship between communicative competence and degree of mental retardation or, for that matter, age. A

person's communication profile may not be especially well predicted by traditional indicators of cognitive ability (e.g., IQ, degree of mental retardation). Rather, the data support the notion that there is considerable diversity of communication forms and profiles within subgroups of individuals with severe versus profound mental retardation. Comparisons between the two groups did reveal that students with severe mental retardation, overall, exhibited more complex forms and profiles of communication than those with profound mental retardation. Yet, there was also considerable overlap in the distributions of communication forms and profiles. Many individuals assessed to have profound mental retardation exhibited the same level of communicative competence, or even more complex communication forms and profiles, than those with severe mental retardation. These studies showed that early intervention and speech profiles are good indicators to develop interventions but that research has shown that some assumptions about IQ, characteristics of certain diagnosis, mental retardation, cannot always be relied upon.

### Choosing a Device

The review of literature revealed a series of small booklets intended to help an IEP team, as well as the parents and student, try to decide what communication devices will best meet the needs of the student. This set of booklets was written by Gilson Capilouto (1996). This booklet defines alternate and augmentative communication and helps to discuss the type of person who may benefit from such interventions. The set of booklets provides references and names of organizations that may help in the choice of a device or speech system. This research would be beneficial if a team finds that the current devices are not meeting the needs of the student or if the student does not have the prerequisite skills needed to implement the communication system.

There were studies found that tried different prompting systems to teach students with severe communication disabilities to use a pictorial communication device. This line of research is important because it gives us information on what prompting systems have worked in the past to implement the best strategies to get the skill gains that we were hoping for. In one such study, one subject acquired the skill after using a modified verbal prompt-free intervention (Mirenda & Dattilo, 1987). This study used an intervention free of verbal prompts to teach a student to use five pictures to make choices of leisure activities by pointing to the desired picture. The researchers did report that the assessment data related to the subjects receptive object and picture identification skills may not be related to the use of a communication device as has been suggested by some authors (Shane & Bashir, 1980). Pre-intervention matching skills did correlate with the use of the communication device. Those students that had good matching skills had the most success in using the communication device, the other students had problems with the lack of understanding the one to one correspondence between the photographs and the objects they represent.

### Teaching Strategies in a Natural Setting

Some research has shown that teaching skills in the natural setting in an inclusive situation has been very successful especially with early childhood students. Horn's study

indicated that embedding objectives in the early childhood program did produce positive results (Horn, Lieber, Li, Sandal & Schwartz, 2000). In the Horn et al. study, students were taught a variety of skills that had been identified in their IEP's . The children were given opportunities to practice these skills within an activity or event in a manner that expands, modifies, or adapts the activity/ event while remaining meaningful and interesting to children.

Several studies indicated that training students to use ACC in the natural environment and through functional goals was the most effective way to teach and model conversation skills. The research base has demonstrated that children make language development gains when these strategies are implemented. Embedding conversations in the classroom with the use of an augmentative device with all children is advocated but especially with early childhood students. Halle (1987) advocated for teaching language in the natural environment and he did a study on spontaneous language. His theory was to use a continuum of cues to help evaluate language needs. Keeping the language instruction functional is also a theme that was supported by the research. Halle reviewed three different teaching procedures to be used with students with moderate to severe disabilities in everyday settings. He discussed an incidental teaching procedure, Mand-model, and delay teaching procedure. Halle did not think any one of the teaching procedures by themselves would produce students that would be fluent communicators able to control their environment. But he thought with an integrative model that they may succeed in shaping age-appropriate language in our students (Halle, 1982). He also discussed using teaching in the natural environment to solve generalization problems with students. Using the natural environment solves the problems of transferring stimulus control, using the students support circle, training becomes more functional, and there are natural consequences. This research supported the theory of using the natural environment and peers, age appropriate vocalizations to teach communication skills that would be easily generalized and used frequently in functional ways.

