ABSTRACT

Title of Document: MAKING IT IN THE MODERN JOB
MARKET: A STUDY OF COMMUNICATION
AMONG THE DEAF AND HARD OF
HEARING POPULATION

Margarita Geller
Mariya Gorelik
Elizabeth Kim
Matt Mosteller
Kelly Quinn
Meagan Rose

Directed By: Tracy Zeeger
Coordinator of Wellness Programs
University Health Center

Due to the increasing importance of communication in the professional world, deaf and hard of hearing individuals are being marginalized in the job market through employment opportunities and salary. The purpose of the research study was to investigate the significance of the communication barrier further. The two research questions the team focused on were: (1) Are the communication skills further developed by deaf and hard of hearing students at mainstream universities comparable to those of deaf and hard of hearing students at specialized universities? (2) How does attending a mainstream versus a specialized university prepare a deaf individual to communicate through written and oral communication skills? In the first portion of the study, the team distributed an original online survey to obtain demographic data, as well as a sample of written communication skills. In phase two, the team conducted video-taped interviews. Both written and inter-personal communications were scored using rubrics developed and tested by the team.

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POPULATION

By

Margarita Geller
Mariya Gorelik
Elizabeth Kim
Matt Mosteller
Kelly Quinn
Meagan Rose

Advisory Committee:
Tracy Zeeger, MPH, CHES Chair
Dr. Matthew H. Bakke, Ph.D.
Dr. Monita Chatterjee, Ph.D.
Dr. Sheryl B. Cooper, Ph.D.
Ms. Cassandra Lytle
Paula C. Schauer, Au.D., CCC-A, FAAA

Acknowledgements

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Chapter 1: Introduction

Background/ Problem

Hearing loss affects four to five percent of the United States' population. Three-fourths of this population can be prescribed a treatment plan that allows them to hear and communicate with hearing individuals, even if only to a degree. The remainder of the population is not able to hear well enough to hold conversations even with the use of a hearing aid, although advancements in the technologies of hearing aids and cochlear implants are increasing; this group of individuals capable of doing so (Woodcock, 2007). In such cases, the individual often relies upon alternative means of communication in order to correspond with others, including sign language and various technologies.

A relatively new advancement, the cochlear implant, was introduced in the 1980s to help deaf individuals restore some amount of hearing. These devices have grown in popularity over the last decade and are now used by over thirty thousand people worldwide (Shannon, 2007). With cochlear implants constituting a recent innovation, much of the existing research performed on the deaf population does not take into account that other existing technology has become outdated. Employed through state and privately-operated relay service centers, the teletypewriter (TTY) is another technological innovation for the deaf population, utilizing a QWERTY keyboard (the traditional keyboard layout) typewriter and an electronic communication channel. This allows communication to or from deaf and hearing individuals over the phone through a third-party operator (Davis, 2007). Such technological advances as these and others, along with increased use of interpreters through the Americans with Disabilities Act (ADA), have allowed the deaf and hard of hearing (D/HH) population to gain better access and become more involved in both schooling and the workforce. However, there remains a deficit in the skills obtained by

these individuals through higher education. Research shows that deaf individuals coming out of colleges and universities generally have strengths in either communication skills or vocational knowledge, but not both (Angelides, 2007a; Cawthon, 2007; Jarvis, 2003). This apparent tradeoff could present an obstacle in integrating themselves within the hearing, and often mainstream, society, where proficiency in both areas are required.

Another barrier preventing deaf individuals from fully integrating into the mainstream job market is their affiliation with the Deaf culture and community. Deaf spelled with a capitalized "D" indicates that these individuals identify as both audiologically and culturally deaf, as opposed to a lower-case "d" which signifies only the physical condition (Padden, & Humphries, 1990; Luey, Glass & Elliott, 1995). Those who identify with the Deaf community may feel that integrating themselves into mainstream society will result in the loss of their cultural identity as an individual. For this reason, members of the Deaf community often choose to avoid certain advances in technology, trends in education, and developments in culture that could aid in their integration into the mainstream culture and workforce in exchange for a more conservative approach in the Deaf community (Yelin, 1997).

Additionally, while many identifying with the Deaf community make use of advances in communication and amplification technologies, some individuals in the community believe that technological devices separate them from the Deaf culture by providing alternatives to American Sign Language (ASL) for communication, something many in the community perceive to be important. ASL is the most widely accepted mode of communication for deaf individuals in the United States, and is a large part of the Deaf culture. Thus, these individuals continue their use of ASL, lip reading, or other forms of communication (combination of ASL and other forms of nonverbal communication), in order to maintain their cultural identity, even if refraining from

learning to communicate more proficiently with the hearing workforce is detrimental to their professional careers (Gesser, 2007).

In a similar fashion, some members of the Deaf community may narrow their post-secondary education options to those universities that are designed especially for deaf and hard of hearing (D/HH) individuals due to their cultural beliefs, backgrounds, and/or communication abilities and preferences. Despite the increasing ability of mainstream universities to attempt to meet the needs of D/HH students, some believe that to attend a university that is not associated with the Deaf culture is to be separating themselves from that culture (Jarvis, 2003). Overall, while one's loyalty or relation to the Deaf culture is not attributed as an obstacle for the level of their success in the workforce, such associations and loyalties can sometimes stand as hindrances to the number of options available to students at the secondary education level and beyond.

The secondary school institutions that deaf individuals attend influences their future career, whether they attend specialized schools that concentrate primarily upon the education of deaf individuals, or mainstream schools that require deaf students to assimilate themselves into a largely hearing environment. Private secondary schools for the deaf are far behind in education performance levels compared with other secondary schools (Cawthon, 2004). In 2005, such schools had very few students who met the required grade level proficiency in math and reading as revealed by standardized tests administered as a result of the "No Child Left Behind" (NCLB) Act (Cawthon, 2004). Conversely, mainstream secondary schools facilitate more in-depth learning by setting higher goals, having more requirements, a richer curriculum, more learning opportunities, and a greater abundance of academic stimuli (Angelides, 2007). Despite the apparent academic benefits of attending a mainstream school, there also seems to be a disparity between populations of deaf students at the two types of schools in terms of the development of

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their communication skills and their inclusion in the student body.

Where mainstream schools seem to excel in terms of academic and technical knowledge proficiency, deaf students who attend these schools tend to have weaker communication skills upon graduation due to their inability to communicate effectively with the majority of the student body. Conversely, while deaf students who attend specialized schools tend to score lower on standardized tests gauging academic skills, including reading and mathematics, these students generally seem more adept at communicating with varying social groups, both hearing and deaf, due to the institutions' concentrations on communication as a topic of importance (Angelides, 2007a; Cawthon, 2007). While the current literature seems to indicate differences between the two types of education, the limited research to date prohibits further understanding of the effectiveness of each type in terms of the students' future careers.

While a significant segment of the younger D/HH population chooses to continue schooling after high school, there are also those who choose not to or are unable to obtain a higher education. Those individuals who leave school and do not participate in vocational training or higher education run the risk of marginalization in the workforce. They may transition from schooling into part-time jobs, many of which are seasonal. Such a transition causes the individual to fall into a cycle that includes long periods of unemployment, thus never reaching higher levels of economic sufficiency that would be available otherwise (Punch, Hyde, & Creed, 2009). It is illustrated in such a situation that the choice to obtain a higher education would, in many instances, improve an individual's quality of life, which one may also relate to the choice between a mainstream and specialized university. A specialized university is one that consists of a mostly deaf and hard of hearing student body, and places an emphasis and may even foster an inclusion into the Deaf community (i.e. Gallaudet University, National Technical Institute for the

Deaf). Conversely, a mainstream school is one that consists of a mostly hearing population, and does not place a special emphasis on the Deaf community. Most of the universities in the US would be categorized under a mainstream university. A few examples that the team used for this study are University of Maryland and Towson University.

While the literature indicates a disparity between mainstream and specialized education of deaf students, the majority of research does not address higher education directly. Rather, most of the existing literature focuses on elementary and middle school aged children, often not even going so far as to analyze the education of deaf high school students. The current literature does note, however, that among deaf alumni, the type of college degree acquired may depend on the type of college an individual attends (Schroedel, 2000). Studies have shown that almost 80% of alumni from a specialized school such as Gallaudet University (GU) move on to achieve advanced degrees above a Bachelor's. The National Technical Institute for the Deaf at the Rochester Institute of Technology (NTID at RIT), a specialized college and education system within a larger university, has about 11% of students who move on to earn advanced degrees. As revealed through such statistics, the type of college and education chosen by the individual does have a significant impact on a student's education, however, such research on universities and higher education must be supplemented with more current information (Schroedel, 2000).

Overall, the majority of research concerning the education of deaf students and the Deaf community as a whole focuses primarily upon elementary and middle school education and the employment opportunities and statistics of a population far removed from schooling. Despite this gap, the literature did reveal notable facts concerning deaf students that aided in diagnosing the problem at hand.

The most noteworthy problem that the literature revealed is that employment and income

of deaf individuals is marginally lower than that of hearing individuals (Wheeler-Scruggs, 2002; Winn, 2006). Additionally and in conjunction with these lower incomes, statistics reveal that hearing employees tend to receive raises and promotions more quickly over D/HH employees of similar qualifications (Bull, Bullis, Davis, & Johnson, 1997). Although this disparity currently exists, it is important that employers attempt to utilize the deaf population in the workforce from an economic perspective. Individuals have low-functioning deafness (LFD) if they "read below a second-grade level, achieve in school below a fourth grade level, or have secondary conditions in addition to deafness". Bowe states that it is more expensive for government budgets to supply welfare benefits for LFD individuals than it is to provide job training (2004).

With much of the literature claiming that businesses sometimes find difficulty in the employing of individuals with hearing loss, it is sometimes that much more important for these persons to learn needed work skills during their college careers, including mathematics and reading, alongside their profession-specific knowledge (Agboola, 2007). Along with these skills, it is also vitally important for individuals to have the ability to communicate with others, both hearing and deaf. All of the studies examined through the literature review, to be discussed in the following chapter, show some degree of difference between the hearing and deaf workforce, whether it be in the rate of employment or in monetary compensation. Therefore, team AUDIO aims to address the current gap in the literature by focusing on communication skills as a requirement for employment opportunities for D/HH college students and graduates.

The team will focus on the following research questions and objectives through their study: (1) Are the communication skills further developed by deaf and hard of hearing students at mainstream universities comparable to those of deaf and hard of hearing students at specialized universities? (2) How does attending a mainstream versus a specialized university

prepare a deaf individual to communicate through written and oral communication skills?

Assumptions of the Problem

The most basic assumption of the study is that D/HH person's desire employment and are willing to obtain an education in order to help become employed. In relation to this assumption, the study must assume that a better education can help one obtain employment more readily and advance within a certain career more quickly.

Furthermore, the team must assume that any unemployment or disadvantages in the workplace correlate to hearing capabilities and are not results of other factors or conditions, including, but not limited to, physical abilities, intellectual capabilities, physical or mental handicaps, or the effects of hearing loss on one's social and emotional development. Due to the limited access of the research team to a population of individuals with hearing loss, the sample population of persons cannot be limited further by such qualifications. The team realizes that there are many instances in which hearing loss is, or may become, accompanied by other conditions such as those named above. With this understanding, in order to be able to access the largest population of participants possible, the team chose not to include a requirement limiting an individual's diagnosis solely to hearing loss. Thus, the team assumes that all results and formulated conclusions will apply to individuals with hearing loss regardless of any other physical or mental conditions that they may have.

Directly relating to the topic of education, it must be assumed for this project that there are curriculum differences between specialized and mainstream universities. One study suggests that in mainstream schools students achieve high academic success but with less refined communication skills (Angelides, 2007a). Conversely, students in specialized schools

communicate clearly but lack the academic knowledge to retain a successful career (Richardson & Woodley, 2001). While the distinction between what type of school is more capable of producing students of greater technical or communication related skills is not to be assumed at this point, it is important to acknowledge that some differences between the types of school can and do exist. It is also necessary to presume that, through technological advances, D/HH students are capable of adapting to, or at least taking part in, any new curriculum format, teaching styles, or educational programs, that may be suggested or enacted either through the research or through the institution.

Team AUDIO will also assume that deaf persons experience considerably lower rates of employment in comparison to hearing workers of a similar educational background (Geyer & Williams, 1999). The basis of this critically low employment may be attributed to factors such as (1) the employers' lack of knowledge of how to accommodate D/HH employees (2) the difficulties of communicating with a specialized population and (3) the expense of hiring and training D/HH persons (Geyer et al., 1999; Geyer & Schroedel, 2000). Additional expenses to employers can include the cost of hiring an interpreter, the purchase of specialized technology and equipment, and the implementation of specific training sessions. This leads to the presumption that the unemployment rates are not strictly caused by prejudices geared towards the D/HH population, but by other factors as well.

It is also presumed that deafness or considerable hearing loss poses difficulties in communications with hearing persons, therefore making communication in a predominantly hearing workplace more difficult without external aid (Foster & Macleod, 2003). Based on these previous assumptions, it must be cumulatively assumed that an increase in the technological and communication capabilities of D/HH employees will result in an increase in their employment

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rate.

Finally, since this study concentrates upon the ability of participants to communicate using the English language, the team must assume that English is the primary mode of communication in the domestic work place in today's professional world. With this assumption, the results of the research will be relevant to the work force and the professional environment in the United States in current job markets. Thus, the team is looking at the absolute communication abilities of participants using this language and does not take into consideration whether English is the primary mode of communication of the participants. In order to form observations of correlations between English language communication skills and other factors, including the individual's typical mode of operation (spoken English, American Sign Language [ASL], et al.), whether English is their first language, etc., the team does ask participants to include relevant information when participating in the study. The team, however, does not utilize this information when evaluating the absolute English communication skills of these participants' responses and uses them solely for subsequent analysis.

Purpose

This research will focus only upon comparing the differences in communication skills further developed by those who attended mainstream universities versus specialized deaf universities. If such vast disparities exist, team AUDIO is interested in determining the variables affecting the acquisition of communication skills by students at each type of university, and to what degree. Finally, team AUDIO would like to identify any correlations between the type of education (mainstream or specialized) and the proficiency of students' communication skills resulting from that type of education. The team will accomplish this through distributed surveys and subsequent in-depth interviews. The study sample will be comprised of the deaf populations

at two specialized universities: Gallaudet University, a specialized school for the deaf located in Washington, D.C., and the National Technical Institute for the Deaf at the Rochester Institute of Technology, a specialized program within a mainstream university located in Rochester, New York. The team will also recruit participants from two mainstream universities, including the University of Maryland, College Park and Towson University. It is hoped that these studies will help further improve educational opportunities for deaf students at institutions for higher learning, and that the research will aid in fulfilling an existing gap in literature concerning these important population segments.

Chapter 2: Literature Review

Workforce

As stated in Chapter 1, several peer-reviewed articles have found that the employment and income of deaf individuals is marginally lower than that of hearing individuals (Wheeler-Scruggs, 2002; Winn, 2006). Also, hearing employees receive raises and promotions more quickly than people with hearing loss (Bull, Bullis, Davis, & Johnson, 1997). These studies show a significant degree of difference between hearing and deaf individuals' employment, whether it be the rate of employment or level of pay. It can also be quite expensive and time-consuming for a company to accommodate deaf employees through extra technology and training. These factors may deter companies from hiring individuals with hearing loss, although they may be well-qualified for the job.

In recent years, the distinction in the professional world amongst employees who have or have not obtained a degree has become exceedingly clear, with many statistics supporting the importance of post-secondary education. Beginning with those who have obtained a higher education degree, in 2000, two researchers conducted a study on 240 graduates of NTID. Of these graduates, 85 percent of them were employed, compared to the 90 percent of hearing employees that were employed at that time (Schroedel & Geyer, 2000). Although these numbers are quite promising, these students graduated from one of the premier specialized universities in the country. They received training from one of the most prestigious specialized universities in the country and were required to have mastered high-school level English skills in order to gain acceptance to the school. Of the graduates, 45% had been promoted within the past four years. Factors for promotion included their level of communication with supervisors and employees, and their assertiveness in the workplace. The average salaries for these NTID graduates in 1998

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are as follows: $15,000 to $20,000 for those with a vocational degree; $20,000 to $25,000 for Bachelor's degrees and $35,000 to $40,000 for Master's and Doctoral degrees (Schroedel & Geyer, 2000). At Gallaudet University, the median salary for graduates with a Bachelor's Degree in 1999 was $39,000. According to the Census Bureau, the median income for Americans in 1999 was $42,000. Also in this same year, the median salary of individuals who obtained a Bachelor's degree was $53,000 for men and $38,000 for women (Census, 2000). This means that on average, a graduate from NTID with a Master's or Doctoral degree would still be making less than the average individual who had graduated with only a Bachelor's degree.

From the data above, one can see that the median Bachelor's degree salaries from NTID and Gallaudet differ greatly ($25,000 from $39,000). This raises questions as to the level of preparedness the graduates receive from each school. Do the students at Gallaudet have higher academic and communication skills when they arrive, or did this school simply prepare them better? Perhaps the availability of government jobs in the Washington, DC area has allowed these graduates to become so successful. As of 2007, the average per capita income for persons working in the District of Columbia was $61,092, while the average for New York City was only $47,385, thus leading to a disproportional comparison between Gallaudet and NTID if one assumes that most students will spend their professional careers in the same area as their university (U.S. Census, 2007). If there are such differences between the median salaries for two specialized schools, then might there be an even greater difference between those D/HH students graduating from a mainstream university where the environment is completely different and not tailored to D/HH students. The team already knows that there is a difference between D/HH in specialized schools and hearing students from mainstream schools, but much is left to be discovered about the differences of D/HH students in different academic settings.

Besides lacking equal opportunity to gain employment, prejudice against employees such as those who are D/HH is highly prevalent in the workplace (Jing-Ming, 2005; Scherich, 1996). Deaf workers are most commonly hired by government agencies, deaf organizations, and other public institutions. Conversely, they may be hired significantly less often in the private sector because of the substantial accommodations required, such as training, purchasing hearing assistance technologies including TTY and other voice to text systems, and hiring supporting staff (Scherich, 1996). According to Professor Isaac Agboola from Gallaudet University, "Societal attitudes toward people with disabilities continue to impede access to jobs in the private sector" (Agboola, 2007). Specialized universities have made attempts to educate private companies about the deaf culture so that they may be more comfortable hiring deaf employees. However, the government provides no substantial current benefits for private companies to train and hire deaf individuals, making it more timely and costly for the private companies to hire these individuals. Professors from specialized universities argue that businesses need not be offered incentives to hire deaf graduates; they should hire the graduates simply because they are qualified. These universities also add that the students will need no special treatment besides communications support, such as technological assistance and possibly interpreters. Though this may not seem like much, a private business may view this as an unnecessary cost and a time-consuming activity, especially during economic recessions when businesses are cutting their budgets. These findings show that employment of the D/HH is a legitimate issue and deserves to be studied further (Agboola, 2007).

For those deaf individuals who maintain a full-time job, the experiences are often very different depending on the company and type of job. One graduate from NTID notes having a weekly meeting with his supervisor to discuss progress, but that he typically works on his own

90-95% of the time (Foster, 2003). Most employees note that email is the preferred use of communication between colleagues, because it eliminates the problems between hearing communicators, oral D/HH communicators, and those who use ASL. Patterns have shown that accommodations are plentiful and the atmosphere is easier to work in when employed by a large company with resources. Smaller companies have confessed to not promoting deaf individuals because they did not have adequate communication skills, and the company did not have enough resources to provide full-time accommodations such as interpreters (Foster, 2003; Scherich, 1996).

With a society so focused on productivity, even a highly qualified D/HH individual may not succeed simply because of lag time. D/HH business managers complain that they feel unprofessional by having to use TTY telephones, an assistive device that allows individuals to type messages which are then repeated to the other party using a free relay service. This can cause significant lag time in telephone conversations by having to transfer information through a third party. In some instances, this may result in clients from other businesses sometimes forming bad impressions because of the pace of conversations; even something as simple as stopping office gossip or raising the morale during troubling times can be more difficult because D/HH managers are not always aware of informal information paths in the office. This difficulty in managing the informal paths of information is a major concern for most organizations. It is obvious through the background research that there are numerous factors that affect workplace communication. The earlier a D/HH individual begins planning for his career and pursuing it through education, the more likely it is that they will reach their career goals and develop their full potential as an employee. This preparation process begins long before post-secondary education, indeed, it begins to develop within the home, where parental involvement and

attitudes most directly affect the social and emotional development of the individual.

Benefits of Hiring the D/HH Population and Cross Cultural Research Ethics

Presenting these current problems and difficulties in hiring the D/HH may signify loss of hearing as a disability, a negative view on hiring individual with hearing loss, or that it is very difficult for people with hearing loss to actually be hired at all. Viewing the problem from the perspective of a pathology model such as this, it may appear so. However, this is not the case viewing the situation from a cultural model (Rose, 1995). On the other end of the spectrum, it is important to indicate the benefits to hiring the D/HH population into the current workforce..

It has been researched and suggested that "native signers … have been found to have heightened visual and spatial awareness and higher spatial reasoning abilities than hearing speakers" (Rose, 1995). This leads to an increase in skills that concern arranging information in a logical manner, as well as improved skills in structure assembly as well as abstract math concepts, especially dealing with shapes and space. These skills are useful in the working world and could make individuals with hearing loss invaluable employees to companies within jobs that deal with spatial awareness activities.

It is important to note that the difficulty in completing a study such as this is that it involves making assumptions for a whole group of individuals, in this case the D/HH population. The documented socio-cultural aspects of the Deaf community allow the individuals within that population cultural acknowledgement within their community and any studies within that community to be cross-cultural. This is an indication that the community is the focus of research, and cross cultural ethics should be employed. In much deaf research, there is a lack of understanding of the cultural bearing that the significance of certain research topics may have on the population, or such generalizations. This cultural bearing must be taken into account when

the study provides direct implications on the community (Pollard, 1992).

Contemporary ethicists have indicated that the guidelines put into place to protect the rights of individual participants in research studies through such guidelines set by the Institutional Review Board may be insufficient for cross-cultural research because of failure to recognize the host-community. Some of the ethical guidelines for cross-cultural studies include but are not limited to: keeping open communications between the political and scientific bodies of the host community and the interested researchers; the research agenda, design, and reports must not be inappropriate or harmful to the point of view of the host community or researchers; and the research collaboration should utilize skills and researchers of the host community scientists. These ethical practices should be considered to enhance the quality of the research study done (Pollard, 1992).

Legislation

There is current federal legislation concerning anti-discrimination surrounding the hiring of individuals with disabilities, those individuals who, by definition, have a physical or mental condition that limits their movement, senses, or activities. Its roots grounded in the civil rights movement of the 1960's, the ADA originally became effective on January 1, 1990 and recently had revisions passed in September of 2008. The U.S. Equal Employment Opportunity Commission (EEOC), the division of the federal government responsible for enforcing laws affecting and pertaining to the ADA, has many resources available to inform the public of the ADA's standards and regulations. Their website provides comprehensive information surrounding the definition of a disability as well as frequently asked questions for those with little knowledge of the impact of the legislation. It is important to make note of this important legislation and the ways in which it affects the working population and hiring techniques of the

D/HH population. This law discourages discriminatory behavior, with the D/HH population constituting a large segment of the population for which this act affects (EEOC, 2008).

