

The Impact of Pragmatic Delays for Deaf and Hard of Hearing Students in Mainstream Classrooms

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abstract

Increasingly, across the globe, deaf and hard of hearing (DHH) students are educated in mainstream schools using spoken language for communication. Classroom interactions require the use of sophisticated pragmatic language skills. Pragmatic skills can be delayed in DHH students and create challenges for the social and emotional adjustment of DHH students at school. School-aged DHH children may present to pediatric health care providers with concerns about communicating effectively and forming friendships with hearing school peers. This review of pragmatic research between school-aged DHH students and their typically hearing peers reveals that this group of students displays some well-developed pragmatic skills such as turn taking, questioning, seeking general clarifications, and using a range of turn types. In it, we identify key areas in which DHH students experience significant challenges in both the social use of language and expository interactions (involving descriptions or explanations) that characterize classroom communication. DHH students tend to dominate interactions and have challenges with being contingent on their partners' contributions. In addition, many DHH students display some difficulty with sequencing instructions and may use referents poorly, making it difficult for peers to follow their instructions and fully grasp their meaning. The conversation model is presented in this article as a guide for pediatric health care providers, clinicians, educators, and parents and/or caregivers to understand these pragmatic challenges. The model guides medical and education practitioners with the development of targeted intervention that will support these students' ability to interact with others, learn more effectively, and develop friendships.

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Pragmatic skills are often delayed in deaf and hard of hearing (DHH) young people and can create challenges for the social and emotional adjustment of DHH students at school.¹ The importance of social acceptance and opportunities to form friendships cannot be underestimated. Pediatric health care providers who treat school-aged DHH children and adolescents need to be aware of the way poor pragmatic skills can impact school learning, social interaction, and emotional well-being. Consequently, pediatric health care providers can be a valuable resource for families of DHH children and adolescents who present with concerns about communicating effectively at school and report difficulties with forming friendships with their typically hearing school peers. In this article, we identify the role that pragmatics skills play in school interactions to provide guidance for pediatric health care providers and allied health professionals to support these DHH children and adolescents and their families in their care.

STATEMENT OF THE PROBLEM

Many DHH children and adolescents attend mainstream schools where they may be the only deaf child or adolescent in their class.² DHH students can have difficulties with participating in classroom activities such as following instructions from teachers and engaging in collaborative dialogue with friends, particularly in noisy classrooms where background noise is greater than the incoming speech signal.³ These interactions involve the social use of language and rely on well-developed pragmatic skills. Pragmatic language delays in DHH students can explain some of these classroom difficulties and the challenges for these students in forming friendships with their peers. Many DHH students have age-appropriate language skills on formal measures of expressive

language (ie, syntax and semantics), but they still experience significant delays and challenges in social functioning and overall classroom participation.^{1,2} Yoshinaga-Itano⁴ reported that despite other aspects of language being commensurate with their hearing peers, at 7 years of age, DHH students were unable to master pragmatic language skills using complex language. Tsach and Most¹ investigated mainstream classrooms and showed that DHH fourth- to sixth-grade students (aged 10–12 years) showed greater difficulties in following teacher instructions compared with their typically hearing peers.

CONTEXT OF MAINSTREAM CLASSROOMS FOR DHH STUDENTS

Mainstream classrooms are complex places where instruction is predominantly delivered by using spoken language with visual supports including gestures, pictures, images (eg, storybooks), films, and videos (with and without captioning). Classroom interactions are dynamic. They involve rapid exchanges and high levels of talk between teachers and students, as well as student-to-student pairs, small groups, and whole classroom interactions, often within challenging acoustic environments.³ Much of the success within these environments requires the integration of sophisticated cognitive, linguistic, social, and listening skills.^{1,5,6} Some of these skills are well developed by the time a child with typical hearing starts school, but all aspects of language continue to develop throughout adolescence,⁷ particularly through conversations with peers and overhearing talk within social contexts. Students need to be able to understand social situations and learn how to respond to peers, teachers, and others; frequently, this must be done while they simultaneously try to follow multiple

speakers participating in multiple conversations.