An article that summarized several studies (Cascella, 1999; Horn , Lieber, Li, Sadall, & Schwartz, 2000; Mclean & Mclean, 1993) devised a communication check list that was designed to help students actualize communication skills. This article supported creating a communication profile, identifying communication patterns in everyday routines, integrating the communication into the curriculum, expand on the communication opportunities, and then to evaluate the communication support . This article was a single subject action research report (Cascella & McNamara, 2005).

In reviewing research to determine best practices on helping the students generalize conversation skills, a study by Calculator (1988) advocated the use of natural environments and the use of different conversational partners to make sure the students will be able to generalize the skills that are taught in the instructional setting. Calculator had methods to keep the skills functional and spontaneous. When using augmentative communication, several researchers have talked about required socio-communicative skills necessary to make the students competent communicators. Warrick (1988) talked about the role of remediation, and observing and evaluating the influence of societies' attitudes toward communication skills.

Competent Communicator

How is one to determine if a student is a competent communicator? There were two studies that investigated the substructure of everyday social conversation and had judgments of competent communicative behavior. One study was done by Wiemann (1997) the second by Duran (1983). They included descriptions of characteristics of a competent communicator.

When defining a competent communicator, Wiemann indicated that this person is in a good position to have accepted his definition of himself and others, without pushing this definition on to the other communicating partner, plus this definition may change in the course of the conversation, but if both communicators are competent then the new definition should be best possible for both communicators. If the communicator is able to maintain social relationships over time that are mutually satisfactory than the communicator can be judged as competent, according to Wiemann.

The second study tested communicative adaptability (the ability of a communicator to perceive socio-interpersonal relationships and to adapt ones interaction goals and behaviors accordingly). It tested social composure ( calm, relaxed communicator , little communication anxiety, decrease tension within a communication encounter), articulation (correct pronunciation fluent speech, proper grammatical construction of sentences, appropriate word choices and clear organization of ideas), wit ( function is to diffuse anxiety and tension, perceived positively greater perceptions of satisfaction within the communication encounter) and appropriate disclosure( adaptable to differing social situations). It tested the adaptability scale to a teacher population and also a student population. It found that there is a relationship between self reported communication competence and observe competent behavior (Duran 1983).

One article entitled Communication is not just talking, addressed how students that use AAC devices just want help in managing conversations with peers, instruction on communication patterns, and functional communication (Ratcliffe, Cress, & Soto, 1997). This article explains that Augmentative and Alternative communication is a process and that there is an overlap of the tools and the process, but that they should not be considered synonymous. This article also discussed developing best practices for the student we also need to take into account the amount of time that is needed for device programming, training of staff and family, funding for the devices. The article also mentions how conducting a communication needs analysis is a great strategy to help meet the needs of the students. It went on to say how the richest resource for communication is the student's classmates and the richest environment is the classroom. Including the family in any AAC training and use is also a theme that they touched on.

The authors discussed how students and their families still tend to focus on functional use of their devices in addition to helping the student to maintain relationships. The article discusses how professionals need to be watchful about having low expectations of the students' abilities and about their futures. This article called for further research on language development in young children who use augmentative and alternative communication, stressing the need for early intervention. According to this article, most students that use ACC are seen as not ready to learn emergent literacy skills. It goes on to say that no one is too disabled to learn functional literacy skills. Another point that is brought up is the acceptability of persons relying on ACC in society. The authors of this article did touch on many subjects that are a concern for both students and educators.



