

Examining the Need of Attention Strategies for Academic Development in Deaf and Hard of Hearing Children

Patrick J. Graham¹

Abstract

Deaf children use their eyes to acquire information about their world. They do not naturally acquire this skill; rather, it is learned behavior that usually happens early in their development. This paper discusses the different attention strategies deaf children learn in preschools, such as maintaining eye gaze, and participating in joint attention. While attention strategies may be implicit, there is a need for explicit instruction for children to understand the importance of visual attention for academic and social development.

Keywords: Deaf, Early Childhood, Attention, Joint Attention, Eye Gaze

1. Introduction

Children grow up with a tapestry of cultures all around them. Their first introduction to culture usually comes from their parents and family members. Haviland, Prins, McBride, and Walrath (2013) defines culture as “a society’s shared and socially transmitted ideas, values, emotions, and perceptions that are used to make sense of experience, generate behavior, and are reflected in that behavior” (p. 28). Children are not born knowing their cultures; they need to learn the different rules and behaviors in order to become part of the group. This is a process that cultural anthropologists often call enculturation (Haviland et al., 2013; Kottak, 2009). When children attend preschools, they start another layer of enculturation, learning the behaviors and social norms of the larger society. Haviland et al. (2013) elaborate further by stating the importance of the enculturation process, for culture is “a shared set of ideas, values, perceptions, and standards of behavior, [it] is the common denominator that makes the actions of individuals intelligible to other members of their society” (p. 29). The question is, what happens when children are born with a different cultural background than their parents? A deaf child’s enculturation process may be different from many hearing children’s experience of enculturation because “96% of deaf children are born to hearing parents who may initially know nothing about deafness or sign language” (Kushalnager et al., 2010, p.1). In particular, they may lack recognition of how to enculturate a visually oriented child because they do not share this trait. In this article, I use data from the larger Deaf Kindergartens in Three Countries study to discuss the importance of joint attention and maintenance of eye gaze for direct assimilation of culturally appropriate behavior. When deaf children acquire the skills of eye gaze and understand the use of this medium, they can start making sense of the world around them (Lieberman, Hatrak & Mayberry, 2014; Singleton & Crume, 2013). The Deaf Kindergarten in Three Countries project is a study led by Dr. Joseph Tobin, Dr. Joseph Valente and Dr. Thomas Horejes. The central question of this project focuses on how children become enculturated in both their national cultures and deaf cultures, while attending school. A small part of this study focused on the importance of visual attention strategies in deaf culture.

¹ Western Oregon University, 345 Monmouth Ave N., Monmouth, Oregon 97361. Email: grahamp@mail.wou.edu, Phone: 503-838-8444, Fax: 503-838-8228

2. Literature Review

Singleton and Crume (2013) outlined different strategies for establishing joint attention in young deaf children as “the use of visual attention-getting behaviors like waving at or tapping the child” (p. 8) and signing to children in their line of vision. DeLuzio and Girolametto (2006) provided a definition of joint attention from a sociological perspective as “shared mental focus between the adult and the child, [which] is positively related to the language development in children with typical hearing abilities” (p. 214). Singleton and Crume (2013) encourage this type of interaction as necessary to expand the process of socio-cognitive understanding (p.3). Joint attention is also viewed as a form of psychological and socio-emotional development, as well as process of self-awareness (Singleton & Crume, 2013; Nowakowski, Tasker, Schmidt, 2009; Dube, MacDonald, Mansfield, Holcomb, & Ahern, 2004). Joint attention can be viewed in three different ways. Basic joint attention is when people fixate their eye contact on an object. When two people refer to an object and share attention and discuss this object, it becomes coordinated joint attention (Nowakowski, Tasker, & Schmidt, 2009). The last step is symbol fused joint attention, using symbols in interactive dialogue (Nowakowski, Tasker, & Schmidt, 2009). Joint attention is important for children to learn, and “is central to the normal development of object and spatial representations during social interactions, since it helps to determine objects in the world to fixate or manipulate, and to follow gaze and share attention” (Grossberg & Vladusich, 2010, p. 956). Mather (1987) showed through her research, children who were native to sign language were able to answer questions better than children who used sign language as their second language (p. 14). She credited this difference to the fact that it “probably has to do, in part at least, with the ability to use eye gaze effectively and consistently as a regulator in a group activity” (p. 14-15). She also observed how children and adults participated in everyday conversation using eye gaze. Through her observation, she found “eye gaze [to be] the effective turn-taking mechanism in a classroom of deaf students” (p. 29).

