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Learner Outcomes from an ECHO in Augmentative and Alternative Communication

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LEARNER OUTCOMES FROM AN ECHO IN AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

THESIS

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Science in Communication Sciences & Disorders
in the College of Health Sciences
at the University of Kentucky

By

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ABSTRACT OF THESIS

LEARNER OUTCOMES FROM AN ECHO IN AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Background: Students with complex communication needs (CCN) rely on the use of augmentative and alternative communication (AAC) to support their communication; however, many students are leaving high school without an effective form of communication. To build capacity and increase school professionals' knowledge and self-efficacy in AAC, this thesis used an adaptation of Project ECHO (Extension for Community Healthcare Outcomes) for use with AAC.

Methods: Using a post then pre-retrospective survey, participants self-reported changes in knowledge, confidence, and overall satisfaction with ECHO sessions. Paired sample t-tests assessed participant-reported change in knowledge. Frequency counts were used to analyze responses about confidence and overall satisfaction.

Results: Seventy-nine unique participants from a variety of professional backgrounds attended at least one ECHO session. Participants reported increased knowledge and confidence after participating in ECHO sessions, 99% of participants were satisfied with ECHO sessions, and 94% planned to share information from the ECHO sessions with others.

Discussion: Overall, evaluative data from this pilot ECHO in AAC indicated the ECHO model may be an effective tool for providing high-quality, accessible professional education in AAC.

KEYWORDS: Augmentative and Alternative Communication, Interdisciplinary, Continuing Education

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05/02/2022

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DEDICATION

To the families, friends, and individuals who depend on the use of augmentative and alternative communication, and the professionals striving to give them a voice.

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CHAPTER 1. BACKGROUND

1.1 Background

An estimated five million Americans cannot meet their daily communication needs using only natural speech (Beukelman & Light, 2020). Improved survival rates for children born with developmental and acquired disabilities due to medical advancements have contributed to an increased number of individuals who experience communication impairments. These impairments may be severe enough that the individual is unable to rely on oral speech to communicate effectively. Someone who requires a way to communicate other than oral speech may benefit from the use of augmentative and alternative communication (AAC). This could include individuals with intellectual disability (ID) or developmental delays (DD), with a diagnosis of autism spectrum disorder, and with a variety of other disorders that may impact oral speech production. While an increase in the number of individuals who typically require the use of AAC has been observed, most available comprehensive data on the prevalence of AAC use is more than 15 years old, making it challenging to determine the number of individuals who could benefit from various modes of AAC (Beukelman & Light, 2020). More recent data states that 4% of children in the U.S. with developmental disabilities and 10.5% of children with special health care needs do not have their communication needs met (Lin & Gold, 2017).

AAC is defined as an area of clinical and educational practice that addresses the needs of individuals with severe disorders of speech-language production and/or comprehension, including both spoken and written modes of communication (American Speech-Language Hearing Association, n.d.). AAC modes can vary depending on the

needs of the individual. AAC can be unaided (e.g., gestures and vocalizations) or aided (e.g., picture cards, communication boards, or speech-generating devices).

More than 60% of students with disabilities in the public school system in Kentucky have negative post-school outcomes (Kleinert et al., 2002). Students who use AAC are at especially high-risk for poor post-school outcomes due to leaving the public education system communicating at an emerging symbolic or pre-symbolic level, using pictures/objects, body movements, or facial expressions to communicate (Kearns et al., 2011; Towels-Reeves et al., 2012). The pre-symbolic stage in development typically occurs between 9-12 months of age (Beukelman & Light, 2020). Students who are leaving high school that are identified as communicating at this level are not equipped with a functional means of communication to participate in post-secondary academic, work, healthcare, or social activities as they enter adulthood.

Providing students with an effective and functional means of communication requires a team approach starting as infants and continuing throughout their lifespan. Best practice guidelines for AAC assessment and intervention emphasize the importance of cooperative and collaborative work between interdisciplinary team members (Downing & Falvey, 2015). Team members could include a student and their parents, friends, general and special educators, paraeducators, speech-language pathologists, occupational therapists, physical therapists, vision and hearing specialists, and/or psychologists. All of these members bring specialized knowledge that can be used to determine a functional means of communication for a student. The more team members present, the greater number of ideas and solutions that can be generated to help the student.