Information on what it takes to teach communication skills (Drasgow & Halle, 1995) was also of interest to this investigation. Drasgow and Halle provided strategies for establishing initial communication with young children, giving pointers on how to motivate the student, and also trying to generalize these skills during acquisition of these skills. Drasgow and Halle observed that the student that they worked with was able to generalize his unconventional communication across settings, people, and time and response generalization. He suggests that we need to change our assumptions that students with severe disabilities are not able to generalize communication skills. However we do still need to develop the generalization of the new communication skills. The author warned against teaching the new language skill during the same speech opportunities that the student had been using the unconventional communication, the fear is that the student will link the new communication skill to the old communication skill. The solution Drasgow and Halle suggested for this is was to identify very-high probability occasions to teach the new skills at those times. Drasgow and Halle also had problems with the competition between the old skills and the new skills, even when the old forms had only been reinforced infrequently. A suggestion was to teach the new skills widely across all settings, with all people, the new skill needs to be easier, quick and more successfully. Drasgow also suggested that if it is possible to incorporate the old skill into the new skill that is understood by a wider audience that there may not be skill competition in the future. These strategies were all implemented with a student that was 4-years-old and considered non verbal. Exemplary practices to develop the communicative competence of students who use augmentative and alternative communication was a grant report that had several objectives to identify skills that contribute to communicative competence they also wanted to test efficacy of instructional techniques to promote acquisition, generalization, and maintenance of these skills. One of their objectives was to have three different groups of people (professionals with ACC experience, adults with no ACC experience, adolescents with no prior experience) observe video tapes of students using ACC in the skill of introduction strategies with new partners, use of partner focused questions, use of nonobligatory turns, use of grammatically complete messages, use of non verbal feedback. Their results showed that overall the use of these strategies did impact the communicative competence of the ACC users.

The second objective was to teach and have the student demonstrate the behaviors of introduction strategy, partner-focused questions and nonobligatory turns. Light (1996) conducted research on the effect of instruction on the acquisition, generalization and long term maintenance of the target behavior. In all the investigations the subjects reported high levels of satisfaction with the teaching strategies and care givers reported higher levels of competent communication post instruction. The studies third objective was to develop materials that could be used to in-service professionals and caregivers working with students. All of the field testers rated the materials very positively and commented that they would use them again and recommend them to others (Light, 1996).

The final study focused on the use of partner-focused questions. In this study they showed how their techniques had improved the communication in the majority of the subjects and how the subjects reported high levels of satisfaction with the skills they had been taught (Light, 1998; Light, 1999). In Lights' study they used a short amount of time (3-11 hours) to teach the use of partner focused questions and the study showed that they

had made significant changes in communication effectiveness(Light, 1999). The Light study also tested the generalization and long-term maintenance of the use of partner-focused questions. When teaching the use of partner focused question the testers used least –to –most prompting in real world interactions and during simulations. In this study, Light did call for the need for further research that would differentiate between partner focused questions that were used as initiations and those that were part of response-recodes in the turn taking that is part of communicating with a partner. As part of Lights’ study, a group of adults were shown video tapes that had recorded on them communication examples where the students had opportunities to ask partner-focused questions and they were asked to determine if the student were now more effective post intervention. Two of the students had been evaluated by these adults as not being more competent. The researchers thought a reason for this could have been not a long enough sample. When choosing the goals for our current study we looked at these studies and with the needs of our students chose the questions and hypotheses to test and to implement.

## Methodology

### Setting

This investigation took place in a rural community in central Kansas. All instruction and data collection took place in the participant’s home school. The school attended by the participants is in a small town considered to be a bedroom community. Instruction took place in the school in the natural setting of the regular education classroom, special education classroom, hallway, gym, or lunchroom.

### Participants

A proposal outlining the research procedures for this project and a consent letter for participants was submitted to the Washburn University Institutional Review Board (see appendix). Once approved, a letter was sent out to area school districts to recruit participants. After permission and consent had been obtained, the researcher examined school records and determined if the student met the study criteria including the use of an augmentative communication device, and a need to improve their skills in initiating conversations as well as a need to lengthen their conversations with communication partners. Although a variety of disabilities would be accepted, the students needed to have functional hearing and vision. A variety of different augmentative communication devices would be included, and subjects were to be able to understand the basic turn taking skills necessary when conversation consists of a series of questions and responses.

The informal survey sent out to area school districts by the investigator found that there were seven students that would be eligible to participate in this investigation because of geographic location and the fact that they used augmentative communication devices. Of these seven students, permission to participate was obtained for three students. The geographical location was considered to be a 30 mile radius of the school district. An augmentative communication device was defined as any device that was used as part of a

communication system that would allow for a statement to be programmed in and that the student could access through pointing, head pointing, eye gaze or switch.

