

Washington University School of Medicine Digital Commons@Becker

Independent Studies and Capstones

Program in Audiology and Communication
Sciences

2008

Understanding the communication needs of individuals with hearing loss in the workplace

Jacqueline L. Spry

Follow this and additional works at: http://digitalcommons.wustl.edu/pacs_capstones



Part of the [Medicine and Health Sciences Commons](#)

Recommended Citation

Spry, Jacqueline L., "Understanding the communication needs of individuals with hearing loss in the workplace" (2008). *Independent Studies and Capstones*. Paper 447. Program in Audiology and Communication Sciences, Washington University School of Medicine. http://digitalcommons.wustl.edu/pacs_capstones/447

This Thesis is brought to you for free and open access by the Program in Audiology and Communication Sciences at Digital Commons@Becker. It has been accepted for inclusion in Independent Studies and Capstones by an authorized administrator of Digital Commons@Becker. For more information, please contact engeszer@wustl.edu.

**UNDERSTANDING THE COMMUNICATION NEEDS OF
INDIVIDUALS WITH HEARING LOSS IN THE WORKPLACE**

by

Jacqueline L. Spry, B.S.

**A Capstone Project
submitted in partial fulfillment of the
requirements for the degree of:**

Doctor of Audiology

**Washington University School of Medicine
Program in Audiology and Communication Sciences**

May 15, 2009

Approved by:

**Nancy Tye-Murray, Ph.D., Capstone Project Advisor
Elizabeth Mauze, M.S., Second Reader**

Abstract: The purpose of this project was to determine the specific needs of individuals with hearing impairment in the workplace. Focus groups were conducted with this population to evaluate needs. Results are depicted as specific concerns noted throughout the focus groups.

Acknowledgements

I would like to thank Nancy Tye-Murray, Ph.D. and Elizabeth Mauze, M.S. for their support and advice in helping me complete this project. I also would like to thank them for helping me in conducting the focus groups. Thanks to Cathy Schroy, M.S. for providing a reliability check for me and to Brent Spehar, Ph.D. for providing support in development of figures and tables.

Table of Contents

	Page
Acknowledgements	ii
List of Tables	2
List of Figures	2
Summary	3
Introduction	6
Purpose	14
Methodology and Design	15
Results	19
Discussion	23
Conclusion	24
References	26
Appendix A: Case History Form	
Appendix B: Employment Questionnaire	
Appendix C: Sample Suggestions: Aural Rehabilitation Program for People with Hearing Loss in the Workplace	

List of Tables

Table 1. Employment breakdown of participants.

Table 2. Charted breakdown of grounded theory concept number 1.

Table 3. Charted breakdown of grounded theory concept number 2.

Table 4. Charted breakdown of grounded theory concept number 3.

List of Figures

Figure 1. Grounded Theory method of classifying focus group sessions.

Summary

Objectives

The objective of this project was to determine the needs of adults with hearing loss in the workplace. The inspiration for the project came from a study conducted by Hetu, Getty, and Waridel (1994). In their study, focus groups were used to determine specific needs for factory workers with hearing loss in the workplace. The current study is an attempt to examine the relevance of patient specific aural rehabilitation for office level workers, who may have different needs. Groups of those who have never received Aural Rehabilitation (AR), as well as those who have received AR were chosen. It was hypothesized that people in the workplace with hearing loss would experience difficulties in communication situations and would be interested in attending aural rehabilitation classes.

Data was analyzed using methods from the grounded theory. The grounded theory consists of three basic elements: concepts, categories, and propositions (Pandit, 1996). Corbin and Strauss (1990) describe a concept as an aspect of data that continually presents itself throughout data collection. They also explain that “concepts that pertain to the same phenomenon may be grouped to form categories”. Categories are considered to be more abstract and form the basis for a theory (Corbin and Strauss, 1990). Glaser and Strauss (1967) describe the third element, propositions, as similar to hypotheses. They feel that propositions are a more accurate description of this element since it describes a relationship between concepts, rather than a relationship between measured items. Open coding was also used to analyze our dataset. Corbin and Strauss describe open coding as a method by which interactions and events are related (1990). Axial coding is used for

further development of paradigms within categories (Corbin and Strauss, 1990). This type of coding was utilized to relate components to their categories and categories to their concepts.

Rationale

AR has been an area of controversy within the field of audiology. Although most audiologists agree that AR is beneficial to patients, many audiologists can not provide formal AR due to reimbursement issues. As of now, most AR programs are generalized to all people with hearing loss. By using focus groups, and discovering the specific needs of particular populations of people with hearing loss, AR can be tailored to meet those exact needs.

Design

A qualitative study design was used to extract the needs of people with hearing loss in the workplace. Focus groups were conducted with participants who were currently in the workforce, retired within the past two years, or who actively volunteered within the community. The participants who actively volunteered within the community were allowed to participate due to the similarities of their communication experiences. Questions asked of the participants during the group elicited discussion regarding difficult communication situations and emotions related to the situations while at work.

Results

Seven focus groups were held over the course of one year. Communication barriers in the workplace were discussed throughout the groups. Focus groups were

transcribed and analyzed using methods derived from the grounded theory. A sample Aural Rehabilitation (AR) program was devised as a guide for future interest in providing such services.

Conclusion

Focus group discussions led to the discovery of the main problem areas with communication in the workplace. The primary problem areas discovered from the focus groups were: 1. Participants were unaware of the purpose of the Americans with Disabilities Act (ADA); 2. Participants noticed effects on their job performance due to their declining hearing; 3. Participants avoided social events and meetings due to difficulty hearing; and 4. Participants had difficulty expressing their needs to employers. All of these ideas held implications for future research in the area of AR.

Introduction

According to the American Speech and Hearing Association, the incidence of hearing loss has nearly doubled within the past thirty years. It is estimated that approximately 28.6 million Americans suffer from some form of auditory disorder. Noise exposure is also presenting a threat to the millions of people surrounded by hazardous sounds at some point in their lives (2008).

