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Activity-Based Intervention to Support Second Language Acquisition

Abstract

Activity-based intervention (ABI) is a naturalistic teaching approach used with young children to facilitate learning and development. Several studies have been conducted on ABI to examine effects on children; however, there is a shortage of literature on how to use ABI to facilitate the acquisition of a second language. This paper describes ABI, showcases studies on ABI used to enhance children's communication or language development, and demonstrates a model for using ABI for second language acquisition.

Keywords: second language, activity-based intervention, early childhood education

Introduction

Learning to communicate with people in one's environment is essential. Learning to speak a language is a complex process. Learning more than one language in the early childhood years often takes place in the child's home with their family. Families may look for ways for children to acquire multiple languages.

There are many ways to acquire a second language. Classes, software programs, applications for a variety of screens (e.g., tablet, smart phone, etc.), DVDs, audio programs (e.g., podcasts, CDs, etc.), second language (2L) immersion, travel, and more are used to develop a second language. One naturalistic approach that has potential for developing a second language in early childhood is activity-based intervention (ABI). This paper will describe ABI, showcase studies that have used ABI to enhance children's communication or language development, and demonstrate a model for using ABI for second language development.

Activity Based Intervention (ABI)

ABI is an approach that has been used in early childhood special education since the 1960s as a result of exploring alternatives to explicit and adult-directed trials with young children with disabilities using simulated reinforcers for correct responses to stimuli (Bricker & Woods Cripe, 1992; Bricker with Pretti-Frontczak, & McComas, 1998; Johnson, Rahn, & Bricker, 2015; Pretti-Frontczak & Bricker, 2004; Squires & Bricker, 2007). For example, a child might have a goal to rotate her wrist on a horizontal plane, and the adult provides the child a sticker (behavioral reinforcement) for correct responses to the prompts to use her motor skills. Behavioral reinforcement which uses simulated or artificial reinforcement may not provide a child with feedback that is integral to the acquisition of a skill or situation. In the above example, the reinforcement (i.e., a sticker) did not provide a logical consequence of the interaction with an adult and use of motor skills. An integrated consequence that reinforces the use of the skill might be a desired object (e.g., toy) that is in a container with a lid that the child opened using her wrist rotation to accomplish the task (Apache, 1998, 2005).

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ABI can be used in conjunction with an early childhood curriculum framework that uses developmentally appropriate practice (Novick, 1993; Rule et al., 1998). ABI draws on several theoretical perspectives which include: cognitive, developmental, ecological, social learning, and transactional theories. The reason for multiple underlying theories is that one global theory does not exist that captures the complexities of child development (Macy, 2007). ABI is comprised of four elements that include: (a) functional and generalizable skills, (b) child-directed, routine, and planned activities, (c) multiple and varied experiences, and (d) timely and integral feedback.

Functional and generalizable

Practical and useful goals are identified for children in the ABI approach. The development of functional goals for children support a child in becoming as independent as possible in his or her life (Grisham-Brown & Hemmeter, 1998). The goals, or skills, are also meant to identify areas that can be transferred and generalized by the child. Assessment should inform the identification of necessary skills to teach the child (Bagnato, McLean, Macy, & Neisworth, 2011). Skills are generalized across settings, events, people, and time. The child in the motor example could rotate her wrist in a variety of places, with a variety of objects, and with a variety of people in her life. Skills taught are functional and generalizable.

Child-initiated, planned, and/or routine activities.

The implementation of ABI to address goals can be implemented into child-directed, planned and/or routine activities. Activities are child-directed when the child's interests and motivations are taken into account (Macy, Sharp, & Chan, 2006). Following the child's lead is a part of the process for creating embedded learning opportunities to address his or her learning and developmental goals. Planned activities are when the adult has created a specific sequence for when and how intervention will occur. Routine activities are used to address the child's goals during times of the day, week, and month when events naturally occur (Friedman & Woods, 2015; Grisham-Brown, Pretti-Fontczak, Hemmeter, & Ridgley, 2002; Macy & Bricker, 2007).