The ADA is a federal law that does not allow any discrimination against individuals with any such disabilities as hearing loss, loss of physical mobility, mental retardation, etc., in state and local governments, as well as larger private companies. Many states also have their own laws against such discrimination that expands upon the ADA. To be protected under the ADA, the disabled individual must also be considered a "qualified employee". That would be a person who can "perform the essential function of a job with or without reasonable accommodations". Reasonable accommodations for the D/HH can include any modifying devices essential to the job, job restructuring, modified work schedules, adjusting examinations or training, and provision of interpreters. The ADA requires most employers to provide reasonable accommodations when requested unless that accommodation would result in "undue hardship" on the company, such as incredibly high expenses, difficulty, or debt. To be hired, the individual with a disability must meet the same minimum standards of any employee, including required education, experience, skills, and licenses. Additionally, position candidates must demonstrate that they can perform essential functions of the job with or without reasonable accommodations (EEOC, 2008).

The ADA also has provisions that make it unlawful for an employer to inquire if one is disabled or inquire about the nature or degree of disability during or before the hiring process. Employers are also prohibited from asking a person with a disability to take a medical exam for purposes of employment, unless it is required of all prospective employees to do the same. For instance, employers cannot inquire whether a potential employee has taken a test for hearing loss, whether he or she uses assistive devices for a hearing loss, or whether or not he or she has

had hearing loss due to injuries on the job. Employers would not have this type of information during the hiring period; however, it is up to the individual to reasonably share information about his or her disability depending on the level of accommodation they would need. This would be for the benefit of the relationship. Also, if an employer learns about the disability after hiring and reasonably believes that it may affect the employee's ability to perform the essential functions of the job, then the employer can ask for more information to re-evaluate and determine if that employee would pose a significant risk to themselves or others. This could be either an advantage or a disadvantage for the individual with a disability. The advantage would be that the employer has already hired this person, so that they are initially deemed qualified for the job, but the employer could change his or her mind based on the grounds of safety, other qualifications needed, other essential tasks that could not be done, etc. (EEOC, 2008).

While most of these are steps in the right direction for anti-discrimination in the workplace, there are still inherent restrictions on helping D/HH individuals become hired in the workplace. This is part of what has been occurring presently, and possibly why the unemployment rate of the D/HH population is higher, because of the attitudinal prejudices that are not so obvious to be caught by the law. Since the definition of "essential tasks" may be considered nebulous according to the legislation wording, employers could find several reasons to determine that the candidate cannot perform the minimum requirements for the job. However, having these laws in place do discourage most kinds of discrimination, as well as raising awareness of the situations of the population with a disability and aiding them into becoming contributing members of society.

Pre-College Education

The education received before college by D/HH students varies from person to person,

and is affected by how well they were trained in school-to-work experiences including vocational training, and also by how much they were exposed to interactions with hearing individuals. Studies have attempted to answer questions about how pre-college education affects students' abilities to graduate with a degree. Using information from previous studies may help to identify if there are any trends between prior educational experiences (i.e. grades, extracurricular activities, classroom atmosphere, type of school) and the students' abilities to succeed at the collegiate level.

After primary and secondary (K-12) education, D/HH individuals have the option of entering further academic or vocational training to assist them in either continuing their education or entering the workforce through programs such as the Department of Rehabilitation Services (DORS). Study results show that many benefits to training programs exist for the deaf and hard of hearing individuals. Firstly, the individual with hearing loss is a contributing member of society and will be more able to support themselves financially in the future; secondly, this approach fosters independence of the individual.

In the past few decades, a program coined as "school-to-work" (STW) has provided D/HH students with experiences necessary to help them transition from being a student to an employee. Prospects such as internship opportunities, programs aimed at narrowing students' professional interests, and guidance in developing their academic careers towards these goals, are just a few of the leading characteristics of the school-to-work program. Proponents Allen, Rawlings, and Schildroth of the school-to-work program note that, "deaf education's primary goal should be to narrow the English-literacy gap between deaf and hearing students entering the workplace." Studies have shown that about 70% of deaf students drop out before graduating from college, so it is essential to give them assistance in planning their future goals as soon as

possible (Allen, Rawlings, & Schildroth, 1989). STW programs can exist for entire states, or through specific schools districts. The students have the option of participating in an Individualized Education Program at age 14, where they meet with a mentor and choose activities that will foster social skills and communication skills. Work-based learning through apprenticeships and internships help students to plan for careers instead of jobs. Students choose a career major by the 11th grade and begin planning for their post-secondary education. The STW programs have links to community programs, businesses, and colleges, to provide as resources for its students. These programs are not restricted solely to D/HH students, but have been found to be effective for individuals with hearing loss (Allen, Rawlings, & Schildroth, 1989).

Other programs begin preparing deaf students for careers at a younger age than hearing students, sometimes as early as middle school. In Russia, the Educational Center for Children and Adolescents with Impaired Hearing was recently created in response to a large majority of deaf students who had no motivation to achieve higher education. This program provides organized training and assistance for deaf students, creating a comfortable environment where they can easily interact and acquire a useful specialty. The curriculum is broken up into four basic areas: support, education and profession, integration into the hearing community, and career. These culminate with a student achieving proficiency in one of the 10-15 offered subjects. Through interactions with students and instructors from the Center, businesses and other educational institutions have been more willing to hire hearing impaired individuals (Korviakova, 2005).

Though these programs have been implemented, there still is a great disparity between the career development of those students with hearing loss and those students without. In a study conducted on the career development of high school students with hearing loss, the researchers

collected information on the students' "career awareness" and "vocational maturity" (Furlonger, 1998). The goal of this study was to offer suggestions for improvement in the methods used by D/HH high school students to enter the work force, and how they choose their preferred careers. As a part of their investigation, the researchers tested career development and ran personality tests in the forms of questionnaires. The results of these efforts show that there were significant differences found between the hearing students and D/HH students. Lower scores from the Career Development Inventory (CDI) test, designed to evaluate students' preparedness for entering the workforce, indicated that D/HH students were much further behind in their studies in career development. They scored lower in such categories as "Career Planning", "World of Work Information", and "Career Decision Making." This could be a slight indication of the failure of the education about career planning for the D/HH students; that they are not as socially prepared as the hearing group of high school students. It is thought from the conclusion of this article that D/HH students will achieve lower in the career field because of poor preparation (Furlonger, 1998).

In the Deaf community, it is frowned upon for a Deaf individual to make accommodations for a hearing person. However, a problem in programs designed to help the school-to-work transition is that deaf students may not be exposed to realistic work environments and the true demands of having a job. Garay argues that D/HH students should have exposure to hearing individuals, as well as realistic guidance as to what they may face in the workplace. It is stated that D/HH students must be held to the same standards as hearing students, and must learn to be assertive about their opinions and accept criticism when they are not correct (Garay, 2003). Due to such differences in the early stages of education, a student with hearing loss could develop communication and interpersonal skills at a somewhat slower rate as compared to a

hearing student. They must be taught certain skills, such as eye contact, sharing of opinions, and participation, so as to assure their independence. Some students also may be unaware of rules and proper behavior in an unfamiliar work environment because a school environment did not necessarily teach those things in their inherently different learning environment (Stewart and Kluwin, 2001).

Other factors that may help in the success of such a program are student participation, family involvement and support, initiating the program as early as middle school, sensitivity to cultural factors, and comprehensive planning by teachers (Garay, 2003). All of these factors must be addressed in order for the school-to-work transition to take place smoothly and successfully.

The National Technological Institute for the Deaf (NTID) at Rochester Institute of Technology (RIT) is another prestigious resource for deaf students looking to further their education or become better prepared for work. Individuals unsure about their academic interests can take "Career Exploration and Study" for up to three quarters, in which they can receive personal and career counseling, take decision-making classes and sample a variety of majors. Along with classes, NTID provides skills needed for students to succeed on the job, like teamwork, knowledge transfer skills, and anticipating and adapting to change. With resources such as specialized assistance from faculty and a personalized career plan, NTID appears to do well in preparing its students; it has a 90% job placement rate in the individual's field of interest (Bradley, 2004). Because this institution happens to be so successful in employing its students, it is vital for Team AUDIO to study the educational supports that NTID utilizes, so that the team can provide recommendations to enhance deaf students' career preparedness at other schools.

Gallaudet University addresses many of these issues with initiatives to secure entry-level positions for its graduating students. According to an interview with the chairman of the business

department at Gallaudet University, the students are shaped to be competitive against their hearing colleagues. The school expects that the students have mastered reading, writing, and critical thinking skills before entering the University. This way, the business department can focus on normal business classes, instead of teaching basic skills (Agboola, 2007). Students must fulfill an internship requirement before graduating, allowing them to be in line with most other business students. At these internships, staff and faculty from Gallaudet University visit the sites to observe and assist the students to improve their professional skills. Most of the graduates tend to work in the Washington, D.C. area in federal government jobs because they are supportive of workers with disabilities. However, there is a lack of larger corporations attending career fairs, and most students tend to find jobs in the government sector or through friends and family. Another important point to note is that these efforts occur solely within the Gallaudet Business School, whose main purpose is to teach students how to work in a business. Students with other majors may not be exposed to the "stepping stone" environment that Gallaudet provides through its internships.

Some literature maintains that family support increases independence at a later stage in life. In one study, it is shown that participation in such transition programs were not necessarily a predictor of employment, but the effect of family influence was a more accurate predictor (Sitlington, 2000). Incidental learning comes from the observation of everyday situations for hearing children, watching and learning from their own parents is important to the transition from dependence to independence. Families with hearing barriers have more obstacles in introducing the child to experiential learning, but it is important for children with hearing loss to gain independence as well. Therefore, one's communication skills may not results from their involvement in training programs or the level of their education, but can be founded in earlier

stages of life with the simple interaction between parent and child (Sitlington, 2000).

When it comes time for D/HH students, or any other student who attended a specialized school, to apply to college, there is the question of how to compare them to their hearing peers in mainstream schools. How does the level of hearing factor into the students' previous success? Do standardized tests such as the Scholastic Aptitude Test (SAT) and American College Test (ACT) fully measure the students' abilities, or would another comparable test suit better for students with hearing loss? Recent studies have found that widespread standardized tests, such as the ACT and the TOEFL (Test of English as a Foreign Language) are not adequate for measuring all deaf students' capabilities despite efforts to alter wordings to allow these students to be able to answer questions (Bochner, 2005). The tests are effective in measuring the success of deaf students with strong English proficiency. However, for students who have not mastered English, these tests may be poor indicators. Because of this, colleges could underestimate the capabilities of some deaf students, therefore causing them to miss out on opportunities in which they would have succeeded. Opponents argue that a standardized test means just that. Scores between all students are comparable, and a lack of proficiency in the English language should not be excused by allowing some students to take a test that is catered to their needs.

Another question raised is how the student's proficiency in the English language will affect his or her success at the next level of education. Numerous studies have been conducted regarding the transition from high school to college, and why one type of university might suit a student more than another based on their disability. Colleges as well must be prepared to work with these students if they are admitted to the university. It has been said that, "the acquisition of English language and literacy skills probably represents the most formidable challenge confronting educators of deaf students in America". Conclusions from these studies suggest that

the problem begins long before post-secondary education, and that college is the last hope for students with mediocre English skills to develop a high-achieving career (Karchmer & Mitchell, 2003). Should it be that only the students with higher communications skills go onto pursue post-secondary education? Would a certain type of post-secondary environment allow students with lower English proficiency to succeed, or could they even succeed in a mainstream school? All of these unanswered questions demonstrate that it is vital to study the mastery of English through both interpersonal communication and writing in post-secondary education.

Shortcomings

Though the studies and surveys compiled indicate similar findings, some articles do have bias or shortcomings that must be taken into account. Several were completed in foreign countries, including the United Kingdom and Cyprus (Angelides, 2007; Jarvis, 2003). Since countries have different policies and attitudes toward disabilities, students' experiences are not necessarily identical to those in the United States. Therefore, it cannot be expected that all findings apply to the United States and furthermore, to Team AUDIO's research study. However, since results from the research done in foreign countries were consistent with American studies, they were deemed appropriate to include. This also shows that D/HH experiences are somewhat universal and that this issue exists outside the United States as well.

Technology and Communication

There are various ways that one's hearing can be affected in a negative way. Volume, clarity of sound and extraneous noises all have a limiting effect on the auditory sense. There are many technological aids already available to the deaf population to improve their communication within the hard of hearing community and with hearing individuals. Problems concerning

volume of sound can be greatly reduced by the use of hearing aids. Hearing aids also offer

limited improvement concerning clarity of sound, but most people still report problems, not with

hearing, but with comprehension. Hearing aids have been widely employed throughout the deaf

community. Unfortunately, some studies show that the use of hearing aids has no statistically

significant effect on the employment or income of deaf adults (Winn, 2006). The fact that

hearing aids, cochlear implants, and similar technologies are providing individuals with hearing

loss with increasingly greater interpersonal communication abilities suggests that communication

is not the only factor contributing to income discrepancies.

A major breakthrough in communication technology came in 1985 with the introduction

of the cochlear implant. Hearing aids simply amplify a sound while cochlear implants stimulate

auditory nerves in the ear, so the individual can actually hear more clearly than before the

implant. This technology has allowed deaf individuals to attain better communication skills and

to interact more successfully in the surrounding environment (Shannon, 2007; Connor, 2006).

Cochlear implants, along with hearing aids, improve children's socialization and communication

skills as reported by deaf children's parents (Bat-Chava, Martin & Kosciw, 2005). Even though

cochlear implants have decreased the communication barrier, this technology is not widespread

enough to completely solve the unemployment issue. Deaf individuals who get cochlear implants

need extra attention and aid in order to communicate and develop oral and reading skills at the

same level as hearing students (Chute & Nevins, 2003).

There are many factors that contribute to the auditory and verbal communication

development of children with cochlear implants. These can be broken down into intrinsic

characteristics of the cochlear implant candidate, intervention characteristics and characteristics

of the implant itself. Intrinsic characteristics of the implanted child include gender,

socioeconomic status of their family, the age at which the child's hearing loss occurred and the extent of the hearing loss. When considering intervention characteristics, factors such as the age of the child when their deafness was identified, the age when habilitation or rehabilitation was initiated, the mode of communication chosen the individual's family, and the type of classroom and/or therapy the child is engaged in are all key factors to consider. Finally, characteristics of the implant encompass how advanced the technology of the implant is, how long the child has been utilizing the implant and the age of the child when simulations of the implant were begun. All of these characteristics combine to have a very complicated impact on the effectiveness of the implant in benefiting the child's auditory, speech, and language development (Geers, Nicholas & Moog, 2007).

Because there are various factors contributing to the results of the cochlear implant procedure, it is hard to determine which factors have a direct impact on effectiveness of the implant. Through various statistical analysis tactics, it has been found that in children, age of implantation has a significant impact on the effectiveness of cochlear implants while in adults, duration of deafness has this same significant impact. An example of a young age of implantation and its effect is if a child receives an implant between the ages of one and two, that child has a vocabulary very comparable to those of their hearing counterparts (Geers, Nicholas & Moog, 2007).

Parental perspectives can be valuable resources when delving into the communication of deaf children, especially when comparing children before and after technological interventions. When observing children with an average cochlear implantation age of 4.7 years, it is noted that parents are overall very pleased with the results of the procedure. Observable changes in the children, such as greater self-confidence, independence and improved use of spoken language,

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are positive aspects identified by parents, along with an overall improvement in communication within the family. Post procedure, children do not require more parental support than before, and the support given generally proves to be more beneficial for the child (Archbold, Sach, O'Neill, Lutman & Gregory, 2008).

Although these benefits are great improvements in the area of deaf communications, there are some concerns noted by parents concerning their children with cochlear implants. Many parents feel that, in many areas, the results of the cochlear implantation procedure have not met their expectations. Because progress in communication directly related to the cochlear implants takes time, parents need to be patient about seeing the full effect of the procedure. Also, many parents express concerns about their child's future education. The children within this study were regarded as fully dependent on their cochlear implantation systems. This fact makes most parents uneasy seeing as their child's ability to communicate relies solely on the function of a technological device that could encounter difficulties. Also, this places a high demand on the parents as they must continually manage the device and child's skills to optimally use the device (Archbold et al., 2008).

Often times, people who are outsiders to families with deaf children have strong feelings about which path these parents should pursue when concerning their children's communication. However, it is necessary to remember that it is the choice of the parents and the affected children to pursue the best communication mode for their family and situation in particular (Cramton, 2008).

Currently, the deaf and hard of hearing population uses many different forms of communication to interact with people in the community including speech reading, sign language, and oral communication. Some D/HH people also make use of "bilingual"

communication, also known as "simultaneous" communication, in which the person makes use of two of the above methods in order to communicate. Recently, a large number of deaf students have begun to use lip reading more frequently. Just like any other language, there is also a language barrier between different types of communication within the deaf and hard of hearing community. Therefore, there is the possibility to encounter problems because of delay in the exchange of information between the two communicators, although they may both identify with the deaf and hard of hearing population (Richardson et al., 2001).

Three modes of communication (sign language, oral communication, and cued speech, where signing is used along with lip reading in order to communicate) create a debate between many people in the Deaf community. A portion of the literature supports that many groups believe that the "oral" or "cued" methods, both of which require speaking, are the most beneficial ways of communicating and, in turn, enhance education because the students are exposed to the way the majority of the hearing population communicates. This is a popular approach with those who are post-lingually deaf (their age of onset occurred after they had learned spoken language). On the other end of the spectrum, there are those who advocate for the "bilingual" approach, in which deaf children learn American Sign Language (ASL) as a primary language and learn English as a secondary and supplementary mode of communication (Bollag, 2006; Gesser, 2007).

There has been a long debate about which mode of communication is more beneficial. Some deaf individuals have encountered medical problems (such as bleeding, infection, and nerve damage) with cochlear implants, causing them to abandon their usage. If this occurs and they have only learned to communicate using "oral" tactics, they will have no form of communication, as they are now unable to process the verbal stimuli they learned with the

implant. Similarly, people who advocate the use of ASL say that if this oral form of communication is continued exclusively, the loss of ASL will include the loss of Deaf culture and all that the Deaf community has fought for in the way of rights (Gesser, 2007). In concurrence with these methods, it is also not uncommon for individuals to begin using one form of communication, and later shift to another form of communication when they deem such a transition is appropriate.

The Deaf community is primarily comprised of individuals whose main language is ASL. For the most part, these individuals have been deaf since birth or young age and are not strongly affiliated with the speaking and hearing world. They have their own culture, tend to marry within that community, have formal and informal organizations and often have very set political views and goals. A characteristic distinguishing this community from deaf or hard of hearing individuals is the perception of their deafness. They perceive deafness as an alternate lifestyle rather than a disability, burden or loss as interpreted by those individuals whom become deaf later in life (Luey, Glass & Elliott, 1995). The Deaf community feels a general sentiment of being an oppressed people. As such, they have politically motivated goals to promote the acceptance of ASL and improve the rights of deaf individuals. Most individuals with an acquired profound hearing loss, who are not a part of the Deaf community, referred to as "hearies" in the Deaf population, miss sound and the ability to communicate through spoken tactics. These deaf persons push for more deaf-friendly public access; however, they are perceived as the opposition by the Deaf community because they do not promote ASL (Luey, Glass & Elliott, 1995).

Children who learn ASL appear to be separated from the rest of the public, as they are unable to communicate with others who do not know sign language (Bollag, 2006; Gesser, 2007). This communication problem is exacerbated by the fact that ASL has a limited

vocabulary and a different language structure than that of English. To add to this debate, it has been shown that deaf students in mainstream schools reflect lower effectiveness in English communication skills than those in specialized schools. This may be partially attributed to the fact that sign language and Standard English have different grammatical structures, making it increasingly difficult to translate between the two languages (Richardson et al., 2001). This hinders communication, especially on a mainstream campus.

Because of the changing trends in D/HH communication over the last decade, communication skills of D/HH students in the classroom have become more highly scrutinized by researchers, employers, and those in the fields of deaf academia and education. A study performed in 2007, in order to understand communication among deaf students who speak and sign, observed communication within a group of students only relying on spoken language, within a group of students relying solely on American Sign Language and communication between these two groups, using a question-answer type game. Through this, it was observed that across all groups, the students were reluctant to ask questions. Also, face-to-face communication and general comprehension in all groups was lacking. Overall, there was no significant difference between any of the groups when addressing multiple choice questions; however, the students utilizing oral communication methods seems to be able to form more articulate free response answers. The American Sign Language group seemed more proficient in understanding questions when compared to the spoken language group (Marschark, Convertino, Macias, Monikowski, Sapere, & Seewagen, 2007).

Overall, when considering vocational skills, tactical education, and content knowledge, deaf students tend to enter classes with less prior awareness than their hearing counterparts. They also tend to have a lesser understanding of concepts addressed in the post-lecture sessions that

take place after class. Despite lower scores on pre and post-lecture content evaluations, the amount of content gained by deaf students seems to be on par with their hearing counterparts. It has been observed that there is no statistically significant difference concerning a deaf student's acquisition of content in a lecture when a professor utilizes American Sign Language compared with concurrent communication (sign and speech together). It is important to note that direct communication with a deaf college student seems to be equally as effective as mediated instruction (the use of an interpreter) when conveying content knowledge (Marschark, Sapere, Convertino, & Pelz, 2008).

Mainstream vs. Specialized Schooling

An investigation into D/HH students at mainstream versus specialized schools leads to a few distinct conclusions. The first and most widely supported is that a tradeoff is apparent between mainstream and specialized education. A mainstream school provides a higher quality of education, while the latter enhances interpersonal relationships and ease of communication (Angelides, 2007a; Cawthon, 2007; Jarvis, 2003; Bat-Chava, Martin & Kosciw, 2005). These two facets of an educational experience appear to be unable to coexist in a single learning environment for the D/HH population.

The collegiate atmosphere consists of attending either a specialized or a mainstream school. Gallaudet and NTID, the two most recognized specialized schools, host about 2,500 students each. It has been estimated that anywhere from 9,000 to 17,000 D/HH students are attending various mainstream schools around the country. Of the incoming D/HH students each year, only 8% can read at an eighth grade level or higher (Allen, 1994). A study conducted in 2003 showed that students entering college with lower reading levels were less likely to graduate with an undergraduate degree. Of those with lower reading levels, they were most likely to

graduate with a degree in fine arts, as compared to a degree in science. This study shows the difficulties of continuing in higher education with poor communication skills. This project seeks to explore which type of university (mainstream versus specialized) would be best for students with differing communication skills, and if these communication skills are improved more through one type of education or another.

Through qualitative studies, it has been demonstrated that pupils at specialized schools for the deaf feel that they are learning less, and at a slower pace, than their mainstream peers. Professors have lower expectations for deaf students and often times, the professors spend too much time on activities such as pronouncing words, which leads the students to lose critical information (Schornstein, 2005). A study done in schools in the United Kingdom indicates that students felt their mainstream classes were harder; it was necessary for them to have classes taught temporarily on a withdrawal basis until they were ready for full inclusion in the classroom (Jarvis, 2003). Students also felt having pre- or post-lesson tutoring as well as help outside the classroom was needed to help adjust them to a mainstream setting (Angelides, 2007; Jarvis, 2003; Woodley, 2001). It is also important to note that deaf students have poorer reading comprehension and generally lower writing skills than hearing students; however they produced more complex written sentences when constructing an argument as opposed to a narrative (Musselman, 1998). This leads to the difficulties that students may experience when trying to solve word problems. Teachers noticed that deaf students have trouble with conditionals, comparatives, negatives, inferentials, low-information pronouns, and lengthy passages (Kelly, Albertini & Shannon, 2001). Similarly, deaf students have more trouble making connections between related problems (Kelly & Mousley, 2001).

