Consultant Practitioners' Self Reported Techniques for Supporting Central and Northern Albertan Students Who are Deaf and Hard of Hearing

by

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ABSTRACT

Consultants in central-northern Alberta have worked to support integration of children who are deaf or hard-of-hearing (D/HH) in inclusive classrooms. Parents in the region had requested access to Listening and Spoken Language (LSL) services; however, the consultants at one publicly funded agency in the region were not familiar with this method. A series of practice-related questions grew from the parents' enquiry: (a) What is the LSL method, and how is it delivered in inclusive classrooms?; (b) How are consultant services for students who are D/HH delivered in central-northern Alberta?; and (c) In what ways are these services similar or different? These questions were developed into research questions that were addressed in three phases of research. Phase One described the literature related to LSL practices, with additional attention paid to school-based application. Through contribution from a subject matter expert and suggested literature, a series of LSL-related techniques were assembled that are reportedly used by itinerant practitioners in eastern Ontario. In Phase Two the researcher conducted phone interviews with three participants employed as consultants in central-northern Albertan schools. They described the techniques with which they support inclusion of the target students, as well as provided additional details for approaching the challenges of collaboration, working with technology, classroom environment factors, and more. This culminated in a list of techniques organized into categories: cognitive linguistic, auditory, speech, professional / caregiver guidance, instructional presentation and planning, student guidance, and miscellaneous. The topics with most significant contribution and saturation of data included formation and utilization of relationships when delivering services; teaching strategies and classroom-based interventions; suggestions for and implementation of programming; and auditory interventions. In Phase Three, the techniques reported by the consultants in central-northern Alberta were compared

with the documented techniques used in the itinerant model in eastern Ontario. The techniques reported by the three participants show many similarities with the Ontario model, with major areas of overlap including auditory interventions and professional / caregiver guidance, and notable differences in the areas of parent interaction, transition from pre-school to school years, frequency of visits, and the participant's role in intervention.

PREFACE

This thesis is an original work by Lyall Pacey. The research project to which this thesis contributes received research ethics approval from the University of Alberta Research Ethics Board. The submitted project was named "Qualitative Comparison of Listening and Spoken Language Techniques Used by Auditory-Verbal Practitioners and Education Consultants to Facilitate Inclusion of Deaf and Hard-of-Hearing Students in Northern Alberta Schools", numbered 00044157, and dated 4 March, 2014. Several resources for the literature review and methodology were provided by the thesis supervisory committee. Dr. Melanie Campbell was the supervisory author, and assisted with conceptualization of the project and drafting this manuscript.

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General Terms

Education Assistant: Alternatively known as educational assistant, teacher's assistant, teacher's aide, teaching assistant, and other terms depending on jurisdiction. These paraprofessionals work in various education settings to support the instructional services provided by a teacher.

Educational Audiologist: An audiologist whose area of specialty is working with children from birth through completion of school. This profession's role may vary by location, and may include evaluation of hearing and implementation of hearing technology in the school setting.

Teacher of the Deaf and Hard-of-Hearing: Alternatively known as deaf educators, hearing resource teachers, teachers of the hearing impaired, and teachers of the deaf. These are teachers with advanced education specialized to the education of students who are deaf or hard-of-hearing.

Terms for Employees in Central-Northern Albertan Service Model:

Consultant: Refers to both private and provincially funded practitioners and educators working with the Inclusive Learning Outreach and later the various Regional Collaborative Service Delivery regions in central-northern Alberta. In this study, the consultants include educational audiologists and teachers with deaf and hard-of-hearing certification and training**,** who follow a service delivery model of supporting schools, including teachers and other staff members, with providing for the needs of students who are deaf or hard-of-hearing.

Terms for Employees in the Eastern Ontario Service Model

Itinerant: A generic term referring to educators, speech-language pathologists, and educational audiologists. In this document, it refers to a professional who supports students who are deaf or hard-of-hearing through working with the student and school staff.

INTRODUCTION

The education of children who are D/HH is a challenge in any setting, and the inclusive classroom is no exception. With early identification of hearing loss and the availability of hearing aids (HAs) and cochlear implants (CIs), it is possible for children who are D/HH to more easily enter mainstream classrooms instead of being restricted to placements within traditional schools for the deaf (Kohen, Uppal, Guevremont, & Cartwright, 2008; Power & Hyde, 2002). While it is possible for such children to communicate in alternative ways (e.g., sign language, cued speech), the vast majority of children with hearing loss are born to hearing parents (Mitchell & Karchmer, 2004; Ontario Ministry of Children and Youth Services, 2011), for whom communication with spoken language may be more attractive. Approaches to supporting use of listening and speech, typically paired with consistent HA or CI usage, are available to parents and clinicians.

Services for children who are D/HH in inclusive classrooms in central-northern Alberta are provided through consultant agencies that are provincially or privately funded. The majority of day-to-day implementation of intervention is in the hands of local staff, such as principals, teachers, and education assistants (EAs). Consultants build the capacity of local staff by way of in-person visits and telecommunication.

Several parents of students who are D/HH in central-northern Albertan school setting have asked for LSL services for their children (J. Dahlen, personal communication, October, 2012). Some consultants working at a publicly-funded agency were not familiar with this approach, which led to a series of questions relevant to this field: (a) What is the LSL method and how can it be delivered in the regular / mainstream / inclusive classroom?; (b) How do consultants working in central-northern Alberta deliver services in inclusive classrooms?; and (c) How are these services different / similar? These questions were refined into three research

questions and three phases of research to address them. Phase One is an exploration of the LSL method and its application to school; Phase Two is an exploration of the techniques currently used in central-northern Alberta; and Phase Three is a comparison of these two. Three separate approaches to gathering or manipulating data were required. The three discrete phases of research and accompanying research questions are outlined below.

Phase One

The first research question set forth in this thesis was "How is LSL practice described in the literature, particularly with regard to its application in schools?" The first half of this question is answered with a general review of the LSL literature. The majority of the LSL-related literature describes supporting the child's early development. Regarding the second half of the question, it was found that there is a dearth of school-related literature. The researches approached this shortage with input from a subject matter expert and additional recommended literature. This resulted in an inventory of actions reportedly used within an itinerant service delivery model in eastern Ontario, primarily based on input from LSL-related literature and an LSL practitioner.

Phase Two

The second research question asked, "What techniques are reported to be used by consultant practitioners in central-northern Alberta to support the integration of students who are D/HH in an inclusive classroom?" In this phase the researcher performed interviews with consultant practitioners who work in the region, resulting in an inventory of the actions used in their practice.

Phase Three

The third phase of the study was a comparison of the actions used in the itinerant model described in Phase One and the central-northern Albertan consultant model described in Phase Two, in order to answer the research question: “What are the similarities and difference between the techniques described by practitioners in central-northern Alberta and the itinerant-based techniques described in the literature?”

PHASE ONE: DESCRIBING LSL

The LSL method is formerly (and often interchangeably) known as the auditory-verbal (AV) approach. The LSL approach is only a newcomer in name. It began development in the late 1970s through international collaboration, eventually resulting in formal certification programs and regulation that exists today. It is an area of specialization for teachers of the deaf and hard-of-hearing (TODs), audiologists, and speech-language pathologists (SLPs), and therefore is known in both education and healthcare settings.

LSL began to take shape in the late 1970s when the International Committee on Auditory-Verbal Communication (ICAVC) convened for a two-day meeting in Easton, Pennsylvania. George Fellendorf, a former director of the Alexander Graham Bell Association for the Deaf (AG Bell), chaired the meeting, which included foremost advocates for the auditory approach, including Doreen Pollack, Daniel Ling, and Helen Beebe. The group achieved a measure of agreement during this meeting, and in 1981 the ICAVC received formal support as a special committee with the AG Bell Association. In 1986 ICAVC created an independent body called Auditory-Verbal International Inc. (AVI), which oversaw the discipline for about two decades. Many of its constituent members assembled in Toronto in 2005, where they further refined the principles that guide AV practice. Again AV and AG Bell crossed paths when AVI and AG Bell merged to unify the voice of AV practice. To this day the certification and regulation of the discipline are managed by AG Bell, based in Washington, D.C. (Estabrooks, 2006).

As mentioned, the most substantial meeting of the discipline's recent history took place in Toronto in 2005. Though not particularly far from Easton or the AG Bell Association's home in Washington, D.C., that a Canadian city would host such a conference suggests that the

discipline had made a firm landing north of the border. Renowned Canadian clinicians and authors like Warren Estabrooks and Daniel Ling granted further influence to Canadian LSL practice. However, LSL practitioners are not distributed evenly in Canada; in truth, the majority of relevant Canadian LSL publications originate in eastern Ontario. Correspondingly, searching for LSL Specialists (LSLS) on the LSL Knowledge Center's directory turns up 40 results in Ontario versus three in British Columbia and Saskatchewan respectively ("Find a LSLS Directory Search," 2013). These are likely incomplete numbers, as this ledger includes only members who opted to publicize their information, but it suggests an uneven presence of LSL practitioners in Canada.

This phase of the study began with an exploration of the general LSL literature. In the following sections, literature relevant to the integration of students who are D/HH in the inclusive classroom is discussed, with special attention given to the approach taken by LSL practitioners. As there is a notable shortage of literature specific to applying LSL principles in schools, this section also covers the methods used to supplement the present literature with input from a subject matter expert who applies LSL principles within an itinerant model in eastern Ontario. This, along with content from literature suggested by the expert, is assembled as a list of techniques reportedly appropriate for an itinerant model that applies LSL principles.

LSL Therapy and Practice

Perhaps the most prominent figure in modern LSL literature is Warren Estabrooks, the current president and chief executive officer of We Listen International based in Toronto, Ontario, and who has played a significant role in the establishment of the AG Bell Academy for Listening and Spoken Language and similar organisations abroad ("The WE Listen International

Inc. Team," 2014). His book, *Auditory-Verbal Therapy and Practice*, is a fundamental starting point for exploring LSL practice. Accordingly, it is the first piece this document reviews.

Estabrooks (2006) emphasised that AVT is an effective intervention that supports cognitive development and language learning in children who are D/HH. The approach "focuses on education, guidance, advocacy, family support, and the rigorous application of techniques… that promote optimal acquisition of spoken language through listening" (p. 1). The approach described by Estabrooks certainly has guidelines, but it is not firmly fixed. The rationale for using an AV approach rather than another is elaborated: Most children who are D/HH have some residual hearing, and with assistance such children typically pick up a portion of the hearing spectrum crucial to spoken language; it is more natural to develop language through audition; starting early with a focus on audition benefits neurological and language development; other language skills develop along with the use of auditory input; and using the AV approach is easier for hearing parents than using sign language. He noted that AVT is not appropriate for children with neurogenic disorders at a very early age, though he still advocated for early intervention to enable social function later in life.

There is a set of principles for all LSL practice which is cited routinely in the literature, elaborated as follows ("Principles of LSLS," 2007). The practitioner should strive for and promote early diagnosis of hearing loss or deafness, and subsequently recommend the immediate comprehensive assessment of hearing and provision of hearing devices. The practitioner should act as a guide, performing many roles for different persons: helping parents to use hearing and spoken language with no sign language or lipreading in therapy sessions or in quiet; guiding parents and other caregivers to manipulate the environment and interactions to support listening and speaking; and to guide caregivers to support the child's self-monitoring. The practitioner

must also never cease in the assessment process, continuously utilizing formal and informal testing to customize plans for the child. Additionally, the practitioner should promote education in "regular" classrooms when appropriate. The detailed principles for both the Auditory-Verbal Educator (AVEd) and AVT subdisciplines are listed in Appendix A.

Elaborating on the principles of LSL practice, one chapter in Estabrook's text recommends a foundation for the development of listening skills to be established by practitioners and parents while building learning through listening. This includes (a) use of amplification during all waking hours; (b) maintenance of best hearing opportunities through troubleshooting of amplification devices; (c) use of carefully articulated, clear speech; and (d) reduction of noise in the child's environment (Edwards & Estabrooks, 2006).

LSL is not a profession of its own. Rather, professionals choose it as an area of specialization within their own field. The professions accepted into the discipline include TODs, audiologists, and SLPs. Following experience and formalized testing in LSL practice, they may become certified Auditory-Verbal Therapists (LSLS Cert. AVT) or Auditory-Verbal Educators (LSLS Cert. AVEd). They may initiate services or collaborate with other professionals to support and supplement the services they provide. Due to the nature of LSL practice, practitioners work intensively with families and teachers to influence their behaviours and the child's environment.

Efficacy of the AV / LSL Approach

Overall there is little material relevant to the efficacy of LSL approaches, including (perhaps especially) in application to schools. There is also a dearth of literature regarding the approach's effects on social functioning, self-perception, and personal adjustment (Eriks-Brophy,

2004), which would be especially relevant during school years and on entrance to adulthood. Eriks-Brophy examined a handful of class III studies (non-experimental design) and a single class II study (quasi-experimental, program evaluations), which at the time was the sum of AVT efficacy research.

The earliest of the reviewed class III studies (Goldberg & Flexer, 1993) was a descriptive study that looked at "graduates" of an AVT program who were by then adults. The group consisted of 114 Canadians and Americans between the ages 18 and 47, who identified as functioning successfully within their communities, schools, and post-secondary institutions. The great majority (94%) of the participants had severe-profound hearing loss and two thirds had additional disabilities. Despite this, 86% were "mainstreamed" into inclusive classrooms during their elementary school years, reaching as many as 91% integrated by the final year of high school. Though the authors did not presume causality from the study, the findings suggested that individuals with very significant levels of hearing loss are able to integrate successfully into inclusive educational and social environments with early support.

Robertson and Flexer (1993) looked more closely at academic skills, as demonstrated by standardized test scores provided to the investigators by parents of school-age children with pre-lingual hearing loss who received AVT in their early years. Of the 37 students, 30 scored at the 50^{th} percentile or higher on various readings tests normed for children with typical hearing. The parents also generally held an impression of high achievement by their children, which was also promising. As with the Goldberg and Flexer (1993) study, inferring causality would be inappropriate, and the findings are confounded by studying outcomes of children served by many different service providers.

A third study of LSL efficacy was performed by Wray, Flexer, and Vaccaro (1997). Their study departed from highly objective measures of speech-language-hearing skills, instead requesting the judgements of classroom teachers in inclusive classrooms regarding the performance of 19 children with moderate to profound hearing loss due to various etiologies (one with a CI, 18 with HAs) who had attended an AV program for two to five years. The students' current teachers responded to the *Screening Instrument for Targeting Educational Risk* (SIFTER) questionnaire (Anderson, 1989) questionnaire and additional questions about reading level, use of classroom amplification systems (e.g., FM sound field), and support services. Of the 19, only three had been recommended for remedial out-of-class assistance from tutors, and the inclusive classroom remained their primary placement. Use of hearing technology, including FM systems, was consistent, and the benefit of FM use was well understood by the teachers. Support services from speech-language pathologists and tutors were required by many. Regarding language and communication skills, the findings were promising: disruptive behaviour was not a problem; 84% of the participants were at or above normal reading levels; communication skills and vocabulary increased over time; and the students were involved in various extracurricular activities with hearing peers. Of the 19 families approached, 16 children were considered fully included in their schools. The teachers were overall highly impressed by the students, with nearly all receiving a passing score for participation in class. Despite the limitations in generalizability and lack of comparison with other approaches, the three studies provide some promising early support for LSL approaches as a way to face the challenges of a child's education and social integration.

The class II study reviewed by Eriks-Brophy (2004) was conducted by Rhoades and Chisholm (1999). They studied 40 children with moderate to profound hearing loss – 13 with

HAs and 27 with CIs – who received AVT for one to four years, with ages ranging from 50 to 120 months at the time of the study. The researchers measured their communication development using the *Sequenced Inventory of Communication Development* (SICD) (Hedrick, Prather, & Tobin, 1984), the *Preschool Language Scale-3* (PLS-3) (Zimmerman, Steiner, & Pond, 1992), and the *Oral-Written Language Scale* (OWLS) (Carrow-Woolfolk, 1995). They found that all the children, regardless of the type of their amplification, improved both in expressive and receptive language skill acquisition; however, the authors noted the possibility of a maturation effect confounding this finding. Those who had "graduated" (i.e., deemed no longer in need of AVT) (N = 14) showed performance typical for their age. Of the remaining students, about half continued with AVT, whereas the rest were referred to other types of programs, discontinued services altogether, or the family relocated. Though the authors did not claim that AVT was the direct cause of the participants' improvement, they concluded that AVT was a "viable communication option" for children who are D/HH (p. 22).

The evidence covered in Eriks-Brophy's review, though sparse, suggests that children who are "enrolled in AVT are able to make substantial progress in the development of speech, language, and reading skills" (Eriks-Brophy, 2004, p. 31), and may have an increased chance of full inclusion in the classroom. Eriks-Brophy brings forward several suggestions and questions that, if approached, would help to clarify the efficacy status and any needs for change within the LSL discipline. These will be reviewed below in the General Critique of AV / LSL Literature section below.

A handful of relevant studies took place since the Eriks-Brophy (2004) review. Hayes, Geers, Treiman, and Moog (2009) looked at changes in vocabulary over time of 65 children who received CIs before the age of five, used oral communication, and received private auditory-oral

(AO) education. A note to the reader who has not been thoroughly exposed to the field: the AO approach is similar to the AV approach in respect to use of the sense of hearing, but it also encourages the use of lip reading or contextual cues, which in turn are either avoided or discouraged by AV practitioners when the child is in therapy or in quiet settings. Using the *Peabody Picture Vocabulary Test-Third Edition* (PPVT-III) (Dunn & Dunn, 1997), the study showed that the children initially received below-average standard scores, though they showed an increase of approximately seven points per year, indicating an above-average rate of vocabulary growth. Demographic factors (e.g., parent education, gender) made no significant differences in the outcomes. The earlier that implantation occurred, the faster improvement occurred, though the rate of growth appeared to taper once they reached developmentally normal levels. Again, the study is not well generalizable, and that it involved an AO approach instead of AV limits its usefulness to the study of the LSL discipline. Regardless, it lends support for early implantation / amplification and use of an education method based on spoken language.

A small set of studies have also been performed that look specifically at AV efficacy. Dornan, Hickson, Murdoch, and Houston (2009) expanded on their previous study of AV efficacy (Dornan, Hickson, Murdoch, & Houston, 2007) of a group of children by adding a control group for comparison. This was a longitudinal study, looking at 25 children in an AVT therapy group over the course of 21 months. The group was not especially homogeneous, including various types of hearing loss and amplification device types, and ages ranged from two to six years at the pretest session, though all were deafened before the age of 18 months. The control group was matched for all characteristics (initial language age, receptive vocabulary, gender, and parent education), but were included only if they had normal hearing, no phonological delays, and no cognitive or physical atypicalities. Before the AVT program began,

only 58.6% of the AVT group was at a typical language development age-equivalent; after the 21-month period, 84% met this criterion. Global language performance for the AVT group had improved greatly overall, with receptive vocabulary development as the only significant advantage for the control group. The authors concluded that, considering the goals of AVT, the approach is clinically effective.