Global trends reveal that the majority of DHH students are educated in mainstream classrooms. The majority of DHH students in the United Kingdom are educated in mainstream schools, and >80% of DHH students in the United States attend mainstream schools and receive varying support.^{1,2} Similarly, it was estimated that 83% of DHH students were enrolled in mainstream schools in Australia and that at least 80% of children with profound hearing loss received cochlear implants.^{8,9} In Israel, Sweden, Norway, and Hong Kong, a similarly high percentage of DHH students are enrolled in mainstream schools, with most receiving a few classes of specialized support per week.^{1,10–12} For the majority of these students, spoken language is the main mode of communication, with >95% born to hearing parents.^{13,14}

Reported increases in education placement for DHH students into mainstream schools is strongly linked to changes in inclusive educational policies, earlier diagnosis through the introduction of neonatal hearing screening, earlier fitting of sophisticated technological listening devices such as cochlear implants and hearing aids, and earlier intervention.^{4,13–16}

These advancements and increases in the number of DHH students attending mainstream schools have not yet translated into full social and academic inclusion for these students.^{1,9,11} One possible explanation relates to delayed pragmatic skills in DHH students, which impact these students' academic, social and emotional skills, acceptance by typically hearing peers, and overall participation in classes with typically hearing peers.^{11,15,17} Therefore, the importance of developing pragmatic skills for

school-aged DHH children and adolescents cannot be overestimated.

The majority of DHH children and adolescents seen by pediatric health care providers will be educated in mainstream school settings. Consequently, pediatric health care providers need to be aware that mainstream schools can provide a wide range of opportunities to develop pragmatic skills. However, many DHH children and adolescents may present with substantial gaps in their social communication skills and report challenges with forming friendships. These DHH young people require further referrals for assessment and intervention. To this end, pediatricians can proactively support families to seek assessment and intervention.

With this article, our purpose is to provide pediatricians and other professionals with an overview of 2 key areas in which delayed pragmatic skills can impact school success: (1) engaging in classroom interactions and (2) following instruction in the classroom. In addition, we provide recommendations for pediatric health care providers for supporting DHH children and adolescents and their families to develop pragmatic skills in the context of everyday conversations.

REVIEW OF EVIDENCE

Engaging in Classroom Interactions in Mainstream Classrooms

In contemporary classrooms, DHH students need to engage in frequent peer-to-peer interactions. Xie et al¹⁸ systematically reviewed a wide range of articles in which authors investigated peer-to-peer interactions between DHH students and their hearing peers while learning in inclusive settings. They concluded that DHH students often have difficulties interacting with their hearing peers in the classroom, particularly if their own speech intelligibility is poor.¹⁸ In other studies, researchers have also

reported that many DHH students demonstrate difficulties with seeking clarification or repair after conversation breakdown.¹⁹ DHH children can experience some rejection in the classroom when trying to initiate conversations.¹⁸ Hearing peers often show poor understanding of how to effectively communicate with peers who have a hearing loss, making poor eye contact and exhibiting impatience with having to repeat utterances.^{20–22}

Our own research, conducted over the last decade, provides a detailed analysis of pragmatic strengths and challenges for DHH students that can be applied to understand peer-to-peer interactions in the classroom.^{23–25} We found that upper elementary school DHH students (8–13 years of age) could understand and be understood by their hearing peers in a simple question-and-answer trivia game.²³ In a comparison of 2 groups of upper elementary students, that of hearing-hearing dyads and hearing-DHH dyads, both groups demonstrated similar pragmatic skills in terms of asking questions, responding to questions, and using conversational devices such as “Oh” and “I see.”²⁴ However, DHH students tended to dominate conversations, taking longer turns, initiating more topics, and asking more questions. Perhaps as a consequence, their typically hearing peers were often reluctant to initiate interactions. DHH students were often not responding contingently to their partner and were challenged by the third turn in an interaction displaying uncertainty in how to progress the conversation. The third turn in an interaction is crucial for conversational maintenance. For example, a child might initiate conversation with a question, “What did you do on the weekend?” and receive the response, “I played basketball.” Their next turn can either shut down the conversation with “Great” or open it

up with “How did your team do?” In our study, the DHH students found it difficult to respond with a third turn that extended the conversation. This problem was not observed in the hearing-hearing pairs. These findings suggest that DHH students learning with their hearing peers in mainstream settings were significantly challenged by some critical aspects of peer interaction, such as contingency on their partner’s turn, extension of the topic, and knowledge of how to balance the conversation equally.

