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Project #4

Learning Objectives:

i. Students will justify 3 areas that increase language accessibility in an educational setting and provide 2 effective examples for each area.

Research has found that most children with hearing loss enter school with noticeable language delays. Even children who receive early intervention will enter school within the "low normal" range at best (Burger, 2021, Ch. 5). These results are directly related to the quality and quantity of language input children receive in the home within the first few years of life. Therefore, schools must foster language growth by increasing language accessibility in the classrooms in three ways: improving the classroom acoustics, adding a manual code to spoken language, and utilizing sign language (Burger, 2021, Ch. 5). American National Standards Institute (ANSI) states that the signal-to-noise ratio (SNR) in classrooms should not exceed 30 to 35 dB; however, most classrooms average 41 to 65 dB and do not satisfy these requirements (Knoors, 2014, p. 89). The presence of noise negatively affects children's speech perception and academic learning. Electronic devices can cause unnecessary background noise within the classroom, and high ceilings and tile floors can cause reverberation making listening difficult. Therefore, modifications such as minimizing electronic devices and adding floor, window, or wall coverings would be beneficial (Estabrooks, 2014, p. 290). Children with hearing loss can also use a personal FM system to improve their listening abilities in noisy classrooms. However, to make the appropriate modifications, the classroom acoustics must be measured first. Equipment that models the hearing of children with hearing technology can be used to do so (Knoors, 2014, p. 89). Once appropriate testing has been performed, administrators can take the appropriate measures to increase language accessibility.

Adding a manual code to spoken language is another way to increase language accessibility by allowing classrooms to be multi-modal. Dr. Cornett created cued speech, a system of manual cues made at varying locations around the face. Research has shown that using this manual code in classrooms improves the phonological awareness, word recognition, and fluency of students in languages such as French and Spanish. However, the positive results for the use of cued speech in the English language have been minimal. Another form of manual communication known as simultaneous communication, the simultaneous communication of both signs and speech, was wildly popular in the 1970s and is still familiar to this day. This manual mode has been found to improve interpersonal communication, increase access to spoken language, and support language acquisition of young children with hearing loss (Knoors, 2014, p. 90). Finally, utilizing sign language increases the accessibility of language in the classroom. The additional use of sign language makes classrooms both bilingual and bicultural. Bilingual-bicultural classrooms enable children with hearing loss to become linguistically competent, access a wide curriculum, acquire good literacy skills, and discover a positive outlook on their own identities (Knoors, 2014, p. 95). The most common objective of bilingual programs is providing students with access to the curriculum content. Without access to sign language, children with hearing loss miss essential information discussed during class through spoken language. The second most common objective is to promote linguistic competence. The third most common objective is to develop social identity and self-esteem, which is fostered through the bicultural aspect. Language accessibility is necessary for successful language development; therefore, it is crucial to implement these three strategies to make language more accessible in classrooms.

ii. Students will be able to interpret the literacy outcomes for D/HH students based on the most current research and discuss 3 areas of reading difficulties for this population.

Research has found that, on average, children with hearing loss graduate high school at a third or fourth-grade reading level, falling far behind their hearing peers. 50% of the children score above this median level, and 50% fall below. Within the last 40 years, cochlear implants have been made accessible, the use of ASL in classrooms has increased, technology usage has increased, and the opportunities to learn in a mainstream classroom have increased. Despite the changes that have been made over the 40 years, minimal improvement has been seen amongst the literacy outcomes of children with hearing loss (Knoors, 2014, p. 161). Qi and Mitchell used the Stanford Achievement Test (SAT) to analyze children with hearing loss' progress over the last 40 years. Although their results from testing revealed minimal improvement, they discovered that the SAT does not consider several other factors that affect the literacy skills of children with hearing loss. For example, deaf children of deaf parents were found to have higher academic achievement since they had access to adequate language input from birth (Knoors, 2014, p. 162). However, even deaf children of deaf parents score below their hearing peers. Despite the many changes made over the last four decades, children with hearing loss, on average, still fall behind normal hearing children regarding academic achievement and literacy.

