SPEECHREADING AND AUDITORY DEVELOPMENT pdf

1: Reference Chart â€“ Beginnings

Purpose. We describe the development of a new Test of Child Speechreading (ToCS) specifically designed for use with deaf and hearing children. Speechreading is a skill which is required for deaf children to access the language of the hearing community.

Abstract Background The visual speech signal can provide sufficient information to support successful communication. However, individual differences in the ability to appreciate that information, or speechreading, are large and relatively little is known about their sources. Purpose Here a body of research is reviewed regarding the development a theoretical framework in which to study speechreading and individual differences in that ability. Based on the hypothesis that visual speech is processed via the same perceptual-cognitive machinery as auditory speech, the development of the theoretical framework has focused on adapting a theoretical framework originally developed for auditory spoken word recognition. Conclusions The evidence to date is consistent with the conclusion that visual spoken word recognition is achieved via a process similar to auditory word recognition provided differences in perceptual or form-based similarity are taken into account. Words perceptually similar to many other words and that occur infrequently in the input stream are at a distinct disadvantage within this process. The results to date are also consistent with the conclusion that deaf individuals, regardless of speechreading ability, recognize spoken words via a process similar to individuals with hearing. At a coarse level of description, spoken language understanding entails the encoding of the physical stimulus, followed by word recognition, and finally decoding the intended message. It is likely that variations in one or more of the component perceptual and cognitive processes involved in this chain of events underlie individual differences in speechreading ability. A well specified theoretical framework for speechreading would facilitate the discovery of those specific variations associated with individual differences. Based on the hypothesis that visual speech is processed via the same perceptual-cognitive machinery as auditory speech, the theoretical framework for visual spoken word recognition has been developed through the adaptation of a framework initially developed for auditory spoken word recognition. Here, the development of this framework and initial investigations of how it might be altered by the influence of deafness are reviewed. Three key elements in spoken word recognition are the primary focus in the current review. To successfully recognize a spoken word, the perceiver must decode the incoming sensory signal for the purpose of isolating the intended word from the tens of thousands of words stored in their mental lexicon. Though, the specific details of implementation vary across contemporary theoretical models, general agreement exists that as the acoustic speech stimulus unfolds in time, multiple word candidates are activated as a function of their form-based similarity with the stimulus. Thus, activation for any given word in the mental lexicon is hypothesized to increase as perceptual similarity with the bottom-up stimulus input increases. Recognition is achieved via a competition among the active candidates based on their stimulus driven activation levels combined with a bias favoring words that occur more frequently in language input. The competition is typically won by the word in the lexicon with the best match to the perceptual input, with the speed and accuracy of this recognition processes being modulated by the number of words competing and their frequencies of occurrence in the language. In the following paragraphs, the three key elements within this framework are examined in relation to the investigation of speechreading. One key element in spoken word recognition is that the activation of lexical candidates is a function of the perceptually defined similarity between the phonetic information in the incoming stimulus and the mental representation. This is particularly relevant for speechreading because the stimulus information available from auditory and visual speech signals differ in both the availability of phonetic information and the patterns of perceptual similarity among speech segments. That is, recognition can occur provided sufficient segmental information is available to uniquely identify the word from other words in the language. The method involved four steps: The retranscription rules are in the form of phoneme equivalence classes e. Iverson, Bernstein, and Auer extended the analysis to compare mono- and multisyllabic words. A prediction that derives from the manipulation of the number phonemic equivalence classes in the computational analysis is that individuals with slightly increased ability in segment level identification could reap large gains in word and sentence level recognition accuracy. Bernstein et al, demonstrated slightly more accurate consonant identification for early-onset deaf perceivers compared to perceivers with normal hearing suggesting that the early-onset deaf participants should be capable of significant increases in speechreading accuracy for words and sentences. This level of performance has only been observed within deaf participants with early onset losses. Taken together, the evidence suggests that segment level ability may be one piece of the puzzle for understanding individual differences in speechreading ability. A second key element in spoken word recognition is that recognition occurs through competition amongst active of lexical candidates. Words similar to many other words are referred to as being in dense neighborhoods, whereas words similar to few other words are referred to as being in sparse neighborhoods. Words within dense neighborhoods are predicted to be harder to recognize than words within sparse neighborhoods. Additionally, words that occur frequently in the linguistic environment are afforded an advantage in the recognition process, such that low frequency words are predicted to be harder to recognize than high frequency words. An initial behavioral investigation of the hypothesis that visual spoken word recognition is influenced by neighborhood density was reported in Auer Twelve participants with normal hearing and twelve deaf participants visually identified isolated spoken words that had either sparse or dense neighborhoods. Words from sparse-neighborhood were identified considerably more accurately than dense-neighborhood words by both participant groups. The results were interpreted as evidence that competition based on perceptual defined similarity between words and input constitutes a reliable spoken word recognition principle irrespective of input modality or participant hearing status. Specifically, when auditory confusion matrices were used to compute lexical density, the output of the NAM was no longer predictive of identification accuracy. This is consistent with the conclusion that the specific set of words entering into competition for recognition depends on the phonetic information available in the stimulus. The use of lexical equivalence class size expanded the generality of the test of lexical density by facilitating the inclusion of both mono- and multi-syllabic words as stimuli. Eight participants with normal hearing and eight deaf participants visually identified isolated spoken words that were selected to be in large, medium, or unique lexical equivalence classes. For each of the lexical equivalence class sizes, separate sets of words were selected that were either high or low in frequency and were either mono- or di- syllabic. Word identification accuracy increased as stimulus word lexical equivalence class size decreased and frequency of occurrence increased. Auer in press replicated the Mattys et al, study and extended the observed frequency and lexical equivalence class effects to a larger pool of deaf participants who varied over a wide range in their speechreading ability. Thus, the results to date are consistent with the conclusion that an activation-competition framework is a general mechanism for spoken word recognition regardless of input modality and that lexical similarity is form-based Auer, in press. A third key element in spoken word recognition is that lexical knowledge, or vocabulary, is an important factor in determining the ease of word recognition. Lexical knowledge is particularly important in investigating word recognition by deaf participants because it is a function of linguistic experience which clearly differs for individuals with early-onset deafness compared to individuals with hearing. Objective measures are taken by analyzing large scale linguistic corpora hypothesized to be representative of the linguistic experience of the participant pool. However, objective corpora do not currently exist that are designed to represent the linguistic experience of early-onset deaf perceivers. An alternative approach to estimating lexical knowledge is through the use of subjective estimates of word experience. Auer and Bernstein used a subjective familiarity measure to investigate the lexical knowledge of skilled deaf speechreaders. Specifically, 50 deaf and 50 hearing individuals all of whom were average or better speechreaders rated individual words on a 7-point scale that ranged from never seen, heard, or read the word to know the words and am confident of its meaning. As expected, deaf participants consistently judged words to be less familiar compared to hearing participants. However, more detailed analysis investigating item correlations within and across participant groups demonstrated the existence of subtle differences. Specifically, the patterns of familiarity were more similar within a participant group compared to across participant groups. Thus, a deaf participant familiarity with words was more similar to other deaf participants than to hearing participants. The significance of these differences for spoken word recognition remains to be examined. On the whole, the pattern of familiarity with words is similar for both participant groups tested suggesting similar lexical knowledge with only minor differences emerging upon detailed analysis. More recently, Auer and Bernstein used two additional subjective measures to further investigate the influence of linguistic experience on the lexicon of early-onset deaf participants. Typically, early learned words are recognized more quickly and easily that late learned words. Prior investigating whether the same relationship holds visual spoken word recognition, Auer and Bernstein collected initial estimates of age-of-acquisition for a set of words from deaf and hearing participants. To compare their experience with those with lifelong hearing, a new lexical experience measure was collected: Thus in this study, subjective measures of when age-of-acquisition and how acquisition-channel, i. However, the two participant groups differed in when words were rated as learned, with the deaf participants rated words as learned later. The groups also differed in their rating of how words were learned, with the deaf participants relying more on the print and manual channels for acquisition. Intriguingly, those deaf participants who subjectively reported relying more on the spoken channel for acquisition were also better speechreaders as measured with an objective measure. The directionality of this relationship remains to be investigated. Taken together, these subjective measures are important in that they provide a means to look at lexical experience and look back at the development of the lexicon in adult participants for whom no direct developmental data are available. Research to date is consistent with the claim that this task is accomplished via a process of activation followed by competition regardless of the modality of input. Here, the adaptation of three key elements associated with this theoretical framework is reviewed in relation to speechreading and deafness. This approach has proved successful for developing a theoretical framework, however much work remains both in developing the framework and in investigating individual differences. To understand spoken language, the perceiver must recognize words spoken in not only in isolation, as investigated here, but also in a continuous speech stream. An issue that arises associated with continuous speech is the need to determine where words begin and end. Detection of meaningful boundaries is crucial to successful speech comprehension. Successful juncture perception is particularly important for speech comprehension under conditions of reduced phonetic distinctiveness. Extension of the lexical effects detailed above implicitly assumes that the perceiver can reliably segment words from the continuous speech stream. If accurate segmentation is not achievable, the benefit of lexical structure is likely reduced if not completely mediated. For utterances that were between 7 and 10 words in length, the number of alternative parses extended into the millions. Thus, future speechreading studies should investigate the segmentation strategies used in sentence length materials. In conclusion, the evidence to date suggests that the process of visual spoken word is achieved via a process similar to auditory word recognition provided differences in perceptual or form-based similarity are taken into account. The results to date also are consistent with the conclusion that deaf individuals, regardless of speechreading ability, recognize spoken words via a similar process. Work is currently ongoing to further develop and adapt the theoretical framework as well as examine whether variations its component perceptual and cognitive processes are responsible for the individual differences in speechreading. Spoken word recognition by eye. Investigating lexical influences on the accuracy of speechreading words presented in isolation and in sentence context. Journal of the Acoustical Society of America. Speechreading and the structure of the lexicon: Enhanced visual speech perception in individuals with early-onset hearing impairment. Journal of Speech Language Hearing Research. Estimating when and how words are acquired: Is subjective word familiarity a meter of ambient language? A natural experiment on effects of perceptual experience. Effects of phonetic variation and the structure of the lexicon on the uniqueness of words. Are lexical decisions a good measure of lexical access? The role of word frequency in the neglected decision stage. Journal of Experimental Psychology: Human Perception and Performance. Word recognition in speechreading: Stork D, Hennecke M, editors. Speechreading by humans and machines.