The professionals who work with students with severe disabilities and complex communication needs (CCN), however, often report a lack of training and in-service opportunities in AAC (Hidecker et al., 2016). Some hospital-based allied health workers and nursing staff also report they do not take an active role in supporting communication in individuals with CCN due to lack of knowledge and experience in communicating with these individuals (Hemsley & Balandin, 2014). A gap in training and ongoing professional learning opportunities in AAC exists, and barriers to effective training and in-service opportunities for AAC are further amplified in rural settings where resources are further limited by distance from areas that offer trainings, smaller staffs, and lack of financial resources (Yarbro, et al., 2007). Additionally, speech-language pathologists (SLPs), who often receive explicit instruction and training in AAC, report varied levels of confidence in working with individuals with CCN and a need for improved professional training in AAC (Sanders et al., 2021; Kovacs, 2021). Special educators also report they do not feel prepared to support users or potential users of AAC (Rupar et. al., 2016; Walker, et al., 2022).

CHAPTER 2. LITERATURE REVIEW

2.1 Literature Review

To address the need for high-quality and easily accessible training in AAC, our research team adapted Project ECHO (Extension for Community Healthcare Outcomes) for use with AAC (Arora et al., 2014). Originally developed by the University of New Mexico, Project ECHO was designed to link experts working at academic medical centers (AMCs) with primary health care clinicians in local communities (Arora et al., 2014).

The ECHO consists of 4 components:

- technology to leverage scarce resources
- didactic training on core professional development topics
- case presentations and ongoing co-management
- outcome measurement

The ECHO model has since been adopted and adapted by universities, government agencies, and other organizations around the globe. These ECHOs have addressed practice areas ranging from cancer to addiction to autism spectrum disorder.

The ECHO model has been replicated and adapted for use with preK-12 education by the Wyoming Institute for Disabilities (WIND) at the University of Wyoming (UW) to address a lack of availability in training and continuing education for rural educators working with students with disabilities. This was the first adaption of the ECHO model for a topic not directly targeting healthcare providers. The ECHO model used in Wyoming focused on topics including assistive technology, behavioral interventions for autism spectrum disorder, school nursing, and career development for educators. Educators who participated in the ECHO sessions reported satisfaction and improved knowledge and skills (Hardesty et al., 2020).

In addition to several replications and adaptations, the ECHO model has also been evaluated for efficacy as a model for continuing professional development (CPD; Arora et al., 2017, Moore et al., 2009). Additionally, Project ECHO was aligned with recommendations from four national reports on the education of physicians and health professionals (Arora et al, 2017). Some of these recommendations include CPD: (a) having a focus on evidence via expert didactic presentations and evidence-based

recommendations for cases, (b) emphasizing flexibility and easy accessibility for participants by allowing access to session materials, and (c) incorporating personalized learning through group learning and discussion (Arora et al., 2017).

Research has shown that better training improves student outcomes, especially for students with disabilities (Hardesty et al., 2020). Training and education methods that incorporate active learning (i.e., case-based learning) have been shown to have a lasting improvement on knowledge, skill, and performance. Research also suggests that improving training and access to professional development opportunities can improve outcomes for students with CCN and increase professionals' confidence (Hardesty et al. 2020; Sanders et al., 2021).

The data collected from demographic information and post-ECHO surveys from an ECHO in assistive technology at UW demonstrated that the ECHO was able to reach a large number of professionals across a large rural geographic area, that participants' knowledge and skills increased as a result of participating in the ECHO, and that participants were, overall, satisfied with the training model (Hardesty et al., 2020; Hidecker et al., 2016). Positive outcomes from an ECHO in assistive technology at UW suggested that adaptation of the ECHO model for AAC could be an effective platform for disseminating AAC-related knowledge and practices to professionals across the state of Kentucky. Assistive technology is any item or piece of equipment that is used to improve functional abilities of individuals with disabilities (IDEA, 2004). Some examples of assistive technology include walkers, adaptive keyboards, pencil grips, and AAC (e.g., communication board, pictures, or speech generating devices).