Piercy and Piercy (2002) describe the effects of hearing loss in the *Journal of Marital and Family Therapy*. They discuss that people with hearing loss tend to bluff their way through conversations in order to avoid unpleasant confrontations. This then causes the communication partner to feel that the individual with hearing loss is not paying attention or only listening when they feel like listening. In order to avoid these perceptions of themselves, people with hearing loss tend to avoid situations in which they have difficulty hearing (Piercy and Piercy, 2002). Aural rehabilitation (AR) is a method by which people with hearing loss can learn to adapt in difficult listening situations.

Boothroyd (2007) defines adult AR as “the reduction of hearing loss induced deficits of function, activity, participation, and quality of life through sensory management, perceptual training, and counseling.” He recommends a holistic approach to AR in order to represent each aspect of everyday life that AR is meant to improve (Boothroyd, 2007).

In 2007, Preminger described psychosocial effects associated with hearing loss and how AR attempts to minimize those effects through a review of the literature. Preminger discussed emotional, cognitive, interpersonal, behavioral, and physical reactions to hearing loss. An article by Hetu (1996) explained that most people consider their hearing loss to be a stigma (As cited by Preminger, 2007). He discusses the

importance of AR in dealing with the “stigma and loss of social identity” as is seen in people with hearing loss. Hogan (2001) and Kaplan, Bally, and Garretson (1985) have found that AR is a great way for introducing communication strategies to people with hearing loss (As cited by Preminger, 2007). Both addressing the emotional aspects of hearing loss, as well as providing instructional techniques for communication is believed to show an improved benefit in communication for people with hearing loss (Preminger, 2007).

In one study by Chisholm, Abrams, and McArdle (2004), 106 veterans received hearing aids. Half of the group also received AR. The *Communication Profile for the Hearing Impaired* (CPHI) was administered to the veterans prior to being fit with hearing aids and at the end of the AR program to measure for short-term benefit. The CPHI was again administered six months and one year after the veterans were fit with hearing aids to assess long-term benefit. Participants receiving AR met once a week for four weeks. Each session lasted for two hours. Overviews of the hearing process and communication strategies, improving communication in difficult listening situations, anticipatory strategies, and telephone communication strategies were discussed throughout the four week period. The CPHI measures five factor areas including communication importance, communication performance, personal adjustment, reaction, and interaction. Not surprisingly since the AR did not focus on this area, communication performance remained stable between both groups of participants. In the area of personal adjustment, both groups improved significantly with slightly greater average improvement in the AR group. The AR group also showed greater short-term benefit in the area of verbal and non-verbal communication, as well as in communication strategy use (Chisholm, Abrams, and McArdle, 2004).

In a study by Wayner (2005), everyone fit with a hearing aid between the years of 1976 and 2000 at the Hearing Center at Albany participated in three classes throughout the trial period of the hearing aid. At the initial visit, needs for the patient were determined based on audiologic assessment and case history forms. At the fit, patient's followed the traditional fitting protocol, including maintenance and use of the hearing aid. At this time, functional performance measures were made in the sound booth. All patients were encouraged to participate in the orientation classes. Refresher classes were given for those who have previously worn hearing aids. The classes covered practical instructional information about the hearing aids, development of auditory-visual skills to aid in communication, modifications to the earmolds and aids if needed, adjustment counseling for the patient and significant others, and practice with assistive listening devices. Outcome was measured using the Client Oriented Scale of improvement (COSI) and Communication Performance Assessment (CPA). These researchers found that including AR with hearing aid fittings improved quality of life in their patients. They feel that the inclusion of AR has added value to the services provided by them as well as has significantly reduced the number of returned hearing aids (Wayner 2005).

Hawkins (2005) compiled a study which looked at several AR programs and their outcomes. Studies were included that met a list of criteria including characteristics of participants in the study. Most of the studies located were found to be non-experimental in nature due to the subject matter. Most researchers found that AR reduces the perception of hearing handicap in people with hearing loss. In general, the conclusion drawn from this compilation of studies was that there is at least benefit from AR in the short term for people with hearing loss (Hawkins, 2005).

The primary concern for providing AR to patients is the cost-effectiveness of offering such services. A cost utility analysis of adult group AR was studied at the Department of Veterans Affairs in Bay Pines, Florida. New hearing aid patients were randomly assigned to the hearing aid only group or the hearing aid plus AR group. Quality of life questionnaires were given to each participant before being fit with hearing aids and after the completion of the AR groups. Although significant treatment effect was not seen, AR participants displayed more per Quality-Adjusted Life Years (QALY) than the hearing aid plus AR group (Abrams, Chisholm, and McArdle, 2002). Quality of life should be a major factor when treating our patients.

Concerning quality of life, Backenroth and Ahlner (2000) used in-depth interviews as a method of obtaining qualitative information regarding quality of life in the workplace before and after auditory rehabilitation. Thirty individuals were asked to participate in a rehabilitation program with this study. Significant others were also invited to participate. Results indicated that about one fourth of participants did not experience consequences at work due to their hearing while still reporting that they did notice barriers to communication and changes, in general, at work caused by their declining hearing. Most participants reported that the hearing impairment has caused a decline in social activities. Most also reported a “more relaxed relationship with their hearing impairment” since the rehabilitation program (Backenroth and Ahlner, 2000)

Robert Sweetow (2007) is recommending that instead of hearing aid evaluations, audiologists should be giving a functional communication assessment. The reasoning for this is that “communication, the ultimate objective for our patients, incorporates not only hearing, but also listening skills, cognitive-based interpretation, and communication

strategies”. He suggests that the functional communication assessment will allow for individual needs to be addressed for each patient (Sweetow, 2007).

More relevant to this paper is a study conducted by Foster and MacLeod (2003) regarding communication between people with hearing loss and people with normal hearing. Extensive surveys were sent out to individuals with hearing loss in the workplace and fifteen of the respondents were given an in depth interview. Results were presented as responses given on the surveys and during the interviews. Many respondents discussed characteristics and conditions within the workplace that limited their ability to perform their jobs well or to advance in employment. Participants also described physical accommodations accessible to them through their workplace, as well as necessary accommodations that they were refused. Participants also felt that their job performance was directly related to the attitude of their hearing employees. For example, if co-workers were positive towards them, they performed better at their job. Communication strategies used by employees with hearing loss were also discussed. Many participants felt that educating hearing employees about deafness would assist them greatly in the workplace. The study concludes with a process for developing an assessment of communication between hearing and deaf individuals in the workplace (Foster and Macleod 2003). It is important to understand the needs of individuals in the workplace, as well as gather information about what assists in communication at work for hearing impaired individuals. Once needs are addressed, AR programs can be tailored to provide the greatest benefit to patients.