Focus on Cochlear Implants. Much has been written about the implementation of LSL techniques for children with CIs, but little efficacy research is available (Eriks-Brophy, 2004; Spencer & Marschark, 2010). As discussed in LSL Therapy and Practice above, LSL practitioners promote early diagnosis of hearing loss, comprehensive assessment of hearing, and appropriate provision of hearing devices. For cochlear implantation alone, the most influential factor in language development appears to be age of implantation. Dettman, Pinder, Briggs, Dowell, and Leigh (2007) chose to compare the language outcomes of children who received their implant before (early implanted) or after twelve months of age (late implanted). Using all subscales of the *Rosetti Infant-Toddler Language Scale* (Rossetti, 1990), they found the early implanted group increased its language development rates 1.12 (receptive) and 1.01 (expressive) times that of normal development. The early implanted group, whose mean age at implantation was 0.88 years, performed better than the later implanted group (mean age = 1.60 years), even after members with cognitive delays were excluded from analysis of the later implanted group (Dettman et al., 2007). An earlier longitudinal study (Fryauf-Bertschy, Tyler, Kelsay, Gantz, & Woodworth, 1997) looked at speech perception alone. The participants included 34 prelingually deafened children who had three or more years of experience with a CI, and who were raised with a Total Communication (TC) (combined sign and spoken language) modality. They were

given various standardized tests of correct perception of words and sounds, including monosyllables, trochees (stressed syllable followed by an unstressed syllable as in "apple"), spondees (two stressed syllables as in "playground"), the Four Choice Spondee test from the Early Speech Perception test battery, and more. The analysis considered multiple factors: those who were implanted before five years of age performed better on open set (non-visually cued) word recognition; those who used their implant consistently showed improvement over time; and the later the implantation, the slower the child's auditory recognition development.

Comparison of habilitation methods. Multiple studies comparing different habilitation programs have taken place since the turn of the century; these primarily have compared the AO approach with TC, with the aim to provide evidence to support choice of technique for use with children who are D/HH. Moog and Geers (2003) described a large, homogeneous group of eight- and nine-year-old, prelingually deafened children from Canada and the United States, who each received a CI before his/her fifth birthday. They were in diverse education settings, including public and private schools; mainstream and special education classrooms; and AO and TC classrooms. The researchers considered the influence of three factors – child / family characteristics, implant characteristics, and educational setting – on speech, language, and reading performance. As for educational setting, all outcomes but two were best for children in the AO classrooms. The exceptions were speech production, for which children from inclusive and AO classrooms were on par, and reading, for which children from the inclusive classrooms demonstrated the best performance. Research by Geers, Strube, Tobey, Pisoni, and Moog (2011) further supported that early use of oral communication with children with CIs was a predictor of both early and high-school-level success with verbal, auditory perceptual, and literacy skills.

These studies support the argument that a communication environment emphasizing speech, audition, and language, as might be found in an inclusive classroom, is most beneficial for children with CIs.

One recent article (Dettman, Wall, Constantinescu, & Dowell, 2013) provides data from three early intervention approaches – AO, AV, and bilingual-bicultural (BB). BB is an approach that includes sign language as the native language, a spoken language, and an exposure to Deaf and majority culture. These three approaches were examined to compare their influence on speech and language outcomes. Eight, eight, and twenty-three children were selected from AV, BB, and AO programs respectively; they were matched for sex, degree of hearing loss, cognitive ability, age at implantation / amplification, monolingualism, and absence of cognitive impairment. The AV group, however, was significantly older than the AO and BB groups. Using an open-set of consonant-nucleus-consonant words (CNC; e.g., "ball", "pen") (Peterson & Lehiste, 1962), the Bamford-Kowal-Bench (BKB) sentences (Bench & Bamford, 1979), and the Peabody Picture Vocabulary Test (PPVT-4, -R, and -III) (Dunn & Dunn, 2012; Dunn & Dunn, 1981; 1997 respectively), the researchers determined the children's performance. The AV group showed the least delay in the PPVT (receptive language scores) compared to their current age. The AV group's scores were also significantly higher than the BB group's PPVT scores, but non-significantly higher than those of the AO group. The rate of receptive vocabulary growth was not statistically significantly different among the three groups. For the CNC test, the AV and AO groups outperformed the BB group. The AV group had the highest scores for the BKB. The authors noted that the AV group's extra experience with CIs may have given them an advantage over the other groups. Regardless of the education mode used, the most significant factor noted by the researchers was the age at implantation. Earlier implantation showed most

benefit, and an AV or AO model appeared more appropriate for children with CIs (Dettman et al., 2013).

Demographic factors. Personal and family factors play notable roles in the long-term effect of AVT, as described by Easterbrooks, O'Rourke, and Todd (2000). Their retrospective study used interviews and questionnaires of 72 families of children who attended an AVT program, finding that 57% of the clients who remained over one year in the program were fully integrated into an inclusive classroom, which in this instance meant requiring no services from a teacher for the deaf in addition to normal classroom service. Of this 57%, there was a higher proportion of children who were females, had less severe hearing loss, and came from affluent families. Those who dropped from the program before completion were mostly male, had additional disabilities, and subsequently entered special education settings. This may suggest that less affluent children, boys, children with concomitant disabilities, and / or those with higher degrees of hearing loss will be less likely to make progress in an AV program and integrate into inclusive classrooms without extra support.

General Critique of AV / LSL Literature

The Eriks-Brophy (2004) review covers many of the shortcomings in current LSL / AV research: There need to be more objective measurements; incorporation of comparison / control groups; longitudinal research from the onset of therapy rather than retrospective studies; closer examination of specific predictors; and more opportunities for statistical analysis. Further needs include exploring broader functional outcomes (e.g., employment success), narrowing the ages of the samples, and accounting for cultural influences in teaching, assessment, and interaction. It

would also be valuable to make more comparisons between similar approaches (e.g., LSL vs. AO). Fortunately, as noted above, there are recent studies comparing some of the major approaches in deaf education. The self-examination of LSL efficacy is still lacking, despite continued advocacy for its use and development by its practitioners.

Though other aural habilitation methods were not the focus of this literature review, the researcher's familiarization with the literature suggests that LSL is the method most thoroughly described by its proponents. On its own, LSL literature shows a breadth of considerations of the challenges faced by the children whom it targets. With exposure to LSL practice, and through the training and certification process required for the specialty, a practitioner may be able to use and describe a standardized approach. However, it would be naïve to expect that any standardized method would be appropriate for every client, and therefore researchers have a moving target to examine. This puzzling factor is multiplied with the application of a method to multiple delivery models (e.g., one-on-one, groups, pre-schools, inclusive classrooms) and to a clientele with a nebulous set of diagnoses and tools (e.g., unilateral versus bilateral loss, mild versus profound severity, hearing aids versus cochlear implants). The result is literature comprising studies of aural habilitation methods with techniques not clearly described and heterogeneous clientele, lessening generalizability for the scientific and practicing communities. Rigorous description of the specific techniques used, at least within research examining the efficacy of treatment method, is crucial to understanding and improving any method. The challenge lies with the proponents of different aural habilitation methods to give fully described, standard techniques to match the principles they support, perhaps with a flexible range of actions that could achieve the same goals, or notation in the literature indicating deviation from the "standard" approaches. Only when such full description exists, whether for the sake of

instructing novice practitioners or for creating quality research, together with carefully described and replicable procedures for the examination of those techniques, can rigorous examination and comparison be made within the discipline.

Integration in Inclusive Classrooms

Classroom inclusion of students with significant hearing loss is challenging for the children, their parents, the classroom teacher, and other stakeholders. The education barriers are numerous and not easily overcome. Chute and Nevins (2003) explored the challenges for children with CIs; such children can expect to have greater opportunity to be included in regular classrooms than in the past, but what barriers remain in the way? Their paper was a review of literature pertaining to the acoustic, academic, attention, and adjustment challenges, as well as their own postulations for how to approach them. The following is a summary of the pertinent challenges and the responses needed to address the challenges identified by the authors:

- Acoustic challenges
    - Degree of hearing loss is a factor in the barriers encountered. Even children with moderate hearing loss can miss up to 40% of the signal.
    - Amplification paired with speech reading may be beneficial.
    - Difficulty at higher frequencies (e.g., /s/, /sh/, /f/) is common with HA use.
    - Those with more severe hearing loss are more likely to need special education.
    - The child's speech intelligibility may be problematic, especially if amplification is not consistent.

- Children with profound hearing loss will have various struggles, and may require more intervention, such as vibrotactile aids, auditory / oral programming, and sign language.
- Bilateral implantation is still uncommon; therefore children with implants may have persistent challenges similar to those with unilateral hearing loss (e.g., sound source localization).

- Classroom layout challenges
  - Control of competing auditory input may be necessary, and approaches may be needed that are similar to those used with children who have attentional difficulties.
  - Classrooms may be reverberant, producing auditory distractions for hearing technology users.
  - FM or sound field amplification systems are needed to improve sound-to-noise ratio. Fortunately, systems are becoming more standardized, effective, and discreet.
  - With use of amplification systems, teachers may need coaching or reminders about microphone placement, device function, etc.

- Academic challenges
  - It can be difficult to differentiate a student's true comprehension of what is heard from simply imitating the behaviour of peers.
  - Conceptual misunderstanding cannot be overcome through use of a sign language interpreter, resulting in often over-simplified content for children who are not hearing adequately.

- Attention challenges
    - Short-term memory deficits are common, which can affect a broad spectrum of learning tasks. Adding extra visual or written cues to supplement audition may help reduce stress for the child.
    - Extra noise or reverberation can contribute to distraction.
    - HAs and CIs do not mitigate attention problems; interdisciplinary assistance is often necessary.

- Association and adjustment challenges
    - Boosts in self-esteem are needed by children who are D/HH in all aspects of the education environment for the child. CI use helps by boosting general social interaction with hearing peers through better developed spoken language skills and increased auditory cues in verbal communication with others.

Eriks-Brophy et al. (2006) further discussed the challenges to inclusion of orally educated children who are D/HH in schools. The article's definition of inclusion is quite broad, permitting three different configurations:

- A standard school placement with the same services as hearing peers;
- A standard school placement with itinerant TODs; or
- A standard school placement with resource room support.

Typically, an inclusive setting would have the same curriculum and expectations for all students.

The barriers and facilitators itemized in the article were identified by focus groups composed of 24 parents of young adults with hearing loss, 14 itinerant teachers (7 of whom were certified AVTs), and 16 young adults with hearing loss. Points included here are only those discussed by all focus groups:

- Facilitators:
    - Itinerant TODs. These personnel are essential as a lifeline for parents, provide the bulk of services, help to customize programs, and consult regularly with the classroom teacher and others offering support services
    - Workshops at the beginning of every year for classroom teachers help to sensitize them to the particular needs of a child with hearing loss
    - Additional support from resource teachers, SLPs, teaching assistants / education assistants (TA / EA), and sometimes an oral interpreter (a person who silently iterates speech and gestures for those who lip read);
    - Principals who promote teamwork among stakeholders, place parents as expert contributors, make administrative and budgetary considerations for inclusion, establish an atmosphere of acceptance throughout the school, and who are committed to the child's inclusion
    - Teachers who are positive about inclusion
    - Implementation of facilitative teaching strategies, classroom layout, visual supports, and partnerships with students
    - Assistive technology (FM system, closed captioning) that is well kept and recent

  - The ability for students who are D/HH to give feedback regarding assistive technology use and school opportunities (e.g., able to take language or music classes), especially in high school
  - Active, assertive parents who develop strong relationships with involved teachers and administrators
  - A high level of contact and support between parents and the classroom teachers
  - Provision of intensive home-based activities that specifically target curriculum components or supplement speech and language development
  - Highly knowledgeable parents
  - Supportive / volunteer peers who adapt to the specific needs of the child with hearing loss
  - Attending the neighbourhood school with a consistent group of hearing friends who understood and can readily explain the needs of a student with hearing loss to new teachers and staff.
  - Early identification of hearing loss and inclusion in AVT during preschool years
  - Students with independent, organized, proactive, determined, and enthusiastic traits; extroverted personality, ability to advocate for oneself, and drive to find own solutions; and a sense of humour
  - Having friends who are D/HH
  - Being a full participant in school events
- Barriers
  - Teachers who are poorly prepared, have low interest / motivation, or are unwilling to modify their teaching style or the environment

- Reduced expectations about the students' abilities
- Unwillingness to use assistive hearing technology and classroom strategies to aid students who are D/HH
- Poorly maintained assistive technology
- Itinerant teachers who are inflexible about meeting times
- Itinerant teachers who restrict / oppose enrolment in certain classes (e.g., French, music)
- Itinerant teachers who draw too much attention to the hearing disability rather than to the student's abilities
- Poor appreciation by administration of teamwork and using a family-centred approach
- Lack of consistency across classrooms
- High student-teacher ratios
- Inadequate budgetary considerations for technology and classroom modifications
- Poor appreciation of the needs for services / funds
- Parents who are unfamiliar with the educational system
- Unassertive parents
- Parents who abdicate responsibility once their children enter school
- Parents unable to give extra time away from work to attend sessions or provide at-home training with the child
- Peers with negative / apathetic attitudes or who perceive adult favouritism of the student who is D/HH
- Teasing or exclusion from student activities

- Social isolation
- Introversion / shyness, exacerbated by the sensory impairment

Several items mentioned by Eriks-Brophy et al. (2006) reference services available in eastern Ontario, in particular the extensive use of itinerant teachers within the school system. However, that study is valuable to any practitioner who works with children who are D/HH as it identifies many areas that could be a concern for any client. Eriks-Brophy et al. concluded that inclusion is a shared responsibility between the students, parents, and staff. Furthermore, they recommend much preparation for school staff; a lack of knowledge will harden many of the barriers listed, preventing adaptation to the child's needs.

Eriks-Brophy et al. (2012) went beyond the challenges of school years, identifying challenges that persist into late adolescence and adulthood for those who participated in a LSL program in childhood. In the study, 43 participants provided measures of social, communicative, and academic functioning; a 24-participant subset also provided standardized test evidence of academic competence, communication, and self-perception. All participants had taken part in the AVT program at the Children's Hospital of Eastern Ontario in childhood and had no other developmental or cognitive impairment that affected communication. Results showed that 65% were included with their hearing peers throughout school; nine students were in special classes for students who are D/HH prior to entering the inclusive setting and one remained in a school for students who are D/HH. The majority of standardized language test scores were in the average range for comprehension and expression, though four students had difficulty with listening comprehension and one with oral expression. Social interaction was a success for most, though there was varying success in finding a "significant other", having a consistent group of

friends, and becoming involved with groups who are D/HH. Promisingly, over half attended post-secondary education. The authors' findings remind us that communication concerns for persons who are D/HH persist well beyond the early school years, and professionals must be cognisant of clients' success with social interaction and building of relationships.

All of the studies discussed thus far show support for the use of LSL techniques during preschool years, but they do not elaborate on the type of support needed – except for consistency of hearing technology use – to maintain success during school years, only that in-school support is necessary for many. Instead of simply exploring LSL-related support (e.g., FM systems, consistent amplification) in schools, looking at the direct involvement of LSL professionals within schools is needed to describe how they support the development of speaking and listening skills.

Parents and Teachers

Parents and teachers play an irreplaceable role in the LSL approach. Estabrooks (2009) strongly emphasizes the value of parents; they are the "captain of the ship, who hires the crew," whereas the LSL practitioner is the "navigator (p. 3)." In his text, he promotes that "children learn language most easily when actively engaged in relaxed, meaningful interactions with supportive parents and caregivers" (Estabrooks, 2006, p. 18-19).

Transition to the school environment is a period in which the child is, at least for a portion of the day, more independent from the parents' direct management and influence, though their influence is still primary. With the new environment come many new stakeholders: the itinerant teacher of the D/HH, the school speech-language pathologist, the classroom teacher, education assistants, classmates, principals, and more. Parents who have taken part in an AVT

program are likely to have high expectations of the school staff, and the challenge of including a child with hearing loss into the classroom is not a simple one. The classroom teacher shoulders the bulk of this challenge, and consequently should receive thorough, patient assistance to best facilitate the child's inclusion (Estabrooks, 2006).

In the LSL approach, the role of a third party – whether a parent or a classroom teacher – is a consistent and important component. The expectations that the parents and teachers hold for each other, however, are not necessarily equal. In a small Australian study, Wu and Brown (2004) described parents' and teachers' expectations of an AVT program's effectiveness, the level of adherence they expected that their counterpart would maintain, and the child's responsibilities in the process. Typically both the parents and teachers held high expectations of the AVT program's effectiveness and consequently the child's performance once they entered school. The counterparts had overall high expectations of one another for adherence to AVT practices in their respective environment. The teachers had higher expectations of the parents' adherence to AVT at home when the mother was employed, possibly reflecting views that more affluent parents can cope better with increased demands, though the authors discussed mixed evidence supporting this. The findings should be generalized with caution, as the sample size was quite small; regardless, the authors recommend that high expectations are needed for the ambitious results expected during AVT.

Application to Schools

Much of the research discussed above described the performance of children who entered school after taking part in an LSL program, though little describes how to employ a LSL program with children who are in school. When much of the discipline's fundamental literature

emphasizes the importance of the parents within LSL clinical interaction, this poses the question: Is LSL actually designed for the classroom?

This thesis' author's first exposure to the notion of applying LSL techniques to school was when he attended a webinar for teachers about maximizing the use of audition in the classroom (Norman, 2012). One section of the webinar emphasized the importance of engaging the communication of the child with hearing loss: Provide the child with as much interaction with others as possible; create comfort with interaction; extend this comfort to a variety of situations; and ensure that the child has a perceived need to interact with adults and other children. The teacher should not feel restricted to audition alone for interaction; all modalities should be used regularly. The teacher should assess the effectiveness of his / her approach through use of formal tests and comparison with developmental and behavioural checklists; ideally information should be integrated from multiple sources. The seminar also provided guidance and materials for determining and targeting different intelligence types, preparing for new material, and communicating in the classroom, though little was unique to LSL. The numerous attendees at the seminar and the breadth of material made available suggested that the education professionals in the discipline have done much to make LSL techniques a possibility for the classroom.

The adaptation of LSL principles to the classroom is revealed, in part, in response to several questions in Estabrook's (2001) *50 Frequently Asked Questions About Auditory-Verbal Therapy*; the relevant items are summarized below:

- As to whether there is such a thing as a "LSL school" or an "AV school," the answer is simply that such a school would be a regular school in which children who are D/HH are

included. All children in said school are expected to communicate through listening and speaking; for the D/HH children, appropriate accommodations are made to facilitate this mode of communication, such as consistent amplification, FM systems, reduction of distractors / noise, and provision of additional professionals.

- A single route for every child who is D/HH would not be expected. Additional language contents or one-on-one intervention time may be necessary depending on a child's specific needs.

Supplement to the Literature

This thesis required more than principles and definitions to better understand the reality of applying LSL to schools. The literature reviewed above was not sufficient to describe comprehensively how LSL techniques are employed in classrooms. For a school-based practitioner, the information in the literature from Phase One would be insufficient to create an inventory of techniques for every aspect of the students' needs. Though the same LSL principles are relevant in schools, input from school-focused sources would provide usable guidance, as well as an inventory of techniques based on experience. To do so, the researcher sought the contribution of a subject matter expert who subscribes to the LSL philosophy and can speak to the application of LSL principles in schools; the goal was to accumulate an inventory of techniques for supporting children who are D/HH using LSL principles.

The researcher looked to eastern Canada, where he sought the input of Anita Bernstein, a writer, advocate, and educator for the school-based LSL programs in the Toronto and Ottawa area. She and her parent organisation, VOICE for Hearing Impaired Children, employ the LSL

philosophy. Bernstein agreed to collaborate to construct an inventory of techniques applied in the itinerant service delivery model used in her area.