Some schools have made an effort to compensate for the communication barriers that

deaf students experience. In 2000, 68% of colleges with 6000+ students implemented blended courses that included online components. D/HH students reported a significant increase in the amount and quality of the interaction with peers in such a learning environment, as compared to traditional in-class instruction (Herring-Harrison, Gardner III & Lovelace, 2007; Belcastro, 2004). More schools are trying to acquire technology for D/HH students to help them develop academically (Belcastro, 2004). Email and Instant Messaging also become increasingly popular for deaf individuals as a tool in the academic environment (Bowe, 2002). Other similar studies pertaining strictly to secondary education have established that mainstream schools facilitate more in-depth learning by setting higher goals, having more requirements, a richer curriculum and more stimuli and learning opportunities (Angelides, 2007a). As measured by standardized tests created for the No Children Left Behind Act (NCLB), an achievement gap of 25-50% exists between the disabled and non-disabled population at the fourth grade level. Additionally, NCLB standardized tests given to 15 state administered schools for the deaf showed that less than 50% of students had grade level proficiency in math or reading; at some schools no students met state benchmarks (Cawthon, 2007).

Along with strenuous academic regiments and high goal setting being observed at mainstream institutions, less than average job expectations by the students can be noted at specialized schools. Deaf undergraduate students have been inquired about job expectations at the Technical College of the Deaf (TTDC) at Tianjin University of Technology in China. It was found that job stability was the most important sought after factor. The degree to which the job related to their field of study was also an important aspect; however, this was only important to approximately 50% of the students involved in the study. Overall, it was noted that the average expected monthly salary by the students was significantly lower than the average monthly salary

paid to a standard university graduate in China. A very interesting observation was also noted by the deaf participants in this study. Difficulties dealing with communication were not the top hindrances experienced by these students in the work place. Rather, the most common obstacles faced were those dealing with discrimination (Li & Zhao, 2008).

Though the academic standard seems to be higher at mainstream universities, D/HH students also note feelings of social isolation due to difficulties with communication. Their limited hearing can cause them to miss opportunities for social interaction and limit their classroom participation. Distancing pupils from the school environment can cause psychological side effects, including lowered self-esteem and feelings of loneliness and rejection (Angelides, 2007; Jarvis, 2003). Some students with hearing loss are so resigned to being left out of class discussions that they simply study alone (Woodley, 2001). Some deaf or hard of hearing students are unable to answer questions in a timely manner and feel inadequate interrupting a lecture to ask questions (Herring-Harrison, Gardner III & Lovelace, 2007).

On the other side of the spectrum, students in specialized schools tend to experience a lower level of academic quality, but have an abundance of friends and easy conversation. D/HH students can share experiences and freely exchange ideas, giving them the opportunity for socialization and even the small off-task exchanges that hearing students have during class (Angelides, 2007; Jarvis, 2003).

There is a lack of research studies conducted using teen or college-aged deaf individuals. Most of the studies conducted, including all those comparing D/HH experiences in mainstream schools to specialized schools, were executed in elementary and middle school institutions. Several studies were carried out at the university level, but they focused solely on D/HH students in a mainstream university, without comparisons to experiences in a specialized college. This

omission is one of the reasons Team AUDIO has chosen to focus on both sides of the D/HH educational issue. One focus of this study is to create a more complete comparison of the post-secondary education options available to the D/HH population, as well as the positive and negative aspects of both specialized and mainstream options.

Chapter 3: Methodology

The following section outlines the methods used by Team AUDIO to conduct its research and obtain data in order to produce conclusions. It begins with a series of assumptions for the problem and methodology that the team used to guide its research. Subsequent to these assumptions is an outline of the required qualifications of the participants, the methods used to recruit them, the modes of data collection, confounding variables that may compromise results, and the limitations of the research. Overall, the choice of target population for the study will enable the team to obtain its goal of filling the gap in existing research for the D/HH population.

Assumptions of Methodology

Several assumptions must be made concerning the methods for conducting research. Primary amongst these assumptions is that there will be a viable source of deaf or hard of hearing students in both the mainstream and specialized schools that the team can access, and that these students will be willing to participate in the research study. From the investigations conducted in the preliminary literature review, the team holds that such a population does indeed exist and that accessing this population through the methods mentioned below will be successful.

Furthermore, in order to conduct research in the methods described subsequently, the team must assume that the institutions and persons asked to contribute to the research will be honest in their responses, thus resulting in accurate results upon which conclusions can be formulated. Since the team could not be entirely sure of such honesty in its results, it has also included a similar factor in the section dedicated to the study's confounding variables at the conclusion of the methodology.

Participant Qualifications

In order to use a population for the study that results in as few confounding variables as possible, the team set several eligibility criteria for the participants. These criteria were concise and not overly limiting; however, they provided us with a population that allowed for easier analysis of data and precise conclusions.

First, the study required that every participant had completed at least two years of undergraduate education, and was no more than two years removed from their undergraduate schooling. For undergraduate students, this meant that the participant was either a third or fourth year student, or older depending upon their degree track. Other participants who had already received their undergraduate degrees could be no more than two years post-graduation in order to participate. The team allowed all graduates meeting this criterion to participate, regardless of their current profession or employment status, additional degrees they may have achieved, or any current degrees they are seeking. The inspiration for this age requirement was two-fold. First, it ensured that the participant attended the university long enough that the school's curriculum had, at least to an extent, shaped the development of their communication skills. Secondly, the team wanted to be sure that a participant's career or additional education did not have time to significantly influence their communication skills, leaving their undergraduate university as a prime influence in their overall proficiency. By defining the participant experience range in such a way, the team was able to limit the effects of confounding variables while still maintaining a relatively broad participant pool from which to recruit.

Since the team was already dealing with a relatively small sample population, the participant pool could not be limited with any further conditions. Regardless, it is believed that these conditions provided a participant pool that effectively embodied the D/HH working

population as a whole. While it is desirable to recruit from as many institutions with students meeting these conditions as possible, the fact that there are significant permission barriers, as well as a distinctly larger number of mainstream universities as compared with specialized universities caused the team to limit the number of schools it recruited from. This limitation is discussed further in the subsequent section "Participant Recruitment."

In order to deal with a D/HH participant body, the team wanted to be sure that it was prepared fully for working with the demographic in order to most effectively use time with participants and most effectively communicate with them. To accomplish this, the team took several steps in order to prepare for the study. First, the team met with Ms. Paula Schauer, audiologist in the University of Maryland's Department of Hearing and Speech Sciences in order to gain insight into the deaf community, as well as communication styles, and hearing assistive technologies and resources used by D/HH students. Additionally, the team gained insight into how the University of Maryland serves D/HH students through the availability of interpreters for students and other steps taken by the University to ensure that these students receive the supports they need in order to successfully attend the school. After meeting with Ms. Schauer, the team met with Dr. Monita Chatterjee, associate professor also with the University of Maryland's Hearing and Speech Sciences, in order to gain knowledge of different aspects of the D/HH community. Specifically, Dr. Chatterjee provided information concerning the medical and scientific cause of hearing loss, as well as information pertaining to cochlear implants and other procedures that are available to aid in improving one's level of hearing loss. This information gave further insight into the culture and lifestyle of D/HH individuals, as well as insight into how people address hearing loss. To gain exposure to the communication styles of D/HH individuals prior to those interactions occurring as a part of the study, several team members participated in

a brief American Sign Language awareness course. This course allowed the members not only exposure to sign language and the way that it works, but also provided them with some basic language elements that would aid communications with study participants. Finally, in order to prepare for working with this population, the team participated in the Protecting Human Research Participants training through the National Institute of Health that concerns working with special or small populations, including the D/HH community. With this training complete, the team felt confident and well-prepared for conducting the study and working with D/HH students.

Participant Recruitment

Recruitment of study participants was concentrated upon four different universities: the University of Maryland, Towson University, Gallaudet University, and the National Technical Institute of the Deaf at the Rochester Technical Institute. Of these four schools, the University of Maryland and Towson University represented mainstream universities, while Gallaudet University and NTID represented the specialized schools. At each of these universities, the team recruited students and recent alumni meeting the participant qualifications for the study. Due to regulations set by each university's Institutional Review Board (IRB), the team was required to use different media and methods at each of the four schools in order to conduct recruitment efforts.

Beginning with the University of Maryland and Towson University, the team contacted the mainstream participants through the aid of the Disability Support Services (DSS) at each school. Each of these student support organizations maintains their own listserv of current and graduated students who have certain disabilities. Therefore, in order to maintain an anonymous participant pool, the team contacted DSS at each school who distributed the survey and sent

information to their D/HH students via email. Interested students were asked to participate in both the study survey, as well as other portions of the study, described subsequently.

While the study used similar methods to contact participants at both of the mainstream schools, the two specialized universities required different approaches due to limitations and student-contact restrictions as prescribed by student policies and the IRBs at each school. At Gallaudet University, two methods of contact were utilized in order to reach the target population. First, the team contacted students through the student sponsor, Dr. Matthew Bakke, an Associate Professor of audiology at Gallaudet University. He was able to send the adjusted advertisement to prospective student participants through the university's online daily newspaper. In addition, the team contacted the alumni association at Gallaudet University, who sent the advertisement to recent graduates from Gallaudet. These two methods allowed us to gain a reasonable population of students and graduates at this primary specialized university.

The team recruited participants from NTID through interactions with the student sponsor, Dr. Marc Marschark, and the aid of resident director, Stephanie Bauschard, at the dorm for deaf students. Due to a restriction at NTID, the team was not allowed to distribute mass listserv emails at this school, as had been done elsewhere, and was therefore required to find a new means of contacting participants. In order to do so, Dr. Marschark directed us to one of the resident directors, Ms. Bauschard, of the dorms for D/HH students. Ms. Stephanie Bauschard was willing to aid the study by posting flyers throughout the dorms to advertise the study. Using Gemstone funding, the team produced a packet of 100 flyers that were then sent to NTID and posted (see Appendix G). Through these efforts, the team was able to increase the size of the specialized school population in order to reach the target participant body.

While the first round of recruitment efforts produced a number of responses to the online

survey, the team felt that a second recruitment effort could further increase the number of responses to the survey as well as the number of willing participants for the interviews. Unfortunately, this second round was somewhat time constricted in several ways. Foremost amongst these constraints was the fact that the data obtained from this second round of recruitment had to be obtained in a timely fashion so that the team could enter the information into the computer system to prepare for analysis. In addition, the time limit placed upon the use of the Surveymonkey.com system, on which the survey was hosted, was also of concern. Since the contracts for this system run annually with a more expensive monthly option, the team was concerned with collecting as much data in as little time as possible in order to remain under budget for this portion of the study. Going over the budget allotted for the Surveymonkey.com system would infringe upon funds needed for other portions of the project, such as hiring interpreters for the personal interviews. With these considerations in mind, the team then proceeded with the second round of recruitment for the online survey in hopes of obtaining more data for the analysis, as well as a larger group of participants for the interview portion of the study.

Under the given time constraints, the team decided to pursue a reiteration of the first round of recruitment efforts while making some minor changes. The team began by contacting Dr. Matthew Bakke at Gallaudet University so that he could resubmit the advertisement to the online daily newspaper at that university. Since the team achieved considerable success through this avenue in the first round of recruitment, it was felt that this contact was pivotal in the efforts to obtain more responses to the online survey, and thus targeted it as a major area of interest. Contrarily, since the efforts through the alumni association at Gallaudet University were both time consuming and relatively fruitless, the team decided to suspend efforts through that contact

and did not attempt to reach out to the Gallaudet alumni through the alumni association a second time. Due to confidentiality regulations upheld by Gallaudet, contacting the University's alumni through any other method was not possible, thus permanently suspending efforts to contact the alumni of that institution. In addition to contacting students at Gallaudet University, the team continued to target students at both the University of Maryland and Towson University through the use of the Disability Support Services (DSS) at each school. In both cases, these students were contacted through the use of the school's respective email listserv, where the online advertisement was provided for them. At the University of Maryland, the continued contact for these efforts was Dr. Jo Ann Hutchinson, who was responsible for sending the information to the D/HH student body at the University. At Towson University, recruitment efforts were conducted through a variety of staff comprising the DSS at that school, as well as the Deaf Studies faculty, with major contacts including Dr. Sheryl Cooper, Dr. Jody H. Cripps, and others. Lastly, it should be noted that the team decided not to contact personnel at NTID as a part of secondary recruitment efforts. Mainly, this segment of the D/HH population was not recruited for three main reasons; time, money and failure to achieve strong results in the first round or recruitment. Since the team is required to mail preprinted paper advertisements to the dormitory staff at NTID due to restrictions against directly contacting NTID students through email, recruitment through this avenue is slow. It must allow time to print the needed advertisements, mail these advertisements to the staff at NTID, and for the NTID staff to post these advertisements about the dormitory, in addition to the standard time allotted for students to respond to these advertisements.

Furthermore, since the team is already operating on a limited budget that did not initially allow for the costs of producing and mailing these advertisements, to do so again was out of the

scope of the budget for the team's success and completion of other required portions of the study. Finally, due to the somewhat laborious nature of these flyer advertisements, which require that each participant physically take a copy of the survey web address and access the online survey, the team did not experience great success with the recruitment at NTID. As a result of these lackluster results, the team chose not to continue pursuing this institution's student body for participants.

While these secondary recruitment efforts were not wholly successful, they did provide the team with much needed additional data that will be used in the analysis portion of the project to follow. Such analysis will be discussed in depth in the chapters to come.

Survey

The first measure in the team's methodology was a survey that was distributed to participants at the four universities mentioned previously. The team purchased an annual account on Surveymonkey.com, an online survey generator, and distributed the survey through this website. In accord with the confidentiality requirements set forth in each school's IRB, all portions of the survey were strictly confidential, with the participants not being required to provide any information that would directly tie them to their responses. This section of the methodology provides both quantitative and qualitative data for further analysis.

The survey begins with a consent form, specialized for each school's specific requirements (see Appendices A-C). The terms of consent include information such as survey directions, time frame, incentives, confidentiality, contact information, potential risks, and the option to withdraw from the study at any time. The participant either agreed or disagreed with the terms of consent by checking the appropriate box. Because this survey was administered electronically, checking the "agree" box was equivalent to the participant physically signing his

or her signature on a paper consent form.

After the participant had given consent, he or she began to fill out the survey. There were several types of questions on this survey, including multiple choice, Likert scale questions, and free response. In a study targeting human subjects in a natural and uncontrollable environment, it is crucial to gather information about confounding variables. The team was not able to determine a cause and effect relationship between type of schooling and level of communication skills because there can be no control and experimental group in this type of study. Therefore, background factors must be taken into account when determining the correlation between schooling and communication skills. There were several groups of these demographic questions within the survey.

The first set of demographic questions concerned education. The survey inquired about type of schooling, family involvement in school, degree major and minor concentrations, SAT verbal and written scores, extracurricular activities, current occupation, and family education level. Because this was a comparative study between types of schooling, it was important to focus on the differences in participants' educational experiences.

The next set of demographic questions focused on the participants' level of hearing. It was crucial to know the participants' age at onset of hearing loss, level of hearing loss, family history of deafness, and current modes of communication. This section was especially important because, for example, an individual who has been deaf since the age of three may have extremely different communication skills than an individual who became deaf at sixteen. Such factors must be considered when analyzing survey data. In addition, it has been shown that individuals who grow up in a household with either hearing parents or parents with a level of hearing loss communicate differently depending upon this important influence. Whether an individual uses

sign language, cued speech, or lip reading significantly factors into how they communicate with other people, and thus is of importance to the study.

Finally, the survey included general demographic questions about age, gender, race, and geographic location. These questions were crucial in helping us identify various subgroups within the diverse population and analyzing the data more accurately. Furthermore, the team considered the potential for these demographic factors to act as confounding variables. If the team failed to consider the diverse backgrounds of the participants, the team risked the possibility of reaching invalid conclusions.

After the demographics section, the participants were asked to answer a series of Likert scale questions pertaining to their interpersonal communication skills. This constitutes a source of quantitative data since the team was able to analyze the trends between type of schooling and perceived skills. These questions inquired about topics such as listening to others' ideas, writing and organizing thoughts, and searching for relevant information. More broadly, the survey was designed to show the participants' thought processes and actions as they communicate with others in person or in writing.

Using these Likert scale questions, the team was able to compare participants' perceptions with their actual communication level, based upon rubrics created by the team. The team sampled several rubrics from different academic institutions to create two separate rubrics: one for the survey free response questions and one for the interpersonal interviews. A discussion of these rubrics is to follow. After scoring the participants' free responses and interviews, the team compared these results with the participants' self-perception of their communication skills.

The final section of the survey consisted of four free response questions, in which the participant was asked to respond to each question in five to seven sentences. The team was not

particularly concerned with what the participant wrote, but rather how the participant wrote it. The team did not score responses based solely on content, but was more concerned with the presentation, organization, and structure of the written sample, in addition to how coherent the respondent's thoughts were in the response. The responses to these questions were graded according to specific criteria. Unlike the multiple choice section which focused on perception, the participants' actual skills were assessed in the free response portion of the survey. The team attempted to include questions covering a variety of topics, including questions about quotations, personality, communication, and society. The free response questions used in the survey are listed below:

1. Rate your communication skills, both oral and written, on a scale of 1 to 10, with 10 representing excellent communication skills. Give one example from your past experience that demonstrates the selected number is accurate.

2. Describe your best talent and how it benefits you or others.

3. "Most people are about as happy as they make up their minds to be. In other words, the personal level of satisfaction is entirely within our control. Happiness is not an accident but a choice" – Is happiness something over which people have no control, or can people choose to be happy?

4. What do you consider the single most important societal problem today and why?

Following the completion of the survey, the participants were given the option to be entered into a raffle to win a $25 cash prize. Survey participants were also asked to aid further research by agreeing to participate in an in-person interview. If the participant was interested in this opportunity, he or she was asked to provide a contact email address after completing the

survey. The team used this information to promptly contact potential interviewees and set up a time for the interview session. The incentive for the in-person interview was a cash prize of $50 for dedicating extra time to the team's research efforts.

In the study, the graders were blinded from connecting the participants' written and self-perception responses with their demographic data. For example, the graders were unaware of the following information when grading: name, type of school, gender, ethnicity, occupation, or SAT scores. Each participant was assigned a number that was connected with their responses to keep their answers confidential. One of the team members extracted the data from surveymonkey.com and distributed it to the other team members. Any references to the type of school that would increase the graders' bias was eliminated. For future studies, it would eliminate the bias even more if a completely uninvolved party extracted the data so that even the team member who was originally extracting the data would not know the type of school or other connecting information.

Short Answer Rubric

In order to evaluate the participant's written skills, a rubric was used to grade each written answer. Because researchers must receive training in order to evaluate using an existing rubric, the team decided that it would be most beneficial to research existing rubrics and create an original one specifically for the study. It should be noted that this decision may reduce the ability to generalize the findings of this study.

After extensive research online, the team created a rough draft written rubric that included six criteria categories: content, organization, purpose, voice/tone, sentence structure, and word choice. Under each of these categories were three bullet points, each describing a different aspect of that category. For example, under voice/tone, one bullet point would discuss

how compelling the participant's responses were, and other bullet point would discuss the level of maturity and professionalism of the writing (see Appendix A).

The categories were originally rated on a one to three scale, one being emerging, two being developing, and three being advanced. For each aspect, or horizontal row of bullet points, the rater would choose the scoring from one to three. Therefore, the highest score a participant could receive was 54 and the lowest was an 18.

Next, the team sent out the rubric to a number of experts including the team librarian, Mr. Timothy Hackman, statistical analysis mentor Courtenay Barrett, and other individuals in the field of communications. While awaiting feedback, the team began to test the inter-rater reliability of the rubric, defined as the degree to which different raters give consistent estimates of the same phenomenon (Research Methods Knowledge Base, 2006). A rubric should be written so that any person could look at the response to a question and be able to score the response fairly accurately based on the rubric criteria. In order to decrease the variation of scores and to prevent possible problems when analyzing the data, the team used responses from the pilot test to determine the effectiveness of the rubric.

After scores from the pilot test were obtained, the team entered the results into the Statistical Package for Social Sciences (SPSS). Once entered, the team could view the mean response per participant, per question, or per rater. The team also looked at the variances and standard deviations for each of these categories. The results of this scoring, as well as its statistical analysis, are provided in the Results portion of this paper.

After many rounds of scoring multiple responses from different participants, the team realized there was a lack of inter-rater reliability. Oftentimes, two or three members of the team would agree, while others selected very different scores. Much time was spent deliberating the

wording of the rubric, and why one response should receive a 3 instead of a 2, for example. Drastic changes were required for the rubric, but the team had a solid foundation. The assumption was verified when the team received feedback from the experts. One expert suggested that the team expand the scale from one to five, allowing for more variability within the individual raters, but eventually narrowing the variability between the different raters. Also, the expert suggested that the team decrease the number of bullet point criteria because many of the aspects overlapped with one another and left the rater confused as to the distinction between criteria.

With that, the team improved upon the written rubric (see Appendix I). The scale was changed to extend from zero to five. An advanced writer who has exceptional command over the written English language would receive a five. An average writer would receive a three. One is the lowest score that a participant can receive if he answers the question in an appropriate manner and to the best of his ability, but simply does not have acceptable writing skills. The team added a "zero" column to account for unconventional circumstances, such as inappropriate or one-word answers, vulgar language, or a response that is completely unrelated to the topic at hand.

Along with the scale modifications, the revised rubric has less bullet points that are more specific and less repetitive. For example, the content criteria still has three bullet points: one addressing the relevance of the information provide, another relating to the use of examples in the response, and a third examining the effectiveness of the provided information in supporting the topic. However, word choice only has two rows of bullet points: one for level of vocabulary and one for grammar proficiency. Therefore, for a given question, the participant can receive a high score of 65 and a low score of zero. The team members again tested for inter-rater reliability

on the revised rubric, and achieved greater success in limiting the variability of the response grading. The data obtained through the additional trial use of the rubric was entered into the SPSS software, with the results of this analysis provided in the Results section of the thesis.

Creating an acceptable rubric was an essential part of the research project because the team would have skewed and inaccurate data otherwise. In addition, as evident in the following sections, the development of this rubric was helpful in creating the interview evaluation rubric. With the reliability of the short answer rubric firmly established, and with the understanding that the target population of both the survey and interview portions of the study are the same, the team was able to keep this population in mind and make use of the short answer rubric to develop the interview evaluation rubric.

Interviews

The second phase of the methodology consisted of an in-person interview with the participants who provided their contact information at the end of the online survey. The interviews helped the team fully measure the participant's set of communication skills. This portion of the study was especially important because both written and interpersonal skills are necessary in the workforce. Most employees interact directly with their colleagues on a regular basis, so this is a key aspect of answering the research question. Similarly, most individuals have to go through an interview process to obtain a job. The interviews were geared primarily towards Towson University, the University of Maryland and Gallaudet University. Because of the large geographic distance between Rochester, New York and College Park, Maryland, it was not feasible within the scope or budget of the research to conduct interviews at NTID.