Multiple and varied

Embedded learning opportunities are multiple in number and varied in quality (DiCarlo, Banajee, & Buras-Stricklin, 2000; Doyle, Schuster, & Meyer, 1996; Horn, Lieber, Sandall, & Schwartz, 2001; Johnson & McDonnell, 2004; Noh, Allen, & Squires, 2009; Tate, Thompson, & McKercher, 2005; Venn et al., 1993). The child has several occasions when their goals are being addressed (Grisham-Brown, Schuster, Hemmeter, & Collins, 2001; Macy & Bricker, 2006; McDonnell, Johnson, Polychronis, & Riesen, 2002; McDonnell et al., 2006). A variety of occasions exist when ABI occurs to present a diverse array of options to acquire skills being taught.

Child feedback

Logical antecedents and consequences are used to shape the skills and behaviors being acquired by the child (Sewell, Collins, Hemmeter, & Schuster, 1998; Ozen & Ergenekon, 2011). The child needs to experience feedback that is timely and integral to the intervention (Caldwell, Wolery, Werts, & Caldwell, 1996). This form of operant conditioning has its roots in behavioral learning principles. Integral and timely feedback to the child are elements of ABI. The child should have numerous and varied opportunities to learn the skills identified for them. ABI focuses on functional and generic skills. Acquisition of skills can occur during child-initiated, planned, or routine activities.

What Do We Know So Far?

ABI is a research-based strategy (Pretti-Fontczak, Barr, Macy, & Carter, 2003). Studies have focused on different aspects of the ABI approach. ABI has been explored in the following areas: (a) comparisons with direct instruction, (b) time delay, (c) embedded opportunities, and (d) individualized programs (IEP/IFSPs) containing goals and objectives.

Direct instruction

Researchers have investigated how ABI compares to direct instruction. Direct instruction often incorporates teacher lead and planned lessons. Following the child's lead with an ABI approach is different from a direct instruction approach which is more adult-directed rather than child-initiated. Multiple studies have shown that young children respond favorably when ABI is

used when compared to direct instruction that uses adult-directed methods (Botts, Losardo, Tillery, & Werts, 2014; Johnson & Losardo, 2016; Losardo & Bricker, 1994; Werts & Losardo, 2006).

Time Delay

Researchers have studied another teaching method called time delay where a prompt is given and the adult waits for the child to respond before reacting with a follow up intervention. Several studies have examined the effectiveness of time delay with naturalistic teaching approaches (Chiara, Schuster, Bell, & Wolery, 1995; Ficus, Morse, Schuster, & Collins, 2002; Riesen, McDonnell, Johnson, Polychronis, & Jameson, 2003; Venn et al., 1993; Wolery, Anthony, Snyder, Werts, & Katzenmeyer, 1997; Wolery, Anthony, Caldwell, Snyder, & Morgante, 2002). An important study on training teachers to use time delay procedures to increase language skills found that the training did increase use of specific opportunities for use of the time delay procedure, and that students' response rates were high through all phases of the investigation (Schwartz, Anderson, & Halle, 1989).

Embedded opportunities

Researchers have examined the effects of training practitioners to use naturalistic embedded procedures (Grisham-Brown, Pretti-Frontczak, Hawkins, & Winchell, 2009; Schepis, Reid, Ownbey, & Parsons, 2001). Pretti-Frontczak and Bricker (2001) studied seven early childhood and early childhood special education teachers' use of embedding. They found that teachers' use of the embedding instructional strategy was limited. Teachers were more likely to use the embedding strategy when they were working one-on-one with children engaged in language or pre-academic activities that involved instructional or manipulative materials. Bug in ear eCoaching technology was used to provide teachers training support when they were implementing ABI to facilitate communication strategies with children (Coogle, Rahn, & Ottley, 2015; Ottley & Hanline, 2014). Another study found that teachers increased their use of planned, naturalistic instructional strategies, as well as an increase was found in children's requests for assistance and their displays of respect for the preferences of others (Stowitschek, Laitinen, & Prather, 1999).

To increase the opportunities given to children to make requests, a 1994 study identified three strategies for creating opportunities for children (Sigafoos, Roberts, Kerr, Couzens, & Baglioni, 1994). With assistance, teachers used strategies during classroom routines. Sigafoos et al. (1994) demonstrated that the number of opportunities for requesting and the number of correct student responses increased during intervention. Fox and Hanline (1993) investigated embedded instruction and naturalistic teaching procedures to teach a variety of skills in typical early childhood classrooms. Similarly, another language study that used embedded instruction in ongoing activities found that children exposed to higher levels of the strategy had higher rates of engagement and verbalizations (Schwartz, Carta, & Grant, 1996).