Method. In advance of consulting Bernstein, a single article was considered by the researcher a crucial starting point for describing a school-based implementation of LSL principles. This article, by Duncan, Kendrick, McGinnis, and Perigoe (2010), provided a set of techniques divided into seven categories: Cognitive Linguistic, Auditory, Speech, Professional / Caregiver Guidance, Instructional Presentation and Planning, Student Guidance, and Miscellaneous.

The contribution from Bernstein was seen as a supplement to the literature, and her descriptions were considered a representative description of the itinerant model used in eastern Ontario, due to her experience in the area and her importance as an educator of other practitioners. To attain the most comprehensive description, a lengthy and flexible exchange took place. The researcher and his supervisory committee prepared questions in advance, and delivered these via email to Bernstein so she could consider appropriate responses and assemble literature relevant to her approach. She provided literature and handouts to shape the researcher's understanding before further discussion. After this, an interview was held using Skype and recorded for transcription; areas discussed included further elaboration on the questions provided, the nature of relationships with other professionals, and the logistics of the itinerant model in which she works.

Assembling the Model. Techniques from Duncan et al. (2010), the interview with Bernstein (personal communication, November 5, 2013), and the material she provided (Bernstein, 2011; Duncan et al., 2010; Easterbrooks & Estes, 2007; Fitzpatrick & Doucet, 2013) were organized into the categories described in the Method section above. The additional

sources recommended by Bernstein were not specific to the LSL philosophy, and therefore were not examined in the main review of LSL literature, but they were used fully in assembling the current inventory of techniques. The inventory was reviewed and drafted with the assistance of the researcher's supervisory committee and Bernstein. The final assembly of these techniques are in the left column of Appendix C, as part of a tool used in the completion of Phase Three of the project.

Discussion of Phase One

This aim of this phase was to assemble actions usable by practitioners in an itinerant service delivery model. To accomplish this, the researcher needed to supplement the available literature with contributions from the expertise of those who work within such a model. The input and guidance from a subject matter expert resulted in a lengthy list of actions she considered suitable within the model. The actions described were given by an LSL practitioner; the extent to which these techniques adhere to strictly LSL guidelines, and whether this model is a complete, faithful application of LSL principles in a school setting, was not judged. This is not to suggest that the model is not an appropriate application of LSL, only that the dearth of literature discussing school-based application limits the researcher's ability to determine this. Because of this, the researcher chose to prefer use of "itinerant model" or "Ontario model" rather than the "LSL model" in the following sections of this manuscript.

The breadth of actions described by the expert and her suggested literature allowed the findings of this phase to make possible the second and third phases of this study, and in the future, to be useful for professionals who work with students who are D/HH using a similar model. These actions, combined with the knowledge of facilitators and barriers laid out in the

general literature review, can serve as a starting point for development of novice practitioners' skillsets, or may add to the areas of assessment and intervention considered by experienced practitioners. Specific recommendations from LSL mentors and from interviews such as those performed in Phase Two of this project may serve to provide a more complete guide to LSL practitioners working in school settings.

This phase has several shortcomings. The sources of the novel information in this section are highly limited. In this case, the reported actions and recommended literature are provided by a single source. Furthermore, it must be emphasized that the model is reported, rather than observed directly. Related to this is the phase's limitation to providing chiefly general recommendations; for example, "Encourages the child to journal about school topics to facilitate vocabulary growth" and "Identifies, with the professional / caregiver / student, planned goals for the future and carryover," are not specific in how to perform the actions. Therefore, the professional training, experience, and creativity of the practitioner will be crucial to sufficiently applying the recommendations.

PHASE TWO: THE CENTRAL-NORTHERN ALBERTAN MODEL

In the second phase of the project, the researcher's goal was to describe actions reported to be used by consultant practitioners in central-northern Alberta who work with students who are D/HH who attend inclusive classrooms. In contrast to the itinerant model described in Phase One, consultants travel among multiple municipalities to "build capacity" (J. Dahlen, personal communication, 21 May, 2015) of local staff in order to facilitate target students' integration in inclusive school settings. The manner of gathering and organizing the interview data from the participants, as well as layout and inventory of the participants' reported actions, follows.

Method

The Researcher. The primary researcher – and chief instrument for gathering data – entered the study with no formal exposure to hearing loss, the Deaf community, or communication disorders. As he was taking part in a MSc-SLP program, some exposure to the above was inevitable. Perspectives gained in academic and clinical experiences may have shaped the researcher's thoughts and reflections during the collection and discussion of data, though this should have been minimized through a standardized interview process. His novice status and outsider perspective were appropriate for an ethnographic interview, in which "the ideal interviewer is one who is unfamiliar with the topic and setting and thus less likely to overlook important details" (Spradley as cited in Olson, 2011, p. 25).

The researcher's exposure to an array of clinical styles during professional preparation for his own field of speech-language pathology gave him perspective about an important feature of professional practice; that is, practitioners are influenced by their discipline's principles in unique ways. Taking this perspective, a fairly open and exploratory approach was used. With

the researcher marking the route between topics, the participants paved the path in the manner that best described their practice. The researcher's influence during the interview was limited to a scaffold for the data, whereas the delivery of data and themes of practice were in the hands of the participant.

Participants. The "ideal participant is 'thoroughly enculturated,' currently involved in the topic of investigation, nonanalytic, and available" (Olson, 2011, p.25). Even a handful of individuals, with sufficient experience and ability to articulate their behaviours thoroughly, are adequate to approach a research question (Olson, 2011). Indeed, at the time of this study there was a small population of practitioners in central-northern Alberta who worked with students who are D/HH; they were the "ideal participants" described by Olson. The potential participants were acquaintances or colleagues of the researcher's supervisory committee and were known to include all practitioners within this discipline in central-northern Alberta. Letters of invitation to participate in this research were sent by email to nine professionals working in the public and private sectors in central-northern Alberta. These individuals included educational audiologists and TODs who met the professional requirements to work in Alberta schools. Those who did not respond to the email within a week were sent reminder emails, and those who did not respond within the month were sent a final reminder.

Three agreed to participate, and are identified as P1, P2, and P3 in this document. Each took part in both initial and follow-up interviews. The participants were full-time employees, had at least ten years of experience, and served D/HH students in inclusive settings.

Interview Design. As the population of potential participants was quite small, one-on-one interviews were deemed feasible. With interviews the participants' input could be taken

privately and confidentially. The study's aim was to gather self-reports of techniques currently performed by individual practitioners. Therefore, individual interviews were selected as the most appropriate approach to answer the research questions.

As described by Banister, Burman, Parker, Taylor, and Tindall (1994), there are four reasons for which the use of interviews was the best approach for this study. Firstly, as each of the participants was reporting independent practices and experiences, it would have been inappropriate to use an inflexible, standardized list of questions. The researcher did not strive to attain normative values or standards of practice that would call for such standardization; instead he attempted to identify the many facets of the reported practices in the current central-northern Albertan context. Additionally, Banister et al. emphasized that some issues are simply too complex to be examined using purely quantitative means. Consider the complexity of an individual child's learning, and then add the complication of a hearing loss; though the participating practitioners may report a tried-and-true approach to serving students who are D/HH, the details of the approach are not simple to describe. The third reason also relates to the issue's complexity. A one-on-one interview allows the interviewer to respond to the participant's responses on-line in order to maximize data while maintaining the planned direction of the discussion. The final reason for one-on-one interviews is relevant to the power relationships and political nature of the issue underlying the research question. Banister et al. recommend carefully considering the relationships between participants and other stakeholders in the study. The current study's researcher, though a student with no experience in the participants' fields, could be seen as evaluating the participants' practice rather than curiously interviewing. These concerns were reason to be forthright about the purpose of the interviews, to

protect the participants' identities as much as possible, and to examine behaviours in a neutral, non-evaluative manner.

Planning the interview involved two approaches to qualitative research: ethnographic and "new paradigm." The ethnographic model relies heavily on the participants' guidance in order to understand the rules, method, and culture of their practices. The opening questions of the interview drew most closely from this model, using open-ended questions to guide the participant's contribution. The participants provided their most complete response without interference from the researcher. The latter portion of the interview was structured using a new paradigm approach, in which the researcher takes a greater role in ensuring that no gaps exist in the participant's responses, though the participant is still the chief contributor (Banister et al., 1994; Spradley, 1979). The amount of probing from the researcher varied, but this combined approach permitted all participants an equal chance to provide a contribution from their individual practices. The benefits of a semi-structured approach were desired for the current study. Broad questions allowed natural description. Immediate follow-up questions from the researcher helped to fill areas for clarification. A set schedule of topics could be reviewed, and new topics were included as appropriate.

Several considerations for conducting an effective interview were kept in mind by the interviewer: Inform participants about roles of interviewer and participant; provide plenty of time for each topic area; be neutral, clear, and confident in your exploration; chat about current business if relevant to the topic; summarize and reflect on input; and take notes that facilitate the interview but do not wear down the time (Doody & Noonan, 2013). Additionally, the researcher used strategies from Al-Yateem (2012) for reducing the effects of audio recording. Though the participants knew they were recorded, recorders were neither visible nor required adjustment

during the interview, and participants were reminded that parts of the recordings and transcripts would not be published without their permission. All interviews took place via Skype, with recordings taken directly on the computer using *MP3 Skype Recorder* (Nikiforov, 2015), a free program used to save Skype conversations as sound recordings. These electronic recordings were supplemented with written notes to facilitate the flow of the interview and as a backup for errors in recording. Recorded interviews were transcribed with idiosyncratic elements of speech removed (using literary convention to make transcripts more readable). Summaries of reported behaviours were parsed into point form for coding.

Data Collection Instruments. An interview question schedule was devised in collaboration between the researcher and his committee. The potential participants were known during the writing of the question schedule, thereby allowing the researcher to tailor wording of the interview questions for the sample. The ethos of the question schedule was consistent with the guidance from Banister et al. (1994) described above, in that the questions began in an open-ended manner to permit the greatest amount of personalized input from the participant, followed by targeted questions contingent upon missed topics during the participant's open-ended response. Targeted questions about the follow-up areas were first asked in a closed manner (e.g., Do you spend time in the student's classroom?); if the participant responded affirmatively, they were asked (in an open manner) to elaborate fully on what they do. The full question schedule is attached in Appendix B. This initial interview was intended to take approximately 45 to 60 minutes, but actual interview times took up to 20 minutes beyond the estimated time, with permission from the participant.

As discussed in the Method section of this phase, the interviews took place in two parts. The bulk of the participants' input was provided during the initial interviews, though substantial

additions were provided during the follow-up interviews. The follow-up interview questions were unique for each participant; the researcher strove to elaborate on themes common among participants and to get at least token input from each participant for discussion points brought up by the others.

Data Analysis Procedures. The researcher identified similarities among reported actions within interview transcripts and sorted organized ("coded") them into major themes and subcategories. The major themes were predicted in advance, using the categories from an analysis tool described on p. 24 in the Background section of this paper, based on information from A. Bernstein (2011 & personal communication, November 5, 2013), Duncan et al. (2010), Easterbrooks and Estes (2007), and Fitzpatrick and Doucet (2013) included in Appendix C. The creation of these themes in advance, discussed further below, allowed a relatively naïve researcher to have an encompassing set of themes on which to organize his thought processes, interview planning, and organization of initial data. This first stage of analysis may be thought of as deductive, in which data is fit into a framework derived from the relevant literature. Additional themes and subcategories were revealed as data were assembled and patterns were recognized. This latter portion of analysis may be thought of as inductive, in which the data were examined independently (within and among the major themes discussed above), and commonalities arose to form more specific subthemes for organizing the data. Following the parsing of the initial interview data, the researcher also identified information gaps or areas requiring clarification. Thus follow-up questions were created, which were answered during brief second interviews over Skype, taking approximately 15 to 20 minutes. Responses to these were added to the main dataset and were included in the thematic organization with the rest of the data.

Several key principles outlined by Silverman (1993) guided coding and analysis, in order to organize the data in a way that allowed the author to answer his research question. Silverman states that without organization, answers that are drawn from data may be less accurate. One might give too little or too much attention to particular aspects of the data; two researchers skimming identical data could reach different conclusions from it based on their personal biases (p.166-167). Guidelines for organizing data were prepared prior to gathering data, after which the patterns and themes of the findings were refined, as the data required. These guidelines were derived from Patton (1990), whose summative evaluation approach is intended to qualitatively organise and interpret data about programs and interventions; the data are organized to "contribute to making decisions about… continuation, expansion, and / or replication in other sites" (p. 373).

The primary approach to analysis was an inductive one, the ideal approach by which to acquire most (if not all) themes of analysis from the data itself (Patton, 1990). Nevertheless, data were organized within predicted categories where appropriate. Patton does recommend selecting broad categories (i.e., "sensitizing concepts" or "analyst-constructed typologies") for data organisation ahead of time. These preconceived categories were derived from the Duncan et al. (2010) checklist: Cognitive Linguistic, Auditory, Speech, Professional / Caregiver Guidance, Instructional Presentation and Planning, Student Guidance, and Miscellaneous. Behaviours identified in the Duncan et al.'s (2010) checklist and recommended by Bernstein (personal communication, November 5, 2013) are included in an analysis tool (Appendix C), which is divided into the broad codes described above.

Flexibly sorting and analysing the data, using the approaches described above, was necessary to provide a comprehensive overview of the participants' reported behaviours and the

context of practice. This study used two coding styles identified by Strauss and Corbin (1990). The first was "open coding," in which the participants' responses were broken into individual behaviours (e.g., a suggested change to teaching style) with qualifying details as appropriate (e.g., the suggestion was given to classroom teachers). Next was "selective coding," during which behaviours were inserted into the predicted core coding categories, and additional categories were created as dictated by the data. The resulting organization of data allowed the researcher to see the "big picture" of the participants' reported approach to their work, as well as the individual techniques used.

There were two methods used for interpretation of the data. Foremost was a purely descriptive approach, in which behaviours parsed from the participants' input were categorized using broad codes from the analysis tool, where appropriate, and / or additional codes required by the data. Beyond this was an ethnographic description: Are there "cultural" differences within viewpoints expressed by practitioners? Also used was a phenomenological approach, which describes the educational environment, the model, and the kind of challenges practitioners face (Patton, 1990).

Results

The results are organized into four sections. First is a summary of the areas of action reported by the participants, laid out in Figure 1, followed by a brief overview of the participants' stated contributions in each domain. Next are the self-reported descriptions of the delivery model used and the groups in the school, community, and even at the provincial level reported to have the potential to influence the nature of the consultative service and, ultimately,

the development of the student who is D/HH. These influencers are laid out in Figure 2. Third is a summary of the themes which were most saturated with input from the participants and an assembly of relevant universal, targeted, and individualized approaches. Lastly is a comprehensive description of all self-reported participant actions, categorized by the major themes listed under Data Analysis Procedures in the Methods section and further subcategorized into themes identified in the data.

Domains of Action. A selective coding procedure sorted data into the categories predicted by the analysis tool (Appendix C): cognitive linguistic, auditory, speech, professional / caregiver guidance, instructional presentation and planning, student guidance, and miscellaneous items. Open coding allowed further synthesis into broad domains of action, illustrated in Figure 1.

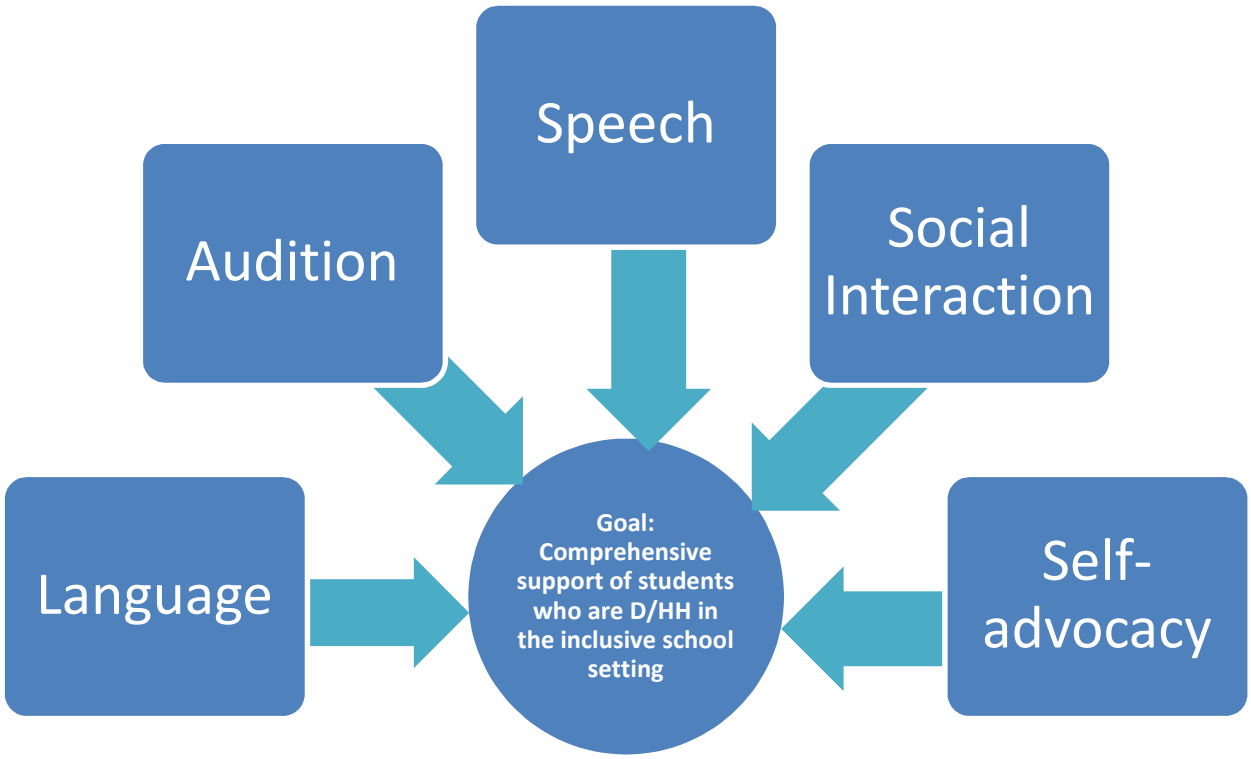

Figure 1. Domains of action

Each domain is defined below:

Language. The participants reported working in the language or cognitive-linguistic domain to support success in the learning environment.

Audition. The participants reported focusing on the effective use of hearing for academic and social purposes. Support of skill development in this domain figured prominently in the reports of all participants, and much detail was included.

Speech. The participants reported that the use of speech was important for success in the inclusive classroom. While respondents reported less day-to-day engagement in this domain of skill development, they all identified its importance in the school setting.

Social Interaction. The participants identified the challenges of making friendships, interacting in groups or clubs, and having the skills to engage in social communication as central to the goal of inclusion.

Self-advocacy. The participants reported that self-advocacy, the ability to request help and develop oneself, was a skill domain of growing importance as a child aged. Achieving an optimal listening and learning environment and identifying needs of students to achieve learning goals were reported as highly important to continued academic and personal success.

Groups Influencing the Nature of Support Services for the Student. As the support services reported in this paper are consultative, it is understandable that working with and through others is a necessity. The participants' contributions showed that several groups are viewed as having the ultimate potential to influence the nature of support services and the students' development of skills within the domains discussed above. The interviewed consultants reported interacting with a range of groups, each of whom have a role in the services provided to the student. Eight groups were identified in the interview data, and are assembled in Figure 2; the consultant is not depicted in this group, as he / she moves among these influencers. They are listed from proximal to distal relative to the student who is D/HH.