This type of interaction should start very young, especially between parents and children. When children learn the skill of obtaining eye gaze and maintaining this gaze for conversation, they will be able to socially interact and express their feelings or ideas through discourse (DeLuzio & Girolametto, 2006; Paparella & Kasari, 2004). This results in shared experience between the child and the adult (Nowakowski, Tasker, Schmidt, 2009; Guarinello, Berberian, Santana, Massi, 2007; Jamieson, 1995). Although this activity starts in the home, preschools are the optimal places to maintain and increase the use of joint attention strategies. Smith and Sutton-Spence (2005) encourage us to acknowledge preschool classrooms as “an important environment for deaf children’s development of social and linguistic skills” (p. 149). The question arises if joint attention is more easily achieved if both parties understood the need of this process. For example, if deaf children were introduced to joint attention by a deaf role model who shares the same process of obtaining joint attention, would there be more of an impact? It is important to acknowledge there are educators who may have “typical hearing, [and] may not have prior experience interacting with children with hearing loss and may not be aware of the types of strategies that can be used successfully to ensure joint attention” (DeLuzio & Girolametto, 2006, p. 215). Establishment of joint attention strategies is important because “visual attention lies at the heart of successful communication for *all* deaf children and for the perception of sign, speech and affect: at this level there is a fundamental difference between the nature of successful communication with deaf and hearing infants” (Harris & Chasin, 2005, p. 2).

Singleton and Crume (2013) conducted a study on Deaf teachers who established joint attention with their deaf preschool students and found that the teachers used three different types of prompts, which they categorized as “linguistic, physical, and non-manual” (p. 17). They defined linguistic prompts as the use of language to gain attention, such as waving their hands in the visual field, and then using a command (“Over here!”) or calling them by their name. Physical prompts used touch to allow the other person to be aware of the initiation of contact, such as tapping the person on their shoulder. They defined non-manual prompts as non-verbally inviting the participant in the conversation, through movements like nodding their heads, smiling or leaning in towards the person, inviting them to comment. DeLuzio and Girolametto (2006) discussed a strategy of educators placing themselves in the child’s line of sight and establishing eye gaze, and waiting for the child to engage in conversation. While there are several studies of eye gaze and joint attention with the deaf and hard of hearing youth population (Lieberman, Hatrak & Mayberry, 2014; Tasker, Nowakowski, Schmidt, 2010; Guarinello, et. al 2006; Harris & Chasin, 2005; Papparella & Kasari, 2004; Jamieson, 1995), there are few studies of joint attention in deaf schools (Mather, 1987; DeLuzio & Girolametto, 2006; and Singleton & Crume, 2013).

Maybe most importantly, as DeLuzio and Girolametto (2006) point out, there is a “paucity of literature on the establishment of joint attention between preschool children and their educators with and without hearing loss” (p. 215).

