AÇÕES DIDÁTICAS DE (RE) HABILITAÇÃO AUDITIVA PARA ALUNOS SURDOS EM UM CONTEXTO ESPECÍFICO DE EDUCAÇÃO COMUNICATIVA

Application of auditory (re)habilitation teaching behaviours for deaf students in a signed communication education context

Jill Duncan

BSc, MEd, MEdMan, PhD

RIDBC Renwick Centre / University of Newcastle

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ABSTRACT

This paper is an introductory description of ten key teaching behaviours that may assist the teacher of the deaf in facilitating auditory-based spoken language for students using hearing technology in a signed communication-learning environment. The paper identifies potential challenges teacher may encounter. It closes with an appeal for teachers, school leaders, and families to ensure systems are in place to bypass problems.

Keywords: Deaf. Hard of hearing. Hearing loss. Teaching behaviour. Teacher of the deaf.

INTRODUCTION

This paper describes teaching behaviours that a teacher of the deaf can use to facilitate auditory-based spoken language development of deaf students in a signed communication education environment. It also identifies potential challenges that occur in this special learning context. The paper does not prescribe when auditory-based spoken language is used in this unique education environment, because the family and education process make this decision based on individual student need.

Aside from the teaching behaviours presented here and as a matter of principle, and regardless of communication methodology, teachers of the deaf[1] are encouraged to use an integrated, developmental approach whereby the progression of cognitive and linguistic functioning is accomplished through social interaction. Attention is consistently placed on the development of communication through natural social discourse as well as activities within and outside of the formal learning context. The teacher is encouraged to maintain a process focus at all times so that "how the student is learning", as compared with "what the student is learning", is identified to the students and made explicit throughout all interactions (DUNCAN, RHOADES, & FITZPATRICK, in press).

Ten teaching behaviours presented in this paper are excerpts from the work of Duncan, Kendrick, McGinnis, and Perigoe (2010). Each teaching behavior is linked to the auditory-verbal methodology (DUNCAN, 2006). In recent times, the term "auditory (re)habilitation" has been used by the author because it includes all children and students using auditory-based spoken language regardless of age, culture, and language preference (DUNCAN et al., 2010).

FAMILY AND STUDENT EXPECTATIONS

As mentioned, the teacher of the deaf discusses anticipated use and purpose of the hearing technology with each family. It is essential that the teacher understands the extent to which the family expects the student to use audition in day-to-day communication. Then, the teacher ensures that the individual student understands the technology's purpose and family expectations. Finally, the teacher has an ongoing open

1 Teacher of the deaf refers to the practitioner who holds an undergraduate qualification in education and a graduate qualification in Deaf Education.

dialog with the entire class about hearing technology in the classroom. All students need to be aware of who is and who is not using hearing technology. Among other things, this transparent discussion facilitates the development of empathy as the students without hearing technology endeavour to help maintain an appropriate acoustic environment for the students who use it. To this end, all class members understand the importance of hearing technology and of listening when using auditory-based spoken language to communicate.

TEACHING BEHAVIOURS

Teaching behaviours described in this paper facilitate listening and spoken language development for students with hearing loss (DUNCAN ET AL., 2010). Bear in mind that these teaching behaviours are part of a repertoire of strategies (DUNCAN, 2006).

A critical element of enhancing auditory-based spoken language development is regular access to the speech spectrum. This requires ongoing surveillance of both the acoustic environment and the student's personal hearing technology. If the student does not have access to the speech spectrum, then spoken language development will be hindered. The teacher of the deaf is encouraged to be continuously cognizant of the acoustic environment when spoken language is used in the classroom.

MONITOR HEARING DEVICE FUNCTION

Appropriate, early, and consistent fitting and programming of all hearing technology is necessary to access auditory-based spoken language. Fundamental to this is the teacher's audiological knowledge and skill and its application to the student's use of the hearing technology. To predict student auditory-based spoken language reception and expression, it is essential that the teacher understand both the hearing aid settings and cochlear implant [2] MAP. Teachers must also be aware of hearing technology limitations. In addition to this, the teacher must understand the individual student's hearing aid and cochlear implant speech processor settings so that students can be encouraged to change the setting depending on the acoustic environment.