Three students were identified to participate and consent was obtained for them to be included in this investigation. Information on each of the participants is provided below.

Student 1 was a seven-year-old boy mainstreamed into a first grade classroom. This student has been diagnosed with craniostenosis disorder that has kept the bones in his face and head from growing to keep up with the growth of his brain. He was also diagnosed with autism spectrum disorder. He is very mobile and can use his hand to access the touch screen on a dynamite communication device. He is also able to carry the device when he is moving from one setting in school to another setting. He has had his device for a year before we started this study. He is able to communicate with the device by navigating between three boards that allow him five choices of buttons of items to choose from people, settings, and items. He was not stringing buttons together but would use one button to request items or settings. Some buttons had been programmed in with short phrases that would describe the person, setting or item. For example there may be a button with a picture of grandma on it and when the student touched the button it would say, "I am ready to go to grandma's house". He has used on occasion his device to initiate a conversation in the form of a greeting. These greetings were part of his daily routine set in the natural setting. Before this study there had not been any partner focused questions programmed in to his machine. Student one lives at home with his parents and one older brother and one younger brother. He has attended preschool through his current grade in his current grade school.

Student 2 was an 11-year-old boy mainstreamed into a fifth grade classroom. This student was diagnosed with autism at age three. This student was mobile and also very verbal; he was able to access the device using his hand on the touch window of a Dynovox palm pilot. His education team had wanted to try using a communication device with him for those times that he is so agitated that he could not find words; they thought he might be able to access the device to tell people what was wrong. He did not initiate conversations without a verbal prompt so it was also hoped that he would start initiating conversations with his peers. He had his device for only two months before this study started. He is able to access a board on his device that describes emotions and also a board that described body parts so that he can let people know when he has a spot that hurts. Student 2 is also able to carry his device when moving from one setting to another. He has not been stringing button hits together, some of his buttons are programmed with short phrase that have been paired up with a picture or a visual graphic. He has not used the device to initiate a conversation nor does he have any partner focused questions programmed in to his device. This student has attended the same school since preschool and he lives at home with his parents and his older brother.

Student 3 was a sixteen-year-old sophomore in high school. This student was diagnosed with autism at age four. This student is mobile and is able to access his Dynovox Dynamite ACC device by touching the touch screen using his finger. He is able to carry his device from one setting in the school to the next setting. He had his device for one year and had used it for making choices of activities and items. He does not use it to initiate conversations. He had not been able to use two button 'hits' to ask for things. This student has attended school in another community, and recently moved to his current district his 7<sup>th</sup> grade school year. He had a verbal vocabulary of about 50 words; he is

very echolalic (repeating things that someone else has just said). He lives at home with his mother and his older brother.

Table 1. Information on Participants

Participants	Age	Disability	ACC Device Used
Student One	7	Craniostenosis	Dynomite
Student Two	11	Autism	Dynovox palm pilot
Student Three	16	Autism	Dynomite

### Intervention Procedures

Intervention procedures were implemented to provide instruction in partner-focused questions to the participants. There were two service providers to be trained to assist. A master's degree candidate and special education teacher, provided the training for the instructional component of the study, and modeled, observed, and conducted the reliability checks to make sure the instruction and prompting was being done consistently.

When instructing the participants in the use of partner-focused questions, the students were told the goal of the study and then there was a discussion on the use of partner-focused questions. The students were then to observe the researcher and a partner (another AAC user) demonstrate the use of partner-focused questions. The students were then asked when and where they think they might use these questions. The students were then provided multiple opportunities to practice. This practice was provided in natural settings in a functional context. When the instruction period of three weeks was completed there was approximately six weeks in which the post-intervention data probes were conducted.

Instruction on the use of partner-focused questions began with each participant individually. The student and the researcher selected five partner-focused questions. The questions were to be useful in a variety of environments, be age appropriate, and easily understood. The questions were programmed into the communication devices on a one hit button so they could be used efficiently. Sample questions included: "Did you go to the game last night?" "How is your dog doing?" "Did you get your hair done yesterday?" Environments and contexts were then chosen for the subjects including situations that occurred frequently, highly motivating situations, functional situations where the student would benefit from the use of partner-focused questions, situations that provided for the greatest opportunity for successful performance, and situations that were convenient for the instructor or caregiver. The students were exposed to at least three different communication partners. Partners were not to be instructed on what the study was trying to accomplish.