A case study design was used by researchers to discover implementation issues for embedded learning opportunities (Horn, Lieber, Li, Sandall, & Schwartz, 2000). Horn and her colleagues (2000) showed that teachers could generate a range of ideas for how to use: (a) environmental arrangement, (b) adapting materials, (c) adding materials, (d) adding new components to existing activities, (e) providing performance cues, and (f) providing special assistance or support. Children with speech and language delays have been taught a variety of skills like counting (Daugherty, Grisham-Brown, & Hemmeter, 2001) using embedded skill instruction. In a single subject study, preservice teachers used the embedding strategy in inclusive preschools to help children use language to interact with others (Macy & Bricker, 2007).

Results from a naturalistic language-based study showed how children responded when dispersed training trials embedded within the context of normal conversation were used to teach common nouns and action verbs (Warren, 1992). The results of the study supported the assertion that naturalistic teaching procedures can enhance basic vocabulary development of young children with borderline to mild levels of cognitive delay. A number of studies have examined the effects of teaching parents the use naturalistic strategies to facilitate primary language development (Barton & Fettig, 2013; Dunst et al., 2001; Roberts & Kaiser, 2011, 2012; Roberts, Kaiser, Wolfe, Bryant, & Spidaliere, 2014; Wright & Kaiser, 2016).

IEP/IFSP

Using a naturalistic approach to identify and develop high quality goals and objectives for a child's individualized educational program (IEP) or individualized family service plan (IFSP) has been explored in numerous studies (Kohler, Strain, Hoyson, & Jamieson, 1997; Malmskog & McDonnell, 1999; McBride & Schwartz, 2003; Peck, Killen, & Baumgart, 1989; Pretti-Frontczak & Bricker, 2000). One study, in particular, used a nondirective consultation strategy for increasing the implementation of IEP-related instruction (i.e., IEP goals and objectives) and found that children demonstrated associated increases in IEP-targeted behaviors (Peck, Killen, & Baumgart, 1989).

So far we know that research on ABI has focused on direct instruction, time delay, embedded opportunities, and IEP/IFSPs. In a systematic review of naturalistic instructional approaches, researchers discussed the challenges of classifying common features (Snyder et al., 2015). The analysis by Snyder and her colleagues (2015) showed that naturalistic instruction is often identified in the literature as: naturalistic teaching, embedded instruction, ABI, milieu, transition-based teaching, and/or individualized curriculum sequencing model. Unpacking features of naturalistic instruction is difficult because the six approaches described by Snyder et al. (2015) have overlapping elements. No studies that used ABI to facilitate the acquisition of a second language were found. Furthermore, there is limited information about how to use ABI to facilitate the acquisition of a second language.

ABI for Second Language

In the text box, there is a scenario between Alex and his Mom shows one way to create opportunities for learning a second language. In this snapshot, English is the child's first language and Italian is the second language. This ABI2L approach could be used for other language combinations as

well. For example, the child's first language may be Korean and his second language is German.

Embedding opportunities into a play-based activity facilitates learning and development. Alex's Mom is creating the context for her child to learn Italian. Parents and those familiar with the child should decide if it is appropriate to introduce a second language. ABI uses functional and generic skills that teaches the child to communicate in a language other than their primary language. Acquisition of skills can occur during child-initiated, planned, or routine activities to learn a second language. The child should be able to have multiple and varied opportunities to learn the second language. Integral and timely feedback to the child are elements of ABI for 2L acquisition. The following elements can be used when implementing ABI to teach a second language.

Functional and generalizable.

First, identify communication in the second language that is functional and leads to generalization. In the scenario, Alex's Mom determines words to use during play and meal time that would be practical for Alex in requesting he open his mouth when food is presented. The words are generalizable because Alex could use the word "open" in Italian to talk about other things that open as well. For example, "open the door" or "*aprire la porta.*"

Observe the child and determine his/her motivations and interests. Follow the child's lead during activities. For example, the child is interested in stepping on water spouts at a splash pad. Join the child in the play activity they are interested in and talk with them in the 2L during the naturally occurring child-initiated activity. Use prompting sequences when appropriate. For example, we could use words in the second language to talk about the water at the splash pad. The child could be prompted to use her second language by asking a question or requesting.