To set up the interviews, the team had to coordinate with the participant, their university, the University of Maryland, and the interpreters. The survey respondents, who put their email

address down to indicate a potential interest to participate in the interview portion of the study, were contacted during the Fall semester of 2009. The interview portion of the study was incentivized with a cash prize of $50 at each university. The students who responded had to give the team their time availability, so that the team could have two members attend the interview. Afterwards, the team contacted the students' universities to reserve a room on campus in which to conduct the interviews.

In order to conduct the interviews, the team had to hire interpreters. After getting in touch with the Department of Speech Services at the University of Maryland, the team was able to request an interpreter for the interviews.

The participants were asked to be videotaped during the interview so that the rest of the team could view and grade the responses. Thus, along with a general research consent form, they had to sign and date a videotape consent form (Appendix L). With two team members present at the interview, one read the script and asked questions, while the other one videotaped.

The actual format of the interview resembled a mock job interview. First, the interviewer began with a few warm-up questions about the participant's school or job (depending on whether he/she was an undergraduate or graduate student). Then, the interview progressed into the main section, where the interviewer asks eight behavioral interview questions (Appendix D). This requires the interviewee to draw on prior experiences and examples in answering the question. Through both the survey and interview, the team hoped to fully research and analyze the written and interpersonal communication skills of the participants.

To obtain the aforementioned research objectives, the team chose to conduct a series of semi-structured interviews. This interview structure allowed the researchers to ask follow-up questions and converse with the participants over key points, while still giving the study

consistency. Considering the unique communication styles of the participants and the necessity

to have a standardized interview script, both for analysis purposes as well as to meet IRB

standards, the semi-structured interview effectively satisfied both criteria.

Following the development of the interview script, members of the team contacted

participants and traveled to participants' respective universities; actual time spent with

participants was limited to one hour per participant. If the participant communicated through sign

language, or for any other reason required an interpreter, the team provided one for the interview.

Interpreters for these persons were hired through the Department of Speech Services at the

University of Maryland. Using interpreters from this institution allowed for ease of payment by

working within the University of Maryland system, as well as greater consistency in the

background and skill of the interpreters.

The interview structure, as mentioned previously, was a semi-structured interview

modeled after a mock job interview format. Essentially, the purpose of this interview style was to

gain basic insight into the way an individual's professional potential, i.e. their experiences in a

professional setting, or their strengths and weaknesses as an employee in such a setting. While

these responses provided insight into the work habits of D/HH individuals, information that was

relevant and useful to the study, the way in which the participants answered these questions was

more important to the study. After conducting research to identify patterns of common interview

questions and the style of these questions, the team was able to prepare a list of eight interview

prompts that were used as the main structure of the interview (Interview Questions –

Behavioral). These questions are outlined below:

> 1. Tell me about a time when you had to adjust to a classmate's or colleague's working
>
> style in order to complete a project or achieve your objectives.

2. Tell me about a time when you had to make a decision without all the information you needed. How did you handle it? Why? Were you happy with the outcome?

3. What tricks or techniques have you learned to make school or a job easier, or to make yourself more effective? How did you learn that?

4. What has been your experience in giving presentations to small or large groups?

5. Describe a situation when you had to work as part of a team to achieve a result. What was your specific role (leader or otherwise)? What did you do? How did you do it? What was the result?

6. Give an example of when you had to work with someone who was difficult to get along with. How/why was this person difficult? How did you handle it? How did the relationship progress?

7. Would you rather write a report or give a presentation? Why?

8. Tell me about a time where you had to adjust to a new culture or environment? What did you do to ensure a successful transition?

The team noted that while a few of these questions targeted the D/HH populations more directly, such as questions four and seven, most of the questions were general in nature and exemplified what one would expect to see in a real job interview. As noted previously, the team believed that utilizing such a structure would give the best insight into both the efficacy of the participant's communication skills in the workplace while simultaneously providing insight into their personal experiences and preferences in the workplace.

Interview Rubric

In much the same way that an evaluation rubric was constructed by the team for use with

the free response portion of the online survey, the subjective nature of a face-to-face interview required that a similar evaluation tool be developed in order to obtain statistically viable and statistically significant data. The development of this tool shared a number of similarities with that of the written assessment rubric, and will be discussed thoroughly below. Through the use of a properly designed tool, all members of the team were able to evaluate the performance of each interview participant in order to form an overall assessment of their interpersonal communication skills in a face-to-face environment. As mentioned previously, the team considered evaluation of such skills important since interactions of this type constitute a major portion of communications in both academic and professional settings. Through the interview process, the team wished to establish a greater understanding of how D/HH individuals communicate, and how their face-to-face communication skills compare with the written skills tested in the survey portion of the research.

Development of the interview rubric began by brainstorming the most important categories in a personal communication experience, and by trying to define the criteria of these categories that define a proficient communicator. Initially the team defined the categories as the following: Subject/Verb Effectiveness, Organization, Eye Contact, Style, Body Language, and Attitude and Energy. For each of these areas of interest, the team then attempted to define the most important criteria for a communicator to be considered proficient in each of these categories. In order to maintain consistency, the initial interview rubric used three criteria for each of these areas, and then made use of a one-to-three scale in order to be able to grade the participants' abilities as they pertained to each of these criteria, with three being the highest skill level (advanced) and one being the lowest skill level (emerging). With this system in place, the maximum that a strong communicator could achieve was a score of 54, while the lowest was a

score of 18.

After this initial design, the team then met in order to discuss overarching problems within the rubric, including flawed or ambiguous text descriptions, potential scoring problems, and foresight into how the team would treat answers that were either inappropriate or irrelevant. Many of these discussions were prompted by events taking place with the development of the written rubric, a process which preceded the development of the interview rubric by several months, since the survey portion of the study was being conducted before the interview portion. After making several rounds of edits to the interview rubric, a product ready for expert criticism was prepared and sent to various experts, including the team-specific librarian, statistical analysis mentor Ms. Courtenay Barrett, and several experts in the field of communications. Upon receipt of constructive criticism of the drafted interview rubric, along with accompanying suggestions for improvement, the team members met again in order to revise the rubric to a more professional and viable form. A series of changes followed to produce a rubric that was ready for pilot testing and inter-rater reliability testing.

The final product of these alterations revealed several key changes to the initial rubric layout, in addition to minor language changes to clarify meaning of the various descriptions in the rubric. The final interview rubric is comprised of five areas of interest: Content, Organization, Delivery/Language, Body Language, and Attitude and Energy. Due to redundancy in the initial rubric design, where three criteria were required for major factors of interest, the new rubric used a varying number of criteria for each of the rubric categories. While Content, Body Language, and Attitude and Energy were each comprised of three criteria, Organization and Delivery/Language were only comprised of two. Additionally, the grading scale changed to a range of one to five, with five being the highest (most proficient) and one being the lowest

(least proficient). The end-result of these changes was a concise rubric that more accurately targeted each category of interest in the interview process, and in interpersonal communications in general.

After developing a concise rubric, the team then adapted the rubric to a more useable form by transferring it to a Microsoft Excel format, which allowed for easier tabulating of the results through reference programming within the file. The use of Excel also allowed for easier electronic storage of the interview results.

Pilot Testing

In order to ensure that the questions of the online survey were structured properly, asked the correct information, and were not vague in any way, the team prefaced the actual online survey with a pilot test. This pilot test was conducted amongst two groups of students, both from the Gemstone undergraduate research program at the University of Maryland. The first group tested was a group of freshman students enrolled in the class Gemstone 100: Introduction to Gemstone. The team chose this group of students as one focus group due to the ease of contact between researcher and student. While the team realized that this group of students did not meet either of the conditions for participation in the study (hearing loss and level of education), the team was able to obtain valuable feedback in regards to the clarity of the survey without infringing upon the small target population.

The second group of students involved in the pilot study was comprised of upper class Gemstone students. These participants, although hearing, brought the team closer to the target demographic in age and undergraduate years of experience. In this case, the Gemstone staff sent an email via listserv to the students asking them to participate in the pilot test.

The pilot test was conducted over the course of three weeks and received a total of 86

responses. These responses allowed for tweaking of several areas of the online survey, as well as for calibration of the rubric used to evaluate the written responses in the online survey. After collecting the survey responses, members of the team spoke with some of the participants to receive their feedback on the survey. Using this feedback, the team made small corrections to the survey, such as grammar and re-wording, in order to clarify certain questions. The team also discussed which questions should or should not be mandatory and made adjustments to those as well. The pilot test was a useful tool, resulting in more accurate data collection and analysis by targeting problems and solving them before conducting the actual study.

In much the same way that a pilot test was run in order to establish inter-rated reliability and efficacy of the short answer assessment tool, a similar pilot test was conducted in order to prepare for the actual interviews that the team was planning to conduct. This pilot test process ensured not only that the assessment tool achieved the level of accuracy that the team required, but also ensured that the interviews were not confusing in any way and that the questions asked through the interview were substantial enough to warrant responses that would allow the team to assess the participants communication skills.

In order to perform this pilot test, the team again targeted two groups of students. The first group was comprised of several senior level students who work in the Center for Health and Wellbeing at the University of Maryland. The second group included peers of members of the team. While the team acknowledged that these two groups did not directly address the demographic of D/HH individuals, such a small population as this was not readily accessible for a pilot test, since the number of real participants was already very limited.

The team was then able to conduct eight interviews for the pilot testing of the interview rubric. Conducting these interviews aided the team in three primary ways. First, they allowed

members of the team to become more comfortable with giving the interviews in person, so that when it came time to conduct the interviews for the study, there would be a greater level of comfort. By not appearing hesitant or nervous in the interview process, both the person giving the interview as well as the participant were able to more freely express themselves, thus resulting in more accurate data pertaining to communication abilities.

Secondly, the pilot test interviews brought to attention several ambiguities of the interview script that were previously not noticed. Slight grammatical changes were made to the text of the script, not altering any of the information being asked or the focus of the interview, and a more effective interview script resulted.

Finally, and most importantly, the pilot interviews allowed the team to practice using the interview rubric to assess the communication skills of survey participants. This practice allowed the team to assess its inter-rater reliability, thereby ensuring that the team would properly and consistently assess the actual interview. In addition, the pilot test revealed any last-minute alterations to the language of the rubric that needed to be changed.

While the pilot interviews helped the team prepare for the actual interviews, it is important to recognize the possible differences from the real interviews. Firstly, the pilot participants were not deaf or hard of hearing, providing a very different experience from the actual interviews. Additionally, the students who were involved in the pilot testing might have been more comfortable with the interview process, as opposed to the real participants for a few reasons. For example, pilot study participants might have been more at ease due to the experimental nature of the experience and the casual environment of the interview. Nevertheless, the team did not expect there to be any differences in scoring the pilot and actual interviews with the rubric.

Overall, the pilot testing processes allowed the team to prepare for conducting and evaluating the actual survey and interviews collected as part of the study. Properly evaluating the written and interview responses was amongst the most crucial aspects of obtaining accurate data, and thus meaningful conclusions in the greater scope of the project. Without the level of accuracy established through these pilot tests, any conclusions obtained through the study would have questionable validity.

Chapter 4: Results

This chapter shall display and discuss the results of multiple sections of the team's research. The five sections include: (1) multiple choice survey demographic data and self-perception of communication skills, (2) evaluation of the pilot test for the written short answer portion of the online survey, (3) evaluation of the actual written short answer portion of the online survey, (4) evaluation of the pilot tests for interpersonal communication through mock job interviews, and (5) evaluation of actual study participants' interpersonal communication through mock job interviews. While the team conducted the pilot tests using hearing individuals, it is imperative to analyze these results to ensure validity within the inter-rater reliability and to account for any natural deviations between graders when evaluating deaf and hard of hearing individuals. The following chapter will analyze these results in further detail and draw conclusions to recommend areas of further study.

General Demographics

From February 2009 to November, 2009, the team distributed advertisements for the online survey at Gallaudet University, National Technical Institute of the Deaf at Rochester Institute of Technology, Towson University, and the University of Maryland. Two rounds of recruitment were used (about a three month span in between) to attract new participants and to entice those participants that may have received notification but had not completed the survey. After the final data collection in November, 2009, 30 individuals had completed the survey. Of these participants, 14 hailed from Gallaudet University, 1 from NTID, 4 from Towson University, and 11 from the University of Maryland, as seen in Figure 1. This resulted in an even number of 15 participants from mainstream universities and 15 participants from specialized universities.
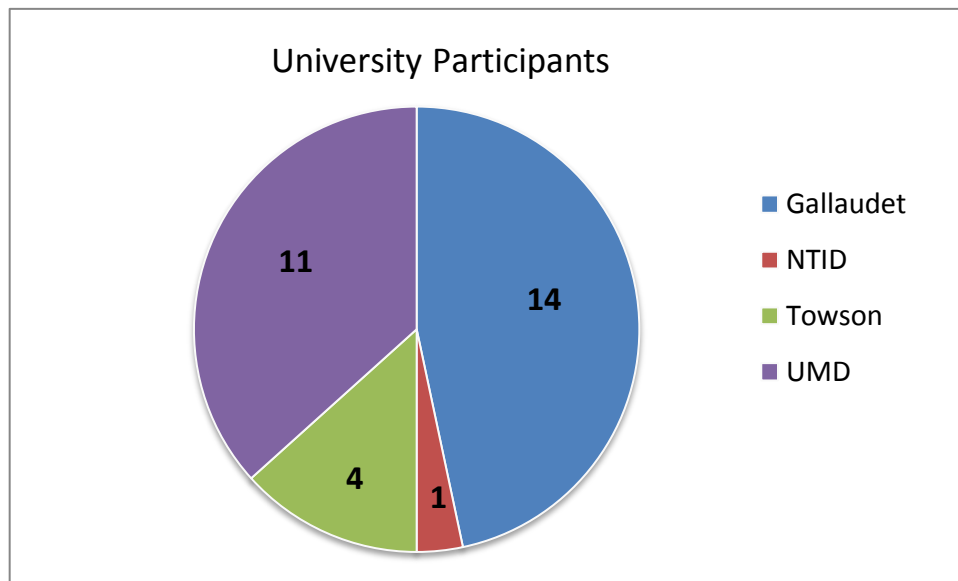
Figure1.Breakdown of study participants by university attended

Nine of the respondents identified themselves as female, one identified as a male, and twenty respondents chose not to specify. The youngest participant was 21 years old, with the oldest being in their 40s. The mean age of the participants was 33 years. Regarding ethnic background, seven participants answered "Caucasian, not Hispanic," one identified as "Black or African-American," two identified as "Asian" and 20 chose not to respond to the question.

Academic Demographics

In addition to ethnic and gender data, the participants were also asked about their academic interests and talents. The participants majored in a wide range of subjects, including: information technology, nursing, mathematics, economics, theatre, psychology, art, deaf studies, epidemiology, and recreation. Therefore, the results collected are representative of a wide range of interests, and do not apply only to students of specific or 'traditional' majors.

The SAT scores of the participants were also requested in order to analyze correlations between those scores and the scores given through the written evaluations. However, many of the participants responded that they did not recall their SAT scores since they had not taken them

recently. For those participants that did provide their scores, the verbal scores ranged from 450-770 on a scale of 800. The highest writing score reported was 780 out of 800 points. The results show that the participants possess a wide range of scores; this is an indication that the data collected is not biased toward especially good or bad test takers.

To understand the correlations between the participants' daily activities and their communication skills, the participants were requested to provide their current employment status; whether they are a full-time student, full-time employee, or some status in between. The breakdown is as follows: full-time student (5 participants), part-time student (1 participant), full-time employee (2 participants), part-time employee (3 participants) and not in school or the workforce (1 participant), as seen in Figure 2. Twenty participants elected not to respond to this question.
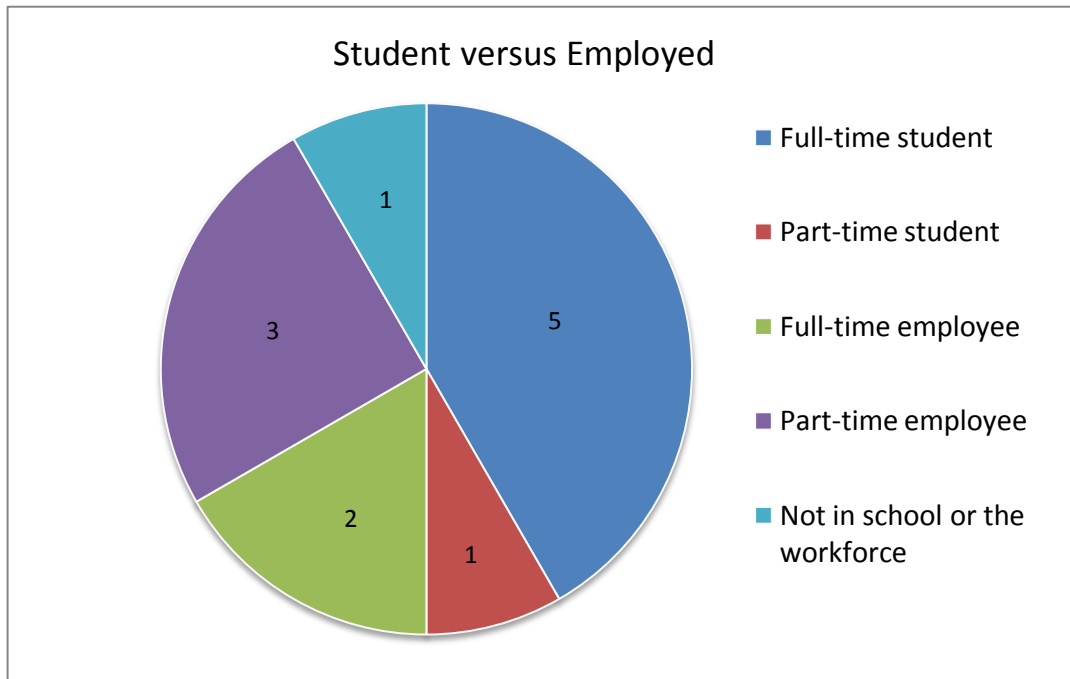
Figure 2. Current status of participants: students versus employed

Communication Demographics

Collecting data relating to the participants' level of hearing loss is essential to correlating these characteristics with both written and interpersonal communication skills. The team focused on areas such as age of onset, use of cochlear implants, and level of hearing loss in order to gain as much knowledge concerning participants' conditions as possible. In addition, the team inquired about primary modes of communication and what types of assistance the individuals use to make their learning and communication techniques more effective during their daily routines.

An individual's degree of hearing loss can greatly affect their communication skills. Although one's degree of deafness is not a direct indicator of communication styles or abilities, such information is nevertheless relevant to analysis of the study's participants. Seven of the individuals who responded to the survey chose to disclose their degree of hearing loss as shown in Table 1.

Level of Deafness	Decibels (dB)	Participants
Profound or Total	90+	4
Severe	71-90	2
Moderately Severe	56-70	1
Moderate	41-55	0
Mild	25-40	0
Unsure	N/A	2

Table 1. Level of deafness of participants

As one can see, two participants selected profound or totally deaf, while three of them selected "severe" or "moderately severe". Also of interest is that, while some participants know that they have hearing loss, some of them are unsure or cannot recall their level of hearing loss. This raises several areas of interest for a study of the deaf and hard of hearing population, and makes a case for the need for increased personal awareness. For example, if individuals were more aware of their degree of hearing loss, they could potentially use this information to benefit

their own communication skills through the acquisition of assistive technologies. In addition, if they chose to disclose their degree of hearing loss to schools and/or employers, these parties could likely use this information in order to be more accommodating to the deaf or hard of hearing individual.

The types of assistance that the individuals use are of interest as well. A variety of accommodations are available to deaf and hard of hearing students and employees to make them more effective listeners and communicators in class or in the workforce. Most students use interpreters and many of them choose to use hearing aids as well. In this study, one of the interviewees reported that they specifically ask their professors to repeat any questions or responses given by other students. The reason for this is because if the student who is deaf or hard of hearing is sitting behind the individual who had asked the question, he or she would not be able to know what has been asked by a fellow classmate. Less frequently used is the cochlear implant, a modern technology that greatly improves hearing capabilities. There are specific requirements for who can receive an implant, making this technology sometimes unavailable or unaffordable to deaf or hard of hearing individuals due to the high cost of the procedure. Conversely, some simply choose to not use this type of accommodation so they can remain more in touch with the Deaf community. The following chart shows a breakdown of the accommodations used by the participants.
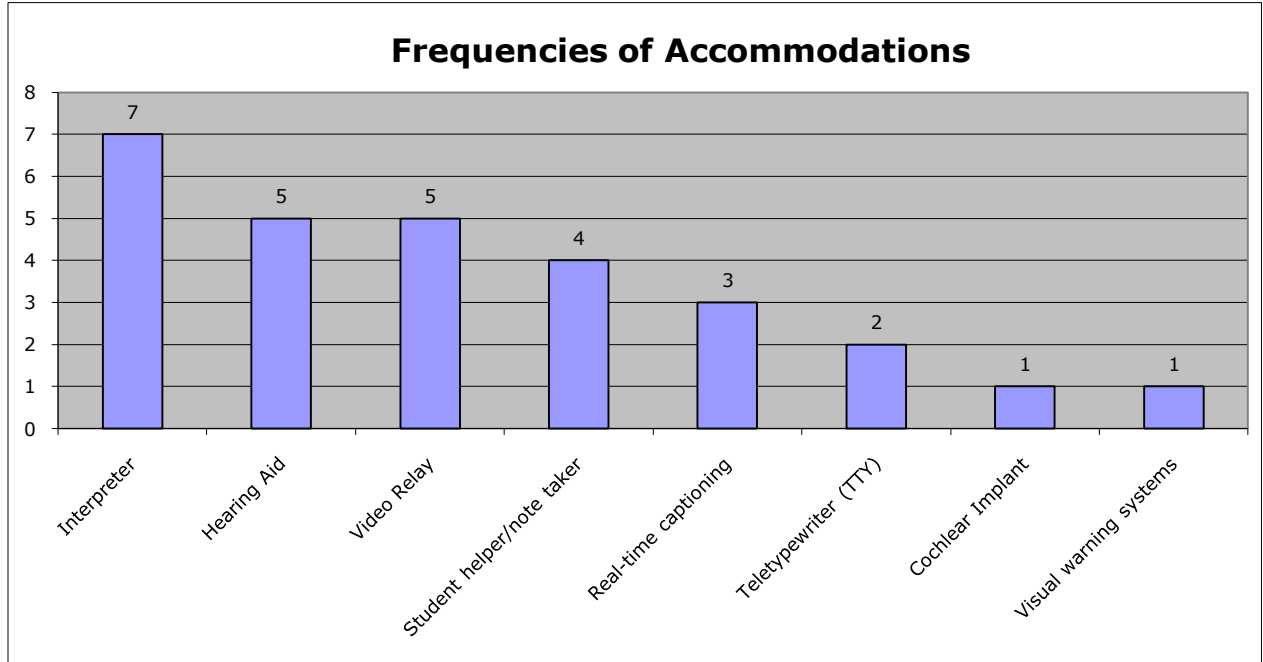
Figure 3. Accommodations of the participants utilized in learning/interacting with hearing counterparts

Background Demographics

Individuals with hearing loss can grow up in a variety of settings, which may significantly affect their communication skills. For example, one individual may be in tune with the Deaf culture, surrounding him- or herself with other individuals of the community and joining organizations and clubs that promote this culture. Another individual may have hearing family members and be raised around other hearing individuals, having little interaction with other D/HH individuals. While it is not suggested that one upbringing or the other fosters more effective communication skills than the other, as this is outside the scope of this study, numerous studies have shown that the type of family culture, as well as communication techniques used within the family, can have definite effects on an individual's communication styles and abilities.