The successful adaptation of the ECHO model for assistive technology led our team at UK to adapt the ECHO model for AAC in Kentucky. According to the Kentucky 2017-2018 National Core Indicators Data, 16% of individuals with ID or DD communicate primarily through the use of gestures. Moreover, only 1% of adults with ID/DD surveyed in Kentucky used AAC (National Core Indicators, 2019). In order to improve communication outcomes for students and adults with CCN in Kentucky, our team adapted the ECHO model for AAC to: (a) increase knowledge and skills related to AAC, (b) build capacity in the state for AAC, and (c) improve professionals' self-efficacy in working with individuals with CCN.

CHAPTER 3. RESEARCH QUESTION AND HYPOTHESES

3.1 Research Questions

The goal of the current project was to answer the question: **Did participants report increased knowledge, capacity, and self-efficacy after attending an ECHO in AAC session?** For the purpose of this study, knowledge was defined as the understanding of a subject that one develops through experience or study (Vale et al., 1996). Capacity was defined by using the concept of capacity-building, the process of developing and strengthening the skills and abilities necessary to adapt and thrive in a constantly changing environment (United Nations, n.d.). Lastly, self-efficacy was defined as individuals' beliefs in their own ability to perform specific skills and/or behaviors (Bandura, 1997). Additionally, this paper addressed the post-hoc research question: Is the ECHO model an effective platform for providing AAC training to professionals who work with individuals with CCN?

3.2 Hypotheses

Based on the current evidence-base for the ECHO model as a training platform for other healthcare- and education-related topics, we anticipated that the ECHO model would:

1. Increase professionals' knowledge and skills in AAC via didactic teaching and interactive case-based learning,
2. Increase individuals' confidence in implementing new knowledge and skills via interactive problem-solving, case-based learning, and access to evidence-based recommendations and;
3. Build capacity by creating a network of competent professionals in AAC who plan to implement what they have learned and share that information with others.

CHAPTER 4. METHODS

4.1 Participants

All research activities were approved by the Institutional Review Board of the University of Kentucky (UK). Participants were offered the chance to enter a drawing for a $25 Amazon gift card after completing the survey(s).

Participants and case presenters were recruited through direct word of mouth, e-mail, contacts at Kentucky Department of Education, regional special education cooperatives, conference presentation, UK Human Development Institute, and through the program website. Demographics related to profession and population served were collected to provide information about the reach of the ECHO in Kentucky. Other

demographic and identifying information such as race, ethnicity, gender, and age were not collected to protect participant confidentiality.

The inaugural ECHO in AAC series began in the Spring of 2021. The ECHO consisted of six total sessions, each occurring twice a month. Seventy-nine unique participants attended at least one ECHO session. Participants were from a variety of professional backgrounds and worked in both urban/suburban (>50,000 people) and rural (<50,000 people, not adjacent to an urban area) settings. Details about participants are provided in the results section. See Table 3.

4.2 Procedures

4.2.1 ECHO Session Format

Following the original ECHO model (Arora et al., 2007), the UK ECHO in AAC consisted of an interdisciplinary "Hub Team" comprised of subject-matter experts and "Spoke Participants," community members attending the ECHO sessions from various settings around the state and country. Hub team members included experts in AAC, physical therapy, occupational therapy, speech-language pathology, audiology, visual impairment, general and special education. Attendance during ECHO sessions was voluntary. Participants accessed the live ECHO sessions via Zoom videoconferencing technology. A member of the ECHO Hub team tracked participant attendance each week. Participants reported their first and last name, email, state of residence, organization, position, work location, and population served. These data were kept separately from all other evaluation and research data.

Six ECHO sessions were conducted twice a month and lasted 60 minutes. The time of the ECHO session was scheduled to occur towards the end of the school day for school

professionals in Kentucky's two time zones. Members of the UK Hub Team provided 25-minute didactic presentations related to their respective area of expertise. Presentations were followed by a 5-minute, unstructured time for questions about the didactic presentations. The remainder of the time was used for a deidentified case presentation given by a member of the community, discussion of the case, and suggestions/recommendations given by ECHO participants and the Hub Team. The deidentified case presentations were voluntarily brought and presented by members of the community seeking advice for a particular AAC user. Presenters worked with a member of the Hub team to ensure sufficient background information was presented and to aid in maintaining anonymity. All participants were given access to an online platform where they could access didactic presentations as well as the written evidence-based recommendations from the Hub Team for each case presentation.