2: Investigating Speechreading and Deafness

In a relatively quiet classroom listening environment, if a student has good speechreading ability (i.e., 15%+ improvement over auditory alone) he or she should be encouraged to watch the teacher while she is speaking and during classroom discussion.

Speechreading is a skill which is required for deaf children to access the language of the hearing community. ToCS is a deaf-friendly, computer-based test that measures child speechreading silent lipreading at three psycholinguistic levels: The aims of the study were to standardize ToCS with deaf and hearing children and investigate the effects of hearing status, age and linguistic complexity on speechreading ability. Method 86 severely and profoundly deaf and 91 hearing children aged between 5 and 14 years participated. The deaf children were from a range of language and communication backgrounds and their preferred mode of communication varied. Speechreading skills significantly improved with age for both deaf and hearing children. There was no effect of hearing status on speechreading ability and deaf and hearing showed similar performance across all subtests on ToCS. Conclusions The Test of Child Speechreading ToCS is a valid and reliable assessment of speechreading ability in school-aged children that can be used to measure individual differences in performance in speechreading ability. Typical face-to-face communication is multi-modal and speech perception involves the integration of both auditory and visual information Rosenblum, The integration of visual and auditory speech seems to occur very early on as young babies are not only sensitive to the visual component of speech e. Importantly, McGurk effects have been observed in infants as young as 4. This suggests that visual speech contributes to speech processing even in pre-lingual children; thereby strengthening the argument that speechreading visual-alone speech perception is a natural part of speech processing e. Further support can also be found in recent evidence from neuroimaging studies suggesting that silent speechreading activates similar neural circuitry as audio-visual speech e. For many deaf and hearing-impaired individuals, speechreading is the main access to the spoken language of the hearing community and yet historically hearing people have often been reported as having at least equivalent, if not better, speechreading skills than deaf individuals e. Most of these speechreading assessments were either designed to be used with hearing individuals and therefore contained complex syntax and vocabulary or they required written responses, both typically disadvantaging deaf individuals. The series of studies conducted by Bernstein and colleagues demonstrated that deaf adults had superior speechreading skills to normally-hearing college students in terms of phonetic perception when recalling nonsense syllables and also accuracy for words and sentences. Mohammed and colleagues Mohammed, et al. The TAS was a computerised picture-to-video matching task which had been specifically designed to assess speechreading skills in deaf individuals by ensuring the language level of the content was appropriate and the response method was nonverbal. The deaf participants achieved an average accuracy score of Lyxell and Holmberg compared the speechreading skills of moderately hearing-impaired adolescents to those of hearing controls matched for reading and chronological age. The hearing-impaired children were significantly better at speechreading both single words and sentences. Likewise, Kyle and Harris reported better single word speechreading skills in a group of 29 severely and profoundly deaf 7 year olds when compared with younger hearing children matched on reading ability. Relatively little is known about the developmental trajectory of speechreading skills in children. Dodd found that hearing infants aged between 19 and 36 months were able to speechread single words and performed above chance when asked to match silently mouthed words to a choice of three pictures. Davies, Kidd and Lander recently replicated this finding with slightly older hearing pre-schoolers 2 to 5 year olds. There is slightly more research looking at the development of speechreading skills in hearing-impaired children, although the evidence is rather mixed with respect to the effect of age on speechreading ability. Dodd, McIntosh and Woodhouse reported the results of a 3-year longitudinal study using the Lipreading Assessment for Children with Hearing Impairment LACHI with a small group of 16 deaf children aged between 30 and 57 months at initial assessment. They found that speechreading accuracy initially increased but then began to plateau between the ages of 5 and 6 years old. Unfortunately, as neither study provides many details about the specific ages at which the children were tested, these findings are difficult to interpret. However, it is worth noting that the lack of age effect in the Davies et al. Although the idea of a plateau in speechreading skills seems to be supported by research, the age at which it occurs and how speechreading actually develops in school-age deaf and hearing children is unclear. An alternative interpretation of these apparent plateaus is that they could also be reflecting the sensitivity of the test material at different ages. Speechreading ability can be measured at many different psycholinguistic levels such as the word, phrase, sentence or connected speech, which can lead to variability within as well as between individuals. While the elements of an utterance need to be perceived efficiently, this may not be sufficient to ensure understanding of the utterance as a whole. The identification of words requires that the perceiver has a sufficiently detailed lexicon to distinguish a word â€" whether by phonetic or semantic features. Indeed, Lyxell and Holmberg found this was a better predictor of speechreading accuracy than word identification alone in children with moderate hearing impairment. Also, the more demanding the perceptual task, the more likely that cognitive resources to support comprehension will be stretched. Thus, both for reasons of ecological validity and for further insights into the cognitive resources used by speechreading, it is important to test lipreading at different psycholinguistic levels. Lyxell and Holmberg reported the same effect of psycholinguistic level on the speechreading accuracy of moderately hearing-impaired children. They used an open-ended speechreading assessment whereby children watched a video clip and then had to write down as much of the sentence as they could. However, this type of response format would not be appropriate for assessing speechreading skills in severely or profoundly deaf children given that they typically have well documented difficulties with literacy e. Whilst the design of the Davies et al. Mohammed and colleagues found that deaf and hearing adults also speechread single words more accurately than sentences, which in turn were easier than short stories. Their findings were similar to those of Green et al. A recent review of the literature and extant speechreading tests by Woodhouse, Hickson and Dodd identified the need for a valid assessment of speechreading skills in hearing-impaired children. In the current study, therefore, we present a new Test of Child Speechreading ToCS , suitable for use with both deaf and hearing children, and developed using a similar deaf-friendly format as the TAS Mohammed, et al. ToCS was designed to be sensitive enough to measure both individual differences and the development of speechreading ability at different psycholinguistic levels. The main aims of the current study were to 1 assess the reliability and validity of ToCS as a measure of speechreading and 2 generate performance norms for speechreading ability as assessed by ToCS in school-aged deaf and hearing children. In addition, we wanted to answer the following research questions: Method Participants deaf and hearing children aged between 5 and 14 years participated in the study. There were 86 deaf children and 91 hearing children. The mean age of the deaf children was 9 years 6 months SD Children were predominately from schools in southern England. The hearing children were recruited from the mainstream schools to which the deaf units were attached, thereby ensuring that the groups were similar in terms of background demographic variables. Participant characteristics are presented in Table 1. Children were from a range of ethnic backgrounds with broadly similar distributions for deaf and hearing: Deaf and hearing children were also evenly distributed across the age range. There were no significant differences between deaf and hearing children in their chronological age, non-verbal IQ scores, gender distribution or ethnicity. There were an additional 28 children 24 deaf and 4 hearing who had originally been assessed but were excluded due to low scores on the Matrices subtest or suspected additional problems.

3: Oral/Auditory-Oral â€“ Beginnings

Auditory and Speechreading Training with Children - Children with hearing loss should be taught speechreading as soo nas the loss is identified, mainly by talking slowly, simply, articulately, and without exaggerated face and mouth movements, during natural conversational interactions.