Figure 2. Groups influencing the nature of support services and ultimately the development of the student

Provincial Policy Makers and Employers. Though most distal from the student who is D/HH, participant reports identified the influence of provincial and employer policies and procedures on their service delivery. For example:

- Children from 2 to 20.5 years are eligible for support services; however, participants stated that most children begin receiving services in kindergarten. P1 cited that they "typically start seeing kids in kindergarten, so age five is typically when we start. I've been in some preschools but it's not common."
- Children with any type of hearing loss, any degree of hearing loss, using any type of amplification or CI device, are eligible for service. P1 elaborated, "Any range of severity – some mild to profound, unilateral, bilateral, mixed… any degree, configuration, type of hearing loss."
- All services are consultative in nature. Contact is maintained by phone, email and in person. "I find phone the best, but life is busy, so whatever I can do whenever I can do it" (P2).
- Requests for support for school children who are D/HH are sent by schools to the participant professional's employer. Hence the requesting school becomes "the client." Identification and referral of a student relies on school staff, namely the school professional charged with coordinating services for students with special needs. This person's position and title vary by school.

> We interact as well with the principal or assistant principal if they want them to chat and debrief with them after. Or the curriculum coordinator or student services, whoever the coordinating person is for the school… We like to leave notes with that person as well as for all the teachers (P1).

- Referral may be made at any age or grade level. Participants reported that some students are referred far into their education, as late as early high school. Participants stated that

other students referred at later grades include those whose comorbid developmental disabilities masked the effects of hearing loss. Identifying the needs of a student with hearing loss appeared to be a significant challenge:

> It is a consultative model, and it is based on the identified needs of the school in consultation with our observations and what we see as the needs of the child. So sometimes schools aren't necessarily fully knowledgeable about what the needs of a child with hearing loss are, and so they know they need help, but they don't know what that help is, so through that consultative model we are able to work together with what they have, and move them into a place of provision of what the child needs (P2).

Participants also reported being aware that there are some children using amplification devices who are not referred. The participants stated that they were unsure of the cause of this, but speculated that perhaps the effects of hearing loss and amplification devices were poorly understood or the school staff was not aware that consultant agencies exist. Alternatively, certain students may have been seen by other agencies.

- Frequency of visits were reported by participants as varying from monthly to annual visits, depending on the participant's profession and the student's need. Frequency of contact with school personnel – primarily the classroom teacher or school service coordinator – was reported to also vary greatly, and was typically on an as-needed basis. Participants' initial visits with a student were reported as typically a half school day, including in-class observation, discussion with classroom staff, one-on-one time with the student, and more. Later visits are often significantly shorter, to as short as half an hour

per student. As said by P1, "it could be down to half an hour for me if I just need to go in and do something with an FM or a cord or something."

- Inclusive Alberta classrooms use Alberta subject curricula as their guide. The participants reported that they, therefore, support the academic development of children who are D/HH within the regular Alberta subject curricula. The actual perspective taken by the professional may vary, from "it doesn't matter what they're teaching, as long as they have access to it" (P1) to "I support the people supporting the curriculum" (P2).

- There is typically an Individualized Program Plan (IPP) for every child with special needs. Participants reported that they participate in such planning at the invitation of the school.

Community, School Administrators, Teachers, Classmates, and Parents. All of the other populations listed here and in Figure 2 are more proximal to the student who is D/HH and have the potential to greatly influence skill development. Thus participants reported that all of these populations figure prominently among those with whom they come into contact on a regular basis.

Students Who are D/HH. Interviewees stated that they often serve students directly, but more often empower the groups shown in Figure 2, who have more frequent contact and potential to influence development of necessary skills.

Major Themes

Five major themes were identified in the interview data – topics for which participant responses showed much saturation of data.

Relationships. A theme consistently emphasized by the three participants was the importance of relationships. This was not surprising, as the consultative nature of the participants' model would rely on communication and training of others. The relationships can be split into external and internal to the school. The external relationships reportedly vary greatly based on the need of the student, and include those with practitioners (e.g., therapists, private audiology clinics, otolaryngologists, CI programs), community organizations, and organizations for persons who are D/HH (e.g., Connect Society). Internally, the important relationships exist inside and outside the classroom. The school administrators are important for the provision of resources (e.g., space, time, EA services, funding) and advocating for these can reportedly be crucial for providing sufficient services to the student. Collaboration may be necessary with other practitioners in the school, such as SLPs, psychologists, and resource teachers, in order to share knowledge and ensure services are delivered in an auditory-friendly way. Lastly, though perhaps most crucially, is the staff inside the inclusive classroom. As the student spends most of the school day in class, much effort is expended on assessment and intervention therein. The participants noted the importance of identifying and reinforcing positive approaches already in place in the classroom. The participants also reported providing many suggestions, relevant to student, staff, and environment, in a "buffet" (P2) approach. This allows the day-to-day managers of the classroom – the teachers and EAs – to select approaches that are suitable for their classrooms and teaching styles. Regular communication with the classroom staff was not only important for implementing interventions, but since visits to the

school were relatively infrequent, the input from classroom staff was reportedly crucial for functional assessments and identifying the need for further intervention on the part of the consultant.

Teaching Strategies & Classroom Approaches. As mentioned, the teacher and classroom are the source of greatest influence while the student is in school. A reported basis for helping adapt the classroom to adapt to the student is building the staff's understanding of the impact of hearing loss and how this can affect the student's learning. Upon this understanding rests the implementation and consistent application of classroom auditory distribution systems (CADS). These systems can add complexity to the teacher's role, therefore this intervention requires mentoring from the practitioner. Modifying the classroom acoustics, through modifying the physical classroom and the noise generated therein, were discussed by each participant. Lastly, providing knowledge about cognitive-linguistic challenges for a student with hearing loss, including ways for overcoming them, were discussed by all. Participants suggested classroom visual schedules and providing explicit pre-teaching of vocabulary, either in a one-on-one or small group context, to approach this challenge.

Program Supports. Suggestion and implementation of programming of various forms was reported by the participants. Less formal programming included supporting friend groups, group activities during recess, and difference-awareness training. More formal programming included implementation of auditory training programs, offering the student and parent attendance at regional skillshops, self-advocacy training, and pre-teaching of vocabulary. As discussed above, though development and implementation of programming within the school may involve some in-person work from the consultant, the majority of the day-to-day work is performed by the local staff. Reinforcing new skills of the student, such as application of self-

advocacy skills in the classroom, was also an important role for the day-to-day staff. Therefore, the consultant role reported by the participants is one of training, mentoring for changes, and maintaining communication to assess the need for more direct involvement.

Auditory Interventions. Considering the professions of the participants, it was not surprising that many of their reported actions were auditory interventions. There was much overlap between participants' responses, though their respective professions influenced their roles in implementation versus troubleshooting or providing ongoing feedback. The reported interventions covered improving auditory access in the classroom, technology use, modifying acoustics, evaluation, and programming. See Table 1 for a summary of the reported interventions.

Targetting Audition

• Education about hearing loss and the purpose of amplification is a crucial step.

• Assessment and intervention may look different depending on the environment in which it takes place.

• Audition is influenced by technology, the classroom staff, the other students, the classroom, and the target student.

• Educational audiologists are most likely to perform the initial implementation and teaching for technology, whereas teachers of the deaf and SLPs are more likely to be involved with regular testing and troubleshooting.

• Every component of the curriculum has an auditory component.

• Just like the other sense, audition is a personal experience. A student may need to learn advocacy skills to ensure full access to the curriculum.

• Technology implementation involves relationship building and advocacy, both for in-school support and community-level collaboration with professionals and organizations.

• Universal auditory considerations for the classroom can benefit all students.

• Technology implementation should be constantly assessed and can be modified.

• Classroom acoustics can be modified using commercial and ad hoc solutions.

Table 1. Auditory consideration summary

Pyramid of Intervention. One way of organizing interventions for students who are D/HH is to divide them into a "pyramid of intervention," or dividing them into universal, targeted, and individualized approaches. Tables 2, 3, and 4 summarize the participants' reported actions that are categorized for each approach. Each action was not reported by all three participants; nevertheless the entirety of the suggestions is provided here for the reference of the reader.

Universal Approaches

Benefitting all targeted students and the whole classroom.

- Visit the school and perform in-class observation
- Give recommendations to teacher and other staff
- Consider auditory access
- Recommend preteaching of vocabulary and concepts
- Modify room acoustics
- Implement classroom auditory distribution system
- Turn down / off background distractions and music
- Use visual schedules for the day
- Write vocabulary on the board
- Maintain good lighting
- Foster understanding of the child's differences in the school
- Teach self-advocacy skills
- Discuss social implications with the school staff
- Host or encourage events for students to get together and learn about one another's challenges and similarities
- Consider the classroom curriculum targets

Table 2. Universal approaches

When asked about her universal approaches, P1 suggested:

> …the CADs is a big one for all children… good use of visual cues, having good contrast with your marker. Are you using blue or a dried out black pen? So those kids can have visual cues. Writing vocab on the whiteboard. Turning down music in the background; don't play music in the background. Making sure the lighting is good. Closing the classroom door if there's background noise. Dealing with classroom acoustics. Those would be the tier one, good for all kids.

Targeted Approaches

Interventions focussed on the students who are D/HH.

- Advocate for allocation of resources needed for the student (e.g., one-on-one EA in the classroom)
- Recommend seating changes
- Make recommendations for FM system choice
- Help with room selection
- Provide updates and advocacy during transition meetings
- Create or recommend auditory training programs as needed

Table 3. Targeted approaches

In P1's targeted approach, she:

> … might explore whether FM would be something that would be beneficial for a particular student in that case… schools might want some desktop FM recommendations. We'd look at seating, of course… for that tier 2 [targeted approaches] I might

also add, has hearing been checked? You know, if there's a kid that might be LD [learning delayed], or might need some kind of extra support, I might ask in tier 2, has this kid been assessed, and go on to facilitate current hearing assessments.

Individualized Approaches

Fine-tuning targeted to a specific child.

- Advocating for further resources and funding needed to meet the child's needs in the school.
- Communicating specific needs during transition meetings
- Testing personal and in-class technology
- Watching progress and making modifications to auditory training programs
- Being available for feedback and concerns from school staff
- Creating or contributing to individualized program goals

Table 4. Individualized approaches

And then for the top of the pyramid, that would be everything else that we do – looking at the technology, making sure that the tech is working, that the student has access to all the necessary audio components of the curriculum; is everything being used correctly, is the child supported at home, are the HAs used at home, etc. (P1).

Detailed Themes

The following subsections include detailed input from the participants. For P1, the follow-up interviews discussed students who are D/HH who are not seen by her for any reason,

in-class observation, details about informal assessments, relationships with coordinators in the school, brokering technology purchases, promoting self-advocacy, professionals or parents attending sessions, sending carry-over information home, and terminology clarification. For P2, the topics also included those students not seen for any reason, details about informal assessments, promoting self-advocacy, and professionals / parents attending sessions, as well as information about transition meetings. For P3, the unique questions discussed referrals from and interaction with local SLPs, auditory program implementation, and roles at skillshops.

Cognitive-Linguistic Considerations. The cognitive-linguistic considerations brought forward by the participants are important structures or linguistic supports for facilitating student access of the learning environment, thereby lessening the burden on the single modality of listening when navigating the day. The suggested approaches took several forms. The universal suggestions included creating a more structured classroom, use of a visual schedule for the day, pre-teaching of new vocabulary, and lessening noise or distraction. "I've recommended visual schedules… you know I don't feel kids with lower language… they often have a level of anxiety about what's next. So when you think it's math [class] next and suddenly it's recess or music, you're prepared for math in your head" (P2). P1 emphasized the importance of pre-teaching of vocabulary as a way "to provide one of… the biggest bangs for our buck, as far as recommendations go." She further elaborated:

> …they need to be pulled out of classroom, in a quiet environment, and have 1-on-1 or small group vocabulary preteaching. Not a preview, like when teachers say "this is the vocabulary for the day" and let's keep them on the board. They [the students] need to be

> actually taught this vocabulary. But that requires personnel, that is a huge barrier for schools, because there's a financial piece to it (P1).

She related the importance of pre-teaching to the reduced incidental hearing that may affect the student who is D/HH. "They don't have the labels because they don't overhear them. And then you say 'pass me the dice', we don't say now look, 'this is a dice'… we don't. 90% of our vocabulary is just learned by overhearing it." When discussing an example of this she added, "a grade six boy, who is really bright and is doing well, and we're talking about the weather, and he can't tell me all about a thermometer and how it works."

When the approach is narrowed to the individual student, the suggestions included collaboration with the SLP to target speech or cognitive-linguistic problems, individual vocabulary pre-teaching, and seating changes.

Auditory Considerations. Approaching the challenge of audition in the inclusive school setting is perhaps both the most important and the most challenging aspect of the participants' role. P1 gave substance to this:

> The biggest challenges are people's understanding, or interpretation that hearing aids fix the hearing loss. So, because a child has hearing aids they think they're fine; they don't realize the child does not have the same auditory access as their peers. And the other barrier would be not understanding the impact of hearing loss; that the educators, nor the parents, nor the child knows. The

> child doesn't know any better – if you're missing it, you don't know you're missing it.

Considering the target population, audition is expectedly at the forefront of the participants' suggestions. P1 emphasized "auditory access first of all. Do they have access to the auditory curriculum, do they have access to the teacher's speech, do they have access to their FMs?" The reported behaviours for this section are divided below into improving auditory access, technology, classroom acoustics, evaluation, and programming.

Improve auditory access. One participant's auditory access considerations were laid out as: Access to the auditory curriculum; access to the teacher's speech; access to FMs, the Smartboard audio, etc.; and the consistent, proper wearing of amplification and implants. Her universal suggestions included turning down avoidable noise (e.g., music), closing the classroom door, and using a slower speaking style. When presenting these approaches she typically explains the benefits for the whole class, as well as for those who are English-language learners, have auditory processing difficulty, have delayed reading skills, or other challenges. Her targeted approaches included modifying classroom seating, recommending a different classroom, exploring / recommending different FM systems, and looking at concomitant problems such as learning disabilities. Another participant encourages continuous evaluation and "tweaks" for technology use, as no classroom is the same. An important and thorough approach to improving the individual's auditory access is the use of auditory training, which will be elaborated in Programming below.

Technology. For the student with hearing loss, especially those with a higher degree of severity of hearing loss, use of personal and classroom-based devices are crucial to successful inclusion. As mentioned in the last section, constant evaluation and modification of technology use is an important consideration. P1 discussed the range of things she looks for:

> Well first is making sure it's coming to school... Next is getting it past the teacher; is the teacher using it correctly? I was in a school and the teacher had the mic clipped behind her neck, or it's clipped way off, or way down at the bellybutton level, or they're not muting it, or it's been muted all day, and the kid isn't a good advocate to say, "Hey, can you unmute my FM or turn my FM on?" So, just functional usage is [important].

The participants' influences include: providing suggestions and brokering purchases of devices; encouraging application for funding; regular functional checks with goal setting; and teaching other professions to check and troubleshoot equipment.

Each participant encourages use of classroom-based technology, such as CADS. Through this they not only improve the access to the teacher's voice, but also the output of other devices like Smartboards or computers. To support this, the participants are "looking at the technology, making sure that the tech is working, that the student has access to all the necessary audio components of the curriculum" (P1). One participant found that certain CADS / FMs will integrate more easily in the classroom, therefore when a student does not yet have one, she advocates for a better choice during purchasing. Unfortunately, adding devices can add complexity to the teacher's role, therefore the participants spend time mentoring in their proper use with regard to audition.

The educational audiologist has a more transient presence, focused more on selecting and implementing the technology in the classroom, as well as initial training and more advanced troubleshooting. The TODs have a more regular presence for troubleshooting, checking equipment, and functional assessments.

Classroom acoustics. The participants provided several general recommendations for improving classroom acoustics:

- Use tools to reduce noise from the feet of scraping desks (e.g., Hushh-ups®, Flexi-felts™);
- Use devices or applications to monitor classroom noise; "There are a couple of really good apps out there that monitor noise level in the classroom" (P2);
- Line the inside of desks with carpet or Dycem®;
- Reduce reverberations in classrooms with bulletin boards, cushions, or stuffed animals;
- Close the classroom doors; "[In one classroom] the door had to be open for some reason, and it was on the way to the music room, so there was a lot of noise" (P1); and
- Discuss the influence of student-generated noise.

Some noise in the school may be inevitable; "As they get to [be] teenagers, it becomes… a junior high / high school hallway [during] a class break is so loud, so I don't know how these kids hear anything; so they do have trouble participating in their peer banter" (P1).

Classroom acoustics is an area covered by each of the participants in an overall universal manner, benefitting both the targeted student and the rest of the class.

> I really believe that teachers with a really high level of structure have a quieter room actually, and when we use predictive language in the classroom that allows children to know what's coming next, there isn't a level of anxiety that can create noise. So, having visual schedules up, having children know that first is "this", then it's "this"… we create a more peaceful listening situation for the classroom (P2).

One participant also alluded to acoustical guidelines for Alberta classrooms – which are perhaps unique in North America – but she also felt that these guidelines are not routinely followed.

Evaluation. The auditory factors the participants reported observing in the classroom have been discussed in depth; however, the classroom and its staff is a constant source of outcome information. The participants look for how their interventions have affected the classroom, if technology is used consistently and appropriately, and how the student's in-class behaviour has changed. More controlled, functional assessment also occasionally takes place. "I think how we measure it is, we go out the next time and we see: Have things improved?" (P1)

Programming. For students of younger ages, the participants reported devising auditory training programs, which are implemented by EAs or local SLPs. Some of the programs discussed included the Speech Perception Instructional Curriculum and Evaluation (SPICE) kit; the Developmental Approach to Successful Listening II (DASL II); the Compass Test of Auditory Discrimination and accompanying training tools; and the Contrasts for Auditory and Speech Training (CAST). One participant noted that such programs are used "reasonably often

at the younger ages. You know, maybe 60% of the time, and they might be formal auditory training programs or informal" (P3). Their use can be very formal or customized in a less formal way. The length of such programs varies; for instance, if progress is good during a student's SPICE program, it might last only a few months.

> Depends on the program, depends on the needs of the child. I mean, if you're doing a set program, like the SPICE kit for instance, and the progress is good… If there's daily service, if there's a child that's making good progress, you know they could get through the SPICE kit in a matter of months. You know, two, three, four months (P3).

If a formal program is used, such as the "SPICE kit, or the CAST or Angel Sound" (P3), such programs have success criteria built-in. If customized, participants create their own criteria for success, usually something to the tune of 80% success over five presentations within a single skill. "If I'm designing something very specific, that's curriculum related, I will build in a success criteria. It's usually eight out of ten, over five presentations. If it's less formal, the success has to be assessed anecdotally, in conversation between myself and who's conducting the sessions" (P3).