The teacher of the deaf supports the family in scheduling regular audiology appointments, so that the hearing technology is stable and the student benefit is maximized. The teacher can encourage the audiologist to complete annual speech perception tests to glean a greater understanding of how the hearing technology is assisting auditory-based spoken language development.

The teacher of the deaf supports the student in becoming an efficient manager of hearing technology by arranging opportunities to understand and practice basic equipment maintenance (DUNCAN ET AL., 2010). When a student is able, the care of listening technology can become the student's exclusive responsibility; however, the teacher of the deaf continues to monitor the device systematically throughout the formal instruction.

PROVIDE SPOKEN LANGUAGE INPUT VIA AUDITION

Auditory-based spoken language is a reflection of what is heard (LING, 2002). Put simply, the student requires the opportunity to hear abundant, unambiguous, clear spoken language so that its acoustic properties, including all segmental and suprasegmental information, can be incorporated into the child's production of spoken language. Regular attention must be drawn by the teacher of the deaf to the auditory signal, so that the student learns to identify, discriminate, and comprehend its intended meaning. To this end, the use of a classroom assistive listening device by which the teacher wears a microphone that transmits the auditory signal directly to the listener, may benefit the student in terms of minimizing background noise and improving the quality of spoken language input.

As a matter of principle and to maximize development, the family and school team structure regular opportunities for the student's exposure to auditory-based spoken language and practice of associated skills — in both an informal social discourse context and a formal didactic context. This is best accomplished through precise planning to minimize the risk of insufficient exposure, resulting in less than adequate progress.

MAXIMIZE AUDITION BY POSITIONING THE STUDENT AS CLOSE AS PRACTICABLE TO THE SPEAKER

Strategic positioning of students can maximize auditory input (LING, 1989, 2002). The teacher of the deaf should take care to sit on the side of the student's cochlear implant/hearing aid, so the student can hear the auditory signal. A favourable acoustic environment can be created by minimizing background noise

2 The cochlear implant MAP is the specifications of threshold, suprathresholds, and frequency by which the speech processor processes the auditory signal and delivers it in electrical form to the electrode array (TYE-MURRAY, 2009).

(acoustic clutter) and maximizing auditory input to support the student's auditory learning.

Spoken language must be loud enough to hear. Background noise may interfere with the student's ability to hear and process spoken language. For example, a computer, data projector, or air conditioner may create background noise that results in an inferior speech reception opportunity. In addition, the teacher of the deaf must be aware of and endeavour to monitor non-linguistic student noise in the classroom, as this too may interfere with the auditory signal. Again, use of a classroom assistive listening device by students with hearing aids and/or cochlear implants may assist in improving the signal to noise ratio within the classroom environment. Regardless, the teacher of the deaf is encouraged to keep the students with hearing technology close to the speaker when auditory-based spoken language is used. In addition, it may be prudent to place the student so that the hearing technology itself is positioned away from the noise source.

USE ACOUSTIC HIGHLIGHTING TO ENHANCE KEY ELEMENTS OF SPOKEN LANGUAGE

Acoustic highlighting is the practice of enhancing the audibility of specific elements of auditor-based spoken language to assist the listener by making specific components of the message more salient (DANIEL, 1987). Acoustically highlighted words generally have vowels that are elongated and made slightly louder than the rest of the word or phrase. As necessary, teachers of the deaf should acoustically highlight new, unfamiliar vocabulary words, while encouraging the student to listen to the new stimulus. As the student becomes skilled in processing information through audition, the teacher of the deaf decreases the amount of acoustic highlighting. Acoustic highlighting techniques also include singing, whispering, and emphasizing specific suprasegmentals and/or segmental features (DUNCAN ET AL., 2010).

Acoustic highlighting can also be used by the student when communicating with peers who use auditory-based spoken language. The teacher of the deaf models a stimulus for the student and when appropriate may request that the child imitate the production to encourage carryover into spoken language.