Each ECHO session in the Spring 2021 series addressed a different area of feature matching for AAC. Feature matching is a collaborative process that identifies different features of AAC (i.e., how the individual accesses the system, where the system is placed, what symbols are used) and attempts to match those features to a specific individual's abilities (Beukelman & Light, 2020). In order for feature matching to be effective, all members of a team must have knowledge of the available AAC options. This ECHO focused on feature matching to provide professionals with more information about available AAC options and how they can be used with individuals with varying skill levels and abilities. Table 1 describes the didactic topic of each ECHO session. Table 2 provides a brief description of the cases presented in each ECHO session.

Table 1 ECHO Session Topics
ECHO Session Topics

Session #	Topic
1	Introduction to ECHO and Feature Matching
2	Feature Matching and Considerations for Hearing
3	Feature Matching and Considerations for Vision
4	Feature Matching and Considerations for Gross Motor
5	Feature Matching and Considerations for Fine Motor
6	SETT Framework & CATS/KATS Network

Table 2 Description of Case Presentations for ECHO Sessions

Session #	Student's age	Challenges in addition to CCN
1	10	VI, FML, GML, HL, feeding tube
2	6	CVI, FML, GML, HL
3	11	Cerebral Palsy, seizure disorder, CVI, FML, GML
4	5	Down's Syndrome, HL, VI
5	4	Multiple syndromes, feeding tube, HL, VI, CVI, FML, GML
6	10	Degenerative disease, HL, FML, GML

Note. CCN=complex communication needs; CVI=cortical visual impairment; VI=visual impairment; FML=fine motor limitation; GML=gross motor limitation; HL=hearing loss.

4.2.2 Surveys

To determine learner outcomes from the ECHO in AAC, participants were invited to complete a survey after each attended ECHO session. Informed consent forms were provided containing information about procedures, benefits and risks of participation, voluntary participation, and contact information of the researchers. The purpose of the study was also provided on the consent forms.

The surveys used for this study were developed by the UW ECHO team to ease the process of data sharing and build the body of evidence for the ECHO model. The post-session surveys included 16 questions that required response on a Likert scale (1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neutral, 5=somewhat agree,

6=agree, 7=strongly agree and 1=not at all knowledgeable, 2=slightly knowledgeable, 3=moderately knowledgeable, 4=very knowledgeable, 5=extremely knowledgeable), three yes/no questions with conditional short-responses, and two open-ended questions.

Self-reported changes in knowledge, skills, and confidence levels can sometimes be biased as participants overestimate their baseline levels. In an effort to bypass potential biases, these surveys were given using a post-then-pre retrospective design, meaning the posttest and pretest were administered at the same time after the intervention (Program Development and Evaluation, 2005). Participants rated their AAC knowledge at the end of the ECHO session as well as their perception of these same items before participating in that particular ECHO session.

4.3 Analysis

To evaluate the ECHO model as a training and educational platform for AAC, we analyzed the data in four ways. First, to gain understanding about participants' satisfaction with the ECHO, we analyzed responses to questions about overall satisfaction and usefulness of the ECHO sessions. Second, to assess the ECHO model's ability to increase AAC knowledge and skills, we computed paired sample t-tests of self-reported skills and knowledge before and after each ECHO session. We also analyzed responses to questions about learning from case presentations. Third, to assess the model's ability to improve self-efficacy, we analyzed responses to questions about confidence in implementing new knowledge and skills from the ECHO sessions. Finally, to assess the ECHO's ability to build capacity in AAC, we examined participant responses indicating whether the participant planned to share information from the ECHO with others.

CHAPTER 5. RESULTS

5.1 Program Reach

During the Spring 2021 ECHO in AAC series, 120 unduplicated individuals registered to attend an ECHO session. Of these registrants, 79 professionals attended at least one ECHO session. The majority of professionals were from Kentucky, and others represented Florida, Maryland, Minnesota, and Virginia. Professionals included 51 who work in rural locations and 59 who work in suburban/urban locations. Ten registrants did not indicate their location (i.e., rural or suburban/urban) of work. Occupations represented included general and special educators (24%), occupational therapists (5%), speech-language pathologists (26%), physical therapists (3%), vision specialists (6%), audiologists (1%), assistive technology specialists (5%), college students (6%), higher education instructors (3%), and other professions not indicated (3%). Professionals worked with a variety of ages across the lifespan. Table 3 depicts attendance across each ECHO session.