Speech. The participants offered little comment in this area. They reported that they provide some input regarding speech and language development to the school staff, and collaborate with an SLP to determine whether a child can hear a speech sound accurately, with or without technological support. "But I defer to the teacher and I defer to the SLP. I feel that I can contribute if asked a question specifically about a child, and I can talk about auditory skill development in relation to speech development" (P2). When possible, "if we can arrange that

we're there at the same time at the school, we like to see the student together" (P1). Furthermore, they may enlist SLPs to perform regular equipment checks; "I like the teachers to do that, but sometimes the SLPs are a little more comfortable with that, especially with the Ling 6 and cochlear implants" (P1). Participants reported collaborating to overcome challenges experienced by the SLP as well. P2 reported an example in which she looked at "the child's audiogram, and we looked at the results of her ability to do the Ling 6 sound test, and we looked at her technology, and we said she has good auditory access; she should be able to produce the [challenging] sound." The TODs are more likely than the educational audiologists to have a formal connection with the SLP in this respect.

External Relationships. The relationships created in the community by the participants are extensive. Connections with audiology clinics and device dispensers were mentioned by each participant and include discussing fitting recommendations, suggestions for classroom FM / ear-level receivers, and other school-targeted planning. The participants also make recommendations for testing based on the student's performance in school. In one instance, a participant reported requesting that the student's audiologist "assess her on a Friday afternoon or a Thursday afternoon, when she'd had a full week of listening and she's fatigued. That's when we're seeing [adverse] behaviours" (P2). Other specialized groups, such as the Glenrose Rehabilitation Hospital Cochlear Implant Team, the Bone Anchored Hearing Aid team at the Institute for Reconstructive Sciences in Medicine, or the governmental program Alberta Aids to Daily Living, were cited as important ongoing partners in ensuring the student's auditory access. Lastly, they reported maintaining contact with groups valuable to those with hearing loss. For

instance, the Connect Society, which has family liaisons, group homes, and other support services for individuals with hearing loss.

One practitioner reported a very extensive list of persons and organizations with which she interacts: "Who don't I [interact with]?...social workers, home-school liaison workers, FNMI [First nations, Metis, Inuit] workers, interpreters, principals, teachers, the Stollery Cancer Survivor Clinic….The guy at the restaurant? Budget car rental people. Doctors, ENT people. Whoever I need to" (P2).Though the bulk of the intervention and outcomes are found in the school setting, the practitioners made it clear that work with many outside professionals and organizations is important to successfully providing support for a student.

Participants reported that sometimes it is also possible to influence the classroom on a policy level, such as by contributing to provincial guidelines for classroom acoustics or hearing technology. Unfortunately, the participant who discussed this felt the influence of this sort of policy making was currently less efficacious than in-person intervention.

Working with the Administration. As the school is the participants' client, it is understandable that they have a relationship with the school administrators. Though much of this relationship centers on discussing logistical matters, identifying the needs of a student in a way that brings them to the attention of the administration is important for the participants. The targeted student might not have been a significant behavioural challenge or appear to be struggling in the classroom routine; the participants reported endeavouring to make the true extent of their students' needs known, and to successfully attain sufficient school resources for them.

> We're not just trying to sell the idea to one person – to the teacher…We have to sell that to the administration. These kids who are deaf or hard-of-hearing typically aren't throwing desks, they're not screaming, they're not yelling, they're not causing behaviour problems. And it's the kids who are throwing desks and who have behaviour problems who are getting the time from the TAs. So we have to say to the principal, "You have a kid who's capable; he needs help. Please, can you free up some time here?" (P2)

The roles mentioned by the participants included:

- Advocating for allocation of funding and personnel to the support of the student and teacher; "they have an EA maybe for the classroom; they [could] need the one-on-one to do auditory training… finding that money to provide auditory training in the classroom environment – or in the school environment – can be challenging" (P1);
- Brokering or making recommendations for the purchase of devices to be used in the classroom (e.g., FM systems); "So I've gone to the child's dispenser, and I get a quote from them, and provide this information to the school…and hope what I've said is listened to. I call and act upon any action that is taken (P2);"
- Encouraging application for Program Unit Funding (PUF) to support necessary purchases and personnel for the student;
- Participating in IPP meetings to make the student's needs known and helping to establish goals;

- Discussion of classroom acoustics, noise, and advocating for purchase of noise reduction tools for the classroom; P1 reported having "been asked to pick a classroom for students, or picking an area for preteaching";
- Requesting use of private rooms for one-on-one assessment and intervention; "…they need to be pulled out of classroom, in a quiet environment…Where should the student's preteaching be done? They had three rooms selected, and one wasn't appropriate because it was across from the gymnasium" (P1);
- Providing updates to the principal or vice principal about the student's progress and recommendations that have been made;
- Giving ideas for school clubs that promote inclusiveness;
- Advocacy for increased student responsibility over technology and inclusion in meetings;
- Providing ideas for "difference awareness training" programs in the school.

Though logistical needs appear to dominate this theme, the salient factor identified by the participants was the need for advocacy.

> Are there resources allocated, in the form of an EA, that can implement that therapy [I assigned to the student]? So, if we're recommending some auditory training ten minutes per day, who's doing it? Or twenty minutes a day? That is the biggest challenge for school, because that costs quite a bit of money (P1).

Without advocacy – through pointing out need and suggesting supports – the needed resources might never reach the targeted students.

Internal Relationships. The importance of relationships internal to the school – those with the staff, administration, and the students – could not be overstated by the participants. One participant went so far as to say that the relationship with school, staff, and other stakeholders is as important an indicator of the strength and efficacy of her interventions as any formal measure could be. This relationship is also important for understanding and translating the needs of the school for community and health care organizations.

Interaction with school professionals requires a flexible schedule, especially if one were hoping to have one-on-one meetings, teaching, or collaborative planning. Maintaining consistent use of technology requires significant buy-in from student and staff; one participant approaches this with functional checks through use of "certificates for success." The students and practitioner perform a functional check outside of the classroom, with varying levels of interfering sounds, and together they establish a functional goal. An example of creating such a goal:

> I went through and did this [functional] test with her, in her classroom space, not with the other kids there, and shared the results with her. And, out of sharing the results with her, she came up with a goal. And then I shared the goal with the TA [/ EA], and the TA and the teacher and her [the child] set up a goal, and we have a check-in that's coming up in a couple weeks. And if she achieves her goal, I'm sending her a certificate – of excellent FM use or something like that… When I call the…next week and I find out if she's been plugging her FM system in, has she taken that

> responsibility, do I get to send her that certificate, that's when I feel good (P2).

As the consultants reported being at the schools infrequently, the imperative is to thoroughly educate the school staff about what they can do, and to keep connected to provide support as needed. Asked about whether the importance of educating those who work with the student is important, P1 iterated, "absolutely, absolutely." In the teaching aspect of this relationship, the participants provide much information about hearing loss and the effects it can have in the classroom; the limitations and effective use of technology; and instruction in how to prepare the student for classroom material, such as through pre-teaching and self-advocacy. The application of these interventions is in the hands of the school staff, with the consultant in a mentorship role. An open, communicative relationship is important so that school staff feel comfortable reporting concerns – P1 reported asking the school staff to "let us know" if there is a question, concern, or other "stimulus for more involvement" of the practitioner – as well as to provide valuable subjective information about the student's progress.

One participant also mentioned the importance of relationships for referrals; when working at a school with which she has developed strong relationships, she is more likely to receive coincidental referrals to work with children who might otherwise have been overlooked. Even for those who show overt hearing loss, "if they have hearing aids, they always say 'he's doing okay, he's doing fine', but really, when we start digging, that's never the case" (P1). Put another way:

> …on lots of occasions we don't get a referral period, or nobody will get the referral, because maybe the kid looks like they're doing okay, they might be kids who have a mild or moderate

> hearing loss, and it looks like they're doing okay, and people don't realize how much help they actually need (P3).

P2 was also asked about how often students who are D/HH are overlooked:

> I would say frequently. And are they appropriately served? I would say no. I have three referrals today where the students are 7, 10, and a junior high student who have never been seen by [teachers of the] deaf and hard-of-hearing or educational audiology…And they have other disabilities that mask the other complications. You know, there's other professionals seeing them, but nobody's saying "Oh you know those are cochlear implants…"

Alternatively, a student might not be seen by the participants because they are seen externally (i.e., outside of the school) or because they are seen for a concomitant challenge.

> There are, yes, most definitely kids we don't see … There would be some that would be seen by private consultants … There are some who are seen by speech and language pathologists, there are some who are seen by nobody. There are some that are just not referred to us…SLPs and XXXX [participant's profession], they have some areas of overlapping interest and concern, as you know. And that sometimes it's just a matter that the referral just doesn't come to us, or the school district just isn't aware of our existence… (P3)

The close association with school personnel has its share of challenges, including advocating for adequate support personnel to work with students, funding concerns, and

transition between classrooms and teachers. Participants reported that each student and school environment is a discrete challenge:

> You have a different child, different equipment, a different TA, you have a different teacher, you have a different admin / support team who may or may not assign teaching assistants. I'm working with a young girl who has a TA assigned to her between 9 and 9:30, she has a severe hearing loss, and that's the only time she's been assigned for 1-on-1 time (P2).

There is also interplay with other factors, such as with one "young girl [who] struggles with lateness – she has missed 22 one-on-one periods in the last three months. I can't get the administration to move that to another time" (P2).The participants reported endeavouring to mediate this by regularly communicating, being present at IPP meetings, and by running or supporting transition meetings between teachers. Transition meetings were reported, and their complexity varies based on the student's needs.

> [Transition meetings are] typically in May or June, when the child is [finishing the school year]… the larger transitions are moving schools or divisions… So students who are more complex would probably have one every year, and those can be formal or informal meetings, where the informal ones are where I come in with the receiving teacher and the sending teacher, sit down, and talk about what's worked well (P2).

In the case of goal setting for the student, participants reported "a collaborative process… [involving] a special needs consultant, coordinator of student services, the teachers who are

involved with that student… and I'm not always right there at the preparation of the IPP, but I would be consulted by email afterward" (P3).

The extent of this relationship – at least in a one-on-one capacity – varied between the participant's professions. As educational audiologists are fewer in staff numbers, they less frequently meet with the staff and student, and typically attend in tandem with a teacher of the deaf only once.

Collaboration with Teachers and Parents. As the student's greatest influences in the classroom context, collaboration with the teacher and EAs is pertinent to successful intervention. The participants reported that they begin by focusing on the teacher's understanding about hearing loss and remediation. As one participant worded it, "the biggest challenge is people's interpretation that hearing aids fix the hearing" (P1). Often teachers and others have the perspective of HAs used by their elderly relatives, creating a need to educate about the differences between later noise-induced loss vs. childhood aural habilitation. P2 described one teacher's understanding:

> A teacher said to me, "I didn't think he liked his hearing aid, so I thought of my grandfather, and I had him take it off, because my grandfather takes his off." And then it dawned on me… that's the point of reference that most people have for hard-of-hearing, is that, "My grandpa lost his hearing, and he wears his hearing aids, and he doesn't like them."

Furthermore, the use of devices is not a "quick fix;" the student must learn to hear effectively using devices and may require additional support to have success with them.

Following an in-class observation, a range of information is given to the teacher. One practitioner divides her approach in four areas: Observations of the child, observations of the environment, observation of the teacher and EA, and recommendations. Another participant provides additional topics for discussion with the teacher:

- The child's hearing, including a review of the audiogram;
- Makeup of the classroom;
- Appropriateness of the seating plan;
- The presence and impact of background noise;
- Importance of consistent, proper FM system usage;
- Challenges hearing loss can have on language use, including vocabulary, and the benefits of pre-teaching;
- What causes language and vocabulary challenges, and why they might exist for the student;
- Recommendations for classroom-based changes; and
- Things that can be done individually or in pull-out approach.

One of the participants elaborated on her approach to giving suggestions to the teacher. She described her method as providing a "buffet" (P2) of approaches that could work for the

classroom, and through this the teachers can choose approaches that best fit their classroom and teaching style. Additionally, though it is understood that the consultant is there because of a single student, this same participant strives to provide suggestions in such a way that they would be seen to benefit the whole class. She finds that this approach more often results in compliance from the teachers. P2 reported a teacher saying, "that suggestion about previewing vocabulary; I've started that with the whole class. It works so well!"

Use of technology is one crucial area in classroom support. The practitioners regularly reinforce the consistent and proper use of amplification devices and accompanying tools, such as FM systems. They do this through educating on the importance of its use, showing how to perform regular equipment checks, and discussing the impact of irregular or improper use. Areas of reported reinforcement include instilling the idea of the importance of the auditory facets of the curriculum, access to the teacher's speech, access to other sound sources in the room, and wearing / using devices at all times. Bringing it beyond the classroom is beneficial as well; "Are they taking it on field trips, are they taking it to music class, are they taking it to gym?...Some kids are taking out their hearing aids and putting in earbuds. Well… plug the FM system in!" (P1) Equipment checks are typically expected of the classroom staff; however, classroom staff occasionally feels uncomfortable performing these checks, and the SLP performs them instead. They also reinforce that technology alone may not be adequate for the student to have full auditory access, but it is the foundation for such. P1 reported "looking at the technology… [determining] that the student has access to all the necessary audio components of the curriculum; is everything being used correctly, is the child supported at home, are the HAs used at home, etc." The implementation of technology in the classroom is usually the role of an

educational audiologist, though TODs reportedly provide maintenance and troubleshooting as well.

Encouraging students to use self-advocacy skills is another important role reportedly given to the teacher. The practitioner begins this by "making them aware of what the self-advocacy skills can be about. They can be about equipment management, they can be about self-awareness, about self-determination" (P3). Another made clear the importance of self-advocacy, and the roles shared by the student and teacher:

> We teach them to be self-advocates for their hearing loss, specifically in a classroom environment. And then we encourage teachers to promote that as well… we use the word "self-advocate" and want them to be good self-advocates and understand that terminology… We're starting to teach them more about their hearing loss, whereas the [audiology] clinics are talking to the parents about the hearing aids, so now I'm coming in and pulling the child out, and all the research in self-determination theory is pointing to strong self-advocacy based on strong self-determination. So I'm doing work in that area; I am teaching the child about their hearing loss… (P1)

Building a strong knowledgebase with the students was an approach reported by other participants.

> I think it's really important; our kids are often taught wrong, it's almost like in sex education where they don't have names or terms

> for body parts or activities. They need to know the names of the devices they have: what is a receiver, what is a transmitter…? (P2)

To build self-advocacy skills in the students, the participants recommended several approaches. First was to perform daily equipment checks to establish a routine with the student. In review of a point from P1, "[Perhaps the FM system has] been muted all day, and the kid isn't a good advocate to say, 'Hey can you unmute my FM or turn my FM on?'" (P1) On certain days, the teacher is coached to purposefully neglect to turn on or use the FM system. "This presents an opportunity for whoever does the hearing aid or FM check to – I don't want to say the word 'sabotage' – but they not turn on the FM system" (P2). This is paired with a script (also known as a "social story" [P2]) for the student to ask that the FM system be turned on; "I've often used board maker or visual cues systems to help students through that process of learning a new way of telling… a social story" (P2). One participant recommends overt verbal reminders for the student early on, then to gradually reduce them as the student demonstrates independent use of self-advocacy skills. Explicit work on the student's self-advocacy skills is frequently developed during classroom activities with other students; one participant also has board games, a bingo game, and iPad games that facilitate these skills.

Participants reported that teaching educators about the needs and challenges of the targeted student is done in multiple ways. Though discussions about an individual student with a classroom teacher or two is most common (and perhaps most crucial), the participants discussed passing information along to many educators through presentations and in-services. Overall, the participants cited the importance of a positive relationship with teachers and other staff; it is the medium upon which the service delivery depends and through which changes occur.

The reported relationships between the participants and the parents varied, though they typically had an information-sharing basis. As mentioned earlier, the formal relationship with the parents is not direct; rather it goes through the school. In practice, the participants stated that they do contact the parents directly, or vice versa.

> Well, they have a huge role in contributing information about goals that we have. How is the child conversing at home, how are they following directions at home, what are the misunderstandings that are occurring at home? So, [parents] certainly have great input and they're very helpful, in terms of communicating needs at home to us… where you can create a partnership with a parent, and engage them in supporting the needs of the child, then of course they're contributing to outcomes (P3).

The parents also attend services provided by the participants, such as technology information sessions, school in-services, or skillshops. On the other hand, parents are typically not invited to in-class observation sessions, as their presence sometimes influences the student's behaviour. "Often I leave handwritten notes or … type up notes to send them to the school after, and those are available to the family, and I encourage the schools to share those with the family" (P3). Other participants may provide different material, but they stated that it is provided in the same way: "Some of the words and Bitsboard [files] and flashcards go home, but not through me; they would go through the school" (P2). At times when P2 meets directly with parents, she reportedly takes the opportunity to educate:

> Parents are often given an hour's amount of time with an audiologist, whether it's in the hospital or a clinic, and it's a lot of

> information being thrown at them. I have the privilege of spending a lot more time with them, as needed. And can have the questions and the difficult questions. I get to see their child in a classroom (P2).

Lastly, parents are occasionally counselled regarding the possible effects of the home environment on the student's auditory performance, such as the effects of consistent late arrivals to school, of not assisting with homework, or of missing sessions with the practitioner. P1 reflected on the frequent need to communicate with parents about issues, such as the notion that "they only need to wear their hearing aids at school" and the need to counsel about the "importance of consistency of hearing aid use at home. But when they get older it's more student-focused on access." P2 discussed one parent with whom she reported great success, in which she:

> …called the mom, and it's a really hard conversation to have with her. And I said, "I need you to hear some things. I need you to think about your son and the future, that he's a really smart boy, but he needs to be in school, on time, and you need to help him with his homework." And she listened to me, and I got a call today about an amazing turnaround with this family; that they've come to school, she's volunteering, that everything's changed. It made my heart sing, it really did…That's not a baby step for me; that's a huge turnaround. Most of the things are baby steps (P2).

A unifying challenge to overcome with both teachers and parents is the understanding of hearing loss and the importance of auditory access. One practitioner described these discussions

in one way: "I have an exercise called the 'math of hearing loss' where we look at the number of hours a child is awake in a day and the number of hours they're wearing their hearing aids in a day, and we come up with percentages" (P2). If the student is neither wearing the hearing aid nor using a functional FM system for 100% of his class time, how can one expect the student to make 100% of the progress expected of other students? Similarly, a child without use of amplification devices during non-school waking hours – say, six hours per school day and 48 hours per weekend, or 78 hours per week, or over four thousand hours per year, not to mention the summer months – would lose many, many hours of auditory exposure and experience. Instilling this understanding, as well as encouraging the proper, consistent use of devices in school and at home, is a role of major importance described by the participants.

Student Guidance. The participants reported that they strive for one-on-one time with the students. During this time they teach more about hearing loss, using the most complete information and advanced terminology they judge that the student can handle. Through this technique they hope to foster more understanding and self-awareness of their challenges. They teach in detail about the devices and equipment used, and reinforce this in the classroom using functional checks and approaches like the "certificate for success" mentioned earlier in this document.