Process[edit] Although speech perception is considered to be an auditory skill, it is intrinsically multimodal, since producing speech requires the speaker to make movements of the lips, teeth and tongue which are often visible in face-to-face communication. Information from the lips and face supports aural comprehension [2] and most fluent listeners of a language are sensitive to seen speech actions see McGurk effect. The extent to which people make use of seen speech actions varies with the visibility of the speech action and the knowledge and skill of the perceiver. Phonemes and visemes[edit] The phoneme is the smallest detectable unit of sound in a language that serves to distinguish words from one another. Spoken English has about 44 phonemes. For lip reading, the number of visually distinctive units - visemes - is much smaller, thus several phonemes map onto a few visemes. This is because many phonemes are produced within the mouth and throat, and cannot be seen. These include glottal consonants and most gestures of the tongue. Voiced and unvoiced pairs look identical, such as [p] and [b], [k] and [g], [t] and [d], [f] and [v], and [s] and [z]; likewise for nasalisation e. Homophenes are words that look similar when lip read, but which contain different phonemes. Homophenes are a crucial source of mis-lip reading. The legend to this puzzle reads "Here is a class of a dozen boys, who, being called up to give their names were photographed by the instantaneous process just as each one was commencing to pronounce his own name. Now it would not seem possible to be able to give the correct name to each of the twelve boys, but if you practice the list over to each one, you will find it not a difficult task to locate the proper name for every one of the boys. Skilled users of the language bring this knowledge to bear when interpreting speech, so it is generally harder to identify a heard word with many lexical neighbors than one with few neighbors. Head movement that accompanies normal speech can also improve lip-reading, independently of oral actions. While most hearing people are sensitive to seen speech, there is great variability in individual speechreading skill. Good lipreaders are often more accurate than poor lipreaders at identifying phonemes from visual speech. In order to imitate, a baby must learn to shape their lips in accordance with the sounds they hear; seeing the speaker may help them to do this. The next six months; a role in learning a native language[edit] Until around six months of age, most hearing infants are sensitive to a wide range of speech gestures - including ones that can be seen on the mouth - which may or may not later be part of the phonology of their native language. But in the second six months of life, the hearing infant shows perceptual narrowing for the phonetic structure of their own language - and may lose the early sensitivity to mouth patterns that are not useful. The mechanisms for this, and the precise ways in which lip-reading helps, are topics of current research. As hearing becomes less reliable in old-age people may tend to rely more on lip-reading, and are encouraged to do so. However, greater reliance on lip-reading may not always make good the effects of age-related hearing loss. In specific hearing populations[edit] A number of studies report anomalies of lipreading in populations with distinctive developmental disorders. People with autism may show reduced lipreading abilities and reduced reliance on vision in audiovisual speech perception. People with Williams syndrome show some deficits in speechreading which may be independent of their visuo-spatial difficulties. Children with SLI are also reported to show reduced lipreading sensitivity, [39] as are people with dyslexia. You see the entrancing outside world, but it does not reach you. After learning to lip read, you are still inside the bottle, but the cork has come out and the outside world slowly but surely comes in to you. The extent to which one or other approach is beneficial depends on a range of factors, including level of hearing loss of the deaf person, age of hearing loss, parental involvement and parental language s. Then there is a question concerning the aims of the deaf person and her community and carers. Is the aim of education to enhance communication generally, to develop sign language as a first language, or to develop skills in the spoken language of the hearing community? Researchers now focus on which aspects of language and communication may be best delivered by what means and in which contexts, given the hearing status of the child and her family, and their educational plans. In deaf people who have a cochlear implant , pre-implant lip-reading skill can predict post-implant auditory or audiovisual speech processing. Lip-reading skill is associated with literacy abilities in deaf adults and children [50] [51] and training in lipreading may help to develop literacy skills. Cued speech is said to be easier for hearing parents to learn than a sign language, and studies, primarily from Belgium, show that a deaf child exposed to cued speech in infancy can make more efficient progress in learning a spoken language than from lipreading alone. The highest proportion of adults with hearing loss have an age related , or noise related loss , and with both these the high frequency sounds are lost first. Since many of the consonants in speech are high frequency sounds, speech becomes distorted. Hearing aids help, but may not cure this. Lipreading classes have been shown to be of benefit in UK studies commissioned by the charity, Action on Hearing Loss [56] in Trainers recognise that lipreading is an inexact art. Students are taught to watch the lips, tongue and jaw movements, to follow the stress and rhythm of language, to use their residual hearing, with or without hearing aids, to watch expression and body language, and use their ability to put two and two together. They are taught the lipreaders alphabet , groups of sounds that look alike on the lips visemes like p, b, m, or f, v. The aim is to get the gist, so as to have the confidence to join in conversation, and avoid damaging social isolation that often accompanies hearing loss. Lipreading classes are recommended for anyone who struggles to hear in noise, and help to adjust to hearing loss. ATLA the association for teaching lipreading to adults is the professional association in the UK for qualified lipreading tutors. Tests[edit] Most tests of lipreading were devised to measure individual differences in performing specific speech processing tasks, and to detect changes in performance following training. Lipreading tests have been used with relatively small groups in experimental settings, or as clinical indicators with individual patients and clients. That is, lipreading tests to date have limited validity as markers of lipreading skill in the general population. Lipreading and lip-speaking by machine[edit] Automated lip-reading has been a topic of interest in computational engineering, as well as in science fiction movies. The computational engineer Steve Omohundro , among others, pioneered its development. In facial animation , the aim is to generate realistic facial actions, especially mouth movements, that simulate human speech actions. Computer algorithms to deform or manipulate images of faces can be driven by heard or written language. Systems may be based on detailed models derived from facial movements motion capture ; on anatomical modelling of actions of the jaw, mouth and tongue; or on mapping of known viseme- phoneme properties. A complementary aimâ€”the reverse of making faces move in speechâ€”is to develop computer algorithms that can deliver realistic interpretations of speech i. These models too can be sourced from a variety of data. Automated lipreading may help in processing noisy or unfamiliar speech. International Journal of Language and Communication Disorders. J Speech Hear Res. Journal of the American Academy of Audiology. J Speech Lang Hear Res. J Acoust Soc Am. Lipreading and the Structure of the Mental Lexicon. Cognitive Psychology Oct;11 4: Proceedings of the National Academy of Sciences. Explicit use of et al. Trends in Cognitive Sciences. The role of auditory and visual speech in word-learning at 18 months and in adulthood. Campbell Eds Hearing by Eye: Journal of Speech, Language and Hearing Research. Philosophical Transactions of the Royal Society B. Journal of the Acoustical Society of America. A meta-analysis in adults". Patterns of gaze to speaking faces in children with autism spectrum disorders". Clinical Linguistics and Phonetics.

4: Auditory Training | Parent's Guide to Hearing Loss | NCBDDD | CDC

Purpose. Here a body of research is reviewed regarding the development a theoretical framework in which to study speechreading and individual differences in that ability.