One method for determining individual needs of patients is through focus groups. Focus groups are a method of obtaining information that can be useful in helping specific populations of patients. Several factors determine how a focus group will be the most

efficient. Hopkins (2007) discusses components that need to be present in order for a focus group to be considered successful based on a literature review that he conducted. Many researchers (Bedford and Burgess, Cronin, Kitchin and Tate, and Longhurst) feel that focus groups should consist of anywhere between four and ten participants (as cited in Hopkins, 2007). Other important factors in setting up a focus group include the age of the participants, the location of the focus groups meeting, and the sensitivity of the topic being discussed (Hopkins, 2007). Tonkiss (2004) feels that focus groups should be composed of similar individuals, as to elicit more comfortable conversation (As cited by Hopkins, 2007). Location plays a role if, for example, students are the primary participant. A school setting may make them feel like they have less freedom to speak, where a community center may allow more free flow of conversation (Hopkins, 2007). It is important to know your participant group when deciding on a location. The purpose of Hopkins' paper was to support the use of focus groups for gaining useful information about groups of people and their opinions, however; focus groups must be directed wisely in order to obtain the most useful information.

An article by Stewart and Shamdasani (1990) describes a focus group as containing eight to twelve individuals. These researchers believe that focus groups serve four general purposes, one being to "diagnose program problem areas" (As cited by Packer, Race, and Hotch, 1994). Although the focus groups in the following primary study were not meant to diagnose problems with a particular program, they were meant to "diagnose" problems people in the workforce were experiencing due to hearing impairment.

Packer, Race, and Hotch (1994) conducted focus groups as part of a study meant to discuss strengths and weakness within a program at the Jewish Vocational Service, to

allow clients to discuss agency services, and to design a client satisfaction questionnaire. Before focus groups began, staff met several times to discuss procedure and protocol for the focus groups. Focus groups were held over a seven month time period and were about one hour in length. Every group was led by two moderators. Several questions were provided to guide discussion within the groups. These researchers found that a strength of the focus groups is that it allows for the participants to express their ideas and opinions about certain topics very openly. Focus groups provide a way for the participants to influence important aspects of their lives.

Hetu, Getty, and Waridel (1994) used focus groups as a means to characterize coworkers perception of factory workers with noise induced hearing loss, to determine conditions which cause an individual with hearing loss to isolate themselves, and to define ways to minimize these isolations by people with hearing loss. Four focus groups were held and the number of participants within the groups varied from seven to eleven volunteers. A list of questions to be asked of each group was prepared. Three sets of questions focused on each of the three objectives of the focus group as previously mentioned. The first set of questions was based on a scenario of an imaginary person with a reading problem, which is similar to hearing loss because it is considered to be “invisible”. This allowed the researchers to determine how coworkers felt about the effects of “invisible impairment”. The second set of questions was derived from a scenario about an imaginary person dealing with noise-induced hearing loss. These questions allowed the participants to open up about feelings of isolation due to hearing loss. The third set of questions asked directly about the types of help people with hearing loss would like to receive (Hetu, Getty, and Waridel, 1994).

The focus groups in the study by Hetu, Getty, and Waridel (1994) were taped and transcribed. Participant comments were grouped by theme. One result discovered by these groups was that impairments of many types are often seen as stigmatic weaknesses. These researchers also found that “when hearing difficulties are so obvious that they can no longer be denied or minimized, the affected workers try to conceal them”. This attitude provokes coworkers to perceive the hearing impaired worker as socially withdrawn. Hetu, Getty, and Waridel found that the most important need present in these participants with hearing loss was psychosocial support. Addressing the emotional issues, as well as providing communication strategies training would help to solve difficulties with listening and communication (Hetu, Getty, and Waridel, 1994).

This study has encouraged further investigation into the area of communication needs for people in white-collar environments. White-collar workers are involved in many different communication situations than workers in noisy environments. These situations should be addressed in a different manner than communicative situations in noisy environments. Many studies have observed the needs of those dealing with noise-induced hearing loss from the workplace, however, few have looked at the effects of hearing loss on those who did not have a noise-induced hearing impairment. Therefore, this population was chosen as the focus of the present study.

Focus groups were used as a method to gather information from our targeted population of people with hearing loss in the workplace. This method was decided upon due to the nature of the study. It was determined that a focus group was a much more relaxed and open environment than a structured interview format. It was thought that the informality of such groups would allow participants to discuss their needs more freely

than with interviews. It was also believed that focus groups would allow participants to respond based on others' comments.

As previously discussed, our analyses were modeled after grounded theory methods of analyzing qualitative data. Glaser and Strauss (1967) describe the grounded theory as a theory that will:

...fit the situation being researched and work when put into use. By fit we mean that the categories must be readily (not forcibly) applicable to and indicated by the data under study; by work we mean that they must be meaningfully relevant and be able to explain the behaviour under study.

Cutcliffe (2000) describes the sampling methods in the grounded theory as non-probable. By this, he means that a sample number of participants is not set, but the researchers can choose when to stop accepting participants when nothing new is being contributed to the data set. The sampling method is then known as theoretical since it is driven by the emerging conclusions developed throughout the research (Glaser and Strauss, 1967).

Purpose

The objective of this study was to better define the needs of individuals with hearing loss in the workplace through the use of focus groups. The results of this study will hopefully allow for more focused attention to the needs of patients when providing AR.

Analysis for this study was completed using the grounded theory. In the grounded theory, research questions are not asked and hypotheses are not determined. Rather, topics of interest are discussed and the focus of the study develops as the dataset is compiled.

Through focus groups, a proposition for this study was obtained. Participants engaged in rich discussion regarding their concerns for communication problem in their respective workplaces.