3. Methodology

This article is a microanalysis of the data collection drawn from the larger Deaf Kindergartens in Three Countries (DK3C) Study. For this ethnographic study, children in deaf preschool classrooms in three different countries were observed. The main goal of this project was to study how deaf children become enculturated in their national culture and their Deaf ²culture. This study was conducted in schools that identified as bilingual, focusing on their national culture and deaf culture. This study used Tobin’s (1989) method of video-cued multivocal dialogical ethnography (p. 173). This method starts with the researchers filming an eight-hour day at a school site, and then editing the video down to approximately 30 minutes. During the editing process, a video is constructed, taking in consideration of the flow of the day, beginning with morning activities, then lunchtime, recess, and then the closing of the day. After this video is edited, it is then used as a cue for collection of data. Focus group interviews are held, with participants watching the videos, and sharing their thoughts about what went on in the videos. Tim and Patsy Asch and Linda Connor sparked this idea in Joseph Tobin during their production, titled: *Jero on Jero: A Balinese Séance Observed*. In this production, Linda Connor asks Jero to observe herself performing an séance on video. Jero watches herself, and provides many different comments and background information to explain the video itself. Tobin (1989) explains that this use of “ethnographic film to stimulate a second, reflexive level of discourse gave [them] the idea of using films of preschools to stimulate a multivocal ethnographic text” (p. 173). Tobin then used his method during the Preschools in Three Cultures (1989) and Preschools in Three Cultures: Revisited (2009) projects, as well as other projects over the years. In this study, data were conducted through focus groups and individual interviews. The interviews consisted of the participants watching the videos and sharing their thoughts. A total of forty-four focus group and individual interviews were video recorded, transcribed, and coded. These focus group participants were parents, administrators, and teachers from several sites across the countries. When we selected a school, we sent consent letters to the schools, and set up our focus groups. We wanted to choose schools in different parts of the country, to see if responses were different based on where they lived. The research team had previously agreed on a coding framework that consisted of six different categories. I focused on what the informants discussed regarding strategies in obtaining attention and maintenance of eye contact in Early Childhood Deaf Education. Smith and Sutton-Spence (2005) explained, “If young children are to become skilled sign language conversationalists they need to learn the rules for attention-getting and initiating signing (p. 132). This article will provide examples of different attention-getting strategies in the DK3C project, and what educators, parents, and administrators noted regarding these examples.

4. Discussion and Conclusion

Through the Deaf Kindergartens in Three Countries (DK3C) project, we were able to collect different images of students and educators engaging in joint attention. The three images below show three different educators engaged in coordinated joint attention with their students. Note they use their finger as a reference point, directing the child’s attention to the object in question. These visual prompts have been discussed in other studies (Singleton & Crume, 2013; Nowakowski, Tasker, Schmidt, 2009; Sutton & Spence 2005; Jamieson, 1995).



When educators establish coordinated joint attention, they are able to engage in conversation, tell stories, and model social skills for their students. David, an administrator from Indiana School for the Deaf commented that students who were engaged in joint attention were able to point at things and answer questions.

² A note on terminology here: The little d in deaf signifies a medical disability, while the capitalized D in Deaf signifies a cultural identification (Woodward, 1972; Christiansen and Leigh, 2002)

The teachers participated in dialogue with them and did not lower their expectations; this caused a natural exchange of ideas between teachers and students. This natural exchange of ideas is important for they are going through “a fundamental cognitive process requiring perceptual, memory, categorization and information processing abilities” (Lieberman, Hatrak & Mayberry, 2014, p. 19). There is a need for explicit awareness of joint attention strategies in early childhood education, for it can pave the way for stronger academic skills later. When children depend on the visual language, they need to learn to “rely on complex eye gaze signals in order to gain access to linguistic input [signed language] and acquire the social interaction norms for visual language exchanges” (Singleton & Crume, 2013, p. 11). Several administrators and educators in the focus groups stressed how attending and development of eye gaze skills were important skills for understanding academic content. One administrator from California School for the Deaf noticed that some children had not developed this skill, pointing at several children who were looking elsewhere while the teacher was trying to capture their attention. Ramona, a teacher from Indiana School for the Deaf noticed that some students had more language than others, and speculated that the students who did not have the language were not being exposed to more linguistic strategies. She added that she thought that the teacher should have been involved with these students, exposing them to more language, because these students were not paying attention to what the other students were saying.

Sophie, an educator from France, stressed the importance of the acquisition of eye gaze and attention skills at a young age by providing an example of a child she taught: This child, who arrived last year, was 3 years old. He didn't know any sign language. His family is hearing and his parents were just starting LSF. He couldn't focus his eyes while communicating, as he grew up in a hearing environment where hearing sounds is more important than looking at each other. He didn't have the habit that to communicate with deaf people you needed to look at each other and at the beginning it was really hard for him. The first important thing was to teach him how to use his eyes. He went to see a person specialized in that kind of re-education who taught him to look, look at the object you want to reach, follow a launched ball with your eyes, and so on. Once the re-education was over, he was back at school and step by step, looking at his school friends, LSF pictures, signing adults, he constructed himself alone and now he is in his second year and has the same signing level as the other kids his age. It is really fast. Mather (1987) observed in her research that adults who directed children to place eyes on them and waited for all children to pay attention were more successful in instruction. Beatrix, a teacher from France noticed in the video that before the teachers gave instructions to the group, they waited for the children to look at them. Once children had established eye contact, they were able to adapt the instructions to each child if needed. She called this “deaf pedagogy.” Lily, a teacher from the Indiana Focus group called this a form of implicit teaching, showing students how to direct their attention.