Their purpose was to respond to the needs of servicemen who lost hearing as a result of war service. With little financial restrictions and full access to personnel and available technology, these professionals were able to create what they considered to be an ideal program. I have always considered it as a kind of mythological Camelot, one that could never realistically be emulated now. It consisted of two full months of informational classes, speechreading and auditory training lessons, ongoing hearing aid selection procedures and so on. Things have changed since that time. As the profession developed immediately after the war, fewer and fewer audiologists conducted ongoing therapy with clients. At the present time, the main thrust of practicing audiologists is the administration of sophisticated behavioral and electrophysiological auditory diagnostic procedures and the selection and dispensing of hearing aids. While both are crucial functions, and the latter an absolutely a necessary aural rehabilitation step, for most people with hearing loss it is nevertheless an insufficient response to the problems caused by a hearing loss. Often, a hearing aid alone is not enough. One such reason can be attributed to the scarcity of objective evidence proving the value of these services. There is anecdotal evidence to be sure, but not many carefully controlled studies that demonstrate the long-term effectiveness of a training program. Without unassailable proof of this nature, skeptical audiologists are unlikely to include speechreading and auditory training activities as part of their professional activities. Insofar as speechreading lessons are concerned, while just about all of us who have provided this training devotedly believe in its value, a personal belief is not equivalent to objective evidence. The scientifically oriented clinician requires objective evidence of effectiveness to rationalize their activities. The situation with auditory training is different, as the potential value of this therapy has a firmer theoretical and practical ground to stand on. We know that people with long-standing hearing losses often do improve their speech perception skills after being fit with a hearing aid, apparently as a consequence of prolonged experience in listening and learning to interpret the amplified speech signals. We see this most dramatically with people who have received cochlear implants; some have shown dramatic gains in speech perception performance after a year or two of implant use. If these gains are seen naturally, then it opens the possibility of further progress occurring via an intensive and dedicated training program. Current evidence suggests that such a training program can and does improve speech perception performance. Developing information in neuroscience adds a level of theoretical support for an intensive auditory training program. It is now known that even with adults it is possible to induce structural and physiological changes in the central auditory system with enriched sensory stimulation, that is with training. It seems that an old dog can indeed learn new tricks! We know that we cannot alter hearing sensitivity at the periphery by training; the audibility of signals will not change. There is evidence that this indeed does occur. In other words, while pure-tone thresholds will not improve as a result of training, hopefully speech perception skills can and will. However, even if audiologists wanted to conduct intensive training, it is not a practical option because of the time and costs involved. Audiologists do have to make a living, and while the average cost of hearing aids is very high, it is still not sufficient to recompense an audiologist for personally conducting ongoing and time-consuming speechreading and auditory training sessions. For convenience here, I have separated speechreading and auditory training; in the real world, an audio-visual approach would and should be emphasized. There is a way to provide this training without the cost being prohibitively high. And that is to take advantage of the computer and internet revolution. In the past few years, a number of computer aided training programs have been developed that are designed for people to work on in their homes. These include programs on speech reading and auditory training, separately and in combination, and communication repair strategies. The major cost of such a computer-aided program would involve mainly that of the CD disk s which, while not insignificant, would be much less than frequent personal appointments with a clinician. However, professional monitoring and oversight is desirable and this factor would add somewhat to the cost equation. An effective training program, of any kind, should be based on the known and accepted principles in learning theory. We know that certain conditions can optimize the transmission and retention of information. These would include frequent, perhaps smaller training increments rather than fewer large time blocs, the active participation of the subject in the learning process rather than passive listening, varied practice material to ensure a challenge but also some degree of success, and immediate feedback regarding errors. All of these apply with a home-based computer aided training program. Equally important is the fact that is the learner who is in charge of the program and is the one who takes personal responsibility for his or her own welfare in his or her own home. A number of such programs are available, all of which, while differing in the details, cover similar ground. The first two described below focus on auditory training with a number of communication "tips" interspersed throughout , the third includes both auditory training and speechreading exercises, blended as desired, while the fourth also includes some of these elements, it also presents exercises in conversational strategies. All focus on areas of communication of particular difficulty to at least some people with hearing loss. Robert Sweetow of the University of California, San Francisco and is described in several recent publications. The program requires training some 30 minutes a day, five days a week, for four weeks for completion. The listening tasks include: This training module consists of sentences in the presence of multi-talker babble, organized into specific topics health issues, money matters, etc. At the beginning of the module, the sentences are presented at a level clearly audible above the background sounds. The listener is required to repeat as much of the sentence as possible silently or out loud. The next screen presents the sentence visually. If the sentence was understand indicated through "yes" and "no" buttons on the screen , then the next sentence presentation is made more difficult to hear. If the sentence was not understood, the correct answer is displayed and played again, after which the listening task is made easier. As the training modules progress, the trainee is presented with increasing levels of listening difficulty, in this and for the other tasks as well. This is intended to replicate rapid speech. This proceeds in the same manner as the preceding activity, except what is modified here is the degree of time compression. This module is similar to the speech in babble exercise, except that only a single speaker comprises the competition. The challenge here is that the primary talker can be a man, woman or child, while the competing speaker can also be one of these three voices. The trainee has to attend to just of these talkers while ignoring the competing talker both are varied. Target Word or short-term memory. In this module the subject is given a target word that will appear in a forthcoming sentence. After hearing the sentence, the task of the listener is to identify the word in the sentence preceding the target word. After three successful presentations, the level of difficulty is increased. Now the target word is revealed after the sentence is presented. Prolonging the period of time between the sentence and target word increases the difficulty of the test and trains short-term memory. In this task, the person hears a sentence in quiet, with one word masked completely by a random sound, such as a car horn or telephone ringing. The listener is then asked to select the correct word including synonyms from four choices that appear on the screen three are possible answers and one is "none". The developers of the program organized a multi-site study to investigate whether LACE was effective in increasing speech perceptual skills. Sixty subjects completed the study, which compared their LACE scores before and after the training program. The subjects were also tested on several standardized speech perception tests that required identification of sentences in noise. For these tests, also, performance improved after the training program. Based on the evidence presented, the program does appear to be effective. More information about LACE can be obtained from www. It is an auditory training program primarily designed for cochlear implant users though it may also be useful for hearing aid users with severe or profound hearing losses. The program consists of a variety of listening tasks ranging in difficulty. Assessment tests determine the level at which training commences for the eight modules. The user manual also contains a printed series of questions to aid a subject in determining the proper level to begin training. It is recommended that users monitor their progress by periodically retaking the tests. All modules provide for immediate feedback when errors are made and include a menu bar that permits a user to stop, pause the session, or to replay the last presentation. This allows the user to replay a sound as often as desired. This is the most basic task in the program. Three sounds are presented in sequence while their corresponding response buttons are highlighted on the computer screen. The job of the listener is to select the tone that differs from the other two an "odd ball" design. Correct and incorrect answers are noted. If answer is incorrect, the correct answer is highlighted on the screen and the tone is replayed. The user may repeat the correct answer as often as desired. At first, the pitch separation of the target tone is quite distinct from the other two. As the module continues, the pitch separation decreases and distinguishing the target from the other two tones becomes progressively more difficult. This task may be particularly useful for people with cochlear implants in comparing the sensations that occur when electrodes widely and narrowly spaced are stimulated. The user clicks on the icon that produces the sound in question. Difficulty is increased by gradually increasing the number of choices from two to six. The most difficult level includes background noise along with the stimuli. This task first requires a listener to select which one of three identical words are spoken by the different gender speaker two are the same gender and one is different. Difficulty is increased by requiring a user to identify the gender of the speaker after hearing a word spoken. Vowel and consonant recognition. With these two modules, Sound and Beyond now moves into direct speech perception training. Both of these modules first expose listeners to differences between the speech sounds, proceeding from acoustically dissimilar phonemes to those which are similar acoustically. There are five levels in each of these modules, with the later ones requiring not just a discriminative response same or different , but an identification of the specific vowel or consonant used a more difficult listening task. The difficulty of the identification task increases as a user proceeds to a higher from a lower level, with the number of choices increasing from two to nine. In order to proceed to a higher level, certain performance criteria are built into each level. The listener must exceed this "bar" before proceeding to the next level.

5: RERC on Hearing Enhancement - Dr. Ross Says

Auditory supplements to speechreading. As a preliminary step toward the development of a generalized model of speech communication that incorporates visual speech cues, it is necessary to.