Also discussed were social concerns that need to be addressed by the participants, such as the challenges of making friendships or interacting in groups or clubs. Participants also reported developing strategies to support daily interaction. One concern discussed by P1 was that girls whispering together might not be heard by the student who is D/HH; "We can't tell nine-year-old girls not to whisper on the playground; it's how they're going to play. So, just coming up with

strategies and facilitating certain friendships, or come up with ideas to have clubs at recess." Outright social isolation is occasionally a concern of parents and school staff. "Often they're alone; that's often the concern from teachers. They say, 'You know, often I see them and they're by themselves.' … Others say, 'Oh my gosh, no, he's great, got lots of friend out there.' Depends a lot on the student, the personality of the student" (P1). The participants do not take a conformity-based approach to social guidance; rather they reported encouraging early openness from the students. Some ways that they encourage explicit openness are to get the student (and the parents of younger students) to present to his / her class about hearing loss, the technology he / she uses, and other information that is important to his / her inclusion. Through this, the classroom community reportedly provides some solutions:

> I think hearing loss is often isolating…I'm just coming up with a couple of students in recent history where some of the issues that have arisen have been resolved by doing classroom work. You know, we had one student actually tell their history – their hearing and cochlear implant history – and then we stood up and explained what happened, generated a bunch of ideas about how to include her, and the kids came up with much better ideas than we could (P2).

Skillshops are another source of guidance and social support. Simply assembling many students with a shared challenge allows them to see that their personal and social challenges are not unique, and that they are not alone. "Students come together, they see each other; they see hearing aids being worn, they see FMs being used and how to use them well and how to advocate for things, and those have been really helpful" (P2). The children (and their guardians)

learn skills together, learn about hearing loss and remediation, and practice socializing in an environment of understanding. Community organizations also make presentations at skillshops in order to inform families about the local supports that exist outside of schools. Though one participant reported the significant logistical challenges of running the skillshops, they appear to be an efficient way to reach and educate many students at once.

A counselling role is also necessary with certain students. This is necessary for various reasons; for instance, an older student might not be using the HAs / CI consistently, and therefore a discussion about successful amplification or implantation might be appropriate. Another scenario discussed was that of a student who was interested in an arduous professional career that required effective hearing. The participant counselled this student about the importance of proper technology usage in order to achieve his life goals, well beyond the classroom environment.

> The other day I had a little guy and I asked him, "what do you want to do when you're done school?" Well, he said, "I want to be a cop." And he doesn't wear his hearing aids because he doesn't want to be judged. And I asked if he had looked into the requirements of vision and hearing, and he says, "yeah I meet them." so I say "well you're going to have to wear them… you might want to start." (P1)

As suggested, approaching challenges of this sort are reportedly more common with older students and students who are diagnosed with hearing loss later in life. P1 reported that in her professional community, older children's consistent use of hearing technology is a common topic.

> How do we get teenagers, or preteens, to continue using their FM system? Because a lot of them just quit, because they see it as a social barrier. They may have two CIs – boy with shaved head, two CIs – I mean it's obvious he has hearing loss, but he doesn't want to use [the] FM. So that is a huge barrier, as far as listening in the classroom and accessing the teacher.

Participants stated that in a student's younger years, discourse is decidedly more one-way. However, as the student grows and becomes better able to self-advocate, goals are set collaboratively with them. These goals are frequently specific to the classroom, but they also often extend into home life, social life, and even into post-school years. Similarly, more responsibility for consistent technology use and goal achievement is placed in the hands of the students as they age. When a challenge for inclusion involves more than a single classroom environment – such as challenges during recess or in clubs – groups of students and teachers are encouraged to brainstorm ideas to better include the target student. P1 elaborated on her approach to clubs and creating openness with the student's peers:

> We'll recommend a club at recess or that a peer come in at recess and maybe they bring a magazine in to facilitate the conversation. [For example,] put two ten-year-old girls in a room and they may or may not have stuff to chat about, so maybe a preteen magazine or having a staff member facilitate the group. Starting a sign club, doing something with art at recess, maybe computer time with another peer, letting kids know… kids who haven't told others about their hearing loss; some hide it, so maybe getting a little

> intimate circle of one or two peers to communicate that [about hearing loss and how it affects them]… We often recommend that that be done [organized] by the school counsellor or the teacher, someone the student has a trust relationship with.

Instructional Presentation and Planning. After a classroom observation, feedback and recommendations are provided surrounding the target student's behaviours, the environmental factors of the classroom, and the behaviours of the classroom staff. As one participant described it, the information is delivered in excess: "… it's a buffet, but you need to choose what's going to work for you" (P2).

> When I arrive at a school and it's a new student, or even if it's a student I've known for a while, I have always thought of myself as a salesman… what I'm trying to sell is an idea. Those ideas are information, and I can come in with both guns blazing and… and create an adversarial situation where the teacher will "yeah, but" me, or I can find a place that they are already doing some inclusive behaviours for a child who is deaf or hard-of-hearing, and build on those (P2).

Participants advocate using positive feedback in order to identify those things the teaching staff are doing well, to explain why those behaviours are good, and to encourage staff to continue implementing those behaviours. Recommendations for new behaviours are provided in such a way as to describe the benefits to the full class; one participant cited that the more students a new behaviour could potentially help, the more likely classroom staff members are to adopt it.

> [I not only] identify those strategies that… just help the child who is deaf or hard-of-hearing, but are more all-classroom helping…. The information I have, and that I research about: rate of speech and how teachers speak, and just asking them to slow down and showing them the difference between fast speech and processing is really an eye-opener for many. And yet, if we start talking only about the single child with hearing loss, it's really hard for them to adapt their behaviour because of that single child.

These reported universal approaches are broad, ranging from providing visual schedules for the class, to using a slower speaking style, to reducing noise sources, or to changing the physical layout and order of the classroom.

Beyond the development of techniques based on in-class observations, other behaviours need to be generalized to the classroom by the staff. For instance, if the student is instructed in self-advocacy approaches outside of the classroom, the teacher might need to provide cueing or intentionally "sabotage" the equipment in the class to encourage the student to act. Some suggestions, such as the provision of classroom acoustics-improving supplies, also requires advocacy to the school administration to provide resources and funding.

In-Class Observation. When in the classroom the participants reported that they closely watch the behaviour of the student and others. This includes approaching the following questions:

- Is the child responding?
- Is the child responding appropriately and without contextual cues?

- What is the latency of the child's response?
- Are they following or watching along with the classroom material?
- What is the teacher doing and saying, and how are they delivering this?
- What is the content and quality of the FM channel? "Often I'll listen in on the same channel of the FM system to see how clear it is." (P2)
- How are the FM system and other devices working?
- Is the EA performing actions at the same time as the teacher is talking, and thereby giving too many non-verbal cues?
- Are the teacher and EA talking at the same time? Is the child subjected to dichotic listening challenges? "FM systems take priority, and if the teacher's using the FM system the aide shouldn't be talking. We don't need dichotic listening tasks for kids with hearing loss." (P2)
- Is the child seated appropriately?
- Are devices being used consistently and correctly?
- Is hearing technology used in conjunction with classroom technology? (e.g., computers, SMART boards)
- How is lesson content presented to the class? What is provided beforehand?
- Does the teacher demonstrate – through his / her actions – an understanding of the impact of hearing loss?
- What noise is created by other students and the environment?
- What aspects of the environment reduce auditory access, create noise, or facilitate hearing?

- How does the teaching style facilitate auditory access? Is information and vocabulary presented in multiple modalities and discussed in depth?

Depending on the participant, the reported observations typically involve one-on-one interaction with the student, including an assessment of understanding of the current information discussed in class, getting the students to read, and other tasks to assess hearing and ability in the classroom context.

Discussion of Phase Two

The participants' contributions assembled in this phase are the first description of this kind. That is, no previous description has been written of the techniques employed by consultant practitioners for the D/HH in central-northern Alberta. Partly due to the breadth of the topics discussed, and partly due to the small sample size, the themes are not considered to be saturated with data. The areas of greatest overlap between participants – that is, greatest saturation of data – include the areas of auditory intervention, relationship building, teaching strategies and classroom approaches, and program supports. Despite this low saturation of the data, the reader may value that the participants are veterans in their field.

As mentioned, only three practitioners took part in this study, and though this is a significant portion of the region's nine consultants, it is a small source with which to describe the model. There are various reasons why potential participants may have been reluctant to participate: They may have felt that, in such a small population, they could be easily identified; they may have felt that their peers would scrutinize their methods; or they may have been wary of the political factors that often exist concerning the advocacy of different aural habilitation approaches. Unfortunately, these or other factors may have turned valuable contributors away

from the study. This small sample size likely contributed to the lack of saturation within most themes, and the difficulty with providing more specific results. The extensive experience of the participants adds to the validity of their reported techniques (Olson, 2011). Given that a consultant service delivery model for student who are D/HH has received little description in the literature, the evidence given through the participants' experience may be the most detailed to date.

The interview process was successful overall, with in-depth, fruitful conversations provided in each interaction. Thorough on-line note taking was beneficial to maintaining the flow of discussion and, in one instance with one participant, was imperative for retaining interview data as the recording software malfunctioned. The notes allowed retention of usable data and paraphrases, though software malfunction precluded using quotations from that single interview. More diligent monitoring of the software and redundancy of recording prevented recurrence of this event. Timing for the interviews was also imperfect. Each initial interview went over the sixty-minute estimate, though the participants were willing to provide the extra time, whereas the follow-up interviews remained close to the estimated time of fifteen minutes. The unpredictable time-frame was not unexpected for the initial interview, as the question areas allowed for open responses and limitless elaboration if the participant so wished, and areas of interest or anecdotes added valuable (and lengthy) contributions to the interview content.

The description of actions laid out in this phase is immediately useful for potential program review and evaluation within the current central-northern Albertan context. Also, as changes take place within the model, it may serve as a reference for the current model. For instance, in Albertan context, many professionals have recently (during the timeframe of this study) been incorporated into a new system for serving schools, the Regional Collaborative

Service Delivery. New actions taken within this new system could be compared with the model described in this document. Generally speaking, the breadth of actions described in this phase allows readers to consider a wide range of approaches to challenges in a consultative model, and may also be applicable for other models. Furthermore, it is hoped that readers within university professional programs or first professional appointments might profit from descriptions of techniques used to successfully support students who are D/HH.

As stated, the breadth of this description is vast. The purpose of recording this breadth of themes was to facilitate the comparison between two different models in Phase Three, though by doing this the reader gains less specific description for individual themes. Therefore, the descriptions found herein should not be considered as a manual for intervention in a consultative model. A project focused on a single model would be better able to gain details about major saturated themes (e.g., classroom supports, relationship building) without the pressure of needing to compare many themes to every aspect of another model. In the future, the data gathered within this phase of the project may be augmented with further details (e.g., specific approaches, case descriptions) from further interviews, questionnaires, and discussion groups.

PHASE THREE: COMPARISON OF ITINERANT AND CONSULTANT MODELS

The final step in this project was to compare the techniques used in the itinerant model laid out in Appendix C, with the actions described by the participants in Phase Two. The general comparison and major areas of overlap and divergence are summarized in this portion of the document.

Method

The final step of the project was to compare the behaviours reported by the participants in Phase Two with those documented as used by itinerant practitioners in schools in Phase One. The first two phases of this study organized documented and reported practitioner actions by theme, which allowed for a relatively simple side-by-side comparison of the two models. The comparison involved going through each technique in the left column (itinerant model) of the tool in Appendix C, then searching through the data from the consultative model described in Phase Two to see if there was an equivalent technique used. If an equivalent technique was found, the right column (consultative model's correspondence to the itinerant model's techniques) indicated "Yes" with qualifying information as appropriate, or "partially" to indicate that some aspects of the participants' input matched the itinerant model's techniques. Conversely, if no comparable technique was found, "No" was indicated. "Unknown" was used to indicate that a suitable comparison could not be made, either because the type of action was simply not brought up, or because the action was too specific to have been brought up during an interview exploring broad themes. For instance, whether or not the participant "maximizes audition by positioning the student relative to the professional / caregiver appropriately to encourage a listening attitude / posture" was not brought up explicitly. Whereas the researcher

and participants did talk about classroom seating changes, the specific layouts used for this were not discussed. In another instance, whether the participants used "expectant pauses / wait time to encourage turn taking and auditory / cognitive processing" was not observed by the researcher, was not reported by the participants, and is perhaps too specific to have been brought up in a study looking for such broad descriptions.

Below is a comparison of the behaviours reported by the consultant participants with the itinerant behaviours listed in the analysis tool. Comparisons for every behaviour listed in the analysis tool appear in the second column of the chart in Appendix C. The areas with the most frequent overlap of actions are covered first, followed by a section for each theme that includes areas of correspondence, difference, and unaddressed areas. The major differences between the two models are summarized in Table 5.

Areas of Greatest Overlap

The categories with the greatest amount of overlap were those in which there were the fewest "No" or "Unknown" answers. The area with the most frequent overlapping techniques is the auditory category. The participants reported being heavily involved with the implementation and manipulation of tools and techniques to give the student access to sound within the classroom; suggesting modification to classroom and teaching style to support hearing; performing functional in-class and out-of-class assessments of the student's audition; and being involved with the audiologic management through liaison with professionals outside the school.

The category of professional / caregiver guidance showed a comparable degree of overlap. The nature of the relationship between hearing practitioner and the school staff appears different, such that the itinerant model allows for more regular in-person intervention whereas

the consultant model uses fewer visits and focuses on building capacity of the local staff to carry out ongoing intervention for the student. When discussing these differences, one of the researcher's committee members, also a consultant in central-northern Alberta, emphasized that the frequency of visits certainly has an effect on the relationships needed in her model (J. Dahlen, personal communication, 21 May, 2015). However, relevant techniques correspond in both models, including: describing the purpose for techniques, sharing identification of goals, modeling of strategies, providing formalized guidance (such as in-services), allowing / encouraging staff / parent attendance during sessions with the student, informing about a range of techniques for the classroom, fostering understanding of the effects of being D/HH, and encouraging constant effective use of technology in the school. Guidance is important in both models, despite the differences in delivery: regularly in-person versus infrequently in-person with more telecommunication. Both models place much emphasis on the interaction and relationship with those who work with the student daily, suggesting different approaches to a shared goal.

Each category of techniques showed overlaps between the two models. In the following section, the findings from each section are summarized. Appendix C contains cells assembled under the seven categories identified in Phase One and used as sensitizing themes in Phase Two. The left column contains the LSL-related techniques used in the itinerant model as noted in the literature and by the subject matter expert; the right column the correspondence of the consultant practitioners' reported techniques with the itinerant model, as well as any relevant elaboration. Cells are numbered within each category; for cells that are explicitly discussed in the following sections, the cell numbers are referenced (e.g., #4).

Cognitive/Linguistic

Twelve sets of techniques were listed in this category. Seven of these showed "Yes" for correspondence. The participants reported planning a variety of activities or intervention programs for the student that were within the scope of practices for their profession (#1). Structured sessions are reported to be the initial focus, though structure was typically reduced over time (#3). The participants' reported experience provided a repertoire of solutions to problems, and site- or student-specific solutions are encouraged through creative brainstorming sessions with local staff or students (#4). As appropriate for each teacher and classroom, small group preparation and activities are encouraged (#5). Social difficulties are not always readily observed, as the participants are not frequently at the school, though input from the staff and students helps to bring such issues forward (#6). Lastly, targeted areas for student development include both academic and social areas (#9).

Readiness for cognitive / linguistic skill development is not easily observed by the participants. As access to the student by the consultants is reportedly atypical prior to beginning kindergarten, successfully assessing the student's readiness relies heavily on the assessments of health sector professionals prior to the start of school. If difficulties are not noted at those times, the student may by overlooked. Once identified, the student's difficulties are tracked on an ongoing basis. Unlike the itinerant behaviours documented in Phase One, most cognitive / linguistic intervention appeared to be in the hands of local staff.

Five technique types were not addressed during the interviews. For instance, giving journaling assignments to the students was not discussed during any interview, though that does not preclude its use by the participants (#8). The level of communication used with the child – that is, the complexity of language used to communicate and promote daily growth of the student

– was not discussed (#2). The limited contact the consultants have with the student also results in much of this responsibility being delegated to the local staff. Other potential development areas not discussed include the use of different types of literature to build vocabulary (#2), as well as on-line identification of opportunities to teach new concepts and vocabulary (#11).

Auditory

This category showed twelve technique sets, seven of which showed correspondence between the model, and three more showed partial correspondence. The auditory interventions described in Phase Two showed by far the most similarity with the behaviours described in the auditory section of the analysis tool. This is an important finding because, as the participants' professions and the auditory status of the targeted students suggest, the audition-related aspects of the service models are among the most crucial. The participants monitor the functioning of hearing devices, gradually passing this role on to the staff and student (#1, 10); use various activities to target auditory skills (#2); teach behaviours that encourage listening (#4); discuss speaking style with the teachers (i.e., "clear speech") (#8); collaborate to modify classroom makeup and seating (#7, 9); and assess hearing in multiple locations with differing levels of noise and distraction (#11). The encouragement of "aggressive audiologic management" is less clear; a definition is assumed for the purposes of this thesis: It is the pursuit by educators and hearing professionals to actively and habitually seek the delivery of the best auditory signal possible to the child. It comprises: promotion of early diagnosis of hearing loss followed by optimal audiological management and guiding and coaching caregivers to help their child use hearing as the primary sensory modality to develop spoken language, to create environments that support listening for the acquisition of spoken language throughout the child's daily activities,

and to help the child integrate hearing into every part of his/her life. Though liaison with students' audiologists was reported by the participants, inadequate discussion was included to determine if this interaction was "aggressive" (#12).

An area of difference – and a significant one at that – is the acceptance and encouragement by the participants to use visual supports (#3). None called for outright reduction of visual cues. Conversely, they appeared universally to suggest visual schedules for the classroom. They do support the reduction of tactile and other non-visual hints from staff.

Areas that were not explored included (#3) positioning of the student during sessions, changing positions in groups (#3), speaking to the students regardless of whether they are watching (#4), and use of the student's auditory feedback system to facilitate speech and listening production (#6). Though the participants reported discussing speaking styles with classroom staff, the use of acoustic highlighting was not mentioned (#5).

Speech

In this category, three technique sets were listed. Each showed complete or partial correspondence between the models. The participants reported behaviours that mirrored the analysis tool's listed behaviours for supporting speech development through direct or indirect action: The use of a natural voice is encouraged and speech development was targeted in collaboration with the SLP as needed.

Professional / Caregiver Guidance

Within this category, fifteen technique sets were listed. Six sets showed "yes" for correspondence between the models, with four showing partial correspondence. The participants are reportedly opposed to "hand-holding" when providing guidance or rationale for their

suggestions (#2). Even with the students, they go as far as the children can understand at their current level. Goals are identified and followed-up with the student and staff. The strategies they provide are explained and modelled, when possible (#3); a range of skills are given; strategies are suggested for use when breakdowns occur (#13); and suggestions for modifications and maintenance of the learning environment are given (#7, 8, 9). They encourage the use of non-verbal supports when appropriate, such as writing assignments, activities, or the schedule on the board or in handouts (#14). The school staff is further supported through resources and various professional development media, which parents also occasionally attend (#8). They also suggest creating school programs that facilitate discussion of hearing issues and other differences, though this understandably requires much commitment from the school (#12).

Interactions with the parents were reported (#7), but limited. They, and school-based staff, may attend intervention sessions, though the participants recommend against parents attending observations. Carry-over activities are given, but these are given to the school to distribute (#7). The participants' role in facilitating the transition from pre-school to school-age placements is limited by their schools-based service (#11); however, they reportedly may begin working with the child quite young.

Several areas were not explored. These areas included whether the participants receive reflections or shared ideas from the staff (#1); whether they use specific strategies to maintain rapport with caregivers and students (#5); and whether they discuss outcomes during and after activities (#4). Teaching of repair strategies and details of coaching given strategies were not explored in detail (#6, 13). Additionally, the use of assigned student buddies or asking the teachers of older students to provide notes ahead of time were not discussed (#14).