Table 3 ECHO Session Attendance

Session #	n
1	61
2	49
3	30
4	33
5	26
6	34

Note. n= number of participants who signed on to Zoom for session.

5.2 Overall Satisfaction

Descriptive analyses of individual session surveys indicated that, overall, participants were satisfied with the ECHO sessions and found the information presented

in the didactic and case presentations useful and relevant. Table 4 describes the survey questions used to assess satisfaction and participant responses.

Table 4 Overall Satisfaction with ECHO Sessions

Survey Question	n	%
Overall, I am satisfied with today's ECHO session.	126	99.2%
Today's training topic was useful to me.	126	93.7%
Today's training topic was relevant to me.	126	96.0%

Note. n=total number of responses to the survey question across the six ECHO sessions.

5.3 Knowledge Acquisition

Participants were asked to retrospectively evaluate their level of knowledge before and after attending the ECHO sessions. As shown in Table 5, paired sample t-test results indicated a statistically significant increase ($p<.00005$) in level of knowledge after participation in the ECHO sessions. Negative mean and confidence interval values were expected due to Likert scale number associations (1=not at all knowledgeable and 5=extremely knowledgeable). A Bonferroni correction ($p<.00006$) was also computed to support results and decrease the chance of false positives. Frequency counts showed that 93% of participants (n=122) reported learning from the case presentation. Some participants indicated they: (a) learned about technology they did not know about before through case discussion and recommendations, (b) discovered new ideas and modifications to make to their environment and practice to support communication, and (c) learned from other professionals' input during case discussions.

Table 5 Self-reported Knowledge Pre and Post ECHO Sessions

Session #	Retrospective Pre and Post M (SD)	SD Error Mean	95% CI of the Difference Lower	Upper	t	df	Sig. (2-tailed)
1	-.56 (.65)	.11	-.78	-.34	-5.11	35	.00001
2	-.61 (.62)	.11	-.84	-.39	-5.55	30	.00001
3	-.77 (.61)	.13	-1.04	-.50	-5.92	21	.00001
4	-.75 (.45)	.13	-1.04	-.46	-5.75	11	.00013
5	-.82 (.41)	.12	-1.10	-.55	-6.71	10	.00005
6	-1.00 (.76)	.20	-1.45	-.58	-5.12	14	.00015

Note. CI= Confidence Interval

5.4 Capacity and Confidence-Building

Across the six ECHO sessions, 94% of respondents (n=124) indicated plans to share information with others. For example, some indicated plans to share handouts, encourage others to attend ECHO sessions, and discuss learned information with colleagues and supervisors. Additionally, 100% of participants were confident in their ability to implement something they learned from the ECHO session, indicating increased self-efficacy as professionals believed they could put what they learned into practice.

5.5 Suggestions and Barriers

Finally, across all ECHO sessions, 47 duplicated respondents shared feedback including suggestions for improving the ECHO sessions and future ECHO topics.

Additionally, 98% (n=127) of responses indicated there were no barriers to learning during the ECHO sessions.

CHAPTER 6. DISCUSSION

6.1 Discussion

Overall, evaluative data from this pilot ECHO in AAC indicated the ECHO model may be an effective tool for providing high-quality, accessible professional education in AAC. The four components of the ECHO model were implemented in the following ways:

1. Zoom technology was used to minimize barriers to access in rural parts of the state. Professionals who did not have access to continuing education in AAC due to scarce resources were able to join the ECHO sessions from wherever they were, minimizing financial burden of driving to an in-person event and having to miss work.
2. Didactic trainings were provided each session by experts about different aspects of feature matching in AAC.
3. A case presentation was brought to each ECHO session. The case was presented and then discussed by all ECHO session participants. The HUB team then compiled a list of evidence-based recommendations that were shared with the case presenters and all ECHO participants. The HUB team emphasized they were available to assist in ongoing co-management of the cases if the presenters had any further questions.
4. The post-session surveys served as outcome measurement for all ECHO sessions, evaluating knowledge, self-efficacy, and capacity-building.

Participants reported overall satisfaction with the model as well as increased knowledge after attending ECHO sessions. Open-ended responses were, overall, positive. Suggestions for future ECHOs included lengthening the ECHO sessions to allow for more discussion and providing participants with materials prior to the ECHO session to prepare. Participants also suggested future topics for ECHO sessions including AAC and autism, AAC and literacy, and promoting buy-in from families and other professionals for AAC.