Implementing ABI for 2L

Alex, who is almost four years old, was playing with his Mom in a sandbox at the playground. Alex pointed to a bowl and handed his Mom a spoon. Alex kept a spoon for himself that he used to stir the sand that he poured into the bowl. "*Apri la bocca.* Open your mouth," said Alex's Mom when she presented a spoonful of sand.

They were pretending the sand was applesauce. Alex responded by opening his mouth. He pretended to eat the bite and smiled. Alex's Mom asked, "*Ti piace?* Do you like?" Alex replied, "*Sì.* Yes. I like." Then Mom offered another bite of applesauce/sand.

Planned and routine activities

Create embedding schedules for when to incorporate the second language. Work with team members to answer these questions: What are the optimal daily routine(s) for ABI2L? When are good times of the day to practice 2L goals & objectives? What are the child's interests and how can she be motivated to participate in ABI2L? What are priority 2L goals and objectives? Is the embedding schedule for one child or a group of children to learn a second language? How will the schedule be designed (e.g., by activity, by routine, by state standard, by personnel)? What type of information will be placed in the framework of the schedule (e.g., possible adult behaviors, desired child responses, data related to child performance)?

Multiple and varied

Create a variety of ways to embed the second language in an ongoing and consistent strategy. Environments should be considered. Environmental planning provides information on how to embed children's goals and objectives during child-initiated free choice times, as well as routine and planned activities. Create multiple activities for second language learning. Assist staff and families with determining when opportunities can be provided for children to practice their goals and objectives across a typical day. Individualize programs to meet unique needs of each child.

Feedback.

Give children timely feedback when they use their second language. When Alex requested applesauce, his Mom immediately responded by providing him the spoonful. The feedback Alex received was integrated into the situation. A responsive social environment can support children in learning a second language when ABI is used. The use of ABI to support the acquisition of a second language holds promise given the ease of being able to implement this naturalistic approach into existing curricular frameworks found in early childhood settings and children's homes. Three practical tips for implementation of ABI2L would be to make it fun, ongoing, and authentic.

Create fun ABI2L opportunities for children. Get familiar with what motivates children's play. Incorporate activities that promote play. Children will participate when they are ready, and when they are enjoying themselves in the activities. Explore ways the child likes to play and have fun integrating 2L in their day.

Continued practice over time will help children develop their language skills. Ongoing 2L experiences can be mapped onto child-initiated activities. Embed opportunities throughout routines. Immersion can help children become accustomed to the sounds and patterns of the second language.

Provide effective models of the language being addressed. Generate 2L opportunities that are embedded into naturally occurring routines and the environment. Children will learn from the quality of opportunities presented to them, as well as quantity. Table 1 shows additional 2L tools and resources that could be used with ABI.

Conclusion

The use of ABI to support the acquisition of a second language holds promise given the ease of being able to implement this naturalistic approach into existing curricular frameworks found in early childhood settings and children's homes. Deciding who will implement ABI2L, how it will be used, what goals will be identified for the child, where interventions will occur, and when to use ABI for language development are important decisions that will need to be made. Future research on the ABI2L model is recommended. It would also be helpful to examine the needs of families and professionals when collaborating to implement ABI2L (Woods Cripe & Venn, 1997; Woods, Kashinath, & Goldstein, 2004). Training issues are other areas to examine with the ABI2L approach. Children can acquire skills to communicate in more than one language. ABI for second language acquisition is another tool that can be added to the myriad of ways to attain proficiency in another language.

Table 1.
Second Language Acquisition Tools and Resources That Could Support ABI for Children

Tool/Resource	What is it?	What method is used?	How much does it cost?	Where can I learn more?
<i>Language Programs</i>				
Key Element Learning	Multimedia language program for children	Language immersion using media, singing, and activities in French, German, Italian, and Spanish	Complete set of Toto materials with books is \$179.95	www.keyelementlearning.com
Little Pim	Multimedia language program for children birth to age six	Entertainment immersion method in 12 languages	Complete set with books is \$99.99	www.littlepim.com
<i>Organizations</i>				
American Speech-Language Hearing Association	Professional organization	Online	Membership fees vary	www.asha.org
International Literacy Association	Professional organization	Online	Membership fees vary	www.literacyworldwide.org
National Association for Bilingual Education	Professional organization	Online	Membership fees vary	http://www.nabbe.org/
<i>Website</i>				
Colorín Colorado	Information and activities for educators and parents of children PreK to Grade 12	Online	Free	http://www.colorincolorado.org/

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