In the current study we tested whether previous demonstrations of a speechreading advantage for profoundly congenitally deaf adults with hearing aids, or no amplificiation, were also apparent in adults with the same deafness profile but who have experienced greater access to the auditory elements of speech via a cochlear implant CI. We also tested the prediction that, in line with the perceptual compensation account, receiving a CI at a later age is associated with superior speechreading skills due to later implanted individuals having experienced greater dependence on visual speech information. We designed a speechreading task in which participants viewed silent videos of single words spoken by a model and were required to indicate which word they thought had been said via a free text response. The adults with CI showed significantly better scores on the speechreading task than the hearing comparison group. Furthermore, within the group of adults with CI, there was a significant positive correlation between age at implantation and speechreading performance; earlier implantation was associated with lower speechreading scores. These results are both consistent with the hypothesis of perceptual compensation in the domain of speech perception, indicating that more prolonged dependence on visual speech information in speech perception may lead to improvements in the perception of visual speech. Introduction The perceptual compensation hypothesis refers to the idea that sensory deprivation within one sensory modality will stimulate compensatory perceptual improvement in another sensory modality Ronnberg, Individuals who are deaf have compromised, and sometimes minimal, access to the sounds that make up a spoken language via the auditory modality. However, when a speaker produces speech, visual, as well as auditory, information about speech sounds is available to the observer. This raises the possibility that deaf individuals may show spontaneous perceptual compensation in the domain of speech perception, with their greater reliance on the visual elements of speech in everyday life resulting in superior speech perception skills in the visual-only modality. If this perceptual compensation hypothesis is correct, we would predict that deaf individuals would show superior speechreading visual-only speech perception skills to hearing individuals at a group level. However, evidence regarding whether there exists a speechreading advantage for deaf individuals has been mixed. A body of work by Ronnberg et al. In a visual-only condition they found no significant advantages for the adults with hearing loss on phonemes or sentences, but did find that they displayed a significant advantage over the adults without hearing loss in terms of their visual recognition of single words. In contrast with the findings on adults with acquired hearing loss, studies with groups of adults who have congenital or early onset deafness have been more consistent in demonstrating significant speechreading advantages compared to hearing adults. The adults with early onset deafness showed enhanced speechreading ability relative to the hearing adults on all three types of speechreading stimuli, indicative of superior visual phonetic perception in the deaf adults. Auer and Bernstein replicated this finding of a significant speechreading advantage for adults with early onset deafness. They found significant advantages for the deaf adults who identified In a study of Brazilian Portuguese-speaking adults, Oliveira et al. A range of skills are likely to underpin this speechreading advantage in those born deaf. Better visual speech understanding in individuals with congenital or early onset deafness, compared to hearing individuals, but not in those with later onset of deafness is consistent with work on perceptual compensation in blind individuals. Subsequent studies have controlled for the influence of musical experience by including sighted controls closely matched on musical experience and have still provided consistent evidence regarding the enhancement to pitch discrimination associated with earlier onset of blindness Wan et al. Speechreading in Cochlear Implant Users In the majority of the studies reviewed above that demonstrated a speechreading advantage in adults born severely to profoundly deaf, the participants either used hearing aids or no hearing device Bernstein et al. Thus, these individuals would have had minimal access to the auditory speech signal meaning that their dependence on visual speech to access spoken language would have been high. They tested deaf CS and non-CS users and hearing participants on a sentence to picture speechreading test. Deaf participants who were native CS users were better speechreaders than deaf participants who were non-CS users. Furthermore, the two groups of deaf participants were better speechreaders than the hearing participants. This study demonstrates that different language and communication experiences in deaf individuals can lead to differences in speechreading skill. Another way to increase the clarity of the speech signal to a deaf person is of course to increase access to the auditory input. Over the last two decades increasing numbers of profoundly deaf children and adults have received cochlear implants CI ; devices which convert acoustic stimuli into electrical signals and directly stimulate the auditory nerve to provide deaf individuals with access to sound American Speech-Language-Hearing Association, For individuals who are congenitally deaf but are implanted in early childhood, or for those who receive a CI following an acquired hearing loss, it is often the case that the CI gives them sufficient access to speech sounds for them to be able to recognize speech in auditory-only conditions, although there is considerable variability in speech perception outcomes even within these populations American Speech-Language-Hearing Association, This raises the question of whether the superior access to auditory speech that deaf CI users experience impacts on their ability to perceive visual speech. It is possible that a lesser degree of dependence on the visual perceptual elements of speech for understanding spoken language means that the group-level deaf speechreading advantage may not be evident for CI users. However, it is important to recognize that a CI uses a maximum of 22 electrodes to replace the function of around 16, hair cells and as a consequence conveys highly impoverished information about speech sounds compared to a normally functioning human cochlea Giraud et al. The reduced spectral information conveyed by the CI is particularly problematic in terms of its impact on auditory speech perception in the presence of background noise Srinivasan et al. This suggests that despite the increased access to auditory speech that a CI can bring, CI users might continue to make greater use of visual speech information than hearing individuals and thus may display a speechreading advantage. The study by Oliveira et al. A small number of studies have reported data comparing speechreading skills of groups of deaf individuals who have received a CI with hearing individuals. The participants completed the assessment both prior to receipt of a CI, immediately after switch on and in the years subsequent to implantation. This advantage maintained in the months and years following cochlear implantation despite these deaf adults substantially increasing their auditory-only word recognition abilities. Additionally, Rouger et al. As part of a study looking at audiovisual spoken word training, Bernstein et al. As was the case in the original Auer and Bernstein study, Bernstein, Eberhardt and Auer found a significant advantage for the deaf group over the hearing group in terms of their ability to identify words from sentences presented in a visual-only format; the average percentage words correct for the CI group was They reported no significant differences between the groups in terms of their identification performance when the syllables were presented in a visual-only format, indicating no speechreading advantage for these deaf children with CIs over their hearing peers. This finding is consistent with the results from a study by Kyle et al. They found that the deaf and hearing children performed very similarly on this test; there were no significant differences between the groups on any of the three subtests. It is possible that increased experience of and attention