Methodology and Design

Research

IRB approval for this study was obtained from the Human Research Protection Office (HRPO) of Washington University School of Medicine in Saint Louis. Participants were obtained from area clinics where recruitment flyers were placed announcing the study. Some participants were obtained from a current list of approved volunteers already involved in the collaborators' database. Eligible participants included men and women currently in the workforce or recently retired within the past two years. Five participants were retired beyond two years, however were heavily involved in volunteer work and, therefore, were allowed to participate in the study. One participant was retired and did not volunteer. Her contributions were not included in the analysis. Participants were required to have any degree of hearing loss or subjective hearing difficulty. One participant displayed normal hearing sensitivity and did not notice difficulty hearing. Her contributions were not analyzed.

Methodology

A qualitative research design was used to obtain the opinions regarding issues and matters of concern of hearing impaired individuals in the workplace. Through the use of

focus groups, this study allowed participants to discuss specific problems occurring at work, as well as general communication breakdowns that each was experiencing.

Participants

Participants previously involved in studies with Nancy Tye-Murray, Ph.D were screened for hearing impairment and were recruited by telephone. Other participants were recruited from area audiology clinics. An HRPO approved flyer was placed in the waiting rooms of the clinics. Interested participants were instructed to contact the study for enrollment. Once enrolled, participants were randomly assigned a subject number.

Forty-eight participants, twenty seven males and twenty one females, were enrolled in the study. The average age of participants was 61 with a distribution of 29-79. Thirty participants used some form of amplification, either hearing aids or cochlear implants. All participants used an oral/aural mode of communication. Seventeen participants had previously received some form of AR, while the remaining thirty one had not received AR. Forty six participants were used in analysis of the data.

All participants reported spending some time in communication situations throughout their work day. The average length of time in the participants' current occupations was 16 years with a distribution of 1-52 years. A breakdown of the occupations of each subject, as well as the length of time in their current position can be seen in Table 1.

Focus Group Procedure

Eligible participants were enrolled in one of seven focus groups. Written informed consent was obtained for all participants upon arrival at the focus group. The

organization of the focus groups, as well as the content to be discussed was conducted by following guidelines provided by Richard Krueger (2007). The focus groups were held in quiet rooms with the chairs placed in a semi-circle for more convenient participation from all members. Discussions were videotaped and audio taped and were later transcribed into a written form.

Each group was led by two moderators. Focus group participants were first guided through an informed consent and were given the opportunity to ask questions regarding the study. The purpose of the study was also described to the participants at this time. Next, an air conduction only hearing screen was obtained from all participants. Mean pure-tone average (PTA) of the better ear of the participants was 51 dB, while mean PTA of the worse ear was 61 dB. Distributions of PTA ranged from 12 dB-120 dB. Finally, participants filled out case history information and answered questions regarding specific communication situations in the workplace. The case history can be seen in Appendix 1 and the work questionnaire is available in Appendix 2.

The focus group discussion began with an icebreaker about a fictional character with hearing loss, “Mary”. The participants answered questions about what “Mary” should do in different communication situations at work. After the completion of the icebreaker scenario, questions specific to the participants and their workplaces were discussed. Questions were open ended eliciting group participation. For example, participants were asked, “Do you feel that anything gets in the way of successful job performance for people with hearing loss in the workplace?” Every participant was involved in discussion at some point during their respective focus group.

Discussions were limited to an hour and a half to limit off topic discussion. Participants were guided back to the original question if they became off topic. All

participants were encouraged to share experience and comment on others' experiences during the group. The participants were also directed to speak one at a time since all participants had hearing loss. They were also reminded to speak toward the group, rather than towards the moderators. Participants were reimbursed for their time and effort involved with the focus group.

Analysis

All focus groups were tape and video recorded, and then transcribed in Microsoft Word. Focus group data was analyzed by each contributor. Figure 1 shows a flow chart of how the data was analyzed. Results were analyzed using methods from the grounded theory principle. A proposition was developed that was the overlying message from the data. This proposition was the implication for more specialized AR programs, in particular, a program for people with hearing loss in the workplace. Questions pertaining to each other were separated into three concepts. The questions became the categories for each concept. Components were then developed based on the most common statements within the categories. Two evaluators placed statements into their respective component for reliability. An agreement in placement of statements was observed 83% of the time. It is important to understand the nature of this agreement. All statements from each category were placed into different components. If one evaluator did not think that a statement fell into any category, the space blank was left blank. Therefore, it was difficult to compare evaluator responses completely. However, it is believed that the percentage of agreement determined emphasizes the idea that the evaluators agreed the majority of the time on which component each statement belonged.

Results

Results of the focus groups were analyzed using the Grounded Principle Theory. This theory is meant to provide a way for providing useful and understandable information as gathered from qualitative research (Glaser and Strauss, 1967). Using this theory, all responses from participants were separated into three common concepts throughout the focus groups. These three concepts include: discussion of patient-centered AR needs, discussions regarding workplace accommodations for people with hearing loss, and hearing loss and its effect on job performance. Each of these concepts was categorized among the specific questions pertaining to the concept. Each question contained components of similar responses among participants which were also evaluated. All of this combined information led to the determination of the global message, or proposition, regarding this research project. It is important to remember that results were determined by number of responses. In a focus group setting, not every participant responds to every question. Therefore, raw number responses are provided in the tables representing each question asked of the participants. Figure 1 depicts the flow chart of how focus groups were organized using the Grounded Principle Theory.

The first concept that was developed was that of patient centered AR needs. The questions, or categories, that fit into this concept were: 1) What do you know about the Americans with Disabilities Act (ADA)?, 2) What are you interested in learning about during classes for persons with hearing loss?, and 3) How do you think people with hearing loss handle face to face communication? The common components exhibited with knowledge of the ADA were that it was utilized in cases of physical disability and that some people simply didn't know anything about the ADA. One focus group participants' response to "What does the ADA provide for you?" was, "I think that's

what you have to have the ramps” (participant 42). When asked about classes for the people with hearing loss, three common responses that our participants would like to learn about were communication strategies, lipreading skills, and information regarding usage, care, and development of hearing aids. Face to face communication did not seem to pose much of a problem for our participants. The components that participants mentioned when discussing face to face communication included speechreading and informing the speaker of their hearing loss. Table 2 breaks the previous discussion of results into a charted format.