In this study, the participating individuals were able to share a breadth of experiences from their different backgrounds: some participated in activities only with other D/HH persons,

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some surrounded themselves only with individuals without hearing loss, and some mixed the two groups. One individual had "classes, conferences, meetings, and work" with other hearing individuals, but responded "none" to activities with other individuals with hearing loss. Contrarily, another participant was involved in the "Deaf Academic Bowl" and "cheerleading squad" with D/HH students, but did not participate in activities with hearing students. When asked, "What extracurricular activities, if any, have you participated in that involve(d) hearing students," one respondent answered, "My life. My family is hearing so it's what I grew up with. I've played sports, did school, dated with hearing."

Family Demographics

The background of one's family can have a major impact on their communication style and even the type of university they chose to attend. The team inquired about the amount of assistance the students received from their families when completing schoolwork. During their secondary school careers, respondents did not suggest a significant difference between the amount of assistance received for those who attended either specialized or mainstream schools. Only one student required eight or more hours of assistance a week. The amount of schoolwork assistance received during high school is shown in Table 2.

Hours/Week	Specialized	Mainstream
0 to 1	2	2
2 to 4	1	2
5 to 8	1	1
8+	0	1

Table 2. Mainstream versus Specialized: Hours per week of aid from families in high school

In contrast, once the individuals moved onto the collegiate level, a difference arose between the amount of homework assistance students received at specialized and mainstream universities. The next chart shows the assistance students received from their families during their college careers. While in high school, only two students in mainstream schools required little to no assistance. However, this number increased to nine responses for students at mainstream universities, and increased to four responses for students at specialized universities. The remainder of participants received between two and eight hours of assistance weekly, as shown in the chart below.

Hours/Week	Specialized	Mainstream
0 to 1	4	9
2 to 4	3	0
5 to 8	3	1
8+	0	0

Table 3. Mainstream versus Specialized: Hours per week of aid from families in college

This does not suggest that specialized students are less capable of performing well without assistance compared to mainstream students. There are several possible reasons for this shift from high school to college. First, specialized universities may foster an atmosphere encouraging its students to communicate with their families, while mainstream universities put less emphasis on receiving help and more emphasis on individual performance. Secondly, the question phrased in the survey only asked about family involvement. It could be that mainstream students are still receiving the same, or an even greater amount of assistance, but are turning to other resources such as classmates or campus learning centers. Causation is not assumed in this relationship between the type of school and the amount of assistance, but this interesting trend is noted and indicated, and could be cause for further investigation.

Communication Self-Assessment

After taking an in-depth look at the demographics of the sample, the participants were asked a series of questions asking them to rate their own communication skills. The participants were presented with twelve objective statements regarding different types of communication, and were asked to rate how they felt about each statement in regards to their own skills. The choices were on a five-level Likert scale, with the options indicated in Table 4.

Value	Option
1	Never
2	Sometimes
3	Average
4	Often
5	Very Often

Table 4. Five-level Likert scale options

The 12 objective statements are listed below for reference in this section.

Statement 1: When other people speak to me, I am attentive and try to listen and understand what they are saying.

Statement 2: When I do not understand what another person is telling me, I ask that person to explain the meaning.

Statement 3: When I disagree with what a person is saying, I do so respectfully and in the spirit of constructive criticism.

Statement 4: I enjoy discussing issues and hearing other people's opinions.

Statement 5: When I speak to someone from another culture, I am aware that body language and manner of speaking might differ from my own.

Statement 6: When I speak to someone whose first language is different from my own, I try to communicate clearly and listen attentively.

Statement 7: When I am writing something, I think about who is going to read it, and why I am writing it.

Statement 8: I calmly consider the constructive comments of others about my writing.

Statement 9: When I have written something, I read it back to myself to be sure I said what I wanted to say.

Statement 10: I enjoy reading information and reading what other people have to say about something in which I am interested.

Statement 11: I know how to search for information that I need.

Statement 12: When I search for information, I make sure I have a clear idea of what I want to find out.

On a basic level, this data is valuable because this information can give a snapshot of how the individual students view themselves and their own communication skills. For those students who completed the short answer and interview portions of the study, their survey responses can be compared with the performance scores they received on the short answer and/or interview portion of the study to see how closely the perception of their communication skills matches the actual effectiveness of their communication as graded by the given rubric. Out of the 30 survey respondents, 15 of them answered all of the self-assessment questions. The following graphs provide overall examples of the types of questions asked and how the sample responded as a whole.
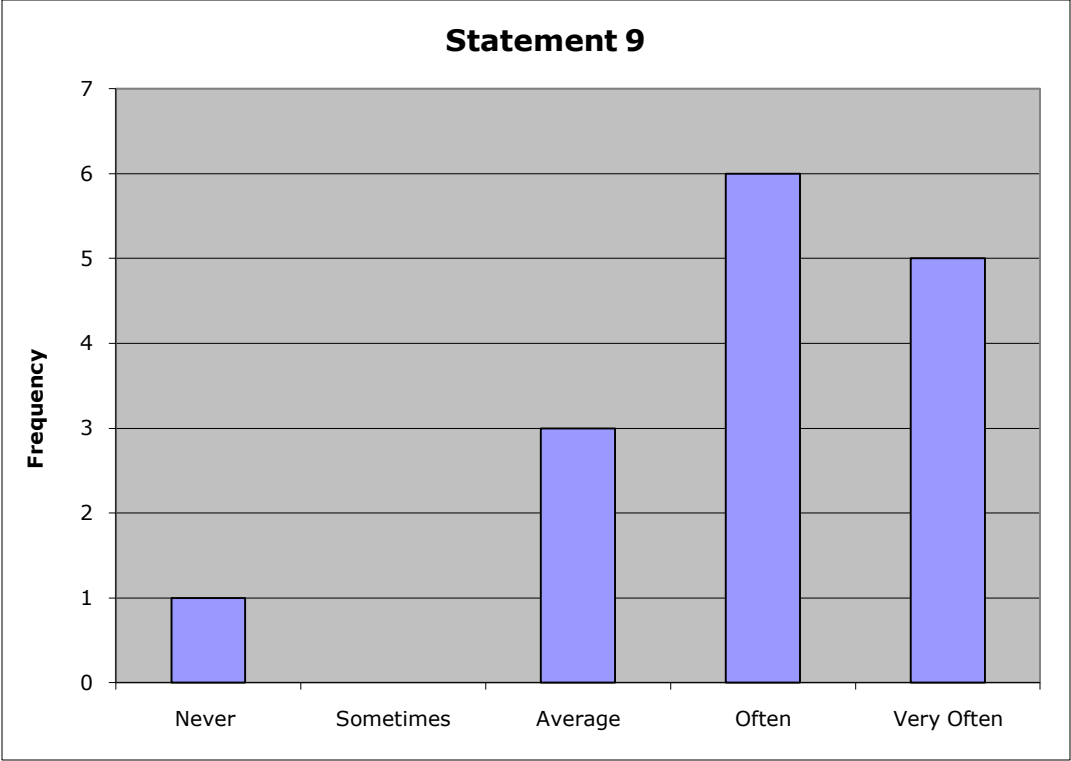
Figure 4. Participant responses to statement 9
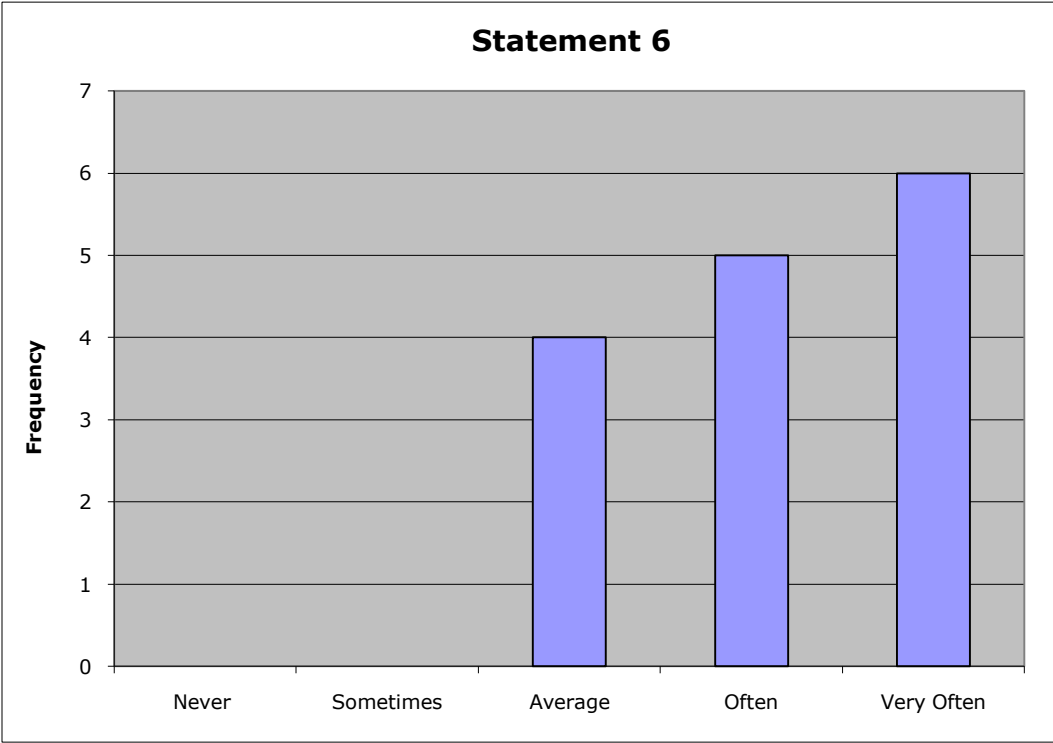
Figure 5. Participant responses to statement 6

Overall, the students rated themselves fairly highly in terms of their own perception of their communication skills. Only one student chose the answer "never" and this was only to a single question (see Figure 4). A full list of the objective statements can be found in Appendix E. There were several interesting trends when analyzing the sample as a whole. In those questions that involved only the individual, such as editing their own work or searching for information when researching; students rated themselves lower than statements that involved understanding another person. In those statements that discussed cultural or language differences, such as the example above, the students rated themselves toward the higher end of the Likert scale. This may be because they are keenly aware of the communication differences between individuals based on their personal experiences.

There were two individuals who completed all sections of the study: demographics, communication self-assessment, short answer, and interview. The team was able to track their scores throughout the entirety of the study to compare their self-assessments with their actual communication skills. The following charts display their individual self-assessments, which can later be used to compare with their actual scores on the short answers and in the interview.

Statement Topic	Response From Participant 2	Response From Participant 16
1. Attentiveness	4	5
2. Understanding	4	4
3. Disagreements	4	3
4. Discussions	4	5
5. Cultural Differences	5	5
6. Language Differences	4	5
7. Writing Purpose	3	3

8. Constructive Criticism	4	4
9. Editing	4	5
10. Reading	3	5
11. Information Search	3	5
12. Information Search Purpose	3	5

Table 5. Interviewee self-assessment scores

To further prepare for the following discussion concerning the two individuals who participated in the interview portion of the study, Figure 6 is provided indicating the frequency with which each participant ranked their communication skills.
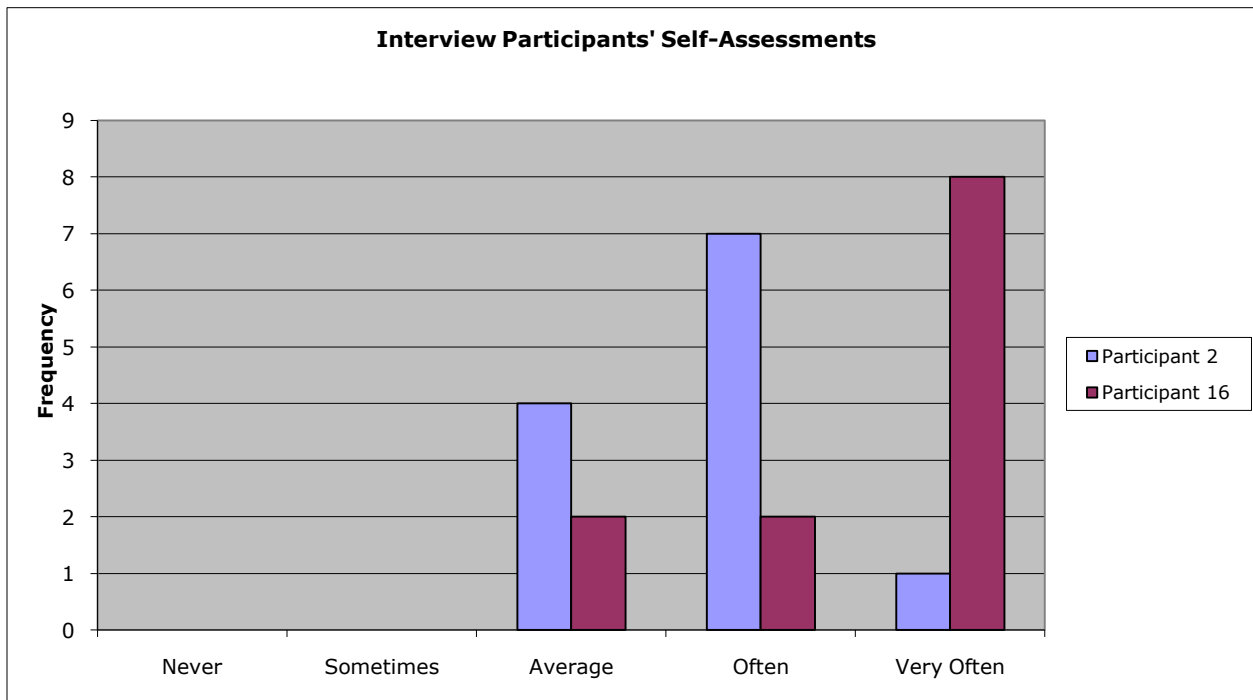
Figure 6. Self-assessments of the interviewees

As indicated in the figure above, Participant 16 ranks him/herself marginally higher in communication skills than Participant 2, but both participants perceive themselves to communicate fairly effectively. The following sections will highlight their interviews and short

answers, as well as the short answers of other participants.

Pilot Test for Written Communication Evaluation

In the Fall 2008 semester, University of Maryland students were recruited to be participants to pilot test the study survey. As already mentioned, the main purpose for conducting a pilot test of the survey was to ensure that the short answer evaluation rubric possessed inter-rated reliability, and that the other portions of the survey were not confusing or misleading for participants and provided the necessary information to the researcher. Invitations were sent out to students to participate in the online pilot survey on Surveymonkey.com through the Gemstone Program's listserv. Forty-six students, ranging 17 to 22 years of age from the University of Maryland, participated in the pilot study. The participants provided feedback that allowed the team to make necessary alterations to the survey in order to clarify and increase the effectiveness of this research tool. SPSS software was utilized in order to analyze the written responses of five participants and note the correlations between the scores assigned by each team member. Such skills were aptly evaluated through the use of the constructed short answer evaluation rubric (see Appendix I).

This analysis was possible by examining the coefficients of variation for each question for the three participants who fully answered all four of the written questions. This metric allows the teams to make comparisons between the participants' variations, because it standardizes the values of the means and standard deviations. A low coefficient of variation (CV<1) means that the group's scores were close and thus showed that the rubric has the desired inter-rater reliability.

Throughout the scores for all four questions for participants 8, 11, and 12, the lowest coefficient of variation was 0.0559 for participant 11's answer to question 29. On the other hand,

the highest coefficient of variation was a 0.1832 for Participant 12's answer to question 26, which is still a relatively low statistic. The rest of the coefficients of variation for the evaluated responses are represented in Table 6.

Question	Participant	Mean	Coefficient of Variation
26	8	46.33	0.065
	11	40.67	0.1362
	12	32.83	0.1832
27	8	45	0.1080
	11	39	0.1776
	12	38.17	0.1360
28	8	45.67	0.0688
	11	40.5	0.1403
	12	39	0.1214
29	8	42	0.1405
	11	38.67	0.0559
	12	33.5	0.1080

Table 6. Means and Coefficients of Variation

Although consistency in scoring improved with later questions, the group scored all of the participants separately instead of scoring the responses by questions. As more scoring continued with the pilot tests, the coefficients of variation should ideally have decreased. On the contrary, as can be seen from the chart below, the coefficients of variation for each participant went from a few in the 0.06 range for participant 8 to a bit higher for participant 11 and then finally all coefficients of variation were above 0.1 for Participant 12. However, considering that a distribution is not considered high-variance until the coefficient of variation is above 1, the graders results were low-variance and therefore the rubric can be deemed a viable tool.

Participant	Question #	CV
8	26	0.065
	27	0.108
	28	0.0688
	29	0.1405
11	26	0.1362
	27	0.1776
	28	0.1403
	29	0.0559
12	26	0.1832
	27	0.136
	28	0.1214
	29	0.108

Table 7. Coefficients of Variation

The statistical analysis also shows that participant 8 had the highest mean score of 44.75, while participants 11 and 12 had mean scores of 39.71 and 35.88, respectively. This shows that the group had greater unity for responses that were of an overall higher quality.

When referring back to the responses after the completed scoring of the pilot tests, the researchers found that the grades were fairly assigned. Participant 12's responses ranged from one to three sentences in length, and thus were of poor quality. Accordingly, these responses received the lowest scores of the participants evaluated. For example, in answering question 26 that asks the participant to rate their communication skills, the participant wrote:

> 9 I became president of my class for three years based on the speeches I gave (at least part of it) I was selected to present in intro to the school's Holocaust seminar

This entry omitted the period at the end of the sentence. While it provides valid examples, it does not explain how the participant communicated the speech to the rest of the school, or why these examples justify their rating of nine. On the other hand, participant 11 gave a more elaborate

answer to the same question:

> My communication skills would probably be an eight out of ten. When communicating orally, I tend to mumble a lot and there are man times when people do not hear or understand what I am saying. There really isn't a specific past experience, but rather a bunch of instances when my mumbling has caused confusion. Communicating through writing is a different matter. I feel like I can express my ideas pretty effectively through the word. There's no need to worry about mumbling when it's on paper.

While there are grammatical mistakes and colloquial language present in the response, the reader can gauge a lot more from this response than from the previous one. However, participant 8 gave the most thorough responses to all of the questions. For comparison, in response to question 26, participant 8 responded as follows:

> I would rate my communication skills as an 8. I am very good with writing and premeditated speaking- not so much with communicating off the top of my head. I was Anne Frank last year in the school's production of "The Diary of Anne Frank." I was told many times how clearly I conveyed her character. I could communicate her emotions and her words to an audience. However, when it comes to class discussions, and even sometimes discussions with my friends, I find myself unable to clearly express myself; either I freeze up and lose what I was going to say, or I talk too much.

The provided explanations to the examples make the response stronger and more effective. Additionally, the proper punctuation and a more formal language give the response more clarity. Overall, one is able to tell that such a response is superior in quality and more capably communicates with the reader.

Pilot Test for Interpersonal Communication Evaluation

Pilot tests for the interviews were used to test the inter-rater reliability of the interview rubric and ensure that the interview script and questions were both clear and provided the necessary data for this study. The researchers interviewed eight individuals for the pilot test and individually scored their responses. Coefficients of variation for each participant's score

represented the differences in grading. Participant 1 was graded first, with scores ranging from 35 to 53 points. This yielded a coefficient of variation of 0.1715. As the team continued in their grading process and became more acquainted with the rubric, the coefficient of variation decreased to 0.0673 for the last participant. The lowest coefficient of variation of all participants was 0.0312 for Participant 6, with scores ranging from 53 to 57 points.

Participants' performance affected the coefficient of variation (CV) results amongst the team members. Out of the eight participants, the last three participants performed the best in the interview, and had the scores with the lowest CVs. On the other hand, participants with lower mean scores generally had higher CVs. For example, Participant 5 scored a mean of 24 points and had the highest coefficient of variation of 0.2058. Since it may have been more difficult to use the rubric to determine exactly "how poor" the participant should be scored, the teammates' scores were more distant from each other. Table 8 shows the coefficient of variation breakdown for each participant and every teammate's scores in order of the team's scoring pattern.

Participant	Grader	Mean	CV
1	A	38	
	B	52	
	C	47	
	D	53	
	E	40	
	F	35	
	Total	44.1667	0.1715
2	A	37	
	B	52	
	C	50	
	D	44	
	E	51	
	F	46	
	Total	46.6667	0.121
3	A	35	
	B	46	

	C	47	
	D	43	
	E	45	
	F	38	
	Total	42.3333	0.1135
4	A	32	
	B	46	
	C	43	
	D	48	
	E	47	
	F	34	
	Total	41.6667	0.1677
5	A	24	
	B	31	
	C	25	
	D	26	
	E	22	
	F	16	
	Total	24	0.2058
6	A	54	
	B	53	
	C	54	
	D	56	
	E	57	
	F	57	
	Total	55.1667	0.0312
7	A	53	
	B	57	
	C	55	
	D	57	
	E	55	
	F	59	
	Total	56	0.0375
8	A	48	
	B	52	
	C	50	
	D	56	
	E	49	
	F	56	
	Total	51.8333	0.0673

Table 8. Coefficients of variation of each question, by grader

Written Communication of Study Participants

The written evaluation section of the survey fell in between the communication self-assessment and the demographics section. The team asked the participants to write a short paragraph (5-7 sentences) in response to four analytical questions (see Appendix E). Nine of the thirty participants responded, for a 30% response rate within the group already participating. Some of the answers were quite detailed and met the length requirement, while others were as short as several words. The team considered these variations when evaluating the response using the short answer response rubric (see Appendix I), and designated a score of zero for specific criteria that were not gradable because of the brevity of the response. The following chart represents the overall mean score for each participant for all four essays (average of the four mean scores constituting the four questions), including the coefficient of variation of the scores given by the six graders.

Number	Mean	N	CV
2	53.13	24	0.1457
3	36.21	24	0.2128
6	35.79	24	0.3458
7	24.5	24	0.4708
9	26.67	24	0.3529
13	17.38	24	0.9581
14	34.88	24	0.4135
16	55.75	24	0.1385
17	41.79	24	0.2715

Table 9. Grade summaries of all written responses

The column "Number" simply indicates in which order the participants responded to the survey, indicating that, while there were 30 survey respondents overall for the study, not every participant chose to answer the short answer questions. The paper will detail each essay question individually in the following sections. Overall, the means range from a low of 17.38 to a high of 55.75, leaving a range of 38.37 points between the highest and lowest scoring writers. Each

participant receives an "N" of 24 because this is the number of individual scores they received: six scores from six graders over four essays. This was kept consistent throughout the project, with all six graders assessing each essay.

In addition, it is essential to look at the coefficients of variation (CV) in order to take into account grading bias and variation. For the written responses, the CV is 0.1385 over all four essays, with the highest being 0.9581. Looking at the CVs, there is no strong correlation between the CVs and the mean. Therefore, the graders were not any more or less consistent regardless of the effectiveness of the individual's writing capabilities.