to visual speech over a period of years is necessary for the development of superior visual speech perception skills observed in adults. Alternatively, it may be the case that the language skills of deaf children limit their performance on speechreading tasks, making it harder for them to demonstrate an advantage in their visual speech perception skills than it is for deaf adults with more experience of the spoken language the tests are conducted in. In this study we therefore focused on deaf adults and aimed to test whether the group-level speechreading advantage demonstrated by Rouger et al. We predicted that although these adults may on average have experienced greater access to auditory speech sounds than adults with equivalent levels of deafness without CIs they would still have experienced, and be continuing to experience, a much greater dependence on visual speech information than hearing individuals and hence would show evidence of perceptual compensation and demonstrate group-level advantages in their speechreading skills compared to hearing adults. As mentioned above, auditory speech perception outcomes following implantation are highly variable and are impacted by a number of different variables. For post-lingually deafened adults, factors identified as predictors of auditory speech perception following implantation include duration of pre-implant deafness and residual hearing pre-implant Blamey et al. Under the framework of perceptual compensation, it would be predicted that individual variability in auditory speech perception with a CI may relate to individual variability in visual speech perception, with those individuals getting the least auditory speech access via their CI relying the most on visual speech on a day to day basis and hence showing the greatest enhancements in their visual speech perception skills. In the present study we focus on one variable that has been consistently associated with variability in auditory speech perception outcomes following CI; age at implantation. Age at implantation effects on speech perception outcomes have been discussed in the context of sensitive periods for the development of the central auditory system. They found evidence from electrophysiological recordings of cortical auditory evoked potentials CAEPs that, for congenitally deaf children, implantation after 3. These findings suggest that receipt of an implant earlier in life may be associated with better auditory speech perception as a consequence of increased plasticity of the central auditory system. Additionally, earlier recipients will also have experienced an increased number of years accessing auditory speech via the CI than later recipients. Taken together these factors may contribute to earlier implanted individuals showing a reduced reliance on, and therefore less well-developed, visual speech perception skills than later implanted individuals. One study has addressed this question of whether there is evidence of a relationship between age at implantation and speechreading ability and has done so in children with CIs: They found that overall the earlier implanted children showed better speech perception performance than the later implanted children when sentences were presented in auditory-only conditions, but that this advantage was reversed when the sentences were presented in visual-only conditions with the later-implanted group showing superior performance in that context. These findings in children with CIs are consistent with the perceptual compensation hypothesis in indicating that a more protracted period of deafness, with onset in early childhood, may be associated with superior visual speech perception skills. In the present study we sought to test this hypothesis in adults with CIs who received their implant at highly variable ages 2â€"19 years. The majority of children who are eligible for a CI today are now receiving one before the age of 3 years Raine, meaning that opportunities to address questions about the implication of variability in age of implantation that spans beyond the sensitive period for the development of the central auditory system are increasingly limited; thus this sample presents a unique opportunity. To summarize, in the present study we tested the following hypotheses: Materials and Methods Participants Sixty one native English-speaking hearing participants provided data for this study. All reported normal hearing and normal or corrected-to-normal vision. The participants were either undergraduate students participating for course credit or volunteers from the wider community who had responded to adverts to take part in the study. All provided informed consent prior to participation in the study. An additional 13 participants consented to participate in the study but were excluded from the current dataset as a result of not completing all items in the task. Fifteen congenitally deaf participants with CIs participated in this study. All reported normal or corrected-to-normal vision and profound deafness. Materials and Procedure One hundred and twenty three words were selected as the target words for this experiment see Supplementary Table S1 for full list. All words were either concrete nouns or colors. Information on the visual speech lexical competition experienced by the speechread target words was sourced from the Phi-Lex database Strand, The measure used was a continuous measure of visual lexical competition ConV. This measure reflected the overall competition in the reference lexicon for the target word based on the similarity of the response distributions of its constituent phonemes from a forced choice visual only phoneme identification task to those of phonemes in every other word of the same pattern type in the lexicon. For further details of how this measure was derived, see Strand This variable was available for 86 out of the words in the study. The word was spoken aloud at a normal conversational volume during the recording and the videos were subsequently edited to mute the volume such that the participants saw a natural production of the word but without any sound. The same model produced each word. The model maintained a neutral facial expression in the production of every word and the camera distance, lighting and background conditions were consistent for each word see Figure 1. Screenshot of visual speech model who produced all stimuli. Four different randomized orders of the videos were produced and participants were randomly assigned to complete one of the four orders. The videos were presented using Opinio, a web-based survey tool, and participants completed the task via the internet on their personal computers. Participants were instructed that they would see silent videos of a model saying a single word and that they could only view each video once. They were required to click to play each video and then write the word they thought they had seen in a free text response box before moving onto the next video. When scoring the responses as correct or not relative to the target, participants were given one point for an item if the response either directly matched the target or if they had produced a homophone of the target e. This meant they could score a maximum of on the task. Prior to completing the speechreading task the participants provided demographic information via the web-based tool. Additional audiological information was collected from the participants with a CI via a paper-based response form prior to their completion of the speechreading task. Results Overall Speechreading Performance of Hearing Participants The mean number of words identified correctly by the 61 hearing participants was This was equivalent to a mean proportion correct of 0. Therefore the unequal variance Welch t-test was used. This showed that deaf CI users scored significantly higher than the hearing control group on the speechreading task, t Correlation between age of cochlear implantation in the deaf participants and number of visual speech words correctly identified. Results of regression analyses predicting speechreading score with age and education level entered at Step 1 and age at implantation at Step 2. Individual Item Accuracy and Relationship with Word Properties For the 61 hearing participants, the proportion correct for individual items ranged from 0. Supplementary Table S1 presents data on the proportion correct responses for each of the items individually for the hearing sample Supplementary Table S1.