The second concept that was developed was discussion about workplace accommodations. The questions pertaining to this concept were employer reactions to the participants’ hearing loss and hearing-related services available to people with hearing loss through their workplace. Three overlying components displayed by an employer to an employee with hearing loss were support, annoyance, and acceptance. One participant described the first reaction she received from her employer when she told that she was hearing impaired.

A lot of people when you tell them you have a hearing loss, don’t know how to react. And, the first reaction, I’m sure everybody has gotten this, they raise their voices. This is not what we need. We need people to slow down and look at you. Not get louder. The louder it gets, the worse it gets. Besides the fact that their not trained to deal with someone with a hearing loss, but supportive. I’ve always had support (participant 3).

Another participant who is profoundly deafened describes his experience quite differently.

Coworkers and the way the way people perceive, they don’t get that. They think

you didn't get the joke, what's wrong with you. I think they think they have the same hearing loss I do. They think I'm doing this for attention (participant 64). When asked what services were provided to people with hearing loss in the workplace, the participants were somewhat at a loss. Three responses stood out throughout this question. Many people felt that only one service could be provided, for example, an amplified phone. Others responded that people could get anything they needed. Another group of individuals did not know at all what they were entitled to receive. One participant responded to this question by stating, "We have nothing, I work in Mobile stations" (participant 48). This participant was informed that his workplace is required to provide him with reasonable accommodations to help him in his workplace. Table 3 breaks these results down into charted form.

The final concept developed involved the effects of hearing loss on job performance. Five categories were included within this concept. The questions representing the categories were as follows: 1) Do you think anything gets in the way of successful job performance for people with hearing loss?, 2) Has face-to-face communication been a problem for you in the workplace?, 3) How do you handle social functions and meetings?, 4) Are there any differences in your job performance based on your declining hearing? and 5) How does noise affect job performance for people with hearing loss? The common response to a question about successful job performance was that there is often a lot of miscommunication between employees and employers. Another common response was that lack of self esteem due to hearing loss affects job performance. One participant gave her very emotional response to this question.

It all boils down to self esteem. You don't want to make anyone aware of yourself. I could blend into the walls because I didn't want anyone to know, I

didn't tell anyone. My boss knew, but hardly anyone else. I had my kids there so they were always helpful (participant 77).

As previously mentioned, face to face communication was not a great issue for the participants. Participants mentioned asking for repetition quite often as well as having psychological feelings, such as embarrassment related to not understanding in face to face situations. Four commonalities arose when asking the participants about meetings and social functions and how they are handled. Some participants simply don't attend while others are sure to place themselves in the most appropriate position for listening. Many participants find themselves losing attention during meetings since they have difficulty hearing and others enlist the help of coworkers for note taking and collecting materials. Social functions are a very important aspect of any job and one participant described his frustration in attending.

One of my greatest fears, socially, is when there's this conversation going on over here, and there's another conversation going on over here. What I find very frustrating is I'll listen to one conversation to try and become a participant in it and I'll become distracted by the one over here so I don't hear all of this, and I don't hear all of that. So I sit back and I don't participate in any of the conversations because I can't find the niche. I can't find the way in. I'm distracted or I'm missing parts, or a little of both. It's frustrating (participant 52).

Participants felt that there were differences in their job performance due to their hearing loss, especially in the areas of communication interactions, decreases in job specific duties, and psychological responses. Communication interaction means that they are having difficulties with everyday communication among coworkers. An example of a decrease in job specific duties includes the requirement to replace phone calls with emails

due to the inability to hear and understand on the telephone. Psychological responses include such feelings as anxiety, frustration, and embarrassment. One participant was deeply affected by his gradual hearing loss and his job performance was greatly affected.

I am very sensitive. I'm a trial lawyer. I had to apply for disability retirement last fall because it got to a point where in good conscience, I didn't feel like I was being fair to my clients because there were too many nuances in examining a witness. Not only in hearing a witness, but in hearing the manner in which a witness is responding. It was difficult interviewing clients, especially women with higher voices. It was becoming increasingly difficult so I had to take disability retirement and I can't do that which I was doing for 34 years and the psychological consequences of that are devastating (participant 24).

Three recurring components when asked about how noise affects workers were that they were simply unable to hear, in general, that noise caused them to provide inappropriate responses to certain situations, and that noise caused them to retreat from situations that they found unfavorable due to noise. Table 4 provides a charted explanation of these results.

Discussion

This paper was developed to draw attention to the needs of people with hearing loss in the workplace. Through the use of focus groups, I was able to better understand what people with hearing loss need to obtain maximum success in their careers .

This paper develops a purpose for re-evaluating the current state of AR. As research shows, AR provides a great deal of benefit to patients who receive the service. However, I believe that if AR was tailored more to our patients' needs, even greater

benefit would be obtained and AR would possibly be a more widely accepted and used practice. This study has brought to light that many people with hearing loss do not know what is available to them, but are eager to learn. This study also suggests that people with hearing loss would like the opportunity to receive AR specific to their needs.

Implications for further research on this topic would include developing an AR program and determining its efficacy. Based on the data collected, it is felt that the following issues should be addressed during an AR program for people with hearing loss in the workplace: 1. Introduction to the ADA and what it provides them. 2. Communication Strategies for workplace scenarios 3. Psychosocial counseling for dealing with feelings associated with difficulties in the workplace due to hearing loss and 4. Speechreading training for listening in adverse environments. Although I have not developed an AR program, Appendix C list some suggested activities that would be useful for an AR program tailored to this population of people with hearing loss in the workplace.

Conclusion

The primary finding of the present study is that there are definite needs and concerns for people with hearing loss in the workplace. Since not every need of this population has been determined, there is a definite implication for further research in this area.

Content is essential to the success of an AR program. Inappropriate and generalized content may become boring and seem useless to many patients. Including relevant information and strategies to AR programs will most likely increase the rate of

success for such programs allowing for more patients to become interested in AR, which would encourage more audiologists to offer aural rehabilitation.