Question 26

Participant	Mean	N	CV
2	50.17	6	0.1771
3	40.17	6	0.1096
6	38.17	6	0.1685
7	21.5	6	0.5033
9	36.67	6	0.1016
13	6.33	6	1.0652
14	25.5	6	0.2297
16	53.33	6	0.1885
17	46.67	6	0.1537

Table 10. Grade summaries of question 26

The first essay question is as follows: "Rate your communication skills, both interpersonal and written, on a scale of 1 to 10, with 10 representing excellent communication skills. Give one example from your past experiences that demonstrates the selected number is accurate." As mentioned previously, the graders evaluated the participants on the following criteria: content, organization, purpose, voice/tone, sentence structure, and word choice. Table 10 is a breakdown of the mean scores and standard deviations for Question 26.

The lowest score for this question was a 6.33, with the individual's response being a

single number, "10." Even though he did answer with only a number, because the rubric is followed objectively, the participant did not receive all zeros, but still received an extremely low score. For example, under the content criteria, a "0" would constitute "response information does not answer the question." Technically, the participant answered at least a portion of the question. Therefore, one grader allotted a "1" for this response, which corresponds to the rubric description, "Information is often unrelated or incoherent."

This participant was indicated to be an outlier, and therefore, the next lowest score would be a 21.50. The participant for this response answered as follows:

> My past experinece was diffucult because my communication skills was weak. No one have not taught what I need to instead I learn how to communication until college.

The above essay was copied directly from the survey with no changes made to the response. There are several errors within this response, including spelling errors, use of improper verb tenses, and an overall confusion created by the organization of the answer. In contrast, the highest score for Question 26 was a 53.33, with the following response.

> 9 out of 10. Oftentimes my written skills do exhibit a degree of proof that English is my second language or that I am not quite fluent in English. The problems tend to be with the "naturalness" of my English fluency-- where I am not aware of how it is supposed to sound, such as "why bother?" is permissible whereas "why go?" doesn't make sense to native English users. Because I am not fully immersed in spoken English, it is difficult for me to write as if I am speaking English naturally-- written English and spoken English are two different areas and I believe I am quite fluent in written English whereas my spoken English skills are rated a 8 or 7, depends on, say, how much idioms one is supposed to know to consider self as a native user.

Although this answer is not perfect, the rubric correctly evaluated that this participant has a much better grasp of the written English language than the previous participant. The individual specifically ranks their communication skills on a scale of 1 to 10, and then follows with examples of why they are an effective communicator. Additionally, the participant addresses

areas of improvement and compares their skills in both written and spoken English.

Question 27

Participant	Mean	N	CV
2	57.17	6	0.0737
3	33	6	0.1014
6	40.5	6	0.1197
7	31	6	0.3534
9	27.5	6	0.2251
13	0.83	6	2.459
14	47	6	0.1165
16	56.5	6	0.0843
17	27.17	6	0.3471

Table 11. Grade summaries of Question 27

The next essay question reads: "Describe your best talent and how it benefits you or others." In this essay, two participants received very high scores of 57.17 and 56.5. The following response received the highest score of 57.17:

> I dont know if this is a talent per se, but I feel that I have a good amount of insight when it comes to other peoples feelings. Im sensitive and can notice when a change in mood has occurred. This especially benefits me in regards to my chosen major/career of nursing because I will be working with patients who will be on emotional roller coasters. Also, my lipreading skils are phenomonal :)

The following response received the second highest score of 56.5:

> Bilingualism is my best talent-- and I put it to use as a Deaf sign language interpreter. I can understand both languages and its discourse features enough to catch on all implicit meaning/message within a person's utterance-- and able to successfully render that implicit message in another language. Bicultural, in a way, goes hand-in-hand with bilingual, so both talents are helpful as I work as an ASL-English interpreter.

The rubric showed that both of these participants have an excellent grasp of the written English language. Although on the surface the first participant has made some spelling errors, he received higher scores in the areas of voice/tone. Both writers are compelling, concise, and

organize thoughts in a straightforward manner. Table 11 is a summary of all of the responses for

Question 27; the essays can be found in the appendices (Appendix F).

Question 28

Participant	Mean	N	CV
2	49.17	6	0.1857
3	38	6	0.2227
6	45.33	6	0.1488
7	29.67	6	0.2905
9	19.67	6	0.4754
13	25.67	6	0.4731
14	19.83	6	0.4436
16	52	6	0.1796
17	46.17	6	0.1400

Table 12. Grade summaries of question 28

Question 28 (the third essay question) took a different approach by presenting a quote

and then asking the participants to formulate a response to this quote. The quote was by

Abraham Lincoln, reading "Most people are about as happy as they make up their minds to be.

In other words, personal level of satisfaction is entirely within the individual's control.

Happiness is not an accident but a choice." The participant was then asked to respond to the

following question, "Is happiness something over which people have no control, or can people

choose to be happy?"

Responses to this question were generally the shortest of the four response questions.

There are several possible motivations for these short answers. One prospective explanation is

that the first two questions involved personal reflection. The participants could write about their

own experiences in relation to the question. The third question, however, asked them to write on

a more general topic. It is only natural that the individuals would be able to express themselves

more clearly on a topic they are familiar with, such as their own communication skills, hobbies,

and talents, while having less to write about a subject of which they are unfamiliar. Another possibility is that the question could be leading. The first two essays were fairly open-ended questions with a large possibility of answers. This question, in contrast, directed the writer toward an either/or answer, thus limiting possible answers to the question. What was expected was for the participants to agree or disagree with the quote and to support their reasoning; however, few participants provided a comprehensive response. To demonstrate the brevity of the responses, the following sample solutions express the trend of participants toward short answers.

Participant 2: I think people can definitely attain happiness through living and experiencing life and more so often than not, have control over it somehow. Sometimes people have organic problems that hinder such goal.

Participant 3: I believe people do have choice to be happy, if they want to be.

Participant 6: To a certain extent. Right now, I have a ton of family problems currently, but I'm in a pretty happy state of mind. However, there comes a limit as to how much one can take.

Participant 7: I haven't found my happiness yet but I believe everyone have their own way find happiness if they choose to or not.

Participant 13: i think it goes both ways

Participant 14: I believe people choose to be happy because if they want to live.

Question 29

Participant	Mean	N	CV
2	56	6	0.1083
3	33.67	6	0.3364
6	19.17	6	0.5709
7	15.83	6	0.6832
9	22.83	6	0.3679
13	36.67	6	0.2356
14	47.17	6	0.1903
16	61.17	6	0.03
17	47.17	6	0.174

Table 13. Grade summaries of question 29

The final essay question reads as follows: "What do you consider the single most important societal problem today and why?" Unlike question 28, many of the responses were rather lengthy, possibly because it gave the participants an outlet to discuss their opinions on a relevant issue. If the participants were presented with a more concise issue, for example global warming, some may have been more willing to answer than others, depending upon their interest in the subject. However, because each participant was given the opportunity to write about an issue of his or her choice, participants usually chose to write on a topic of their liking. Therefore, the responses contained a greater amount of content and the voice/tone showed greater interest as participants were clearly passionate about the issues that they chose. To demonstrate this, the following response received the highest score of 61.17 out of a possible 65 points:

> I believe the problem with today's society and generation(s) is that nobody has time for anything. Americans differenates from other cultures in terms of timeliness-- the team are in a hurry-- to what, to where, the team have no idea but the team don't sit down and enjoy what life has to offer to us. For instance, in Turkey they don't order their coffee to go. For the Turks, having coffee means you have to sit down for at least two hours, chatting with whoever is in the room, sipping coffee and enjoying to kill time. Now, imagine a Turk in America-- with the Starbucks on every other corner and customers texting in their orders so they don't have to utter their orders to the cashiers. Because the team are in a hurry, the team are missing that connection with other people-- that human connection that enables us to be more compassionate and empathetic towards the peers. That is what's wrong with the society in America today. It is not only the youth, but every generation that is still alive. The team all are just too obsessed and worrisome with time ticking away. The team need to stop staring at the clock, and turn the heads toward the children, the parents, the grandparents, the friends, the nature around us and most importantly of all-- ourselves.

This essay received the highest score of all of the responses for all four short answer questions. It is compelling to read, provides interesting examples that bridge several cultures, and paints a picture that allows the reader to understand the writer's attitude and what they perceive to be the seriousness of the issue. In comparison, the following response received the lowest score (15.83) in response to this question:

I thinks people very interest to societal with other but the problem is they may be scaring try something new instead think negative.

It is apparent from the differences between these two responses that one of these participants possesses considerably more effective writing skills. The conclusion section of this paper will discuss the participants written responses in correlation with both their personal background (specifically educational backgrounds) and their self-evaluation of communication skills.

Interpersonal Evaluation

As mentioned in the methodology section, the participants were presented with the opportunity to provide their contact information if they wished to participate in an in-person interview. Of the 30 participants who completed the survey, seven provided their email addresses so that they could be contacted. They were then contacted via email to schedule the interview. Only two individuals were able to schedule interviews: one at Gallaudet University and one at Towson University. Two members of the team traveled to each of the schools to conduct the interviews. To help eliminate bias, the same two members were sent to both of the interviews.

During email correspondence, the participants indicated their preferred accommodations for the interview. The participant from Gallaudet University (Participant 16) specified American Sign Language (ASL) as his or her main form of communication. In accordance with this, an interpreter was provided for the interview to make communications with the participant possible. As learned through training in Deaf studies and in communicating with D/HH individuals, it is crucial that when communicating during the interview, the interviewer speaks directly to the interviewee, although they may not be able to fully hear the words or read lips. The interpreter will then sign the communication to the interviewee, who will respond directly back to the

interviewer while the interpreter speaks aloud the response.

In contrast, the participant from Towson University (Participant 2) said that it was not necessary to provide an interpreter for the interview. This participant used mostly spoken English and lip reading to communicate. The interviewer would ask the question aloud, and the interviewee would respond orally without using ASL or another communication medium. There were moments of miscommunication between the interviewer and the participant, possibly due to the participant's difficultly understanding the interviewer's accent, due to the level of hearing loss of the participant, or the lack of frequent access to speech reading for the participant. As a result, they were provided a print-out of the interview questions in addition to asking the questions aloud.

Although statistically significant conclusions may not be extrapolated from these results due to the small sample size of two individuals, basic observations are able to be made about the two interviews and gain perspective from both a specialized and mainstream university. The interviews will be used mostly as a supplement to include qualitative data in the study. The conclusion section will proceed in greater detail concerning the participants' experiences, while the results section will provide an overview of the participants' evaluation scores and some analysis of the specific criteria of the rubric.

Participant	Grader	Score	Total Mean	CV
2	1	32		
2	2	41		
2	3	42		
2	4	42		
2	5	29		
2	6	43		
2			38.17	0.1584
16	1	51		
16	2	46		
16	3	52		
16	4	56		

16	5	52		
16	6	58		
16			52.5	0.0797

Table 14. Interviewee scores, by grader

Even though two of the group members attended both of the interviews, they did not grade the interviews while conducting them. The interviews were videotaped and viewed by all members of the team at a later date. Table 14 provides a breakdown of the two participants' interview scores, divided by each grader, for a total of six scores per participant. Participant 16 had a higher mean score than Participant 2 (52.5 to 38.17). The following figures look at some of the specific criteria that differentiated the two participants. For the body language category, Figure 7 shows just one criterion (eye contact). The interviewers could choose scores on a scale from 1 to 5 (Appendix J). The scores represent the following:

Score of 5: Strong, direct, and consistent eye contact is maintained at all times.

Score of 3: Person tries to make eye contact but may be somewhat hesitant to do so. Eye contact approximately 50% of the time.

Scores of 1: Lack of eye contact is distracting. Person may stare at the floor or other unrelated objects.
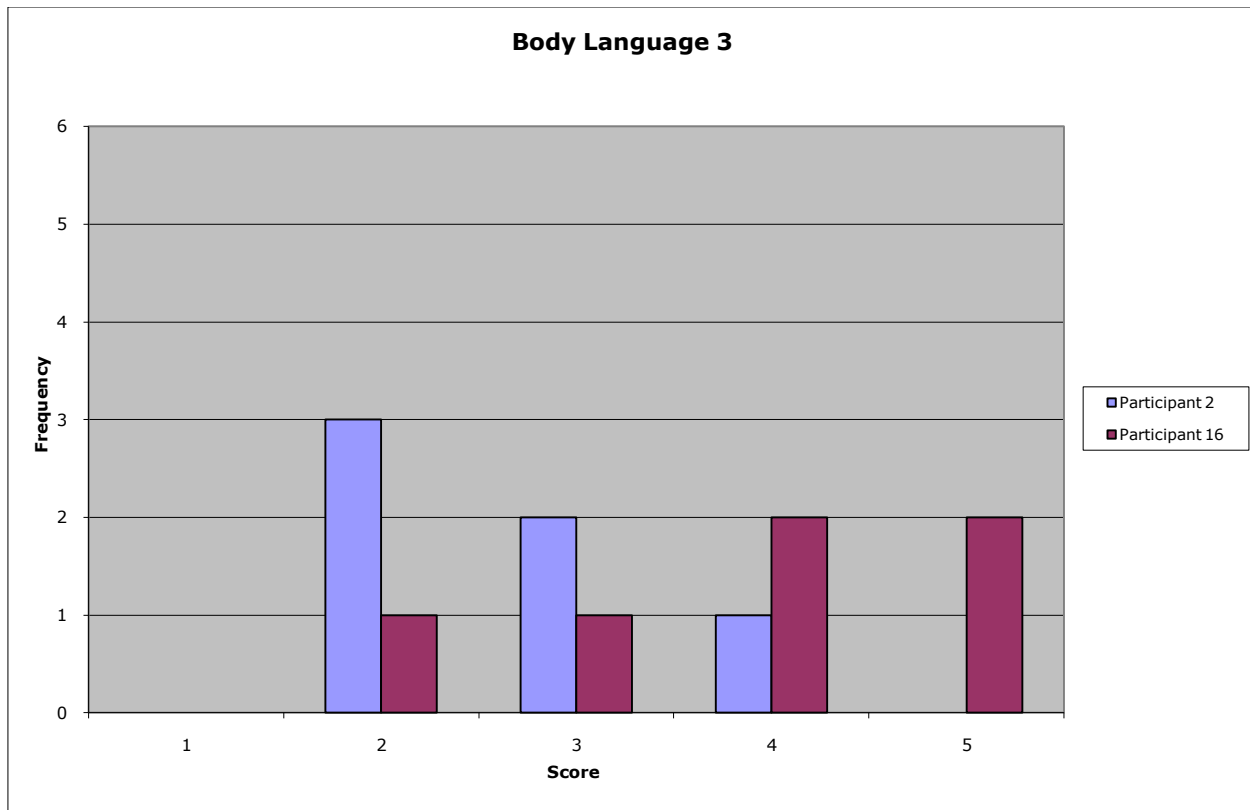
Figure 7. Body language 3 scores for interviewees: eye contact

One can see from this graph that Participant 16 had a higher frequency of scores toward the more proficient areas (4 to 5), while Participant 2 received many lower level scores. The videotapes show an apparent difference between the levels of eye contact of the two participants. Participant 16 maintained strong eye contact throughout the interview, looking down when she was gathering her thoughts, and then speaking toward the interviewer while answering the questions. Rarely did she look around the room or speak toward the interpreter when responding. Participant 2, however, looked down during most of the interview. Although it is appropriate to sometimes break eye contact because an interviewee would not want to "stare down" the interviewer, the lack of eye contact let the interviewer know that the participant was not completely comfortable with the job interview setting.

The following figure examines the participants' total scores for delivery/language

criteria, as opposed to a single criterion as observed previously. This section explains how rehearsed or natural the participants' answers are, and also the words used to answer the question, including in-articulates ("um" or "like"). Although one of the participants used ASL, it is possible to form inarticulates using one's hands instead of saying "um" aloud. If the participant signed any of these words, they would be translated through the interpreter exactly as the participant had phrased them. The following represents scores for delivery/language (1) and (2).

Score of 5: (1) Ideas seem spontaneous and natural; they are not rehearsed or prepared
(2) Response avoids the use of in-articulates (like, ums, etc.)/slang

Score of 3: (1) Ideas are average buy may seem rehearsed or lack emotion
(2) Respondent attempts to avoid using in-articulates/slang but may use them sporadically

Score of 1: (1) Delivery of ideas is haphazard, confusing, or detract from the discussion
(2) There is an overabundance of in-articulates/slang

Table 15 displays the participants' overall scores for delivery/language and the breakdown of scores for each of the individual delivery/language criterion, as they were described in the preceding paragraphs.

	Participant 2	Participant 16
Delivery/Lang 1	0	0
	2	0
	3	1
	0	0
	1	5
Delivery/Lang 2		
	1	1
	3	0
	1	0
	1	0
	0	5

Table 15. Overall scores for delivery/language

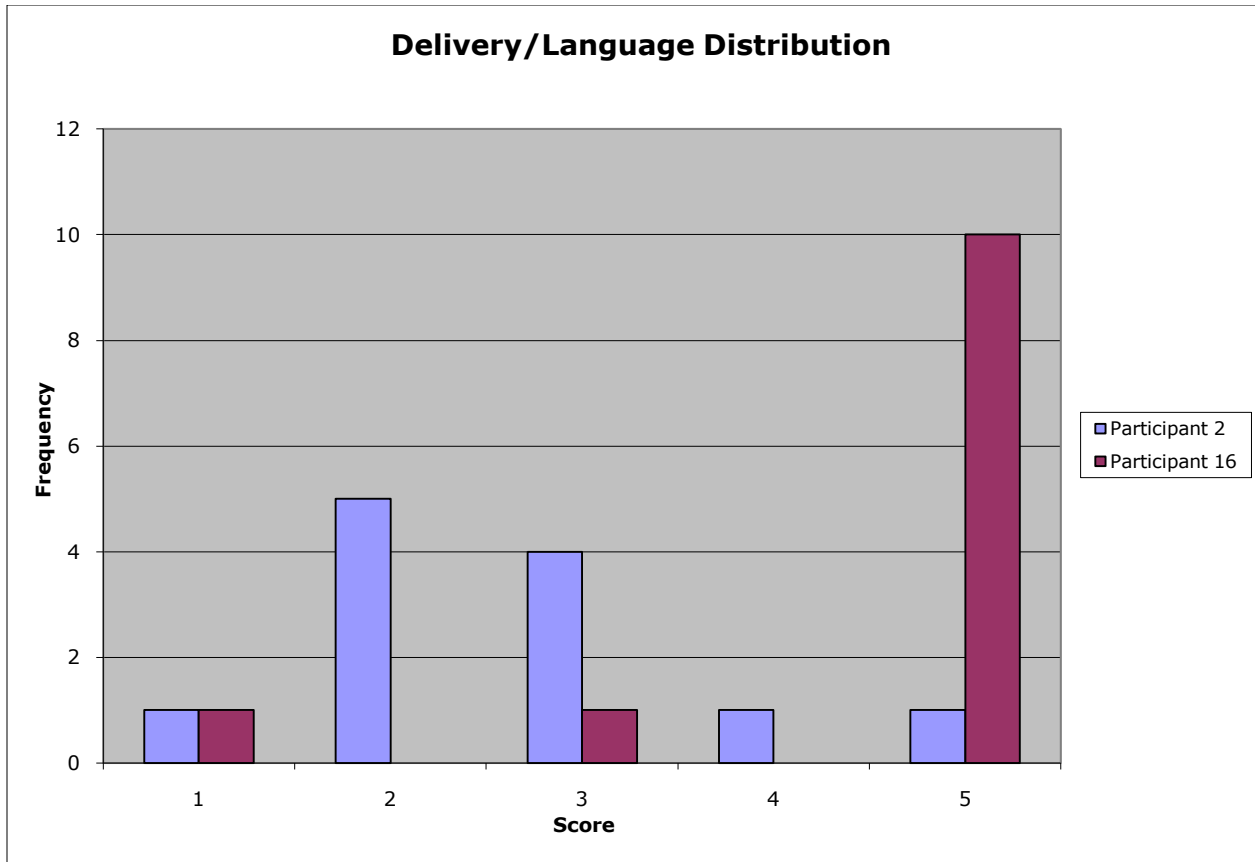*Figure 8. Interviewee score distribution of delivery/language*

The data shows that the participant from Gallaudet University displayed overall, superior interviewing skills than the participant from Towson University. The videotaped interviews support the scores received by the two participants, as the scores noted apparent discrepancies between the skills of the two participants simply by watching the tapes.

Chapter 5: Discussion and Analysis

Reliability Analysis

In order to increase the validity of the team members' ratings, the team needed to establish both inter-rater reliability and internal consistency reliability concerning the written and interview rubrics. This was achieved though reliability analysis on SPSS.

All scores from every rater across all questions were utilized in calculating the inter-rater reliability (IRR) for the written rubric (α = .994). The high IRR indicates that all six graders consistently agreed when evaluating the written responses. After determining the high IRR within the written rubric, the team was able to calculate the internal consistency reliability for this grading mechanism. Grader one's evaluations were utilized in this reliability test. After running this reliability test, it was observed that the rubric was a good measure of writing skills and that the four essay questions asked of the participants were fair in their difficulty (α = .982). Following the determination of the reliability of the written rubric, the reliability of the interview rubric was evaluated. Through the same procedure utilized to evaluate the IRR of the written rubric, the IRR reliability of the interview rubric was also determined to be very strong (α = .988); therefore, the grades given the interview participants by the graders were extremely consistent. Finally, the internal consistency reliability of the interview rubric was evaluated. Again, grader one's ratings were utilized in the calculation of the Cronbach's alpha score of .972 for this rubric. This score indicates that the interview rubric successfully evaluated the interviewee's interpersonal communication skills. Overall, through inter-rater and internal consistency reliability testing of the written and interview rubrics, it was determined that both were very valid tools to evaluate the written and interpersonal communications skills, respectively, of the participants of this study.

Written Responses: Bi-Variate Correlations

In the second phase of statistical analysis, the team used SPSS to calculate bi-variate correlations between several variables. To begin, the team compared average self-perception of writing abilities to total average writing scores. For mainstream participants, Pearson's correlation revealed a moderately weak, negative relationship between self-perception of writing abilities, and performance on the written portion of the survey ($r=-0.216$). This value would suggest that participants' perceptions of their abilities were not in line with their actual skills; in other words, a high self-perception of one's writing abilities would correspond with a lower score on the written rubric. However, this relationship was not found to be statistically significant ($p=0.727$). Conversely, participants from specialized universities revealed a very weak, positive relationship between average self-perception of writing abilities as compared to actual average writing scores ($r=0.062$). The low value for Pearson's correlation would suggest that no meaningful relationship exists between these variables in the participant pool. Despite these observations, results cannot be generalized to a larger population, as they were not statistically significant ($p=0.938$).

Next, the team examined any possible connections between average self-perception of interpersonal communication skills with average self-perception of writing abilities. Pearson's correlation revealed that there was a very weak, positive relationship between these two variables for mainstream participants ($r=0.039$). However, this trend was not statistically significant ($p=0.892$). On the other hand, participants from specialized universities appeared to rate their interpersonal communication skills and their writing abilities in opposition to one another ($r=-0.435$) and ($p=0.242$). This moderately strong, negative value suggests that participants who rated their interpersonal communication skills with a high score tended to rate their writing

abilities with a lower score. Neither one of these trends was found to be statistically significant.