Pediatric health care providers, clinicians, and teachers need to understand the nature of these pragmatic challenges because they have far-reaching implications both for academic learning and the development of school-based friendships. Much school-based social and academic learning takes place through extended meaningful interaction. If these cannot be sustained, then DHH students will experience delays. Pragmatics is a 2-way process. Both DHH students and their typically hearing peers may benefit from classroom support from their teachers, or they may benefit from a classroom-wide intervention to learn how to engage in interaction effectively and be mutually sensitive to each other’s needs.

Following Instructions in the Classroom

Expository tasks such as describing and understanding procedures, outlining game rules, and giving instructions are frequently encountered as activities in contemporary classrooms.²⁵ Expository interactions challenge children who have pragmatic language delays in ways that more conversational tasks might not,^{24,26} demanding more specific and precise language use and a strong grasp of referential vocabulary. Toe and Paatsch²⁴ invited upper elementary students to learn a simple game and

teach it to a selected friend from their classroom. They compared deaf-hearing pairs with hearing-hearing pairs in terms of (1) how many game rules were included, (2) whether the purpose of the game was shared, (3) the way clarifications were sought, and (4) the nature of the language used to teach their peer the game. All students used spoken language for communication. DHH students displayed some valuable skills for classroom interaction. They were able to convey key features of the game, such as the game purpose and the game rules, as well as check for their peer's understanding and seek their own clarifications. This is a positive outcome, indicating that this mainstreamed group of DHH students had developed some of the necessary skills to successfully undertake many classroom activities. These DHH students found it challenging, however, to select the correct language to convey information in a clear and sequenced manner and to select precise vocabulary to ensure their hearing peer understood which game item they were referencing. This finding suggests that these skills of sequencing expository information and understanding what a partner needs to know to be able to follow instructions deserves some further support from teachers and clinicians. Targeted intervention will facilitate more successful interactions by DHH students in the classroom. Understanding the impact of the challenges that DHH students encounter will support pediatric health care providers to explain to parents and/or caregivers why their child might be experiencing difficulty with both giving and receiving instructions and how this relates to their pragmatic language skills.

Recommendations for Pediatric Health Care Providers

Pediatric health care providers need to be aware that many school-aged DHH patients in their care may well be challenged by delayed pragmatic

skills, including those who have age-appropriate language skills on formal language tests. Pragmatic language delays are not only observed in young DHH children,⁴ but they extend into later childhood and adolescence.^{7,17,24,25} A conversation with the child or adolescent and his or her family will help providers identify the presence of difficulties with the sophisticated social use of language, challenges navigating interactions in the classroom, or problems following detailed expository instructions. If these challenges exist, pediatric health care providers should advocate strongly for referral to speech and language therapists and other providers of intervention to improve these important social communication skills.²⁷

Although there are no well-established programs for intervention in the area of pragmatic skills for DHH school-aged children, we do have an evidence-based model that can be used by pediatric health care providers to highlight areas in which problems often occur and for which additional language intervention can be helpful. The conversation model of intervention is a framework for highlighting current research and informing clinical practice.²⁸ This model aims to improve pragmatic skills of DHH students who use spoken language. There are 12 key elements of the conversation model (with each element represented by the letters in the word "conversation"). It is recommended that each of these elements be considered when supporting pragmatics skills:

1. Collaboration involves participants understanding that conversations are coconstructed in which they are required to share the conversation and respond appropriately to the varied formats of interactions (ie, a question requires an answer; a personal comment requires an

acknowledgment, etc). Pediatricians can encourage DHH children to coconstruct the interactions with family and friends or may support parents and/or caregivers to understand the importance of collaboratively constructing conversations that are balanced across speakers;