References

- Abrams, H., Chisholm, T. and McArdle, R. (2002). A cost-utility analysis of group audiologic rehabilitation: Are the benefits worth the cost? *Journal of Rehabilitation Research and Development*, 39(5), 549-558.
- American Speech and Hearing Association. (2005). The prevalence and incidence of hearing loss in adults. *Audiology Information Series*. Retrieved on March 19, 2008 from <http://www.asha.org/NR/rdonlyres/EFC3D817-D0E4-4943-AC9A-E0C915E1A8C9/0/InfoSeriesPrevalenceandIncidenceofHearingLossAdults.pdf>
- Backenroth, G. and Ahlner, B. (2000) Quality of life of hearing-impaired persons who have participated in audiological rehabilitation counseling. *International Journal for the Advancement of Counselling*, 22, 225-240.
- Boothroyd, A. (2007). Adult aural rehabilitation: What is it and does it work? *Trends in Amplification*, 11(2), 63-71.
- Chisholm, T., Abrams, H. and MacArdle, R. (2004). Short and long term outcomes of adult audiological rehabilitation. *Ear and Hearing*, 25, 464-477.
- Corbin, J. and Strauss, A. Grounded theory research: Procedures, canons, and evaluative Criteria. *Qualitative Sociology*, 13(1), 3-21.
- Cutcliffe, J. (2000) Methodological issues in grounded theory. *Journal of Advanced Nursing*, 31(6), 1476-1484.
- Foster, S. and MacLeod, J. (2003) Deaf people at work: assessment of communication among deaf and hearing persons in work settings. *International Journal of Audiology*, 42S, 128-139.
- Glaser, B. and Strauss, A. (1967) The discovery of grounded theory: strategies for

- Qualitative research. Chicago: Aldine.
- Hawkins, D. (2005). Effectiveness of counseling-based adult group aural rehabilitation programs: A systematic review of the evidence. *Journal of the American Academy of Audiology*, 16, 485-493.
- Hetu, R., Getty, L. and Waridel, S. (1994). Attitudes towards co-workers affected by hearing loss II: focus group interviews. *British Journal of Audiology*, 28, 313-325.
- Hopkins, P. (2007). Thinking critically and creatively about focus groups. *Area*, 39.4, 528-535.
- Krueger, R. Focus Group Interviewing. Retrieved February 20, 2007 from <http://www.tc.umn.edu/~rkrueger/index.html>.
- Packer, T., Race, K. and Hotch, D. (1994). Focus groups: A tool for consumer-based program evaluation in rehabilitation agency settings. *Journal of Rehabilitation*, July/August/ September, 30-33.
- Pandit, Naresh. (1996). The creation of theory: A recent application of the grounded theory method. *The Qualitative Report*, 2(4)
- Piercy, S. and Piercy, F. (2002). Couple dynamics and attributions when one partner has an acquired hearing loss: implications for couple therapy. *Journal of Marital and Family Therapy*, 28(3), 315-326.
- Preminger, J. (2007). Issues associated with the measurement of psychosocial benefits of group audiologic rehabilitation programs. *Trends in Amplification*, 11(2), 113-123.
- Sweetow, R. (2007). Instead of hearing aid evaluation, let's assess functional communication ability. *The Hearing Journal*, 60(9), 26-31.

Wayner, D. (2005). Aural rehabilitation adds value, lifts satisfactions, cuts returns. *The Hearing Journal*, 58(12), 30-38.

Table 1. Employment breakdown of participants

Subject Number	Age	Occupation	Years in Current Position	Work Environment
1	69	Advocate for hearing disabilities	16	Office, public space, other
3	55	Librarian	19	Other
4	58	Executive Director	11	Office, classroom, public space
5	77	Custodian	12	Office
6	48	Director of Horticulture	10	Office, outdoors, public space
7	65	Equipment Operator	21	Public space
8	65	Library Media Specialist	28	Office, classroom, other
11	54	Clinical Supervisor	6	Office, public space
13	58	Financial Investigator	4	Office
17	77	Business Owner	51	Outdoors
18	64	Financial Service Rep	29	Office, other
21	53	Occupational Therapist	11	Office, outdoors, public space, other
23	54	Accounting Manager	29	Office
24	60	Attorney	34	Office
25	61	Syrup Maker	30	Office
26	57	Teacher	8	Classroom
27	46	Mailhandler	9	Office, other
29	72	Retired		Office, classroom
31	42	Director	9	Office, classroom, outdoors, other
34	60	Branch office administrator	6	Office
36	48	Scholarly Communications Specialist	4	Office, public space
41	50	Analyst	7	Office
42	53	Patient Accounts Manager	9	Office
45	79	Volunteer	1	Other
47	29	Athletic Trainer	3	Other
48	72	Manager	15	Other
51	80	Customer Service Rep		Office
52	61	State Hearing Officer	28	Office
54	65	Vice President	15	Office, other
55	64	Librarian	9	Classroom, other
56	66	Appraiser	21	Office, outdoors, public space, other
57	61	Quality Control Inspector	21	Office
58	46	Wealth Management Director	2	Office
59	79	Accounting Manager	12	Office
60	69	Receptionist	50	Other
62	66	Group Facilitator	6	Classroom
63	76	Teaching Associate	10	Classroom
64	52	Bookkeeper	9	Office
66	70	Adult Educator	4	Office, classroom, public space
68	56	Patient Care Coordinator	0.5	Office
69	42	Laboratory Assistant	5	Office, other
72	79	Receptionist	14	Office
74	67	Document Coordinator	30	Office
76	49	Attorney	29	Office
77	52	AHA Club Volunteer		Office
80	68	Car Salesman	52	Office, outdoors

CATEGORY	COMPONENTS	NUMBER OF RESPONSES		SAMPLE COMMENTS
			Total # of Responses	
ADA KNOWLEDGE	Have you heard of the ADA?	yes-15	16	"I think a lot of companies would be happy to provide stuff if you knew what to ask for. Some of us just don't know what technology is available." (participant 1)
	Physical Disability Related Services	4		
	I don't know anything about ADA	1		
Interest in AR	Are you interested in AR?	yes-21	21	"I would sure. The more you understand about how your ear works, the better. And even information about what the ADA provides. Even if I wouldn't do it now, maybe in the future." (participant 11)
	Communication Strategies	5		
	Lipreading	3		
	Hearing Aids	2		
Handling face to face communication	Speechread	2		" I can't lipread, but I do intend to try whenever someone is speaking at me." (participant 13)
	Inform others of their hearing loss	1		