Student guidance

There were seven technique sets in this category, three of which showed correspondence and two of which showed partial correspondence. Most reported behaviours in this category correspond with those in the analysis tool. Self-advocacy approaches are explicitly taught to the students, and these are reinforced by classroom staff (#1). Pull-out instruction between the student and practitioner did occur, though the amount of this depends on the student's need and availability, and the local staff is responsible for most of it (#2). In-class observation is an important early step for each participant, though the amount of in-class intervention performed by the participants was not discussed in depth (#3). The encouragement of constant hearing assistance technology usage (#4) and skills for repairing communication breakdowns (#5) were also reportedly provided to the student.

Instructional presentation and planning

Within this category, ten technique sets were included. Only one of the ten received a note of "yes" for correspondence, whereas nine more showed partial correspondence. Comparing techniques in this area was more difficult than in the others. Such judgements require in-person observation of the participant and / or a longer, far more detailed interview. For instance, the participants reported giving feedback to the classroom staff, but the level of encouragement and appropriateness of this feedback is unknown (#2). Recommendations for materials and activities are provided to the teacher(#5), including suggestions targeting all students and the targeted student (#7), whereas the teacher is responsible for implementing them. Material relevant to the classroom curriculum is considered in their suggestions; they suggest

ways in which the teacher and support staff can integrate the curriculum components (e.g., vocabulary) into the intervention (#8).

Areas that were not explored included the participants' use of "learning moments" (#1), whether they performed ongoing evaluation and modification of intervention targets (#3), and several other areas noted in the analysis tool.

Miscellaneous

Please see the second column of the chart in Appendix C for the correspondence of participants' actions to sixteen miscellaneous behaviour areas.

Major Differences From Itinerant LSL Practice

- Majority of intervention is conducted by local staff.
- More acceptance and encouragement of visual supports, including univeral recommendation of visual schedules for the classroom.
- Limited, informal interaction with parents, due to the school taking over as the client. This may vary based on the clinician and needs of the family.
- Formal assessment of foundational skills or regular use of standardized assessments may be reduced due to infrequent visits.

Table 5. Major differences from itinerant LSL practice

Discussion of Phase Three

Phase Three addressed the research question: "What are the similarities and differences between the techniques described by practitioners in central-northern Alberta and the itinerant-based techniques described in the literature?"

The area of most notable similarities between the models is auditory intervention. At the beginning of the project, the researcher's unfamiliarity with aural habilitation techniques led him to believe that practitioners' approaches to intervention would differ greatly because of philosophical differences (e.g., LSL vs. non-LSL). However, these differences did not surface in the comparison. Considering that the targeted students are D/HH, and their major need in the inclusive classroom is to hear effectively, the overlapping techniques between the two models are noteworthy and promising for collaboration within the discipline. Similarly, there is a great deal of overlap between the models with regard to guidance provided to professionals and caregivers who see the student daily. Some similarities were expected, as there were similarities in needs of the clientele, environment, and delivery of services, but the extent of the overlap is quite high, despite the differences in service delivery. Again, the researcher and perhaps other relatively naïve readers, would expect greater difference. However, the outcome suggests a shared importance, in both models described, given to the relationships established and maintained.

In the remaining categories there was a consistent amount of correspondence between the models, at least in the techniques that were discussed by the participants. There were many gaps (i.e., "unknown") in the findings due to various causes, including the breadth of information sought and the manner of gathering it. In Phase One the researcher had created – from sources in the literature and through guided input from a subject matter expert – an assembly of techniques suitable for a different service delivery model in a very different setting. Though the sources of

input with which to describe this model were diverse, the guidance permitted a comprehensive description of techniques. In Phase Two the researcher did not have such resources available, and instead relied entirely on open-ended reports by practitioners in a different model, within a different setting.

As these differences in source (literature and experts versus practitioners) and attainment of information were significant, gaps in the comparison were expected. Despite this, there were sufficient data to compare the two models in crucial themes, namely auditory intervention and guidance provided to professionals and caregivers. The difficulty in comparison, as well as the persistent gaps in the comparison of models, does not give reason to doubt the truth or value of observations, but it does limit their reach. The culmination of this phase of the study shows that it is certainly possible to describe different aural habilitation techniques within different service models, and with the application of different techniques, including in-person observation by researchers and rigorous description of techniques by practitioners, readers will be able to see comprehensive inventories of techniques used by practitioners in different settings and related to different intervention philosophies. Until then, documents such as this will show description is possible and similarities exist.

An unfortunate aspect of much of the related literature, as well as of this thesis, is that they provide much in terms of identifying general approaches to challenges, but little in terms of specifics. What this phase of the project provides is an overview of the similarities of actions used in two service models, but the reader sees few specific techniques. It is relatively easy to define a service delivery model, such as the particular consultant and itinerant models described in this thesis. In contrast, the definition of a practitioner's method is unclear. The LSL method, as a set of principles and a body of professionals, is the most thoroughly discussed of the aural

habilitation methods known to the researcher. Even so, there are many confounding factors that make LSL difficult to describe, and consequently, to study. What influence do the profession, training, and individual experience of the LSL practitioner exert? For instance, an educator and an SLP, each certified in LSL techniques will likely act differently based on professional training and work setting alone. Is the LSL model adequately described and flexible enough to fit every service delivery model? The ease with which the subject matter expert could describe (with support of literature) an LSL-related inventory of techniques for an itinerant service delivery model suggests that LSL is indeed flexible. Conversely, the many similarities with the consultant model suggests that techniques are established through professional training or experience, and techniques surface despite being used half a continent away from regions in which LSL is prominent. What constitutes a purely LSL-based school program, and who can administer it? Without a rigorous description of such, it will be difficult to say. Moreover, the school setting is the domain of the educators; though a program, pull-out session, or inservice may be run by a LSL certified teacher, the bulk of the interaction with the student will come from the classroom teachers and EAs. Can a hectic environment such as a pre-school or a classroom be defined as LSL, or is that limited to contact with the LSL specialist? This is unknown, and the definition may be in the hands of the regulatory body or the community of practitioners who define it. Effort to describe an LSL-based inventory of techniques, such as those identified in Phase One of this study, will allow for easier implementation of such programs, and will support development of LSL specialists working in / with schools. This is directed at LSL in this regard because of its presence in the aural habilitation literature and its influential regulatory body. Other habilitation philosophies (or non-affiliated professionals)

could apply the aforementioned rigour in describing a school-based approach, serving as a starting point for school-based programs and dialogue among practitioners.

Despite the effort of LSL practitioners and writers to define the method, answers to these questions are not clear, and for this reason the use of the "LSL" descriptor was limited in this manuscript when describing the itinerant model assembled in Phase One. The model had a framework that was nominally LSL, was elaborated by an LSL practitioner, and had additional content from LSL-related literature. Is that enough to call it an LSL model? That is unclear, and for the purposes of this thesis, it is not relevant. However, to successfully examine the efficacy of a school-based LSL model in the future, a rigorously defined set of techniques that strictly adhere to official definitions of LSL practice would be needed. Similarly, other aural habilitation methods must have rigorous definition, especially for examination by researchers. Only through consistent application of principles and techniques, in addition to strict control of the other factors such as sample and research method, can the efficacy of LSL and other approaches be compared and, through acceptance of research finding, can aural habilitation methods improve in every setting.

CLOSING DISCUSSION

The completion of this thesis and the project it contains resulted in assembly of two inventories of actions used by professionals using two different service delivery models. Independently these inventories are useful as beginning examinations of two models for provision of services to students who are D/HH, and may form a basis for describing other models, efficacy studies, topics for discussion in the professional community, and as a means for self-examination by the practitioners in each setting. The comparison of techniques reported in each model adds an interesting component to the discussion, with potential for significant sharing of approaches used in each.

Phase One explored the question: How is LSL practice described in the literature, particularly with regard to its application in schools? A clear answer to the research question was not easily found in the literature, therefore input from an outside expert was sought. As the subject matter expert was an LSL specialist, based her input on LSL principles, and suggested LSL-related literature, the inventory of behaviours can be considered nominally (if not officially) LSL. The extent to which these techniques adhere strictly to LSL guidelines, and whether or not the inventory is a complete model, was not the emphasis of this project, though comprehensiveness was attempted. This comprehensiveness was easier to obtain, as the bulk of the techniques were gleaned from literature sources, therefore the unpredictability of an interview was not its basis. However, this may lead to the question: Are the techniques on paper those that are practiced uniformly within the itinerant model? Alternatively, is the inventory of techniques just that: an inventory from which itinerant practitioners can pull ideas as needed? As with the examination of the central-northern Alberta model, the description of the itinerant model in eastern Ontario is not an evaluation, but merely a description.

What has been described thus far are mostly limitations. There is one expert used as a source for the inventory of techniques; how valid can a single source be? If a researcher were to fall back onto a motto of "you have to start somewhere," then the researcher picked an effective place (or person, rather) to start. The practice she described corresponded well with the sparse school-related LSL literature found in advance of her collaboration; she quickly referred to literature as the basis of her practice; she has experience in the field; and she develops current practitioners using the described itinerant model. The reader would be right to remain cautious about input from a single source; however, with literature supporting her, combined with her reputation and role in developing itinerant practitioners, it is hoped that the reader will see her input as valuable.

Given the limitations described above, what are the implications of Phase One? Further examination of the techniques – LSL and otherwise – used in an itinerant model is needed. Regardless of the aural habilitation philosophy used, describing interventions in the school setting appear challenging, due to the hectic nature of the work. Also, as literature and participants alike have emphasized, every child with hearing loss experiences it in a different way, and therefore a unique approach is needed. This apparent heterogeneity of target students therefore creates an inherent challenge to the uniformity of intervention. If the assembly of homogeneous groups of children for the purpose of studying efficacy of a program is not feasible, the field may then benefit from many small case studies to show the many way in which intervention can take place, as well as the effect an approach may have on the child's development. Ideally, studies should be as well-described and replicable as possible in order to develop a firm knowledge base for itinerant practitioners.

The future of the findings in Phase One can vary. Initially the inventory can be used in a small publication, presentations at conferences, or in discussion groups of practitioners. The findings could be immediately useful to public or private organizations seeking to provide similar services in a city or small rural area. The researcher and others might also use the inventory to create a semblance of a manual for practitioners in eastern Ontario or similar models. Such a project may benefit from further interview-based studies, in which itinerant (and other) practitioners contribute additional details to the inventory, and from curating by experienced practitioners in the discipline.

Phase Two asked: What techniques are reported to be used by consultant practitioners in central-northern Alberta to support the integration of student who are D/HH in an inclusive classroom? Phase Two had the researcher going in relatively "blind." He was sensitized to the categories of actions learned in Phase One, but filling them was in the hands of the participants. This breadth of the themes was planned, as it was the first description of this particular model, and was necessary in order to facilitate the comparison of models in Phase Three of the project.

Only three participants contributed to the study, and though this constitutes a third of the population of consultants in central-northern Alberta, the amount of data assembled is not exceptional. Nevertheless, Olson (2011) has stated that if articulate individuals with extensive experience can be identified and recruited, fewer participants are required. Indeed, there is little doubt that participants interviewed during this study possess such qualities. As if to affirm the value of these participants, the breadth of the participants' contribution is excellent: each reported actions performed in every theme of the study, easily allowing the basic framework to expand into a range of important subthemes.

The dearth of participants and breadth of the interview themes introduced notable shortcomings, namely that little saturation of the data could be achieved for many of the themes. Topics with the most saturation (i.e., most repetition or similarities between participants) included the importance of forming relationships with professionals and caregivers, strategies for teaching and the classroom, program supports, and auditory interventions. The remainder had valuable details, but the participants showed less overlap in their responses. Of course, even a smattering of ideas from a handful of participants would have been valuable, but with the experiences expressed through the participants' reported actions, there is more that may be done. The outcomes of the study, thinly spread as it is, may help chart the directions and dimensions of future study.

In a clinical science, efficacy of an approach should be kept in mind. Could the outcomes of Phase Two be considered a cohesive method for practitioners to follow? Probably not. Certainly, the inventory of techniques may be a valuable source of ideas for practitioners providing similar services, but they would be foolish to use it as a day-to-day guide. As was discussed with regard to Phase One, it is crucial to have a rigorously described system of intervention, as well as other study components (e.g., homogeneous groups of treatment groups and alternative treatment groups), in order to examine and compare efficacy. In Phase One, the described set of techniques appeared more unified since it stemmed from a single source and a single treatment philosophy, LSL. In Phase Two, there was relatively more diversity, as there were multiple sources of input and no (reported) unifying intervention philosophy. Then, of course, even if all-encompassing intervention models were assembled, the introduction of the "real world" factors of the classroom and the uniqueness of each student's need could only lead to non-uniform application of techniques. This is, of course, to be expected in clinical and

education fields, and is not meant to criticise the inconsistency of professionals, but rather to applaud their creativity and judgement. Similarly, researchers must be creative if they are to thoroughly examine the efforts of these practitioners.

The data have provided a reasonable first description of a consultative model used to support students who are D/HH. In fact, the information provides a helpful framework on which a fuller description can be built. Particularly in Alberta, the setting of practice has changed with the inclusion of consultants for the deaf and hard-of-hearing in the Regional Collaborative Service Delivery system. During this transition, the findings from this phase of the project may help practitioners and administrators with self-examination of their services. The findings may also be refined into a small publication, a discussion piece, or conference presentation. With the broad description of this study, researchers may perform more focused study of certain themes in the model, leading to more specific description of actions used by practitioners.

Phase Three approached the final research question: What are the similarities and differences between the techniques described by practitioners in central-northern Alberta and the itinerant-based techniques described in the literature? The purpose of Phase Three was to compare what appeared to be two very different models. On one hand is a model with consultants, in a huge region; on the other hand is a delivery model using itinerant practitioners serving in relatively small areas, many of whom are reported to be LSL specialists, whose principles have been better described than many. But, when the two organized sets of techniques were examined side-by-side, the impression was not an at-odds comparison, but rather one of commonality. The greatest similarities were in the categories of auditory interventions and professional / caregiver guidance, which, considering the importance of audition and building relationships in either model, this is an enormously encouraging finding. It suggests that, despite

the barriers or distance, professional differences, and possible philosophical differences, intervention in the inclusive classroom has attained some accord. From where might this stem? Perhaps the established best practices are well known in training program; perhaps communication between professionals is open and frequent; perhaps many years of experience have taught the contributors convergent ideas; perhaps many things.

There are several differences between the models, detailed in Phase Three. The bulk of these differences are as much due to the differences in models and mandates of employers as to philosophical differences. For instance, in the consultative model, the consultants may conduct on-site assessment and intervention, but as they are infrequently at the school itself, much of their role is building the capacity of local staff to carry out intervention without the consultant. Conversely, though it also involves training and capacity building of local staff to an extent, much more intervention by the hearing practitioner can take place in the itinerant model. Similarly, the reliance on informal assessment and input from the local staff in the consultant model appears to be due to infrequent access to the child.

What resulted from Phase Three of the thesis was somewhat different from one of the project's original goals. That is, we were not comparing two vastly different models with philosophical differences creating mutually unrecognizable approaches. Instead, the project showed how two sets of practitioners set out to achieve similar goals, through similar means, in vastly different circumstances. Of course, the advocated actions are from literature and participant input, but the similarities are nonetheless promising. A future area of inquiry may include comparison of efficacy between practitioner-based intervention versus teacher / caregiver-based intervention. Other options may include the development of tools with comprehensive sets of categories and interventions with which to compare different approaches.

The combined inventories of actions may be useful in several ways, to a range of audiences. The third phase, combined with the data from the first and second, may be valuable as a small publication, and may be the basis for further study in the field. It may allow broad self-examination within different models, or researchers may choose to more closely examine similarities and differences of narrower categories of intervention, or efficacy studies of one model versus another may be the basis for change within the mandates of employers and administrations. For those jurisdictions using entirely different types of service delivery models, the findings of part or all of this study may be useful, though researchers could also describe such alternative models to bring them into the discussion. Public delivery of the findings, whether in the form of presentations or discussion groups, would likely benefit from emphasis on practical commonalities, rather than philosophical differences. Input for both models showed that complex approaches are needed to approach the challenge of supporting students who are D/HH; certainly, philosophical differences will persist in any field, but the common methods and challenges of each should be the cue for shared effort, not division.

CONCLUSION

This topic of the thesis began with exploring an aural rehab intervention method, LSL, at the request of practitioners in a region where LSL is widely unknown. Ultimately, this question from the field required three phases of research, each building on the next. A simple background of the LSL approach was not enough, as the goal was to understand LSL's application in the inclusive school setting. This led to the first phase of the project, in which an inventory of LSL-related actions was assembled with the guidance of a subject matter expert and her recommended literature, drawn from an itinerant delivery model in eastern Ontario. The next phase set out to

make a new, first-time description of the techniques used by consultant practitioners in central-northern Alberta. Three consultants participated in interviews, providing a broad range of actions reportedly used to support students who are D/HH based in inclusive classrooms. The final phase of the project examined the itinerant and consultative models side-by-side. This comparison showed significant overlap in their goals and approaches, though with several differences likely due to differences in service delivery model. The accumulated findings may be beneficial to a range of audiences as they stand, and they also serve as a basis for describing other models of service for children who are D/HH, or for more focused examination and comparison of the models described in this thesis. Most encouraging were the commonalities between two very different delivery models. The challenge of serving students who are D/HH, shared by the practitioners, regardless of locale, method, and model, should be the stimulus for shared collaboration in the support of their clientele. This thesis showed one example of how much is already shared.

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APPENDIX A

Principles of LSLS Auditory-Verbal Therapy (LSLS Cert. AVT)

1. Promote early diagnosis of hearing loss in newborns, infants, toddlers, and young children, followed by immediate audiologic management and Auditory-Verbal therapy.
2. Recommend immediate assessment and use of appropriate, state-of-the-art hearing technology to obtain maximum benefits of auditory stimulation.
3. Guide and coach parents to help their child use hearing as the primary sensory modality in developing listening and spoken language.
4. Guide and coach parents to become the primary facilitators of their child's listening and spoken language development through active consistent participation in individualized Auditory-Verbal therapy.
5. Guide and coach parents to create environments that support listening for the acquisition of spoken language throughout the child's daily activities.
6. Guide and coach parents to help their child integrate listening and spoken language into all aspects of the child's life.
7. Guide and coach parents to use natural developmental patterns of audition, speech, language, cognition, and communication.
8. Guide and coach parents to help their child self-monitor spoken language through listening.
9. Administer ongoing formal and informal diagnostic assessments to develop individualized Auditory-Verbal treatment plans, to monitor progress and to evaluate the effectiveness of the plans for the child and family.
10. Promote education in regular schools with peers who have typical hearing and with appropriate services from early childhood onwards.