There are three main components of reading that cause great difficulty for children with hearing loss. The first, recognizing words, also known as decoding, is the ability to recognize words as a whole or in parts such as individual letters or sounds. Decoding words relies on phonological processing skills, which are reduced for children with poor hearing. Therefore, children with hearing loss often confuse words that sound similar and have significantly smaller vocabularies than children with normal hearing (Knoors, 2014, p. 166). Although phonological processing skills play a vital role in proficiency, these skills only account for 11% of the variance amongst children with hearing loss. Instead, children with hearing loss utilize information from speechreading, lipreading, articulation, and orthography to compensate for their lack of phonological skills (Knoors, 2014, p. 167). Vocabulary is the second component of reading that causes difficulty for children with hearing loss. Vocabulary is complex for children with hearing loss to acquire since they lack access to adequate language input and have significantly fewer social interactions. As mentioned, children with hearing loss have much smaller vocabularies than normal hearing children, but the quality of their vocabularies also suffer. The quality of their vocabularies suffers in depth regarding how much they know about the concept, and in width, in regard to their knowledge of how words connect to one another (Knoors, 2014, p. 168). Lastly, grammar, the set of rules regarding the combination of morphemes and larger language units, is another component that causes reading difficulty for children with hearing loss. There are seven main components of grammar that deaf and hard of hearing children find difficult: negation, prepositions, conjunctions, questions, pronouns, complement structures, and relative clauses. The first four present significant difficulties for children with hearing loss since they are not explicitly produced within the English language (Burger, 2021, Ch. 8). Since a wide vocabulary, an understanding of grammar, and the ability to recognize words are three vital components for good reading, the reading skills of children with hearing loss suffer greatly.

iii. Students will assess at least 2 limitations of writing samples of D/HH students and discuss 2 writing interventions for this population.

In general, writing skills are harder to quantify than reading skills; however, even greater diversity exists amongst children with hearing loss. For example, some groups of children with hearing loss use spoken language while others use sign language, or some have cochlear

implants while others have no form of hearing technology. Children in these various groups display some distinct differences; however, their writing cannot be generalized into groups without overlooking the unique details of each child's writing style. Therefore, children's writing samples must be analyzed to determine their unique sets of skills and weaknesses, which is challenging and time-consuming. Writing analysis also fails to include cognitive measurements, which are essential to determine the foundations of children's writing and whether it relates to their reading or not (Knoors, 2014, p. 175). Since cognition directly affects academic success, the failure to include cognitive measurements in analysis limits the ability to understand children's writing samples (Knoors, 2014, 130). Despite these two limitations making it difficult to analyze the writing samples of children with hearing loss, two intervention programs have been developed to support the writing development of children with hearing loss.

Researchers Aram, Most, and Mayafit developed an intervention called mediated writing. Through this process, children and their mothers look at a picture book without any words. The mothers then encourage their children to write the story that they see through the pictures. As the mediators, the mothers assist their children by writing any words that the children do not know how to spell. Researchers Aram et al. found independent improvements in the children's writing through this process of shared reading and writing (Knoors, 2014, 177). Researchers Antia, Reed, and Kreimeyer, on the other hand, believed that parents' and teachers' focus on correct writing might have been negatively affecting children's progress as writers. Instead, they believed children should be able to explore writing and use it as a way to express their feelings and experiences (Knoors, 2014, 177). Similar to Antia et al., researchers Marschark, Lang, and Albertini agreed that directed, purposeful writing can be detrimental, and they suggested that writing should be a process, not a rigid sequence (Knoors, 2014, p. 178). These ideas support the program known as writing across the curriculum, which allows the student to connect the activity of writing to what they are learning in their other academic subjects. Integrating writing into other subjects provides content and a purpose for the writing. Regardless of the type of intervention, research has found that access to early experience with reading and writing leads to improved literacy skills.

iv. Students will compare 3 school placements and 4 assumptions often made regarding these educational placements.

Learning is an ongoing process that is affected by several factors: the school, the classroom, the teacher, and peers. Although variability exists amongst normal hearing children, an even more significant variability exists amongst children with hearing loss. Therefore, even more factors determine the learning of children with hearing loss (Knoors, 2014, p. 216). Cognitive abilities, parent-child communication, and additional disabilities are a few of the additional factors. Therefore, choosing the correct classroom setting for children with hearing loss takes great consideration, and it cannot be determined purely by children's degree of hearing loss. Although children with mild hearing loss might need less support than children with severe hearing loss, children of all degrees of hearing loss need individualized and different support. The language and cognitive abilities, social skills, communication mode, and the amount of support needed for each child are a few details that should be evaluated to determine the most appropriate classroom placement. There are three options for school placement of children with hearing loss: a regular classroom with normal hearing peers, a classroom with only deaf peers, or a combination of the two. Children with hearing loss and unique needs can be mainstreamed in a general education class for some or most of the day. Teachers of regular or mainstream classrooms are typically uneducated on the unique needs of children with hearing loss. Although these teachers have better classroom management skills, they do not understand the rate of development for children with hearing loss and, consequently, they do