One thing all focus groups agreed on is the importance of eye gaze and attention maintenance in academic learning. Iris, an administrator from Central Institute for the Deaf, identified these skills as skills that all teachers are constantly working on: the social skills and pragmatics on how to obtain attention, communicate with each other, and understanding visual space. She notes that this is a skill that many deaf children struggle with, using their eyes for visual input, and maintaining their attention skills to get all the information they need. Callie, a teacher from Atlanta Area School for the Deaf acknowledges this skill can be difficult to maintain, especially among young children who may be new to this strategy. Callie states that if they are not used to this strategy and do not understand the importance, they will have a harder time getting attention, and it can be easy to lose their interest. She calls this a continuous process, obtaining their attention and prolonging the attention to give as much information as she can. Jean, a teacher from Poitiers, France shared a similar perspective, that teaching deaf children can mean constantly obtaining their attention to provide important information. She noticed in the education with children who can hear, the educator can use the auditory output, with children moving their heads and redirecting back to the teacher if needed. She points out this does not happen in deaf education, the heads usually stayed fixed and eyes ahead at the teacher, and teachers are constantly monitoring eye gaze and attention to ensure comprehension of materials, which can often result in redirection of attention. When we introduce joint attention to children in preschools, they can begin to access “visual information available on the speaker's face, and possibly on signed communication to receive linguistic input” (DeLuzio & Girolametto, 2006, p. 221). As we see with Vanessa's interaction with Gustavo during a science lesson, his joint attention skill is still developing and this development of visual attention will impact aspects of social interaction” (Corina & Singleton, 2009, p. 954).



In this lesson, Gustavo is watching Vanessa, and follows his eye gaze with her finger towards the bowl. He then redirects his attention towards the object of reference, the bowl, and then back to Vanessa. Vanessa acknowledges that Gustavo may have missed what she said while he is looking at the bowl, and repeats her sentence again. When we asked Vanessa about this lesson, she said that one of her teaching strategies is to give short instructions and repeat the instructions several times, in order for the child to visually access what was said, and to be sure they understand the activity. This strategy helps deaf children receive the maximum exposure to academic content. Several educators in different focus groups noticed the use of referential pointing as a form of directing the attention. The three images below show teachers from three different countries using referential pointing to direct students. First, Sophie calls on Gustavo, and points at him to allow other students to begin redirecting their eye gaze towards him. Bonnie, the second teacher also points at the students, and adds emphasis by saying: "Look." In the third picture, a teacher from Japan, Ikeda inquires about an answer from a student, and points at the student that had just given the answer. All these educators use the index finger to refer to the person they spotlighted.



In one focus group, Dale, an administrator from California School for the Deaf, acknowledged the teacher's effort in maintaining joint attention. Dale noted that during story time, when someone made a comment, she pointed at the speaker for the other students to direct their eye gaze on him, making sure the students were looking and paying attention. This is an important part of deaf culture, to be looking at the person who is talking. There is a need for more studies on the development of joint attention among deaf children in preschools. Lieberman, Hatrak and Mayberry (2014) report on the "little understanding of how children adapt to the cognitive requirement of continuously alternating their own visual attention to achieve joint attention with their interlocutors" (p. 22). The process of learning to attend can be difficult, but is necessary for social communication and understanding academic content. During their study, Lieberman, Hatrak and Mayberry (2014) found that deaf children who are born to deaf parents were able to develop the skill of joint attention earlier, which lessened the delays in academic development.