Principles of LSLS Auditory-Verbal Education (LSLS Cert. AVEd)

1. Promote early diagnosis of hearing loss in infants, toddlers, and young children, followed by immediate audiologic assessment and use of appropriate state of the art hearing technology to ensure maximum benefits of auditory stimulation.
2. Promote immediate audiologic management and development of listening and spoken language for children as their primary mode of communication.
3. Create and maintain acoustically controlled environments that support listening and talking for the acquisition of spoken language throughout the child's daily activities.
4. Guide and coach parents to become effective facilitators of their child’s listening and spoken language development in all aspects of the child's life.
5. Provide effective teaching with families and children in settings such as homes, classrooms, therapy rooms, hospitals, or clinics.
6. Provide focused and individualized instruction to the child through lesson plans and classroom activities while maximizing listening and spoken language.
7. Collaborate with parents and professionals to develop goals, objectives, and strategies for achieving the natural developmental patterns of audition, speech, language, cognition, and communication.
8. Promote each child's ability to self-monitor spoken language through listening.
9. Use diagnostic assessments to develop individualized objectives, to monitor progress, and to evaluate the effectiveness of the teaching activities.
10. Promote education in regular classrooms with peers who have typical hearing, as early as possible, when the child has the skills to do so successfully.

Principles of LSLS. (2007). Retrieved July 18, 2013, from http://listeningandspokenlanguage.org/AcademyDocument.aspx?id=563

APPENDIX B

For the reviewer:

A text box like this one describes each section of the document.

The following document is a script with which I will guide the interviews. I will be audio-recording the interviews, though space is left on this form for notes.

Introduction – Script for Researcher before the Interview Begins

The interview is fairly open-ended, so there is no set timeframe. However, somewhere between 45-60 minutes should be enough time. After the interviews with all the other participants are finished, there will be a second brief interview lasting no longer than 15 minutes. Your contribution is entirely your narrated report; you will have the opportunity to review your responses before they are analysed.

This study is looking specifically at the use of a consultative model for intervention with children who are deaf or hard of hearing in central and northern Alberta, in particular with how to include them successfully in an inclusive (i.e., regular or "mainstream" school classroom, including special education classrooms) classroom. The students we have in mind are those for whom one goal is to develop listening and spoken language or are otherwise auditory-focused (on their IPP) .

Before we get into the core questions, I want to gather some demographic information. Since this field's community in Alberta is quite small, this information will be restricted in final reports to protect your identity; however, this information will be considered during analysis.

What is your job title?

How long have you held this position?

How long have you worked with children who are deaf or hard-of-hearing in this position and others?

What are your current credentials? What was your professional degree?

In your position, what type of support do you (and your organisation) provide, consultative or otherwise? Please elaborate.

The "basal report" is intended to be the primary source of data from the participant (i.e., the base input from the participant from which I can branch out). I will begin by describing the desire for an open-ended response, followed by the questions themselves. Through this I intend to receive the most natural description of the participant's actual practice; conversely, too many specific questions may unintentionally guide the participant's response.

Note: items in square brackets are additional notes-to-self.

Basal Report

There are some prompting questions included, but I would prefer to use them to explore more details later on. First, I will just open to your responses to some more general questions.

Tell me about the D/HH children with whom you work. What are some of the challenges you face in supporting them in inclusive classrooms, and how do you go about approaching those challenges? Please go into detail, including about with whom you are interacting, how long it may take, and any steps you would take over time.

[Response recorded verbatim here -- May pause to clarify who is performing an action, where it is occurring, through what mode of communication, and other details as necessary.]

After the basal report is complete, I will go through the following questions to fill in additional details. This section will not be consistent between participants, as one may comprehensively cover many of the following in his/her basal report, whereas another might require significant prompting.

If an area was not covered or requires more detail, I will ask the question appropriately, otherwise it will be skipped.

Detail Finding

Alright, now that you've given your response, I have a few more questions just to get some more details. [Ask and modify the following as necessary:]

Do you support students who are deaf or hard of hearing with developing listening and spoken language? [If yes →] How do you facilitate the student's success in this goal? Please elaborate.

Do you have a role in the development or remediation of speech and articulation? [If yes → please elaborate]

What challenges do you meet in supporting listening and spoken language development? How do you support students in meeting those challenges?

For what you have discussed just now, where would this occur? Inside or outside of the classroom? How frequent is this support? How long are the interactions?

Do you spend time in the student's classroom? If yes, what do you do while there?

What professionals do you collaborate with? / Who do you interact with in the school environment? Is it direct interaction or done over phone/email/other?

In developing listening and spoken language skills for students who are deaf or hard of hearing, who are the additional stakeholders who play a role? Describe the collaboration with these stakeholders, if any.

Do you interact with parents of the students? [If yes → How so? How often?]

Do you have a role in working with the student's hearing aids or implants? Classroom amplification systems?

Do you have a role in optimizing classroom acoustics? [If yes → please elaborate]

Do you take different actions based on the severity or type of hearing loss the student has? [If yes → please elaborate]

Please provide a hierarchy of strategies you typically use for:

1. All students – "universal" strategies
2. Targeted strategies – tried-and-true strategies that work for certain groups
3. Individualized

Do you follow a specific curriculum or a specific development guide for listening development? [If yes → please elaborate]

Do you follow a specific curriculum or a specific development guide for speech and language development? [If yes → please elaborate]

How does the Alberta curriculum influence your work?

What actions have you taken to help a student with social concerns?

How do you assess the effectiveness of your actions? This is not just limited to academic and social outcomes for the student, but also may include the behaviour of other stakeholders in the classroom/school.

Lastly, I will allow the participant to add any final details.

The interview concludes with a reminder that changes may be made after the interview is transcribed; the transcripts will be provided once they are complete. Analysis will not occur until all transcripts are complete, thereby permitting some time for the participants to make changes.

Conclusion

Those are all the questions I have for now. Do you have anything more to add before I conclude?

Just a reminder, there is a short follow-up interview once all of the interviews are complete and initial analysis is done. How would you prefer to conduct the follow-up interview?

APPENDIX C

Listening and Spoken Language Behaviour Analysis Tool

This adapted instrument served as the data analysis tool with which data obtained during semi-structured participant interviews were compared with LSL behaviours. The organization of this analysis tool is based on the layout of Duncan, Kendrick, McGinnis, and Perigoe's (2010) *Auditory (Re)habilitation Teaching Behaviour Rating Scale*, and includes input from Bernstein (personal communication, November 5, 2013); Bernstein (2011); Easterbrooks and Estes (2007); and Fitzpatrick and Doucet (2013). The left column includes a brief description of techniques extracted from the sources listed above; the right column includes comments about the correspondence of the participants' reported actions to the itinerant model techniques and additional relevant notes.

Cognitive / Linguistic

Itinerant Model Techniques	***Consultant Model's Correspondence***
1. Plans and implements a range of integrated cognitive, linguistic, auditory, social, and speech objectives based on stages of typical development	Yes, primarily based on the training from their respective professions.
2. Facilitative communication methods: Converses with child/student slightly above his/her cognitive/linguistic level Communicates with child/student and caregivers in a manner that facilitates natural social discourse Uses expectant pauses/wait time to encourage turn taking and auditory/cognitive processing	Unknown.
3. Facilitates transfer of targeted abilities from structured sessions to informal social discourse	Yes.

4. Employs strategies to stimulate creative and independent thinking	Yes, brainstorming and self-determination used.
5. Works with targeted student and peers to develop small group and classroom listening skills	Yes.
6. Identifies social interaction difficulties through input (from students or professionals) or observation	Yes.
7. At the start / before entering school, identifies the targeted child's level of readiness to participate in the inclusive classroom, including areas for development	Yes. Requires referral, so presumably this occurs after school begins. Areas for development are identified and targeted in an ongoing basis.
8. Encourages the child to journal about school topics to facilitate vocabulary growth. Regularly provides feedback and discussions on the journal	No.
9. Performs communication assessments in the following areas: • Social language and social skills • Literacy and academic language	Yes.
10. Teaches strategies for identifying, coping with, and defending oneself in troublesome social situations	Unknown. Will discuss social issues and approaches to them.
11. Encourages using every opportunity for teaching new concepts and vocabulary.	Unknown.

12. Encourages exposure to a variety of literature (books, brochures, magazines) to develop vocabulary and reading comprehension	Unknown.

Auditory

Itinerant Model Techniques	***Consultant Model's Correspondence***
1. Monitors hearing device function, uses device(s) properly, and transfers responsibility to prof/student	Yes.
2. Varies auditory stimuli length using word and/or sentence and/or discourse activities	Yes.
3. Maximizing audition: Maximizes use of audition in both formal and incidental context by minimizing visual or tactile cues.	Partially. The participants did not suggest a reduction of visual supports, but rather recommended much use of visual schedules and similar tools. Tactile cues and other non-visual cues seemed to be frowned-upon.
Maximizes audition by positioning the student relative to the professional/caregiver appropriately to encourage a listening attitude/posture	Unknown.
Promotes using ideal seating arrangements for the maximization of audition (e.g., professional sitting beside the student ("thigh-to-thigh") while working; student seated at varying positions within the classroom or group, so that audition is maximized for each situation)	Unknown. Recommendations were used for classroom seating arrangement, but the layout or nature of this was not elaborated upon.

4. Encourages speaking to the student even when his/her eyes are not focused on the speaker's face Teaches the targeted student behaviours that promote listening.	Unknown. Yes.
5. Uses acoustic highlighting appropriately, proceeding from more to less highlighting as the student's skills develop.	No. Participants reported guiding teachers with regard to speaking styles, but specific discussion of acoustic highlighting was not included.
6. Develops and uses the auditory feedback system to facilitate speech and spoken language production.	Unknown.
7. Collaborates to modify the classroom environment and/or placement of the targeted student in a way that reduces noise and supports his/her listening	Yes.
8. Encourages the use of clear speech (speaking with normal (or slightly slower rate, pauses and normal pitch) by the classroom teacher and other professionals	Yes.
9. Helps to create an acoustically appropriate environment for the student's hearing: Reducing noise Amplifying voices Managing noise, reverberation, and distance Collaborating with parents and professionals to create appropriate listening environments in the home and classroom Teaching the student strategies for creating a good listening environment for him/herself Supports implementation of FM systems and/or other devices to support the student's reception of the auditory signal.	Yes.

10. Teaches professionals/caregivers the use of confirmations of understanding (e.g., "What did you hear?") rather than closed-ended confirmations (e.g., "Did you hear that?")	Yes.
11. Assesses level of auditory functioning in quiet locations and in the classroom; sets measurable goals to develop age/grade appropriate skills • Performs functional hearing assessments • Performs in-classroom performance assessments of auditory functioning	Yes.
12. Encourages "aggressive audiologic management" through liaison with the student's audiologists about how the student is functioning (relative to listening) day-to-day	Partially. Liaison occurs, and communication exists; however, the extent to which the "aggressive" descriptor is met is unknown.

Speech

Itinerant Model Techniques	***Consultant Model's Correspondence***
1. Models and facilitates speech and spoken language with natural rate, rhythm, and prosody	Yes.
2. Expects or facilitates student's intelligible speech production, including effectively implementing appropriate strategies for development/remediation	Partially. The participants complete this through collaborative practice with local SLPs.
3. Facilitates transfer of appropriate speech production into natural social discourse	Partially. The participants complete this through collaborative practice with local SLPs.

Professional / Caregiver Guidance

Itinerant Model Techniques	***Consultant Model's Correspondence***
1. Provides opportunities for professional/caregiver to reflect and share relevant experiences	Unknown.

2. Providing purpose for behaviour: Describes objectives to professional/caregiver/student before beginning of each activity. Identifies, with the professional/caregiver/student, planned goals for the future and carryover.	Yes. To the extent that the student can understand, the participants provided explanations about every intervention, as well as the nature of their hearing loss. Yes.
3. Models (demonstrates) and explains strategies and techniques clearly to caregiver/student.	Yes.
4. Discusses the outcome of each activity throughout the session or at the conclusion.	Unknown.
5. Maintains rapport with caregiver/student through active and constructive listening techniques	Unknown.
6. Maintains active involvement/participation/practice of caregiver/student through coaching in a constructive and supportive manner while creating an environment which is enjoyable and motivating	Unknown.

7. Skill transfer: Provides formalized guidance (e.g., in-services) to professionals about maintaining the learning environment	 Yes.
Has parent/caregiver attend sessions on a regular basis in order to facilitate carry-over of skills outside of the school	Partially. Carryover activities are primarily passed through the school. Parents/guardians are welcome to attend sessions, though they are not encouraged to attend classroom observation.
8. Discusses with school professionals ways in which listening and spoken language skills can be implemented into their interactions with the student.	Yes.
Discusses with classroom teachers and other school-based professionals about the current speech/language/listening intervention targets, including how to facilitate generalization of skills.	Partially. Meeting speech targets require collaboration with local SLPs.
Provides professional development workshops for school professionals to develop different skillsets for the student.	Yes.
Informs classroom teachers of modifications to the classroom environment that can facilitate classroom communication.	Yes.
Provides tools and supports to school-based professionals.	Yes.
9. Encourages use of FM systems, desktop sound systems, loop systems, Bluetooth/wireless devices, and other tools that help improve the signal-to-noise ratio in the classroom.	Yes.

Provides guidance in the general operation, troubleshooting, and application of assistive listening devices.	Yes.
10. Ensures that professionals are aware of differences in approaches (e.g., that sign language isn't used for communication just because the child is D/HH)	Unknown. Participants did discuss the importance of educating local staff about hearing loss, but this specific action was not elaborated.
11. Helps parents to transition the skills used with the student in preschool stages to suit the student's needs in school age	No.
12. Establishes classroom or school programs to foster understanding about deafness or being hard-of-hearing by fellow students	Yes. Requires much involvement from the school, the student, and parents in order for this to succeed.
13. Repair strategies: Informs school professional of ways to repair communication breakdowns or to teach the student to repair them. Teaches students/caregivers/professionals skills that address word-meaning breakdowns.	 Yes. Unknown.

14. Non-spoken supports: Encourages writing assignments, schedules, activities, and other important school-related details on paper or on the board in addition to speaking about them. Encourages the possibility of a student buddy, who could help identify missed details for the student with hearing loss. Encourages teachers' provision of notes or class outlines in advance of classroom sessions (for older students).	 Yes. Unknown. Unknown.
15. Encourages professionals to ensure that the student is constantly using his/her hearing assistance technology .	Yes

Student Guidance

Itinerant Model Techniques	***Consultant Model's Correspondence***
1. Teaches skills for self-advocacy to the student	Yes.
2. Offers individual teaching time ("pull-out") to develop language/social skills and prepare for classroom subject matter	Partially. Depends on the level of need and the availability of local personnel to perform this.
3. Conducts in-class observation and intervention to work on group communication, social skills, or subject matter	Partially/unknown. In-class observation and evaluation takes place, whereas intervention was not elaborated.
4. Encourages constant usage of hearing assistance technology	Yes.
5. Teaches skills to the student for repairing communication breakdowns	Yes.

6. Identifying and improving: Discusses the outcome of each activity throughout the session or at the conclusion.	Unknown.
Provides opportunities for caregiver/student to reflect and share relevant experiences.	Unknown.
Describes objectives to caregiver/student before beginning of each activity.	Unknown.
7. Models (demonstrates) and explains strategies and techniques clearly to caregiver/student	Unknown.

Instructional Presentation and Planning

Itinerant Model Techniques	***Consultant Model's Correspondence***
1. Seizes "learnable" moments through informal and incidental opportunities.	Unknown.
2. Responding to changes / feedback: Evaluates and reviews previous targets and sets new targets as required, incorporating caregiver/student feedback and suggestions.	Unknown.
Provides encouraging and appropriate feedback to caregiver/student.	Unknown.

3. Uses diagnostic teaching techniques by incorporating ongoing informal appraisal of student performance and sharing results with caregiver/students	Unknown
4. Uses scaffolded teaching strategies such as modeling, recasting, explaining, questioning	Unknown.
5. Customizing to student learning and listening: Maintains appropriate pacing that enables the caregiver/student to learn. Provides balance between student-led and professional/caregiver-led activities, appropriate for the student's age and stage of development. Selects and implements a variety of instructional materials, activities, and/or strategies to accommodate needs, capabilities, and learning styles of caregivers/students.	 Unknown. Unknown. Yes, and these are also recommended to school staff.
6. Integrates appropriate pre-literacy/literacy activities linked to objectives.	Unknown.
Fosters integrated classrooms, comprising both hearing and non-hearing students, and facilitates the participation of all students.	Yes. Universal suggestions provided by the participants are also applicable to hearing students.

Curriculum-related aspects: Receives input from the classroom teacher about current curriculum content and activities – including vocabulary and themes – to incorporate into speech/language/listening goals. Incorporates curriculum components (e.g., vocabulary, themes) into goals and intervention.	 Yes. Partially. This is suggested, but implemented by the classroom staff.
Influencing lesson-based supports: Collaborates with the teacher to create supports in the classroom. Helps establish classroom lesson plans including language, speech, and auditory sections.	 Partially. Suggestions are provided en masse for the teacher to select and implement. Unknown.
Asks to see classroom work and documentation about the student (from the teacher and other professionals) to: • facilitate creation of in-class and out-of-class generalization of skills • contribute relevant components to assessment • provide practical examples of student learning needs at team meetings	Unknown.

<u>Miscellaneous</u>

Itinerant Model Techniques	***Consultant Model's Correspondence***
1. Advocates use of informal and formal assessment: Informal assessment – observing in school or home setting; discourse with parents/caregivers/teachers; discourse with other agencies/professionals; taking a language sample. Formal assessment – using standardized tests with norms from typical-hearing population. Measures: Audition Speech articulation Receptive language Expressive language Vocabulary Conceptual development Literacy	Yes.

Academic achievement [Note: some assessment evidence may be produced by other professionals] At least some components of the assessment should be performed independently by the itinerant teacher / AVEd / AVT; this helps to learn about the child's interactions and learning process from a listening and spoken language approach.	Yes.
2. Assesses foundational skills with standardized assessments normed on the typically hearing population (Formal assessment typically takes 2-3 sessions.)	Partially. Extent of formal assessment may be limited by frequency of visits.
3. Establishes goals for students in each of the target areas: Audition Language Speech Cognitive / academic Communication Establishes goals for the guiding caregivers/professionals	Unknown.
4. Sets goals reflecting evidence from assessment before intervention begins.	Unknown. Though goal setting was discussed, the basis for this was not elaborated by the participants.
5. Tracks progress every six months to a year via formal and informal reassessment and comparison to baseline / last measurements.	Yes.
6. Coordinates with other professionals to determine area of greatest need.	Yes.
7. If qualified to do so, assesses the targeted student regularly.	Yes.

8. Identifies issues that are not related to speech/language/audition, and make appropriate referrals.	Unknown.
9. Discusses the following areas with members of the student's team: • Developing skills for auditory discrimination and auditory identification using games or tasks • Developing listening, speaking, and language skills – identifying troublesome areas common to children who are deaf or hard-of-hearing • Developing complex, challenging tasks that keep the child's interest • Developing ways for physical actions to be accompanied by listening and speaking opportunities	Unknown.
10. Encourages organisation of the school day with "listening breaks" – with breaks between listening-intensive classes/topics.	Unknown.
11. Determines need for services based on discussion with parents, teachers, and diagnostic assessment.	Unknown. Referrals are received from schools.
12. Delivers service in schools in one of two ways for a student: Monitoring/consulting service Direct resource / "pull out" support	Yes. Consultative / monitoring only.
13. Ensures assessments occur twice per year	No. Contact frequency may be limited. Informal assessment through contact with school staff appears to be regular or as needed.
14. Shares information with the parents/caregivers and teachers/professionals on a regular basis. Regular meetings should be scheduled; if this is not feasible, provision of videoed pull-out sessions or other demonstrations may be a suitable supplement.	Partially. Information given to the client: the school.
15. Uses a professional-parent/caregiver communication book for recording progress and areas being worked on	Unknown.