not know how to teach these children effectively. For example, teachers of regular or mainstream classrooms will often set expectations too high for children with hearing loss, not understanding their delayed rate of development. Teachers of the deaf, on the other hand, are typically well educated on the variability that exists amongst deaf learners and know how to modify their lessons to fit the individual needs of each student. However, unlike regular classroom teachers, teachers of the deaf often lack substantial knowledge in each subject area and have limited classroom management skills (Burger, 2021, Ch. 11). When choosing a classroom for a child with hearing loss, it is important to analyze not only the strengths and needs of each child but also the expectations and qualifications of teachers from varying classrooms. Considering all these factors, children with hearing loss can be placed into the least restrictive environment where they can experience the greatest growth.

There are four assumptions commonly made about these three educational placements. The first is that children with cochlear implants are more likely to be placed at a regular school than at a deaf school. People often assume that children with implants are more likely to succeed in regular classrooms because of their improved hearing, and they see this assumption as positive. However, the success of cochlear implants and the appropriateness of classroom placement depend on various factors other than the speech and hearing skills of a child. For example, the distance that a child lives from the school, the number of friends that a child has near home, and what services can be provided for the child at each school affect the appropriateness of schools for a child with hearing loss (Knoors, 2014, p. 218). The second common assumption is that children with multiple disabilities are more likely to enroll at schools for the deaf than at regular schools. Like the last assumption, people see this positively, believing that schools for the deaf are more equipped to assist children with such challenging needs. Research has determined that children with hearing loss have more complex needs than their normal hearing peers; however, data has revealed that children with multiple disabilities are no more likely to be in one school than another (Knoors, 2014, p. 219). The third assumption commonly made is that sign language is the language of choice in deaf classrooms, while spoken language is the language of choice in mainstream classrooms. Although this assumption is generally the case in the United States, other countries often include sign language in regular classrooms and spoken language in classrooms for children with hearing loss. The last common assumption is that schools for the deaf are for children with severe hearing loss who cannot access spoken language. Although this assumption is true in some countries, such as the Netherlands, it cannot be generalized that children with less severe hearing loss require less interventional support and should be placed in regular hearing classrooms. The Stanford Achievement Test (SAT), for example, revealed that there was minimal variance amongst the mathematical computation scores of children with mild hearing loss and children with profound hearing loss (Knoors, 2014, p. 220). Since several other factors affect children with hearing loss' academic achievement, one cannot make generalizations about the impact of hearing loss on school placement. Instead, each child's unique strengths and needs should be considered when making decisions about classroom placement.

v. Students will reflect on how they plan to use the knowledge that you learned in this class and its impact on their future practice management for D/HH students.

Before this semester, I knew I wanted to work with young children with hearing loss; however, I was unsure of the specific career path I wanted to pursue. This class taught me just how important the first few years of life are and the imminent need for early identification and intervention. Now nearing the end of the semester, I am strongly considering a career in parent-infant advising, so that I can work with children during those initial, critical years of learning. To be a successful advisor, I will need to understand the specific details of language development

of children with hearing loss and the role of parents in children's development. I will need to provide the parents with sufficient information regarding language development and utilize my knowledge to suggest changes to be made within the home. There are several aspects to language development with which I should be familiar: prelinguistic communication development, spoken language development, and sign language development. To detect prelinguistic communication development, I will need to recognize signs of sound production, intentionality, communicative function, and social affect (Burger, 2021, Ch. 3). Regarding spoken language development, I will need to have a good understanding of all five components of spoken language: phonology, morphology, syntax, semantics, pragmatics, and literacy. Regarding sign language development, I will need to recognize how the milestones differ from spoken language. For example, just like children learning spoken language, children learning sign language also babble before producing their first words. However, they babble manually and produce their first words a few months earlier than children learning spoken language (Burger, 2021, Ch. 4). Knowing these varying aspects of language development will allow me to determine a child's current level of development regardless of their communication mode, set reasonable goals for the child, and create detailed plans for the family to achieve these goals. In this class, we learned that the quality of parent-child communication directly predicts children's success in all areas of development (Knoors, 2014, p. 45). Picking a mode of communication is one of the most important steps to ensure high-quality parent-child communication. Therefore, I will need to provide unbiased and family-focused information and ample assistance when parents decide the best mode of communication for their child. I will also need to be aware of the differences between deaf parents of deaf children and hearing parents of deaf children. For example, deaf parents utilize intuitive parenting techniques such as sign motherese and visual or physical cues to maintain their children's attention (Burger, 2021, Ch. 3). On the other hand, hearing parents interact with their child differently knowing that they cannot hear. For example, hearing mothers of deaf children will avoid "mental talk" diminishing children's theory of mind skills (Knoors, 2014, p. 129). Understanding the impact of parent involvement will allow me to detect variation amongst parenting styles, acknowledge the strengths and weaknesses of each style, and make suggestions for growth.