The students were to have a desire to use their communication devices and be familiar enough with the devices to be able to use them in a question- answer conversation. It is assumed that the communication partners would be receptive to the interaction with other students. As this study was conducted in the school setting finding receptive

communicating partners was not a problem. The researcher did not have control over the natural cues that happen when working in different environments that could cause problems for the students in acquiring the skills. The researcher also did not attempt to control the reactions of the communicating partners.

### Data Collection

A multiple probe design was used to collect data. Baseline data probes were taken on the use of partner-focused questions. Frequency data was collected on the ability of the student to use the skill in natural occurring environments. Data was collected by the use of frequency data collection sheets.

The baseline data was collected in several different communication environments and with several different communicating partners. When collecting the baseline data probes the primary researcher collected data for one full day and then the next week the researcher and the primary care para-professional took data, after the para-professional had been trained, so that they could check inter-rater reliability.

The dependent variable was the spontaneous use of appropriate partner-focused questions to initiate a conversation and the number of exchanges that happen after that. Each opportunity to ask a partner-focused question was recorded as an opportunity and if the student did not take the opportunity it was recorded as non-occurrence. Each turn that the participant took in which he/she uses a partner-focused question from that point forward was recorded as an extender question. If the subject did not use a partner-focused question as an extender then it was recorded as a non-occurrence.

Data was collected at baseline, after instruction and then charted for each individual subject. This data was collected through direct observational recording procedures. Random sessions, where an observer other than the main researcher was collecting data were tested for tester reliability. The mean of these reliability checks were to be at least 80%. Formal observations were used as the means to collect data. By doing the reliability checks, and by surveying the students and instructors at the end of the study, it was felt that the study would be both reliable and valid.

### Results

The purpose of this study was to evaluate the use of an instructional program that would teach students to use partner-focused questions to initiate conversations and then to lengthen or extend the conversation. Three research questions were identified:

1. Will the use of partner-focused questions increase the number of instances that the student initiates conversation in a natural setting?
2. Will the use of partner-focused questions increase the number of questions and or responses that the student produces in a conversation?
3. Does the age, gender, type of device or exceptionality make a difference in the number of partner-focused questions

used by students that use augmentative communication devices?

The first research question asked if the training provided in partner-focused question would increase the number of social initiations or conversation among participants. Information in Table 2 shows that the training did increase the number of social initiations. Each of the three participants showed increases in the use of partner-focused questions, with students one and three showing the greatest improvement. One consideration noted during data collection involved the availability of typical peers. It was found that there were a number of instances in the school day in which typical peers were not available to communicate with.

Table 2. Number of Initiations in Baseline and Post-Intervention Data Probes

Participant	Baseline Data Probes			Post-Intervention Data Probes			
	Probe 1	Probe 2	Probe 3	Probe 1	Probe 2	Probe 3	
One	6	7	7	11	11	12	
Two	6	5	6	10	8	8	
Three	4	4	4	8	8	9	

A second research question asked if the use of partner-focused questions would increase the number of questions and or responses that the student produces in a conversation. In this investigation this was referred to as extensions. As defined previously this refers to if a communication partner answered the partner-focused question would the participant follow up with a second partner-focused question or would they answer a question that the communicating partner asked them.

Table 3 shows the results of the baseline and post-intervention data probes on extensions. The most dramatic gains by participants were in this area. Each participant was observed during baseline as not engaging in any use of extension comments or questions. However, after intervention, the occurrence of these questions or statements increased markedly. It was noted that most exchanges were only two or three turn-taking lengths long, however, given what the participants were doing prior to intervention this is also significant.

Table 3. Number of Extensions in Baseline and Post-Intervention as Measured Through Data Probes.