DEVELOP AND USE AUDITORY FEEDBACK TO FACILITATE SPOKEN LANGUAGE PRODUCTION

The "auditory feedback loop" or "speech chain" (DENES & PINSON, 1993) involves the student correcting the production of his or her spoken language, based on self-identified errors or feedback from the communication partner indicating an error. To develop and monitor speech intelligibility, it is important for students who use auditory-based spoken language to learn to listen to their own speech. This will require the teacher of the deaf to draw attention to the students' speech and the speech of others.

In the course of daily instruction and when the student is engaging in auditory-based spoken language, the teacher of the deaf chooses speech targets appropriate to the student and consistently monitors the student production as well as speech reception of the target (DUNCAN ET AL., 2010). To ensure reasonable expectations, the teacher is encouraged to limit speech corrections to identified targets. The student is not required to meet one speech goal before progressing to the next one. The teacher of the deaf can choose a few goals and cycle through them accordingly (TYE-MURRAY, 2004). This is not to say that habituation of speech errors is encouraged.

COMMUNICATE WITH STUDENTS IN A MANNER THAT FACILITATES NATURAL SOCIAL DISCOURSE

The teacher of the deaf monitors the student's spoken language contribution to social discourse and is careful to wait for the student to process the information and reciprocate verbally. During this interaction, it is important for the teacher to demonstrate a high level of support. The teacher draws information from the student using a range of scaffolding strategies including questioning and expanding and directing while taking every opportunity to engage the student in an age appropriate metacognitive and metalinguistic discussion (DUNCAN ET AL., 2010). Throughout the auditory-based spoken language interaction, the teacher uses clear and unambiguous language while conversing with the student slightly above his or her cognitive and linguistic levels.

USE WAIT-TIME TO ENCOURAGE TURN TAKING AND AUDITORY PROCESSING

A strategically used pause allows the student time to process the auditory signal while provoking a verbal response (DUNCAN ET AL., 2010). It also facilitates the development of turn taking. As the student's skill develops, the teacher of the deaf reduces the scaffolding, which, in this instance, is the length of the pause. The teacher of the deaf is careful to maintain appropriate pacing that allows the student to learn, while continuously monitoring the student's responses to

check for comprehension and alter pacing, if required (DUNCAN ET AL., 2010). Adequate time must be given to the student to process the auditory-based spoken message. The importance of allowing adequate time to process information is explicitly conveyed to parents, teacher's aides, and volunteers so that they too may facilitate auditory-based spoken language with patience.

USE STRATEGIES TO STIMULATE THINKING ABOUT LISTENING AND SPOKEN LANGUAGE

In all lessons, teachers are encouraged to highlight metacognitive and metalinguistic skills to students. Habitual and explicit use of the vocabulary of thinking (e.g., forget, remember, elaborate, judge, reflect, consider, imagine) will facilitate a focus on process, rather than on product, in teaching (DUNCAN ET AL., in press). The teacher of the deaf is careful to bring thinking processes to the awareness of students. Strategies for improving auditory skills, in particular, should be highlighted.

MODEL AND FACILITATE SPEECH WITH NATURAL RATE, RHYTHM, AND PROSODY

To develop fluent spoken language, the student must hear language that is pragmatically, syntactically, semantically, and phonologically correct (DUNCAN ET AL., 2010). Prosodic information is carried primarily in the lower frequency range, which means that the majority of students who use cochlear implants can access this information. The use of prosodic features increases speech intelligibility. Keep in mind that for students to produce intelligible speech, intelligible speech must be regularly modelled for and heard by the student. Again, explicit exposure to this speech model ought to be scheduled into the student's learning experience.

EFFECTIVE AND APPROPRIATE STRATEGIES FOR SPEECH DEVELOPMENT AND/OR REMEDIATION

Speech errors that occur regularly and are not brought to the attention of the speaker may habituate with time. Care is taken to discourage habituating speech errors. In general, speech remediation is far more difficult than facilitation of speech development. It is far better to prevent a speech error from interfering with speech intelligibility than to implement speech remediation to eliminate it from spoken language.