Written Responses: ANOVA Analysis

As an intricate aspect in evaluating the level of the participants' written and interpersonal communication skills, the team felt it was important to assess the individuals' self-perceptions of their communication styles, abilities, and experiences. On the survey portion of the study, participants were asked to answer a series of Likert-scale questions utilizing a scale of 1 to 5. The first six questions concerned self-evaluation of interpersonal communication. These questions addressed topics relating to aspects such as level of attentiveness, ability to understand and ask for clarification when needed, ability to handle disagreements, etc. (Appendix E). The results from these questions (such that 1 = never and 5 = very often) were averaged together in SPSS to create a new variable, self-perception of overall inter-personal communication. Similarly, the next six questions asked participants' to assess various aspects of their written communication skills (i.e. developing a strong purpose, editing, reading carefully, etc.); the results of these questions were averaged for the overarching variable of self-perception of overall writing communication. Finally, the twelve self-perception variables derived from the twelve Likert-scale questions were averaged to create the variable of self-perception of overall communication. The team then utilized one-way ANOVA testing to compare these three and other continuous variables with a few dichotomous variables within the study. The two dichotomous variables in question were type of current college (mainstream or specialized) and hours of help with work the participant receives per week (broken down categorically from 0-1, 2-4, 5-8, > 8 hours/week and N/A).

When employing the one-way ANOVA, the team first decided to use the dichotomous variable of type of school the participant currently attends, which is either a mainstream or

specialized institution. The team compared this variable with many continuous variables. The first test run compared the type of school and the average self-perception of overall written communication. These variables were chosen to be compared because the team wanted to see if the type of school the participant attends has an influence on their self-perception of their writing capabilities. It was observed that there is no statistical significance between the type of school attended and the self-perception of written communication skills of the participants ($p =$ .984).

The type of college attended was then compared with the self-perception of overall interpersonal communication variable. This one-way ANOVA was performed to see if there was a statistically significant difference in the mean scores of self-perception of overall interpersonal communication at mainstream vs. specialized universities. It was determined that there is no statistical significance associated with this relationship ($p =$ .891). Third, the type of institution attended was compared with the participants' average written response score. Through a one-way ANOVA, the team was interested in evaluating how the type of institution attended affected the participants' actual written communication abilities. There was no statistical significance to this relationship when observed within this study ($p =$ .897); however, this may be attributed to many factors and does not necessarily indicate that a disparity does not exist within the outside populations.

After the type of institution attended variable was investigated, the team continued to utilize the one-way ANOVA and changed its focus toward the dichotomous variable of hours of help with school work received per week. This was compared to average self-perception of overall communication to see if the amount of help the participant received per week with their studies affected their personal perception of their communication abilities. The amount of help

the participant reported did not appear to have a statistically significant effect on their self-perception of their communication abilities as a whole (p = .820).

Next, the team wanted to break down the average self-perception of overall communication variable further. Therefore, the team chose to investigate the effect of amount of help received with schoolwork on the participants' average self-perception of overall written communication and the average self-perception of overall interpersonal communication abilities. The hours of help per week received by the participants did not seem to have a statistically significant effect on either variable (p = .716 and p = .850, respectively).

Finally, the team investigated the connection between hours of help received per week with school work and the average written response score. This was done in order to determine if the amount of help a participant received with their school work positively or negatively affected their written communication abilities. This relationship was also deemed statistically insignificant within our study (p = .687); however, there may be a relationship between these two variables within the greater population and it should be studied again in the future.

Although these findings were not statistically significant, they should not be disregarded as unimportant. The team's small sample size was a large contributing factor as to why these findings were not statistically significant. Future research should be performed in these areas utilizing a larger sample size to provide the opportunity to yield potential statistically significant data.

Interviews: Specialized University

Team AUDIO recruited one participant from Gallaudet University to participate in an interview. This participant's average total score was a 52.50, with a coefficient of variation of 0.0797. The following discussion will analyze the interviewee's interpersonal communication

skills based on the elements of the team's interview rubric.

Content

　　The first criterion for content examined relevance and conciseness of responses; scores ranged from 3 to 5, with a mode of 4 and a mean of 4. According to the rubric, the participant's responses were fairly relevant and concise. These scores may be explained partially by the length of the participant's responses; although the responses were relevant to the questions, they were consistently very lengthy. As such, the scores may be indicative of the opinion that the questions could have been answered just as clearly in a more concise manner. For the second criterion of content, the team examined the strength of the speaker's purpose, and the ability to avoid extraneous information. Scores were consistently broken down between 3 and 5, with a mode of 2 for each score. Again, the mean score was a 4, indicating that the participant may have strayed from the topic once or twice. This result may be attributable to the participant's lengthy responses. In analyzing the participant's use of examples, the scores clustered in the 4 to 5 range, with a mode score of 4, and a mean of 4.33. Such a high score indicates that the participant used relevant examples effectively. Overall, the interviewee performed extremely well in the element of content.

Organization

　　Criterion one of organization focused on the logical flow of ideas. For this participant, scores clustered on the high end, with a mode score of 4, and a mean of 4.17. Overall, this high score indicates an ability to effectively convey ideas in a logical manner. Next, the team examined the individual's use of transitions. With a mode score of 4, and a mean score of 4, the participant was able to effectively use transitions in her responses. While a high score for organization indicates a logical progression of thought, a high score for the use of transitions

shows the participant's ability to tie these ideas together effectively.

Delivery

The first criterion examined the level of spontaneity in communication. This participant received a mode score of 5, and a mean score of 4.67. This result is indicative of the naturalness of the participant's responses. In other words, this individual's responses did not appear forced, or rehearsed. Criteria two focused on the use of in-articulates in responses. With a mode score of 3, and a mean score of 2.67, the participant used in-articulates sporadically. Although inarticulates were not completely avoided, they did not take away from the clarity of response.

Body Language

The first element of this category assessed body language. Responses ranged from 2 to 5, with mode scores of 4 and 5, and a mean of 3.83. Although there was some variability in scores, the team believed the mean to be an accurate representation of the participant's body language, as most of the score clustered towards the high end. More specifically, the mean suggests that the participant's posture was neither professional, nor was it forced or awkward. The second criterion focused on the effective use of gestures. With a mode score of 5, and a mean score of 4.67, the team felt that this individual used gestures frequently, and in a way that enhanced communication. The third, and final, element of body language dealt with eye contact. Scores ranged from 3 to 5, and the mean score was a 4.17. This high score suggests that the participant maintained strong eye contact throughout the majority of the interview.

Attitude

In analyzing the level of attitude and energy, the team looked at the rapport established between interviewee and interviewer. With a mode score of 3, and a mean score of 3.83, the participant appeared to develop more than just a polite relationship with the interviewer.

Nonetheless, the team did not feel that a meaningful relationship was established. The second element of attitude examined the level of enthusiasm in the participant's responses. For this individual, scores clustered in the 4 to 5 range, with a mean score of 4.33. According to the team's rubric, this individual exhibited a fairly high level of enthusiasm to communicate with the interviewer. Finally, the last element of attitude examined whether the interaction between interviewer and participant was conversational, or one-sided. Scores ranged from 3 to 5, with a mean score of 3.83. This score indicates that the interviewee went beyond simply answering the question, but did not establish a conversational rapport with the interviewer.

Interviews: Mainstream University

In the interview portion of our study, the team was able to recruit one participant from Towson University. On average, this participant received a score of 38.17, with a coefficient of variation of 0.1584. The following discussion will break down the various components of this participant's interpersonal communication skills.

Content

For the first criterion of content, the team assessed the relevance and conciseness of the participants' responses. Between the six members of the team, scores ranged from 2 to 5, with a mode score of 3 and a mean score of 3.33. Based on these criteria, the team found that the participant was neither concise, nor verbose; level of conciseness was average. The second element of content asked the team to assess the participant's ability to communicate clearly without straying from the topic. Again, the most common score was a 3, with a frequency of four; the mean score was a 3.17. This score signifies that the speaker would sometimes stray from the topic, but would always return to the question at hand. The final element of content called for the use of effective examples in conveying an idea. For this particular area, scores

ranged from 2 to 5, with mode scores of 3 and 4. Although the mean score was a 3.5, individual scores were too wide-spread to accurately gauge the participant's use of examples.

Organization

The first component of organization identifies how effectively ideas are tied together and whether or not there is a logical flow of thoughts. Our mainstream participant received scores of 3 and 4, with a frequency of 3 each, yielding a mean score of 3.5. In general, this means that the ideas were somewhat related and flowed logically. Additionally, these scores signify that the participant's flow of ideas were slightly better than average, but there is still room for improvement. The second criterion of organization assessed the participants' use of transitions. Scores ranged from 2 to 3, with a mode score of 3. The mean score was a 2.67, suggesting that the participants' use of transitions was below average. In other words, transitions were used infrequently, or may have been awkward when used.

Delivery

When assessing the level of spontaneity in responses, scores ranged from 2 to 5, with a mode score of 3. With one score of 5, the team determined this to be an outlier, and calculated a mean score of 2.6. Based on the rubric, this would suggest that the speaker's ideas were average, or lacked emotion. At times, delivery appeared to be haphazard or confusing. The second component of delivery dealt with the use or in-articulates. For this particular element, scores ranged from 1 to 4, with a mode score of 2. On average, the participant received a score of 2.33. Such a low score implies the frequent use of in-articulates throughout the participant's responses.

Body Language

In order to assess the participant's body language, the team focused on posture, gestures and eye contact. For posture, scores ranged from 1 to 3, with a mode score of 1 and a mean of

1.67. On the whole, the team determined that this participant exhibited unprofessional posture (i.e. slouching, etc). Moreover, the participant did not appear to be engaged in the conversation. For the second criterion (gestures), scores improved significantly. The most common score was a 4, with a frequency of 3, followed by a score of 3, with a frequency of 2. In determining the mean, the team identified that a single score of 1 was an outlier, and would not be used; the mean score was therefore a 3.6. This score would suggest that the participant used gestures fairly frequently, though gestures may have seemed forced or awkward at times. Finally, scores for eye contact ranged from 2 to 5, but clustered on the low end of the range. Scores of 2 and 3 were both mode scores, while the mean was a 3.16. Focusing on the mean, the rubric would suggest that the participant made eye contact a little over 50% of the time. Although eye contact was present throughout the interview, it was not necessarily strong, direct, or consistent. It is important to note that this participant communicated through spoken word, as she was able to lip-read. However, she had difficulty understanding the interviewer, and resorted to reading the questions from the script. As a result, it was impossible for the interviewee to maintain consistent eye-contact throughout the interview. The team believes that this inconsistency may have unfairly impacted the participant's eye-contact score.

Attitude

In assessing the participant's level of attitude and energy, the first criteria addressed the participant's ability to establish a meaningful and professional rapport with the interviewer. Scores ranged from 1 to 4, with a mode score of 3, and a mean score of 2.67. On the whole, the team perceived that the interviewee was generally polite, but did not establish a meaningful and professional rapport during the interview. Scores may have clustered on the low-mid range, as the participant used inappropriate language several times throughout the interaction. The second

criteria for attitude assessed the participant's level of enthusiasm. With a mean score of 3.17, the participant appeared to politely answer questions without expressing any enthusiasm or genuine interest. Again, this score may have been negatively influenced by a lack of professional body language. A possible connection between body language and inter-personal communication skills should be investigated in future research studies. The last element of body-language measured the interviewee's ability to maintain a conversational tone throughout the interview. Scores ranged from 1 to 4, with mode scores of 3 and 4. Overall, the high level of variability in scores suggests that the team found it difficult to assess this criterion for the mainstream participant; this variable is not meaningful for further discussion.

Interviews: Compare and Contrast

In comparing the performance of the two interviewees, it is clear that the participant from the specialized university received both higher, and more consistent scores (mean=52.50, CV= 0.0797). Conversely, the participant from the mainstream university received a lower mean score of 38.17, with a coefficient of variation of 0.1584. Calculating the coefficient of variation allows the team to look at variation in both of the participants' scores, while normalizing them so that the variations are comparable between participants. While the team's data indicates a difference in communication styles between these participants, it is impossible to attribute any of these differences to the type of educational institution they attend. With data from only two participants, no statistically significant inferences can be drawn. However, several important observations can be made.

To begin, it is important to consider the role that mode of communication can have on various aspects of communication. While the mainstream participant was able to communicate orally via lip-reading, the specialized university participant communicated with ASL. This

difference in communication style could have impacted scores for certain aspects of the rubric.

When looking at the use of transitions as an element of organization, it may be easier to assess the use of transitions through spoken word, as opposed to ASL. While the interviewer can hear a participant use transitions through spoken language (i.e. however, therefore), it is unclear how many of these transitions, or lack thereof, are attributable to an interpreter or the participant. Similarly, it may be difficult to accurately assess the use of in-articulates when an interpreter is involved. As a result, these two elements of the rubric may be biased towards a particular mode of communication.

Similarly, when assessing the use of gestures, mode of communication may significantly impact the score a participant receives. While an individual who communicates through ASL is automatically making use of gestures, an individual who relies on lip reading and spoken language may not be compared on the same level. It would appear that someone who uses ASL would be likely to receive a high score for this particular aspect of communication. Interestingly enough, the individual from the specialized university received a mean score of 4.67 for gestures, while the mainstream participant received a mean score of 3.6. It is unclear whether these differences in scores are attributable to actual strength of communication, or to a bias within the rubric itself.

It was also interesting to compare the participants' interview scores with their written responses. While the mainstream participant received a mean written score of 53.125, the specialized participant received a mean written score of 55.75. These differences were marginal, and no statistically significant correlations could be made between written and interview scores. However, it would be interesting to see if such correlations exist through future research with a larger sample size.

Limitations

Throughout the course of the research project, the team encountered several limiting factors. The primary limitation of this study was the small sample size, which was affected by the inherent nature of the specialized population, as well as the team's recruiting methods. Due to the time constraints and the scope of the study, the team was unable to conduct the research at other universities with significant deaf and hard of hearing student populations. This limitation made it difficult to make meaningful connections between a variety of variables examined in the survey, as it was common for responses to be few and widespread. This resulted in a lack of statistically significant results. Additionally, while the team asked for the participants' prior schooling and learning backgrounds, it was not possible to account for the effects of different backgrounds on the students' communication skills.

More specifically, the team encountered difficulties in recruiting participants from NTID at the Rochester Institute of Technology. Due to privacy restrictions, the team was not allowed to contact participants through email. Instead, the team created fliers that were mailed to NTID and posted in student dormitories. This posed as a restriction for multiple reasons. Firstly, only students in a specific dormitory could be recruited as part of the study. In addition, it required more effort on the part of the participant to take a flyer, access the website, and take the survey. The flyer eliminated the ease of simply clicking on a link to access the survey. Lastly, if students did not check their mailbox frequently, they may have not received the invitation. The geographic distance from NTID also prohibited the team from checking to make sure the flyers were fully distributed. As a result of this restriction, the team was successful in recruiting only one participant from NTID. Similarly, the team encountered difficulties when trying to get in contact with the alumni association at Gallaudet University. Consequently, the team was not able

to recruit any alumni from Gallaudet, which further limited the results of the study.

Another limitation that arose from the team's recruiting methods was that participants were allowed to self-select for the study, particularly at NTID. With the use of limited and pre-defined recruiting methods, the team was forced to target a population with many commonalities. As a result, the participant pool did not qualify as a random sample. The team chose not to utilize a random sample because of the focused population. This would have narrowed the sample size to an unsatisfactory amount, and in some cases, the recruitment methods did not allow the team to contact participants directly. Often times, DSS would contact the participants on our behalf, so only those who utilized DSS were exposed to the possibility of participating in the study. Out of the participants who did respond do the team's survey, not all participants chose to fill out the survey in its entirety. As a result, the data set was further limited; factors such as age of hearing loss, level of hearing loss, and SAT scores could not be analyzed in connection with communication skills. Additionally, many of the respondents identified with similar demographic characteristics; the majority of the study participants were Caucasian females. These overwhelming similarities also contributed to the lack of statistical significance of the data.

Further limiting factors existed in the methodologies implemented in the research. Foremost amongst these limitations is the subjectivity of the evaluation by team members. While the construction of both the written response and interview rubrics used for the study aim to limit variation and subjective influences in the grading of participants' communication skills, such influences cannot be entirely eliminated. To target this area of concern in subsequent research, the team suggests that researchers employ rubric graders unfamiliar with the population they are grading or otherwise "blind" to the implications of the study in order to obtain more

objective evaluation scores. Such graders could be used to evaluate the written responses, where the persons evaluating the responses need not even be aware that the responses are from participants with hearing loss. Additionally, such graders could be used to grade the interviews, under corresponding IRB and confidentiality agreements, since they would generally have less subjectivity or sensitivity to the outcome of the interview evaluations, thus making their evaluations of higher objectivity.

In addition, there exists a level of inconsistency due to the use of interpreters for the interpersonal interviews conducted as a part of the data collection portion of the study. First, one must acknowledge the fact that only one of the interview participants required an interpreter in order to communicate. The other used spoken English in order to communicate with the researchers, a factor that must be considered as having direct influence of the evaluation on the participants communication skills. Furthermore, since the team members do not possess expertise in the area of American Sign Language (ASL), the team cannot be sure that the interpretation of the participants' responses was accurate and expressed the information in exactly the way the interviewee had, and that the interpreter had not included any of their own words or inarticulates in their interpretations.

Lastly, in an economy in which the job market is in a constant state of development, it is hard to determine whether skills that are of importance currently will be of similar importance in the future. Therefore, it may be difficult to conclude whether the findings of this study will have continued relevance in the future job market. As service industries steadily become dominant, communication and social skills through such media as telephone, email, instant messenger, and text messaging are also becoming significantly more important for successful employees (Yelin, 1997). If these trends continue, communication skills may begin to outweigh the importance of

technical skills, thus upsetting the assumption of the study that these two areas are of comparable importance. Such changes would affect the reliability of the study and would require further research in order to update and adjust the findings as they are presented here.

Implications

The results of this study have demonstrated several implications that affect the deaf community at large. Namely, these implications address areas in the educational field. Through the examination of the collected data, it was noted that there is a general need for improvement in communication skills, both written and interpersonal, of the participants. Within the scope of this study, there was no dichotomy noticed between the communication skills further developed at mainstream versus specialized institutions; however, it was noticed that the communication skills of most participants clustered in the mid-to-low range.

Furthermore, it is evident that most participants perceived their interpersonal and written communication abilities to be better than they actually appeared when evaluated within the study. This indicates that there was a disconnect between the participants' self perception of their communication abilities and their actual performance.

Based on the observations made in this study, both mainstream and specialized universities might want to consider making communication skills a more emphasized area of study within the curriculum. The universities could achieve this by offering more communication courses that are specifically tailored to the communication abilities of the deaf community.

Directions for Future Research

Due to the limited nature of the team's participant pool, it was not possible for the team to deduce any statistically significant trends from the data. Therefore, it would be of special

interest for future researchers to conduct a similar study with a larger, random sample of participants to see if any significant differences exist between the communication styles of students from mainstream vs. specialized institutions.

Additionally, the team believes that the Deaf community would benefit from research conducted on the influence of demographic variables (i.e. gender, race, deafness in the family, major/minor, etc.) on written and interpersonal communication skills. Although the team's survey was intended to capture these variables, not all participants responded to all survey items, and not enough data was gathered to conduct a meaningful analysis. The team believes that analysis of these variables is vital in understanding the factors that influence communication skills and styles. These variables would then be considered when analyzing the potential value added by institutions of higher education to their students' communication capabilities. Moreover, studies on communication skills developed in mainstream versus specialized schools prior to universities would be advantageous in extending knowledge in the field.

When considering the potential influence that mainstream and specialized universities have on their students' written and interpersonal communication skills, it is important to consider the types, and quality, of communication classes that these institutions offer. Future research should examine these classes and their requirements, to see if there is a fundamental difference in the quality of communication education at one school versus another. This type of information would be helpful in understanding whether or not there is a difference between mainstream and specialized universities as pertaining to communication, and if so, what factors contribute to these differences.

When looking at interpersonal communication skills specifically, future research should investigate any possible connections between communication mode and effectiveness of

communication. In team AUDIO's study, the two interview participants communicated through two very different methods, ASL vs. lip-reading. However, the scope of the study did not allow for the team to evaluate these different modes of communication, and how they might have impacted performance per the interview rubric. It is vital to consider the type of communication mode and communication skills to ensure that the method of evaluation is fairly assessing all participants.

Finally, researching direct differences between deaf and hard of hearing and hearing individuals in the workforce is needed to make sure that a problem still exists. Benefits and starting salaries is one way of assessing possible discrimination against deaf and hard of hearing employees. It would also be valuable to compare the marginalization in the workplace between deaf and hard of hearing individuals versus those with other physical disabilities. This research would provide important background to help solve the current problem in the workforce.

Regardless of the specific direction of future research, the field of D/HH studies and education can benefit from continued literature on the subject. There is much to be added to the current collection of studies concerning D/HH college individuals. Additional studies will not only bring awareness to the issues and benefits of D/HH employment, but can also help to refine previous research and begin to formulate significant trends and theories to ultimately improve opportunities for deaf and hard of hearing individuals.

Appendix A - Gallaudet Consent Form

The team are undergraduate students from the Gemstone program at the University of Maryland. The team are conducting research on communication skills acquired by deaf and hard-of-hearing individuals in post-secondary institutions. I would like you to consider participating in this study of written and oral communication skills. It is hoped that this study can be used to help us provide more information about how different post-secondary institutions prepare students for the work force. This information will help us further understand and improve deaf education concerning communication skills, in turn improving employment opportunities.

For this study:
1. You will be asked to fill out an online survey that will ask about your age, gender, race, hearing loss, family, educational and communication background. You will then have the option to participate in an in-person interview lasting no longer than an hour, providing a more in-depth evaluation of your communication skills. With your permission, the team would like to video tape these interview sessions. These tapes will be viewed and evaluated by team Assessing and Understanding Deaf Individuals' Occupations and a communication expert. If you are interested in the participating in the interview, please check the appropriate box at the end of the survey and provide an email address.
2. It is anticipated that your participation will take approximately 30 minutes.
3. You will be entered into a raffle for a chance to win a $25 Target gift card.
4. Voluntary participants in the interview session will also be entered into a raffle for a $50 Target gift card.
5. Efforts will be made to accommodate your language and communication style.
6. There is no more than minimal risk to individuals who participate in this research study, and confidentiality will be maintained.
7. If your data is used in a publication, your name or other identifying information will not be used. Instead, you will be given a code number in order to assure confidentiality. All identifying information will be kept and secured on University of Maryland campus. Participants will be informed to close their browser as soon as they complete the survey. Similarly, participants will not be able to access the results of the survey after its completion. All survey results will be kept private and accessible only to members of team Assessing and Understanding Deaf Individuals' Occupations SurveyMonkey account. As such, team Assessing and Understanding Deaf Individuals' Occupations will not use SurveyMonkey for any purpose other than as a means of collecting data. The researchers will not utilize the SurveyMonkey features for research subject management. Rather, offline SPSS analytical software will be employed to analyze the data collected through SurveyMonkey. Similarly, all video-taped interview sessions will be locked in a safety box in the Center for Health and Wellbeing at the Eppley Recreation Center. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if the team are required to do so by law.
8. Your participation in this study is voluntary. If you decide not to participate in the study, it will not change your relationship to Gallaudet University and the University of Maryland in any way.