Participant	Baseline Data Probes			Post-Intervention Data Probes			
	Probe 1	Probe 2	Probe 3	Probe 1	Probe 2	Probe 3	
One	0	0	0	17	20	18	
Two	0	0	0	12	12	10	
Three	0	0	0	9	15	14	

The third research question asked if age, gender or type of device made a difference in the use of the partner-focused questions. It was not possible to compare differences in

usage by gender because all the participants were boys, however, results could be compared by age and device. Two of the participants used the same model of ACC device and access method using a Dynovox Dynamite with a touch screen. The third participant used a Dynovox palm pilot. No significant differences based on type of device were noted.

In general, the data revealed no significant differences based on age. As can be seen in Table 2, student one, the youngest participant, almost doubled his number of initiations and showed the greatest gains in extensions. Student two, the middle in age, improved his initiations by three and the oldest student doubled his number of initiations. When reporting on the extensions of the conversations the youngest student made the greatest gains. Given the small sample size it was not possible to evaluate usage by type of disability.

## Discussion

The instruction to the participants resulted in the successful acquisition of the skills to use partner-focused questions and is consistent with other research studies that showed that direct instruction in partner-focused questions can be effective (Light, Binger, Ramsay, & Agate, 1999). The most notable improvement was in the extensions used by the participants. The use of partner-focused questions does show promise as an effective intervention technique.

Understanding why the instruction was successful is important to help develop best practices in the AAC field. The study used best practices in teaching and practicing the skill in the natural environment and with peers using functional speech. The data indicates that after intervention each of the students increased the number of times they initiated a conversation with their peers or an adult in the natural setting. Our data has shown that all the students extended their conversations by using partner-focused questions.

The research team did notice that the two students that used the Dynamites did seem to make the most progress. Both student one and student three doubled their initiations where student two increased by three. But when looking at extensions on the conversations student one and student three had a large difference in the amount of improvement. If further research were done the question would need to be asked how long had each student worked with their device.

## Study Limitations and Further Research Questions

The most significant limitation of the study would have to be the small group of participants, the lack of gender diversity, and the lack of device diversity. Some of the reasons for these limitations are that there are not that many students using augmentative communication within the geographical regions that had to be placed on the study due to the researchers teaching full time and the participants having a limited amount of time that could be focused on the instruction and the implementation of the strategies to use partner focused questions. Lack of gender diversity has been seen in special education for years as the majority of students in special education are male. Machine diversity is

also a concern since there are very few companies building these electronic communication devices.

Because there were a small number of participants it was recognized that it would be difficult to generalize the findings to large groups of students or to students in environments that are greatly different from this one. In addition, the researcher did not have control over the natural cues that happen when working in different environments that could cause problems for the students in acquiring the skills. The researcher also did not have control of the reactions from the communicating partner.

It was unfortunate that we were not able to recruit more students, but some of the reasons given by parents and teachers were that they did not have time in their schedules to accommodate the instructional time, and one teacher said that her district had a policy of not being involved in research projects. One parent was concerned with transportation and finding the time to accommodate the instruction time and another parent indicated that her child's team was looking at discontinuing use of his communication device.

If this research were to be done again it would help to have a larger group of participants and staff that did not have the confines of having to teach at the same time as the conduction the research. With more time the researchers could have broaden their geographical region and could include more participants. If the group of participants were larger it would be interesting to collect data on how long each of the participants had been using their device and if their devices had had any technical difficulties which would interfere with the communication process.

The practical considerations in trying to conduct research with school-aged students during the school day also presented problems. The schedules of the students and the demands on staff who were involved in this research made it difficult to collect an ample amount of data on the student initiations.

The research team would like to see further research in this area to give guidance to those teams that are attempting to teach and utilize the communication devices available to their students. Research is needed to see if these strategies are used at different ages, if the students have more success if implemented at an earlier age. We as a team felt we had very good support from our communication partners but we suspect that there may be some environments that they may not be the case. So the team would like to see more research to see if using partner-focused questions helps to bridge the attitudes about people using such devices and how they are received in the community.

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