2. Opportunities involve the importance of providing abundant opportunities for conversations to take place with a variety of conversational partners including medical and professional staff working in community practices. Pediatricians can support DHH children and young people in their care to participate in conversations during their consultations and to highlight to parents and/or caregivers the importance of seeking opportunities for their children to interact with others at home and in their communities;
3. Nonverbal cues involve the use and understanding of the nonverbal cues that show speakers that they are engaged in the conversation. Pediatric health care providers can encourage DHH patients to "read" nonverbal cues in interactions and support them to use such cues appropriately to convey meaning;
4. Verbal cues involve the development of vocabulary (semantics), sentence structure (syntax), and speech sounds (phonology) that support social communication. Pediatric health care providers can model correct language and listen to the language of their DHH patients;
5. Eye gaze involves the development of ways eye gaze is used to change topics, take turns, and monitor and maintain conversations (eg, looking at the speaker to show interest, avoiding mutual eye gaze to show

disinterest, new turn, etc). Pediatricians can encourage parents and/or caregivers to make themselves visually accessible when conversing with their DHH children;

6. Repair involves the ways that conversations can be sustained through asking for clarification, repairing breakdown, and returning to a specific topic. Pediatric health care providers can encourage DHH patients to seek clarification to ensure understanding of meaning and to assure them that communication repair skills can be a strength;
7. Sequences (to enable sustained interaction) involve developing skills that enable a conversation to move beyond a limited number of turns and to understand the different types of sequencing formats. Pediatricians can encourage extended conversations with their DHH patients through the use of open questions or statements (eg, "Tell me more about ..." or "Help me to understand ...");
8. Acknowledgement involves understanding the ways in which a listener acknowledges the contributions of the speaker during conversation. Pediatricians can model strategies for showing acknowledgment (eg, head nodding, using phrases such as, "So you told me ...");
9. Turn taking involves developing the different ways in which people take turns in conversations so that only a single speaker talks at a time. This includes monitoring the timing of when a speaker stops and when the next turn starts. Pediatric health care providers can encourage parents and/or caregivers to highlight to their children the ways speakers and listeners take turns and the expectations of conversation

partners when participating in interactions;

10. Initiating topics involves understanding how to initiate a new topic, how to take longer conversational turns, and how to avoid communication breakdown. Pediatric health care providers can talk with their DHH patients and their parents and/or caregivers about the ways to initiate conversations, particularly when entering a group or when trying to make friends. They may also provide examples of how to avoid communication breakdown through the use of strategies such as asking, "Could you say that again please?" or saying, "I didn't understand when you said..." or "Just clarifying, did you say...";
11. Otherness involves the ability to take the perspective of another person during interactions and to understand how much information to provide and the degree of relevance of the contribution and to ensure that the contribution is orderly and unambiguous. Pediatric health care providers can discuss with families the importance of developing the ability to take the perspectives of another during conversation; and
12. Naturally occurring interaction involves providing opportunities for conversations to take place in naturally occurring contexts such as school, home, and community environments. Pediatric health care providers can emphasize the importance of providing opportunities for interactions in different contexts with a range of conversation partners.

Each element provides pediatric health care providers, clinicians, parents and/or caregivers, and teachers a way of conceptualizing pragmatic skills and a guide for developing a targeted intervention

program for supporting pragmatic skills in DHH students. Further detail about the model and how it might be implemented can be found in Paatsch et al.²⁸ This model is yet to be developed into an intervention program and requires further refinement; however, the model provides a starting point for pediatric health care providers and clinicians to guide DHH students and their families.

CONCLUSIONS

With this article, we have identified the pragmatic skills that are critical for mainstream classroom interaction and have detailed the challenges identified by the literature for DHH students who use spoken language within these educational settings. The global trend toward significantly increased numbers of DHH students enrolled in mainstream classrooms makes it critical that these students are supported in developing pragmatic skills. Health care professionals are likely to encounter DHH children and young people who are grappling with the daily interactive demands of mainstream school that impact their social and emotional well-being. We have identified the ways in which poor pragmatic skills can manifest in school functioning. We have also provided some guidance for health care providers to explore the specific nature of these challenges. The conversation model²⁸ outlined here can guide pediatric health care workers to support DHH patients and help families to identify areas in which further intervention might assist DHH children and adolescents.

ABBREVIATION

DHH: deaf and hard of hearing

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