They encourage early acquisition of joint attention strategies for young deaf children in order to develop stronger academic skills. When preschools provide time for children to continue their development of joint attention strategies, the academic success of deaf children will begin early, and start to increase, regardless of modality. When educators understand specific strategies in obtaining attention and maintaining eye contact through academic instruction, children will truly benefit from it.

5. References

- Christiansen, J. and Leigh, I. 2002. Cochlear implants in children: Ethics and choices. Washington D.C.: Gallaudet University Press.
- Corina, D., & Singleton, J. (2009). Developmental social cognitive neuroscience: Insights from deafness. *Child Development*, 80, 952-967.
- DeLuzio, J., & Girolametto, L. (2006). Joint attention strategies used by a preschool educator who is deaf. *Journal of deaf studies and deaf education*, 11(2), 214-223.
- Dube, W. V., MacDonald, R. P., Mansfield, R. C., Holcomb, W. L., & Ahearn, W. H. (2004). Toward a Behavioral Analysis of Joint Attention. *The Behavior Analyst*, 27, 197.
- Grossberg, S., & Vladusich, T. (2010). How do children learn to follow gaze, share joint attention, imitate their teachers, and use tools during social interactions?. *Neural Networks*, 23(8), 940-965.
- Guarinello, A. C., Berberian, A. P., Santana, A. P. D. O., & Massi, G. (2006). Deafness and attention in deaf children. *American annals of the deaf*, 151(5), 499-507.
- Harris, M., & Chasin, J. (2005). Visual attention in deaf and hearing infants: The role of auditory cues. *Journal of Child Psychology and Psychiatry*, 46(10), 1116-1123.
- Haviland, W., Prins, H., McBride, B., & Walrath, D. (2013). *Cultural anthropology: the human challenge*. Cengage Learning.
- Jamieson, J. R. (1995). Interactions between mothers and children who are deaf. *Journal of Early Intervention*, 19(2), 108-117.
- Kottak, C. P. (2009). *Mirror for humanity: A concise introduction to cultural anthropology*. New York: McGraw-Hill.
- Kushalnager, P., Mathur, G., Moreland, C. J., Napoli, D. J., Osterling, W., Padden, C. & Rathmann, C. (2010). Infants and children with hearing loss need early language access. *The Journal of Clinical Ethics*, 21(2), 143.
- Lieberman, A. M., Hatrak, M., & Mayberry, R. I. (2014). Learning to look for language: Development of joint attention in young deaf children. *Language Learning and Development*, 10(1), 19-35.
- Mather, S. A. (1987). Eye Gaze & Communication in a Deaf Classroom. *Sign Language Studies*, 54(1), 11-30.
- Nowakowski, M. E., Tasker, S. L., & Schmidt, L. A. (2009). Establishment of joint attention in dyads involving hearing mothers of deaf and hearing children, and its relation to adaptive social behavior. *American Annals of the Deaf*, 154(1), 15-29.
- Paparella, T., & Kasari, C. (2004). Joint attention skills and language development in special needs populations: translating research to practice. *Infants & Young Children*, 17(3), 269.
- Singleton, J.L., & Crume, P. (2013). The socialization of visual engagement in deaf preschoolers. Unpublished manuscript under review. Georgia Institute of Technology.
- Smith, S., & Sutton-Spence, R. (2005). Adult-child interaction in a BSL nursery--getting their attention!. *Sign Language & Linguistics*, 8(1-2), 131-152.
- Tasker, S. L., Nowakowski, M. E., & Schmidt, L. A. (2010). Joint attention and social competence in deaf children with cochlear implants. *Journal of Developmental and Physical Disabilities*, 22(5), 509-532.
- Tobin, J., (1989). *Visual Anthropology and Multivocal Ethnography: A Dialogical Approach to Japanese Preschool Class Size*. *Dialectical Anthropology*, 13:173-187.
- Tobin, J., Hsueh, Y., & Karasawa, M. (2009). *Preschools in three cultures revisited*. Chicago: University of Chicago Press.
- Tobin, J., Wu, D., & Davidson, D. (1989). *Preschool in three cultures: Japan, China, and the United States*. Yale University Press.
- Woodward, J. (1972). Implications for sociolinguistic research among the deaf. *Sign Language Studies*, 1, 1-7.