Case Study:

13. Madison's mom asks for your insight and input about their options for school placement. What assessment results / considerations would you need before you provide your response about a specific school placement and how would you obtain those results?

To pick the best school placement for Madison, we must get a thorough understanding of her skill levels across several domains. We must analyze her auditory skills, language skills, cognitive skills, and social skills. To explore Madison's auditory skills, we will need to determine where she falls on Pollack's auditory skill levels. There are ten levels: auditory awareness, auditory attention, auditory distance listening, auditory localization, auditory discrimination, auditory self-monitoring, auditory identification, auditory memory capacity and sequencing, auditory processing, and auditory comprehension (Burger, 2021, Ch. 9). We must pay close attention to her aided versus unaided benefit. This difference will give us a good idea of how much her cochlear implants assist her in her listening. We can consult her audiologist for assistance in this domain. To do a complete overview of Madison's language competence, we must analyze all areas of language: phonology, morphology, syntax, semantics, and pragmatics (Burger, 2021, Ch. 5). These five categories can be measured through language samples and various computations, such as mean length utterance (MLU). Cognition is the process of acquiring knowledge, storing it, and retrieving it when needed (Burger, 2021, Ch. 6). Therefore,

when measuring Madison's cognitive skills, we must pay close attention to her working memory, long-term memory, metacognition, perception skills, attention, and pattern recognition. There are a variety of tests that we can perform to determine Madison's cognitive skills. Finally, to analyze Madison's social skills, we must observe her while she engages with various individuals: family members, peers, family friends, unknown adults, and anyone else. A good social-emotional state increases self-awareness, improves stress management, increases motivation, and improves organizational skills. These benefits greatly improve a child's learning ability (Burger, 2021, Ch. 7). Once we have a good understanding of Madison's skills, we can determine her least restrictive environment and the best school placement for her.

14. What information can you give Madison's mom about their options for school placement and the advantage of each one given Madison's home environment?

There are three options for Madison's school placement: a regular classroom with all hearing peers, a deaf classroom with all deaf peers, or a combination of the two. Teachers of the deaf are typically more educated on the specific needs of children with hearing loss and will know how to adjust their methods to match Madison's unique needs. However, teachers of the deaf often lack adequate knowledge in each subject area and have limited classroom management skills. Teachers of regular or mainstream classrooms are rarely educated on the specific needs and rate of development of children with hearing loss, so they will probably set higher expectations for Madison than she can achieve. However, these teachers typically have a strong understanding of each subject area and have strong classroom management skills (Burger, 2021, Ch. 11). When choosing the most appropriate classroom placement for Madison, we must determine the least restrictive environment where she can experience the most growth. For Madison to learn sign language and spoken language, she will need to receive adequate input for both modes of communication. Therefore, I believe it would be best for Madison to attend a school where she is exposed to both modes of communication. Although people often assume that sign language is the language of choice in deaf classrooms and spoken language is the language of choice in regular or mainstream classrooms, this is not always the case. Therefore, I suggest that you inquire about the mode of communication in each classroom. I also suggest that you ask about the services that each school would provide Madison since appropriate services are a vital factor in the academic success of children with hearing loss (Knoors, 2014, p. 231). I believe that acquiring this knowledge about each classroom will help you decide the most appropriate classroom placement for Madison. If you still feel unsure after and would like to discuss further, we can schedule another time to meet.

15. Mom wants to visit each classroom and would like your input about what makes a good classroom to learn language. What are 6 key areas / strategies that could facilitate language development in a classroom that you want to teach her.