SPEECHREADING AND AUDITORY DEVELOPMENT pdf

6: Hearing by Eye II: Advances in the Psychology of Speechreading and Auditory - Google Books

This paper describes the development of a new Test of Child Speechreading (ToCS) that was specifically designed to be suitable for use with deaf children.

Can You Read My Lips? Speechreading is used by persons with typical hearing and those with hearing loss, especially when there are communication challenges such as background noise, and is an integral part of speech processing. On average, an English-speaking person will create about 13 to 15 specific speech movements per second in a comfortably paced conversation, but even the best-trained professional speechreaders can only register about 8 or 9 movements per second at most. Even modern day speechreaders trained with conventional techniques E. Thus, it is very difficult to capture all of the necessary information to decode meaningful sentences, and building the message from the sum of its parts. Often, the processing time required to visually recognize and interpret recognizable speech movements, arrange them into words, and then arrange the words into sentences outlasts the speakers rate of speech and the sentence the speechreader was trying to follow would have long since passed. For more information go to this review of the literature. Video examples illustrating the challenges of speechreading use alone for communication: The first YouTube clip is a funny example of speechreading during football. Functional use of speechreading can be identified via the Functional Listening Evaluation. Alternately you can use the Utley Test of Lipreading Ability. Methods to teach speechreading: The first inclination in education is to improve speechreading in order to improve outcomes. Therefore teaching methods are mentioned below: The Analytic approach focuses on the smallest units of speech to understand spoken communication. It is a bottom-up approach that concentrates on the details of the sounds â€" learning to recognize how they look on the lips and practicing their recognition in isolation and in single words. Common exercises focus on giving the speechreader some clues such as key words or a topic that will be discussed, presenting the message and having the speechreader respond to what he thought was said. The goal is to use context and any known information to allow for educated guessing, when parts of spoken information are missed. Limitations include situations when a speechreader is unable to determine the context of the message or unknowingly misinterprets the information, leading to misunderstanding. Individuals naturally vary in how much speechreading benefits their understanding of speech in everyday situations. A bottom-up approach does not really improve this natural ability and a top-down approach may improve understanding in predictable situations with known vocabulary and topics, but is certainly not enough to improve performance in a dynamic educational environment teaching new concepts using previously unheard vocabulary. Methods to improve speech understanding: Although they can be used as brief teaching strategies, goals developed around improving these specific skills are not really warranted. The aim of this approach is for the individual to concentrate on interaction more than the reception of specific cues or sounds, to ask for modification of the speakers message, the context in which dialogue takes place, and develop specific strategies that they can employ in particular situations that are found to be most difficult to communicate. Cues such as word order and sequencing, tense and word endings, matching language to the situation and context, among others are considerations when using this approach. The Holistic approach combines the teaching strategies of the analytic and synthetic approaches combined with hearing tactics and communication repair strategies. Training programs encompassing all of these features have been found to have some evidence base. Summary on Teaching Speechreading As mentioned previously, learning goals specific to the top down or bottom up focus of the first two approaches are not warranted. Rather, it is recommended that the teacher develop goals related to improving speech understanding via communication repair strategies, auditory skill development focus on the visual aspects of speech sounds can be incorporated into auditory discrimination training , and use of hearing tactics to improve communication in situations in which the student has identified as being challenging for listening. The Negative Impacts of Speechreading If a student has challenges hearing everything in class then encouraging him or her to speechread will help understanding, right? The first finding was that accuracy when repeating sentences in quiet or noise like on a Functional Listening Evaluation does not predict the true impact of classroom acoustics on listening comprehension for lecture or discussion. In all cases, listening to lecture yielded higher comprehension than listening to discussion. This study further found that the younger participants age 8 looked around more to aid their understanding during discussion. Most often these students were unable to visually keep up as the discussion moved from student to student. Furthermore, it appeared as though the act of trying to visually track class discussions could actually use up more cognitive resources, resulting in reduced comprehension, especially for younger students. In low noise, being able to watch the speaker improves speech understanding and reduces listening effort. Listening in high noise while watching the speaker results in greater effort to understand speech. Listeners who are better speechreaders benefit more from visual cues than those that are naturally poorer speechreaders. Implications of this research In a relatively quiet classroom listening environment, if a student has good speechreading ability i. It remains critical for the teacher to summarize or repeat key points during discussion, regardless of how well a student speechreads. Indeed, with comprehension lower while trying to visually track discussion, this summarization is important for many students with normal hearing as well. Our thanks to ProCare Therapy for allowing us to share this fun challenge with you. Information on speechreading training from here. For more information on the impact of speechreading refer to the article: Access is the Issue Not Hearing Loss: Original post of this material in January Written by Karen L.