Participants' overall satisfaction and willingness to share information with others suggest that the ECHO may be an effective continuing education model for AAC as it aids in building capacity for AAC assessment and intervention around the state. Additionally, the ECHO model allows experts at academic medical centers to identify areas in which professionals feel they do not receive adequate training and education. The dedicated time for asking questions and discussion during each ECHO session, as well as a space on the post-session surveys to suggest future ECHO topics, highlight areas in which professionals may feel they need additional training opportunities.

The interdisciplinary collaboration modeled by the Hub Team during ECHO sessions also demonstrates best practice in AAC assessment and intervention (Downing & Falvey, 2015). AAC requires an interdisciplinary approach, relying on the expertise of a variety of professionals to identify the most effective means of communication for an individual. The ECHO model allows professionals to practice this collaboration through case presentations and discussions during each session. Results from the post-session surveys are promising for increasing participants' overall confidence in implementing the knowledge they learn during ECHO sessions.

This adaptation of the ECHO model demonstrated that the online training platform allows professionals from all around the state to have access to AAC training and education. Professionals from urban and rural areas of the state are able to come together, make connections, and learn from others who they may not have otherwise met. The large number of participants working in rural areas (n=51) suggest that the ECHO was able to reach professionals who may not have been able to attend an in-person professional development training. Additionally, online platforms for professional development, especially for educators, have been shown to improve student outcomes and increase capacity for rural educators (McConnell et al., 2013).

Finally, the ECHO model is built on principles of effective professional development for both educators and healthcare professionals, both of whom work with individuals with CCN (Arora et al., 2017). Participants' overall satisfaction and willingness to share information with others suggest that the ECHO model may be an effective tool for building capacity for AAC assessment and intervention around the state.

6.2 Challenges and Limitations

While feedback from the post-session surveys was overall positive, the sample size of this study was relatively small with only 51% of those who attended the ECHO sessions completing a post-session survey. To increase survey participation, future ECHOs should consider offering professional development credits for respective organizations (i.e., offering continuing education units for speech-language pathologists). This addition may also increase overall attendance, improving the ECHO's aim of building capacity in AAC.

Another challenge of this study was determining an appropriate time to host the ECHO sessions. When selecting the time to host ECHO sessions, it was important to consider there are two different time zones in Kentucky. With a primary goal of reaching educators, the ECHO was ultimately decided to be held following school hours. Additionally, the timing of the ECHO sessions themselves was challenging. In an effort to minimize barriers to access, the ECHO sessions were designed to not be time-consuming, however, 60-minutes may not be enough time for all ECHO sessions as some didactic material and/or case presentations require more time than others. Future ECHOs should consider the

Lastly, it is challenging to determine the generalizability of this study as survey data provided insight and feedback on this specific ECHO in AAC and may not reflect the feasibility of the ECHO model for other educational or healthcare-related topics. However, when compared to other outcome data reports related to the ECHO platform, this study's results are comparable.

CHAPTER 7. FUTURE DIRECTIONS

7.1 Future Directions

As the evidence-base for the ECHO model continues to grow, several areas of future direction are noted for its use in the field of AAC. First, further research about the ECHO's ability to impact student outcomes would be of interest. We know that participants are satisfied with the ECHO sessions, but we have not yet studied if this results in different outcomes for the individuals who use AAC. Relatedly, more research is needed to determine how much participation in the ECHO is required for professionals to begin implementing learned knowledge and skills into their daily practice. Finally,

future ECHOs focused on AAC should consider advertising in a variety of settings. This ECHO mainly advertised to school-based professionals; however, professionals from a large variety of settings can benefit from quality training in AAC.

The adaptation and implementation of the ECHO model for AAC appears to be an effective platform for providing training in AAC to a large variety of professionals from both rural and urban areas around the state. Participants reported an increase in knowledge as well as confidence in implementing their new knowledge. Participants suggested topics for future ECHOS and provided positive feedback, indicating a desire to participant in future ECHOs. Participants' plans to share information with others also contribute to the ECHO's overall goal of creating a network of competent professionals in AAC. Overall, the ECHO model appears to be an effective and useful tool to increase self-perceived AAC knowledge, skills, confidence, and commitment to collaboration.

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