Table 2: Charted breakdown of Concept 1, Patient Centered AR Needs

CATEGORIES	COMPONENTS	NUMBER OF RESPONSES		SAMPLE COMMENTS
			Total # of responses	
Employer reactions to hearing loss	Have you told your employer?	yes-20	24	"People have always supported me, but I think it boils down to who will accept you. People who don't, you can tell them fifty times and they still don't get it." (participant 77)
	Support	3		
	Annoyance	2		
	Acceptance	2		
Work available services	One service only	11		"We have nothing available. I work in Mobile stations." (participant 48)
	Whatever you need	10		
	Nothing/I don't know	5		

Table 3. Charted breakdown of Concept 2, Workplace Accommodations

CATEGORIES	COMPONENTS	NUMBER OF RESPONSES		SAMPLE COMMENTS
			Total # of responses	
Differences in job performance based on declining hearing	Have you noticed differences?	yes-20	29	"I am very sensitive. I am a trial lawyer and I had to apply for disability retirement last fall because it got to a point where in good conscience, I didn't feel like I was being fair to my clients because of all the nuances involved with examining a witness." (participant 24)
	Communication interactions	15		
	Decrease in job specific duties	11		
	Psychological responses	3		
Effects on job performance due to hearing loss	Miscommunication	10		"It all boils down to self esteem. I could blend into the walls because I didn't want anyone to know, I didn't tell anyone." (participant 77)
	Lack of self esteem	3		
Effects of hearing loss on face to face communication	Has this been a problem for you?	yes-8	23	"If you have to ask twice what somebody has said, it's a little embarrassing to you really." (participant 13)
	Asking for repetition	6		
	Psychological Feelings	5		
Attending social functions and meetings	Are they a part of your job?	yes-25	26	"I used my secretary when I was interviewing clients. I would say I want my assistant in here if you don't mind because I wasn't getting everything." (participant 24)
	Don't attend	9		
	Appropriately place self	7		
	Lose attention	4		
	Enlist the help of coworkers/materials	3		
Effects of noise on job performance	Is noise a factor?	yes-16	24	"I have trouble with background noise. Because even though I'm looking at the person and someone else is talking, that distracts me. I can only talk to one person at a time. Background noise just throws me off." (participant 57)
	Unable to hear in general	1		
	Inappropriate responses	1		
	retreating from situation	5		

Table 4. Charted breakdown of Concept 3, Effects of Hearing Loss on Job Performance

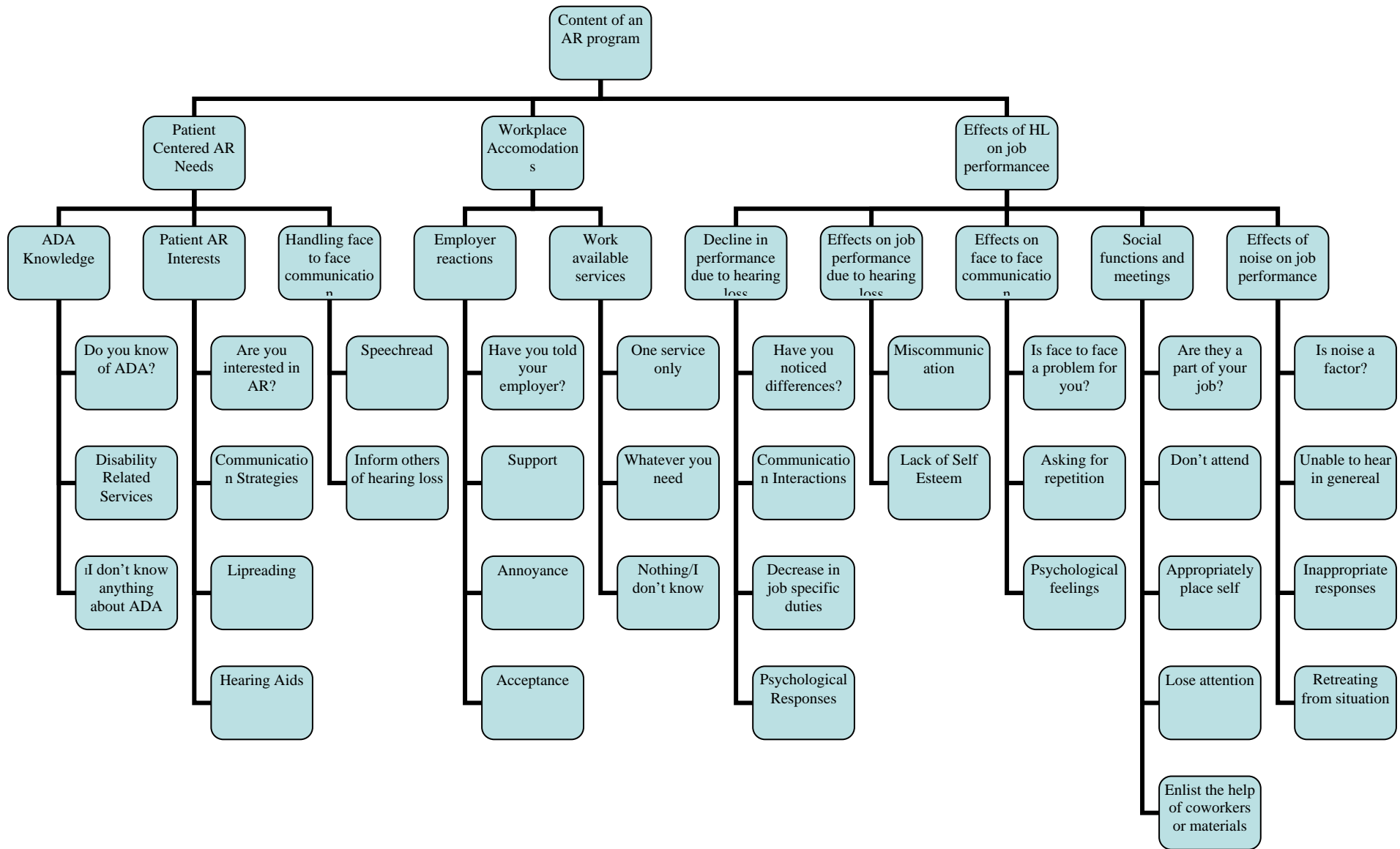


Figure 1. Grounded Theory Method of Analysis

Appendix A: Case History Form

All information is considered confidential. Please check or fill in the blanks where appropriate