7: Supporting Success For Children With Hearing Loss | Can You Guess the Big 5? |

Lip reading, also known as lipreading or speechreading, is a technique of understanding speech by visually interpreting the movements of the lips, face and tongue when normal sound is not available. It relies also on information provided by the context, knowledge of the language, and any residual hearing.

The acquisition of English is addressed through the use of teaching strategies for English as a Second Language. An approach emphasizing spoken language development through listening. Child develops spoken language through one-on-one therapy and use of residual hearing with optimal amplification. An auditory-visual communication approach combining a system of hand cues with the natural mouth movements of speech, specifying each sound phoneme of spoken language clearly. A hand shape consonant groups at a location vowel groups cues a syllable. This integration provides clear access to all the phonemes sounds as parents coo, babble and talk. The use of any form of sign language communication is not encouraged. An educational philosophy that uses spoken language and sign language simultaneously. Primary Goals To acquire an age-appropriate internal language as a basis for learning a second language and opportunities for academic achievement. To develop a positive self-image and cultural identity providing access to the Deaf community. To provide a basis for learning written and, when possible, spoken English? To develop spoken language through listening by following the stages and sequence of typical development. To develop the skills necessary for successful mainstreaming in school and integration into the hearing community. To promote a positive self-image through natural family and social interactions using spoken language. To provide clear communication in the spoken language of the home. To develop the phonemic language base to achieve full literacy in conversation, reading and writing. To support speechreading, speech and auditory skill development. To develop spoken language through listening and visual cues. To develop spoken language and communication skills necessary for school success and integration into the hearing community. To provide a bridge to the development of spoken language in the very young child. To support integration into both the hearing and the Deaf communities. Language Development Receptive The child develops early language concepts as well as higher order cognitive skills by utilizing the visual nature of ASL. The child develops understanding of spoken language through early and consistent intervention that emphasizes learning through listening in a developmentally appropriate sequence. Optimal listening opportunities require the use of appropriate hearing technology. Cueing boosts auditory awareness, discrimination and understanding. The child develops internal language through early, consistent listening experiences and developmentally appropriate therapy, which includes speech- reading and the use of hearing technology. Ability to code switch from ASL to English signed, spoken or written as needed. Spoken and written English. Spoken English using sign language in English word order, and written English. Hearing Encourages individual decision about amplification. Amplification may provide access to spoken language and allow the child more opportunity to become bilingual. Early, consistent and appropriate use of hearing technology hearing aids, cochlear implant s , FM system is critical to this approach. Requires ongoing auditory management. Early, consistent and appropriate use of hearing technology hearing aids, cochlear implant s , FM system is important with this approach. Consistent and appropriate use of hearing technology hearing aids, cochlear implant s , FM system is strongly encouraged. Families emphasize literacy in the home. Families provide opportunities for interaction with the Deaf community to help ensure a future independent and fulfilled Deaf citizen. ASL is learned through classes, media, websites, and interaction with members of the Deaf community. Parents are expected to actively participate as partners in sessions with therapist s in order to learn strategies and techniques that promote the auditory learning of goals. Parents must also provide a language-rich environment, to make learning through listening a meaningful part of all experiences. Parents are expected to learn to speak-and-cue at all times in order for children to absorb the phonemes critical to language and reading readiness. Families need to provide consistent use of cues and speech during daily routines and play activities. The system is taught in less than 20 hours through multi-media, classes, and Family Cue Camps. Consistent daily use and practice leads to conversational ease within a year. Families are expected to learn and consistently use the chosen English-based sign language system. Enter your email address to sign up for our quarterly newsletter.

8: Do You Teach Lipreading? | Auditory Verbal Therapy

Listening comprehension is a higher order auditory development skill. Evaluation must occur to determine each student's specific abilities and needs along the hierarchy of auditory skill development (such as evaluating with the SPICE).

9: Supporting Success For Children With Hearing Loss | Speechreading

Previous research has provided evidence for a speechreading advantage in congenitally deaf adults compared to hearing adults. A 'perceptual compensation' account of this finding proposes that prolonged early-onset deafness leads to a greater reliance on visual, as opposed to auditory, information when perceiving speech which in turn results in superior visual speech perception skills in.

SPEECHREADING AND AUDITORY DEVELOPMENT pdf

The Synergy of Avintia The Black Woman Cross-Culturally Definitions of benchmarking Abbys Adventures The Letters of D. H. Lawrence (The Cambridge Edition of the Letters of D. H. Lawrence) Academy, online classes, and the breach in ethics Bruce W. Speck Epilogue: a The Hymns of Zarathustra The Boyle lectures and the problem of heterodoxy Romantic primitivism Migratory Bird Treaty Reform Act 16 percent solution Communicating through music Nelson mathematics grade 7 student text The Sixties Papers Around the house and the house Ancilla to Pre-Socratic Philosophers Raisin in the sun ; and The sign in Sidney Brusteins window Dave Yetton. Musician. I am the bitter name Sino-Vietnamese War Children of Earth (2001 Nights, Vol. 3) Barchester Towers Looking out, looking in. The picture plane V. 1 General introduction. pt. I. Anatomical investigations. pt. II. The system of the North American naj Intermediate algebra 10th edition Enders game chapter 5 Provisions for a civil government for Alaska, etc. V. 11. High and low life in Italy. The poems of Catullus. The Two New Yorks Concluding the process New headway elementary A question of negligence. Asterix chez les pictes Punctuation Power Integrating Poverty and Gender into Health Programmes Derby Doodle and the Red Leaf 100 words kids need to by 4th grade The democratization of China The Deans English On Truth, Human and Divine