This acquisition of speech patterns can be promoted through rigorous use of audition. The process of facilitating speech development involves extensive knowledge of the principles of both speech perception (acoustics) and speech production, including how speech sounds develop and how they build on previously learned speech patterns (DUNCAN ET AL., 2010). The teacher of the deaf expected to facilitate auditory-based spoken language development must have the ability to assess which features of speech the student is able to access through hearing, which speech sounds and processes are developmentally appropriate, and which prerequisite skills the student has mastered (DUNCAN ET AL., 2010). It is critical that the teacher of the deaf is skilled at using appropriate strategies for both informal and formal speech development and remediation.

POTENTIAL CHALLENGES

The teacher of the deaf may encounter numerous challenges when endeavouring to facilitate development of both an auditory-based spoken language and a signed language in a singular group of children. Five challenges are highlighted here along with a few possible solutions.

1. ASYNCHRONOUS SIGNED LANGUAGE AND AUDITORY-BASED SPOKEN LANGUAGE

Fluent signed language and spoken language cannot occur simultaneously, making communication within one classroom potentially challenging. The timing of auditory-based spoken language and signed language is critical. This requires the teacher of the deaf to be explicit when using both communication systems. A classroom-based teacher's aide who is fluent in both languages may facilitate the availability of abundant linguist exposure. Alternatively, at strategic times school volunteers may be used to facilitate small group lessons, to allow the teacher time to use auditory-based spoken language with individual students.

2. NATURE OF THE STUDENT

Children with hearing loss who do not use hearing technology and who use signed language to communicate may produce verbal non-linguistic noises that may interfere with the reception of an auditory-based spoken language. Explicit explanation to all students regarding the need for a quiet listening environment is essential, as is the placement of students who are developing an auditory-based spoken language.

Some students may lack fluency in their first lan- Some students may lack fluency in their first language, which will result in language learning difficulties when a second language is introduced. Students who receive hearing technology "late" may struggle to use audition in developing an auditory-based spoken language. In particular, some students with additional special needs may be introduced to a signed language after lack of success in an auditory-based spoken language program, because of the inability to acquire a spoken language. These students and their families may require additional intensive involvement from a school-based

speech-language pathologist to maximize spoken language development opportunities.

3. NATURE OF THE FAMILY

Family members who are introduced to either a signed language or auditory-based spoken language as a first language may struggle with the introduction and use of a second language. The introduction of a second language may also interfere with the parents' capacity to use both languages within the family context. Parents who learned a signed language may be distracted from using an auditory-based spoken language and vice versa. Again, these families may require supplementary support from a specialist. In addition, parent support groups consisting of families in similar situations may facilitate problem solving related to this specific context.

4. NATURE OF THE CLASS

The teacher of the deaf may find it overly demanding to provide appropriate stimuli in two languages. Balancing teaching behaviours in the context of diverse student needs requires extensive expert knowledge and skill. The educational leader must ensure that a number of mechanisms are in place to support the teacher. This can include ongoing professional development in facilitating the development of both languages, additional planning time, and student access to additional support such as a school-based speech-language pathologist.

CONGRUENT FAMILY, TEACHER, AND SCHOOL EXPECTATIONS

This diverse learning context has the potential to result in confused parent-school-teacher assumptions. In this situation, ongoing open communication among parents, the school, and the teacher is essential. Clear unambiguous policies must be in place, with individual classroom teacher's daily lesson reflecting policy implementation.

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CONCLUSION

This paper brings to light 10 key teaching behaviours that may assist the teacher of the deaf in facilitating auditory-based spoken language for students using hearing technology in a signed communication--learning environment. Teaching behaviours presented here are taken from Duncan et al. (2010). The paper closes with identification of some potential challenges the teacher of the deaf may encounter. Teachers, school leaders, and families are cautioned to put systems in place to circumvent these potential challenges

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