Name: _____ **Date of Birth:** _____

Address: _____

Phone: _____ **Today's Date:** _____

A. Demographic Information

Gender: Male Female

Marital Status: Single Married Separated Divorced Widowed

How many people live in your home? _____

Ethnic Background: (optional) Not Hispanic or Latino Hispanic or Latino

Please Choose One Unknown

Racial Background: (optional) American Indian/Alaskan Native Asian

Please Choose One Hawaiian or Pacific Islander Black or African American

White More Than One Race

Unknown

Is English your first language? Yes No

If no, what is your first language? _____

B. Present Status of Vision and Hearing

How do you rate your vision (corrected)? Excellent Good Fair Poor

Do you wear glasses? Yes No

How do you rate your hearing? Excellent Good Fair Poor

If you feel that your hearing is impaired, how long have you noticed a problem? _____ Years

If you have a hearing loss, how fast was the onset? Sudden Gradual

Does your hearing tend to fluctuate? Yes No

Do you currently wear a hearing aid? Yes No **If yes; how many?** 1 2

Has this number ever changed? Yes No

Have you ever had any formal lip-reading training?

Yes No

If yes, please describe _____

*Appendix B: Employment Questionnaire***Employment Questionnaire**

1. Name:
2. Official job title:
3. Name of employer:
4. Length of time in this current job:
4. My work week in hours is:

The next ten questions are taken from the Western Michigan University Job Profile Questionnaire.

5. “Check the minimum level of education a person is **required** to have in order to perform your job (not necessarily your education level).”

- High School
- Some College
- Associate’s Degree
- Bachelor’s Degree
- Doctoral Degree
- Other (e.g., training, certifications)

6. “List the preferred (but not required) level of education or training”:
-
-

7. “Indicate the minimum total number of years of experience in your field that is required to do your job. This may or may not equate to your personal experience level.”

- No experience (i.e., capable person could quickly learn to do this job)
- Less than 1 year
- 1 to 3 years
- 3 to 6 years
- 6+ years

8. “In the order of importance, list your major job duties and the percentage of time you spend on each. Think back on the past twelve months to make sure you capture all key responsibilities. The total percentage of time spent must not exceed 100 but may be less since **you are not to list all duties.**”

1. _____

 _____ Percentage: _____

2. _____

 _____ Percentage: _____

3. _____

 _____ Percentage: _____

4. _____

 _____ Percentage: _____

5. _____

 _____ Percentage: _____

6. _____

 _____ Percentage: _____

9. “This question measures the managerial responsibility (direct and indirect) for achieving results through people. Check the single statement that best describes your job.”

- No supervisory or lead responsibilities
- Limited or indirect supervision of one or more people. Responsible for day-to-day work direction, not responsible for employment decisions.
- Direct supervision of one or more people.
- Direct supervision over a unit or department, involving responsibility for results in terms of budget management, methods of work, policy development and personnel issues.

10. What is your work environment? Check all that apply.

- Office environment
- Classroom
- Outdoors
- Public space
- Other (Please specify) _____

11. Please check all the people that you are required to make contact with in your job. On a scale of 1-5, please state the importance of communication for each contact that you checked.

- Business Representatives 1 2 3 4 5
- Clients 1 2 3 4 5
- Contractors/suppliers 1 2 3 4 5
- Employees in the same department 1 2 3 4 5
- Employees in another department 1 2 3 4 5
- General Public 1 2 3 4 5
- Head of your department 1 2 3 4 5
- Head of other departments 1 2 3 4 5
- Patients 1 2 3 4 5
- Salespersons 1 2 3 4 5
- Students 1 2 3 4 5
- Teachers 1 2 3 4 5
- Volunteers 1 2 3 4 5
- Customer 1 2 3 4 5

12. Please describe those duties of your job which require periods of listening and indicate whether you experience difficulty in listening as a result of your hearing loss.

How are you most likely to be communicating with this person in a typical day (E.g. one-on-one, telephone, group situations)	Duration (Approximate minutes per day)	Experience difficulty in listening as a result of your hearing loss		
		Rarely	About half of the time	Most of the time
EXAMPLE Conference Call	30 minutes		X	
1.				
2.				
3.				
4.				

Appendix C: Sample Suggestions: AR program for people with hearing loss in the workplace

SAMPLE AURAL REHABILITATION ACTIVITIES

- 1) Introduction to the ADA and what is provided to people with hearing loss
 - a. The moderator of the program should present a power point presentation about the ADA and provide the slides to the participants in the group. A list of contacts should be provided for easy access when participants need something.
- 2) Communication strategies for workplace scenarios
 - a. Provide a list of repair strategies and have the participants role play scenarios. Once participants have had practice with the repair strategies face to face, use a phone from another room to call and have the participant practice. Typical scenarios for different workplaces could be provided. This would require the listener to use many repair strategies to understand numbers, word spellings, etc. Participants can also be given a scenario where one person has not heard correctly. At this point, the participant must decide how the situation should be repaired.
 - b. Assertiveness training could also be introduced as a communication strategy. Participants can be provided with examples of ways to speak up about their hearing loss and what it means to the people they are working with. Assertiveness training can also include encouraging participants to ask for items they need, such as handouts from meetings or an amplified phone.
- 3) Psychosocial counseling
 - a. Give scenarios about fictional people with invisible disabilities such as reading impairments. Ask the participants to discuss how they feel and respond to that person in their work environment. Relate the invisible disability of reading impairments to the invisible disability of hearing loss.
 - b. Allow for group discussion regarding feelings associated with hearing loss. The goal of this activity would be for other people to realize that they re not alone. The participants can share ideas and strategies that help them to deal with hearing loss and its' effects.

- 4) Speechreading training
 - a. Computer training programs could be used to allow the participants to practice using all facial cues when listening to speech. For example, the speaker on the program could say, “Where did you go to dinner tonight?”. The listener would be given options of answers similarly related. Conditions can become more difficult, such as decreasing signal to noise ratio or including typical background noise.