Several factors influence the academic achievement of children with hearing loss. Research has found that 25% of children's achievement is explained by their own characteristics, and 50% or more of their achievement is explained by the variation among teachers and form of instruction (Knoors, 2014, p. 221). To pick the best classroom for Madison, you must understand which strategies are important for facilitating language development within the classroom. A fundamental aspect of teaching is good classroom management. Classrooms need to be managed in a way that children can effectively learn from both their teacher and their fellow peers. Some classroom management practices are maximizing learning time and creating opportunities for teacher-student interaction (Knoors, 2014, p. 226). The relationship between teachers and students is especially important for children with disabilities such as hearing loss. Since they are at high risk for mental health problems, positive relationships with their teachers

can serve as protection from these common difficulties that diminish language development (Knoors, 2014, p. 228). To ensure positive relationships between teachers and students, teachers must understand the cognitive profiles of each student. This information will allow teachers to expand upon, extend, and recast student's responses in the most effective way for each student's development. It is also crucial for teachers to allow communicative initiatives by posing open-ended questions (Burger, 2021, Ch. 5). Often, adults take control of the conversation when children have difficulty acquiring language; however, this leaves little area for children to practice and expand upon their language knowledge. Instead of using a directive interaction style, teachers should engage in the process of dialogic inquiry with their students (Knoors, 2014, p. 102). Teachers should also use communication techniques that include all students instead of engaging in one-on-one communication. Research has found that children with hearing loss only visually attend to 44% of the teacher's signing, so it is vital for teachers to redirect their students' attention to ensure joint attention (Knoors, 2014, p. 102). Teachers must also provide direct language instruction to foster language growth. Normal hearing children rely heavily on direct language instruction, so it is even more important that children with hearing loss receive adequate language instruction. Children with hearing loss experience the greatest difficulty with phonological awareness, vocabulary, and grammar (Knoors, 2014, p. 104). Therefore, when choosing the best classroom to facilitate Madison's language development, it is important to notice if these strategies are used within each classroom.

16. Given what you know about Madison's family history of hearing loss and usage of sign language, what can you share with her candidacy of working with an AVT?

Auditory Verbal Therapy (AVT) uses residual hearing and hearing technologies to develop speaking and listening skills. Enabling children with hearing loss to function at the same level as their hearing peers is the goal of all AVT practitioners. If you and your family were to pursue this form of therapy, you would attend weekly Auditory Verbal Therapy sessions that were individualized to address the specific needs of Madison and your entire family. Your AVT practitioner would integrate speech and listening development into all aspects of Madison's life: social, emotional, cognitive, and cultural experiences (Estabrooks, 2016, p. 8). These sessions could help Madison achieve her long-term listening and spoken language goals. However, for this therapy to be successful, you and your husband would need to provide Madison ample support. For example, you would need to ensure that Madison wore her cochlear implants as consistently as possible (Estabrooks, 2016, p. 5). You would both need to become the primary facilitators of Madison's listening and spoken language development, which would require consistent participation in her Auditory Verbal Therapy and consistent application of the training methods at home (Estabrooks, 2016, p. 6). The level of family participation is an essential variable regarding the child's progress in AVT. Therefore, if you and your husband wanted to see success in Madison's listening and spoken language, you would need to be strongly committed to these principles. Since you want Madison to develop both spoken language and sign language skills, it is important to note that this therapy is solely focused on using her residual hearing to develop spoken language skills. For Madison to find success in this therapy, she would need to be focused exclusively on spoken language during these sessions and would need to receive ample practice at home. You and your husband could still enforce sign language, but you would need to make spoken language your primary concern to pursue this therapy.

Resources

Burger, T. (2021). Ch.3 *Language and the Home.*

Burger, T. (2021). Ch.4 *Language Development.*

Burger, T. (2021). Ch.5 *Language Assessment and Teaching.*

Burger, T. (2021). Ch.6 *Cognitive Profiles of Deaf Learners.*

Burger, T. (2021). Ch.7 *Learning and Social-Emotional Development.*

Burger, T. (2021). Ch.8 *School Achievement and Instruction: Literacy.*

Burger, T. (2021). Ch. 9 *Auditory Development.*

Burger, T. (2021). Ch.11 *Learning and Context.*

Estabrooks, W., MacIver-Lux, K., & Rhoades, E. A. (2016). *Auditory-verbal therapy: For young children with hearing loss and their families and the practitioners who guide them*. San Diego, CA: Plural Publishing.

Knoors, H., & Marschark, M. (2014). *Teaching deaf learners*. New York: Oxford University Press.