9. You may withdraw from the study at any time, for any reason and without penalty. It is hoped, however, that you will offer your full participation.
10. You will not be given individual results obtained during this study.
11. Questions about any risk to you because of participation in this study may be addressed to the researcher, Tracy Zeeger, at the phone number or e-mail account at the top of this consent form, or the Chairperson of the Gallaudet University Institutional Review Board for the Protection of Human Subjects (IRB) at 202-651-5400 (v/tty) or irb@gallaudet.edu.

I have read the Informed Consent Form and agree to participate in the study that gauges the effect of mainstream versus specialized education on communication skills and job acquisition, conducted by team Assessing and Understanding Deaf Individuals' Occupations. I understand that I can withdraw from this study at any time without penalty or prejudice. I understand that I may or may not receive compensation for my participation. Additionally, I understand that this form expires at the completion of the study.

Your Name _____

Your Signature _____ Date _____

Appendix B - NTID Consent Form

The team are undergraduate students from the Gemstone program at the University of Maryland. The team are conducting research on communication skills acquired by deaf and hard-of-hearing individuals in post-secondary institutions. I would like you to consider participating in this study of written and oral communication skills. It is hoped that this study can be used to help us provide more information about how different post-secondary institutions prepare students for the work force. This information will help us further understand and improve deaf education concerning communication skills, in turn improving employment opportunities.
For this study:

1. You will be asked to fill out an online survey that will ask about your age, gender, race, hearing loss, family, educational and communication background. You will then have the option to participate in an in-person interview lasting no longer than an hour, providing a more in-depth evaluation of your communication skills. With your permission, the team would like to video tape these interview sessions. These tapes will be viewed and evaluated by team Assessing and Understanding Deaf Individuals' Occupations and a communication expert. If you are interested in the participating in the interview, please check the appropriate box at the end of the survey and provide an email address.
2. It is anticipated that your participation will take approximately 30 minutes.
3. You will be entered into a raffle for a chance to win a $25 prize.
4. Efforts will be made to accommodate your language and communication style.
5. There is no more than minimal risk to individuals who participate in this research study, and confidentiality will be maintained.
6. If your data is used in a publication, your name or other identifying information will not be used. Instead, you will be given a code number in order to assure confidentiality. All identifying information will be kept and secured on University of Maryland campus. Participants will be informed to close their browser as soon as they complete the survey. Similarly, participants will not be able to access the results of the survey after its completion. All survey results will be kept private and accessible only to members of team Assessing and Understanding Deaf Individuals' Occupations SurveyMonkey account. As such, team Assessing and Understanding Deaf Individuals' Occupations will not use SurveyMonkey for any purpose other than as a means of collecting data. The researchers will not utilize the SurveyMonkey features for research subject management. Rather, offline SPSS analytical software will be employed to analyze the data collected through SurveyMonkey. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if the team are required to do so by law.
7. Your participation in this study is voluntary. If you decide not to participate in the study, it will not change your relationship to NTID and the University of Maryland in any way.
8. You may withdraw from the study at any time, for any reason and without penalty. It is hoped, however, that you will offer your full participation.
9. You will not be given individual results obtained during this study.
10. Questions about any risk to you because of participation in this study may be addressed to the researcher, Tracy Zeeger, at the phone number or e-mail account at the top of this

consent form, or the Chairperson of the RIT Institutional Review Board for the Protection of Human Subjects (IRB) at 585-475-5429 (v/tty) or sjrtlo@rit.edu.

I have read the Informed Consent Form and agree to participate in the study that gauges the effect of mainstream versus specialized education on communication skills and job acquisition, conducted by team Assessing and Understanding Deaf Individuals' Occupations. I understand that I can withdraw from this study at any time without penalty or prejudice. I understand that I may or may not receive compensation for my participation. Additionally, I understand that this form expires at the completion of the study.

Your Name _____

Your Signature _____ Date _____

Appendix C - University of Maryland & Towson University Consent Form

Initials _____ Date _____

SURVEY CONSENT FORM

Project Title	*Assessing and Understanding Deaf Individuals' Occupations*
Why is this research being done?	*This is a research project being conducted by an undergraduate Gemstone team at the University of Maryland, College Park. The team are inviting you to participate in this research project because you have completed at least two years of undergraduate education, are no more than two years removed from undergraduate status, and are severely deaf (70+ decibels). The purpose of this research project is to evaluate and compare the communication skills acquired by students from mainstream versus specialized undergraduate institutions. This topic is being investigated because the team are looking to better deaf education concerning communication skills, in turn improving employment opportunities.*
What will I be asked to do?	*You will be asked to fill out an online survey lasting approximately thirty minutes in length. The survey will address basic demographic information and communication abilities. You will then have the option to participate in an in-person interview lasting no longer than an hour, providing a more in-depth evaluation of your communication skills. With your permission, the team would like to video tape these interview sessions. These tapes will be viewed and evaluated by the team, and a communication expert. If you are interested in the participating in the interview, please check the appropriate box at the end of the survey and provide an email address. As a token of the appreciation, all survey participants will be entered into a raffle for a chance to win one of four $25 prizes. If you choose to participate in an interview session, you will also be entered into a raffle for a $50 prize*

_____ *Date* _____

Project Title	***Assessing and Understanding Deaf Individuals' Occupations***
What about confidentiality?	*The team will do the best to keep your personal information confidential. To help protect your confidentiality, all the names will be removed from the surveys and all participants will be assigned an identification number. These numbers alone will be used to link participants to surveys and interviews. All identifying information will be kept and secured on University of Maryland campus. Participants will be informed to close their browser as soon as they complete the survey. Similarly, participants will not be able to access the results of the survey after its completion. All survey results will be kept private and accessible only to members of the team's SurveyMonkey account. The SurveyMonkey features for research subject management will not be utilized by the researchers. Similarly, all video-taped interview sessions will be locked in a safety box in the Center for Health and Wellbeing at the Eppley Recreation Center. The final results of the study will be released in a published written report with no identifying participant information. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if the team are required to do so by law.*
What are the risks of this research?	*There may be some risks from participating in this research study. Due to the sensitive nature of this study, some questions may cause discomfort. However, you may choose not to answer any questions that cause anxiety.*

_____ *Date* _____

Project Title	*Assessing and Understanding Deaf Individuals' Occupations*
What are the benefits of this research?	*This research is not designed to help you personally, but the results may help the investigator learn more about differences in communication skills acquired by deaf students in mainstream versus specialized undergraduate universities. The team hope that, in the future, other people might benefit from this study through improved understanding of deaf education and where modifications can be made to enhance communication skills.*
Do I have to be in this research? May I stop participating at any time?	*Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.*
What if I have questions?	*This research is being conducted by Tracy Zeeger of the Center for Health and Wellbeing at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Tracy Zeeger at (301)314-1493, zeeger@health.umd.edu, or the address listed below:* *Tracy Zeeger* *University Health Center* *University of Maryland* *College Park, MD 20742* *If you have questions about your rights as a research subject or wish to report a research-related injury, please contact:* **Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742;** **(e-mail) irb@deans.umd.edu; (telephone) 301-405-0678** *This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.*

_____ Date _____

Project Title	*Assessing and Understanding Deaf Individuals' Occupations*	
Statement of Age of Subject and Consent [*Please note: Parental consent always needed for minors.]*	*Your signature indicates that:* *you are at least 18 years of age;,* *the research has been explained to you;* *your questions have been fully answered; and* *you freely and voluntarily choose to participate in this research project.*	
Decision to Participate	○ I agree to participate in this study.	
	○ I disagree to participate in this study.	

****Please note: When the consent form requires more than one page, please include a space for the subject to initial and date at the top right-hand corner of each page. The corner should appear as:**
     Initials_____ Date_____
  Also, each page must display a page range such as: Page 1 of 2, then Page 2 of 2. This additional

  information would confirm that the subject agreed to the entire contents of the consent form. **

Appendix D - Interview Script

Welcome. Thank you for joining us today. Myself and the rest of team Assessing and Understanding Deaf Individuals' Occupations greatly appreciate your contributions to the research project. I am _____ and my partner is _____. If there are no objections to starting the interview now, the team would like to get started. Please take a moment to read, sign, and date the consent form.

Today's date is _____ and the interview will begin at approximately _____.

The interview will take place entirely in this room in one continuous session lasting approximately one hour. In the interest of maintaining the professional atmosphere of the interview, the team ask that you treat it as such. Thus, the team ask that any unnecessary electronic devices be turned off during the interview, and that you not have any food or drinks during the interview aside from water.

As you are already aware, the research focuses upon the communication skills of deaf and hard of hearing students in specialized and mainstream universities. Your contributions to your school community as a deaf or hard of hearing student are the reason the team have contacted you or that you may have come across the survey. The team are greatly appreciative of your willingness to help us. Without your help, the research could not progress and the team could not produce research that the team hope will better the secondary education of students in the future.

The data the team collect will in no way be tied to you personally in any ways other than those relating to your educational background, and a few demographic areas that are essential to distinguishing different groups of students amongst the deaf and hard of hearing community. At no time will your name or any of your information be released to any one. Your answers to the interview questions and your responses to the demographics will also remain private and confidential in the interest of the study.

The purpose of the interview will be to see how students from mainstream or specialized schools communicate in a professional setting, and thus how these schools prepare the students, specifically those who are deaf or hard of hearing, for the work force.

You have already taken the online survey, whether you found it through email or another website, and the team are extremely grateful that you were willing to help us further by coming to the follow-up interview. This interview will help us collect information for the research project.

In the interview, you will be asked questions similar to those found in a job interview. It will consist of a series of open ended, free response questions that you are free to answer in any way you see fit.

If there are any questions that you do not understand, please feel free to ask for clarification or to have the question repeated. During the interview, I (the person talking now), will be asking the questions, and my team mate will be taking notes.

As noted previously in the survey, your participation in this interview is completely voluntary, as is your participation in any other area of the survey. If at any time you feel uncomfortable or feel the need to discontinue your participation, you are free to do so. You may opt out of any questions you want and answer any of these questions in any way you would like, in full confidence of your own privacy and respect.

With your consent, the interview will also be recorded in full, starting at the beginning of the interview. The team will tell you when the recording will begin. The purpose of the taping of the interview is so that the team, as a research team, may go back to review the data the team collect during the interview at a later time in an effort to reach the most concise and correct conclusions possible. If you are not comfortable with the taping of the interview, but would still like to participate in the interview, your contributions are still greatly appreciated and the team will carry out the interview as planed, only without video documentation. If you are comfortable with the recording of your interview, and would like to have a copy of your interview videotape for your own benefit in your job search, the team would be willing to provide a copy of the interview tape.

Do you have any questions? If there are no more questions, the team will begin the interview now.

The team are now going to start the video recording. Everything from now until the end of the mock job interview will be recorded on this tape.

The team are now beginning the mock job interview.

Warm-up questions

Which of the following best describes you: Full time student, part time student, in the workforce full time, or in the workforce part time?

If in school:

1. What school do you currently attend?
2. Why did you choose to attend (name of school)?
3. What are you plants post graduation?

If in the workforce:
1. How did you end up at this job?
2. What is the easiest/most difficult aspect of your job?

Thank you for providing a bit of background information about yourself. The team will now move onto the main part of the interview. You will be asked eight questions regarding your past

experiences. The questions will model those in a typical job interview. Please try to answer the questions as completely as possible and to the best of your ability. If you need me to repeat the question or need any further clarification, please feel free to ask. The team will now begin with the first question.

Interview questions*

1. Tell me about a time when you had to adjust to a classmate's or colleague's working style in order to complete a project or achieve your objectives.

2. Tell me about a time when you had to make a decision without all the information you needed. How did you handle it? Why? Were you happy with the outcome?

3. What tricks or techniques have you learned to make school or a job easier, or to make yourself more effective? How did you learn that?

4. What has been your experience in giving presentations to small or large groups?

5. Describe a situation when you had to work as part of a team to achieve a result. What was your specific role (leader or otherwise)? What did you do? How did you do it? What was the result?

6. Give an example of when you had to work with someone who was difficult to get along with. How/why was this person difficult? How did you handle it? How did the relationship progress?

7. Would you rather write a report or give a presentation? Why?

8. Tell me about a time where you had to adjust to a new culture or environment? What did you do to ensure a successful transition?

Thus concludes the mock job interview. Again, the team, team Assessing and Understanding Deaf Individuals' Occupations are greatly appreciative of your contributions. Your help will greatly further the research and help us to reach the ultimate goal. The team plan on publishing a thesis of the findings, as well as a briefer article in a major publication prior to the graduation in 2010. If you would like to receive updates on the progress, you may provide us with email contact information, or check the website at http://teams.gemstone.umd.edu/classof2010/audio/ for updates. Again, thank you very much for your help with the research. As a token of the appreciation, the team offer you the opportunity to be entered into a drawing for $50 in cash. Thank you and have a very nice afternoon.

Appendix E - Online Survey

Dear participant,

You are being asked to complete an online survey for team AUDIO, an undergraduate research team at the University of Maryland. The team are looking to evaluate communication skills of students at various universities. This survey should not take more than 30 minutes. Please respond as accurately as possible. The team appreciate your input.

What is your age: _____

What is your gender?

- o Male
- o Female

Which of the following do you identify with?

- o Caucasian, not Hispanic
- o Hispanic
- o Black or African-American
- o Asian
- o Native American
- o Other
- o Do not know/ Prefer not to answer

List your major(s) and minor(s): _____

What was your SAT verbal and writing scores (if applicable): _____

Home Zip Code: _____

Check all that apply:

- o Full-time Student
- o Part-time Student
- o Full-time Worker
- o Part-time Worker
- o Not in school or in the workforce

Year in school:

- o Completed 2 years of Undergraduate studies
- o Completed 3 years of Undergraduate studies
- o 1st year graduate student

- o 2nd year graduate student
- o In the workforce (2 years or less since the completion of undergraduate studies)
- o Other

How many years have passed since you finished your undergraduate education? _____

Which of the following accommodations do you use?
[Check all that apply]

- o Hearing Aid
- o Cochlear Implant
- o Interpreter
- o Student helper/ note taker
- o Video Relay
- o Teletypewriter (TTY)
- o Real-time captioning
- o Sound amplification systems
- o Visual warning systems
- o Other: _____

When did your hearing loss occur? _____

If you are a cochlear implant user, at what age did you receive the implant? _____

What is your level hearing loss? _____

What is your primary mode of communication?
[Check all that apply]

- o ASL
- o Cued speech
- o Lip reading
- o Spoken language
- o Other, please specify:

What extracurricular activities, if any, have you participated/ still participate in that involve(d) other deaf students?

_____

What extracurricular activities, if any, have you participated/ still participate in that involve(d) hearing students?

_____

If you work, what is your occupation? _____

How many hours a week do you work for pay? _____

Do any of the following relatives have any degree of hearing loss?
Check all that apply

- o Mother
- o Father
- o Legal Guardian
- o Siblings
- o Paternal Aunt/Uncle
- o Maternal Aunt/Uncle
- o Paternal Grandparent
- o Maternal Grandparent
- o Cousin

If you have (a) deaf parent(s), what type of school did they attend?
Mother/ legal guardian:
- o 2-Year Community College
- o 4-Year College/University
- o Vocational School
- o Master's degree
- o PhD
- o None
- o Other: _____

Father/ legal guardian:
- o 2-Year Community College
- o 4-Year College/University
- o Vocational School
- o Master's degree
- o PhD
- o None
- o Other: _____

What is your primary mode of communication with your parents/ legal guardians? [Check all that apply]
- o ASL
- o Cued speech
- o Lip reading
- o Spoken language
- o Other, please specify:

Current College/ University
        Name of the school you are attending [If applicable]:

1. It is:
[Check one]

a) A **Mainstream** school – Public or private school that is not classified as a primary provider of education support
b) A **Specialized** school – School that focuses on the education of deaf or hard-of-hearing individuals
c) A **Specialized program** within a mainstream school – Program within a university that offers support services, while the rest of the school has a general curriculum for all students

Please rate your parents' involvement in helping you with your coursework.

- o hour/week
- o 2-4 hours/week
- o 5-8 hours/week
- o > 8 hours/week
- o N/A

Previous College/ University:
    Name of the school you attended [If applicable]:

2. It was:
[Check one]
    d) A **Mainstream** school – Public or private school that is not classified as a primary provider of education support
    e) A **Specialized** school – School that focuses on the education of deaf or hard-of-hearing individuals
    f) A **Specialized program** within a mainstream school – Program within a university that offers support services, while the rest of the school has a general curriculum for all students

Please rate your parents' involvement in helping you with your coursework.

- o 0-1 hour/week
- o 2-4 hours/week
- o 5-8 hours/week
- o > 8 hours/week
- o N/A

High School:
    Name of the high school you attended [If applicable]:

3. It was:
[Check one]
    g) A **Mainstream** school – Public or private school that is not classified as a primary provider of education support
    h) A **Specialized** school – School that focuses on the education of deaf or hard-of-hearing individuals

i) A **Specialized program** within a mainstream school – Program within a university that offers support services, while the rest of the school has a general curriculum for all students

Please rate your parents' involvement in helping you with your coursework.

- o 0-1 hour/week
- o 2-4 hours/week
- o 5-8 hours/week
- o > 8 hours/week
- o N/A

Oral Communication Questions[1]

Please choose the appropriate answer.

1. When other people speak to me, I am attentive and try to listen and understand what they are saying.

- o Never
- o Sometimes
- o Average
- o Often
- o Very Often

2. When I do not understand what another person is telling me, I ask that person to explain the meaning.

- o Never
- o Sometimes
- o Average
- o Often
- o Very Often

3. When I disagree with what a person is saying, I do so respectfully and in the spirit of constructive discussion.

- o Never
- o Sometimes
- o Average
- o Often
- o Very Often

4. I enjoy discussing issues and hearing other people's opinions.

---

[1] Assessment and Evaluation. Retrieved May 14, 2008, from Government of Saskatchewan Web site: http://www.sasked.gov.sk.ca/docs/comm20/assess.html

- o Never
- o Sometimes
- o Average
- o Often
- o Very Often

5. When I speak to someone from another culture, I am aware that body language and manner of speaking might differ from my own.

    - o Never
    - o Sometimes
    - o Average
    - o Often
    - o Very Often

6. When I speak to someone whose first language is different from my own, I try to communicate clearly and listen attentively.

    - o Never
    - o Sometimes
    - o Average
    - o Often
    - o Very Often

7. When I am writing something, I think about who is going to read it, and why I am writing it.

    - o Never
    - o Sometimes
    - o Average
    - o Often
    - o Very Often

8. I calmly consider the constructive comments of others about my writing.

    - o Never
    - o Sometimes
    - o Average
    - o Often
    - o Very Often

9. When I have written something, I read it back to myself to be sure I said what I wanted to say.

    - o Never

- o Sometimes
- o Average
- o Often
- o Very Often

10. I enjoy reading for information and reading what other people have to say about something in which I am interested.

- o Never
- o Sometimes
- o Average
- o Often
- o Very Often

11. I know how to search for information that I need.

- o Never
- o Sometimes
- o Average
- o Often
- o Very Often

12. When I search for information I make sure I have a clear idea of what I want to find out.

- o Never
- o Sometimes
- o Average
- o Often
- o Very Often

Please respond to the following in 5-7 sentences.

1. Rate your communication skills, both oral and written, on a scale of 1 to 10, with 10 representing excellent communication skills. Give one example from your past experiences that demonstrates the selected number is accurate.

2. Describe your best talent and how it benefits you or others.

3. "Most people are about as happy as they make up their minds to be. In other words, the personal level of satisfaction is entirely within the control. Happiness is not an accident but a choice." –*Abraham Lincoln*
Question: Is happiness something over which people have no control, or can people choose to be happy?

4. What do you consider the single most important societal problem today and why?

Would you be interested in participating in an in-person interview with an opportunity to win a $75 Target gift card?
[Check One]
· Yes · No

If yes, please provide your email address: _____

Appendix F - Compilation of Written Responses

Question 26: Rate your communication skills, both interpersonal and written, on a scale of 1 to 10, with 10 representing excellent communication skills. Give one example from your past experiences that demonstrates the selected number is accurate.

Participant 2: 8. My speech is pretty good for the degree of hearing loss I have. I have a few friends who have better hearing than me but speak worse than I do. I can communicate just about anything verbally but do often mispronounce my "s's". My english skills are mediorce. But then again, Im not the only one. Nevertheless, I can communicate by methods of pen and paper successfully. I think if Im required to have good English, I will focus on having good English.

Participant 3: Scale of 7. My communication skills depend on what I have at hand. For example, at Towson's mandatory graduate meetings, I am used to having my interpreters showing up late, I would bring my laptop and ask one of classmate with laptop to "AIM" me and have her/him outline of what the meeting was all about.

Participant 6: 9. I am a relatively good public speaker and teachers have taken an positive interest in the past couple of years in my writing.

Participant 7: My past experinece was diffucult because my communication skills was weak. No one have not taught what I need to instead I learn how to communication until college.

Participant 9: i would say about 6. i'm still a very bad writer. constantly asking for proofreading. i can be a good speaker if i'm not nervous. depending on situation.

Participant 13: 10

Participant 14: My communication skills would rate 7 because I do correspond my emails everyday.

Participant 16: 9 out of 10. Oftentimes my written skills do exhibit a degree of proof that English is my second language or that I am not quite fluent in English. The problems tend to be with the "naturalness" of my English fluency-- where I am not aware of how it is supposed to sound, such as "why bother?" is permissible whereas "why go?" doesn't make sense to native English users. Because I am not fully immersed in spoken English, it is difficult for me to write as if I am speaking English naturally-- written English and spoken English are two different areas and I believe I am quite fluent in written English whereas my spoken English skills are

rated a 8 or 7, depends on, say, how much idioms one is supposed to know to consider self as a native user.

Participant 17: 7. My occupation requires me to have good communication skills and it gives me an opportunity to develop and improve better communication skills directly on the job. I'm able to read other co-workers' and management's written styles and give me the idea of what and how the writing should be. I learn from this way by handling papers.

Participant 30: 9 Have published research papers.

Question 27: Describe your best talent and how it benefits you or others.

Participant 2: I dont know if this is a talent per se, but I feel that I have a good amount of insight when it comes to other peoples feelings. Im sensitive and can notice when a change in mood has occurred. This especially benefits me in regards to my chosen major/career of nursing because I will be working with patients who will be on emotional roller coasters. Also, my lipreading skils are phenomonal :)

Participant 3: I am resourceful, like I have mentioned in #1. The director of graduate program ended up asking us for transcript of the meeting.

Participant 6: My ability to see things realistically, yet present it in a positive light. It helps me get through hurdles.

Participant 7: My best talent are arts. I have so much passion in the arts.

Participant 9: Dance-makes others believe that they can do it too

Participant 13: 7

Participant 14: My talent is being able to "mingle" with other people and I always make sure the visitors have a warm welcome to Gallaudet University!

Participant 16: Bilingualism is my best talent-- and I put it to use as a Deaf sign language interpreter. I can understand both languages and its discourse features enough to catch on all implicit meaning/message within a person's utterance-- and able to successfully render that implicit message in another language. Bicultural, in a way, goes hand-in-hand with bilingual, so both talents are helpful as I work as an ASL-English interpreter.

Participant 17: Since I see there's no point in showing off myself to anybody else, I decided to be humble doing my best to do the job whatever I'm doing.

Participant 30: Caring

Question 28: "Most people are about as happy as they make up their minds to be. In other words, the personal level of satisfaction is entirely within the control. Happiness is not an accident but a choice" –Abraham Lincoln. Is happiness something over which people have no control, or can people choose to be happy?

Participant 2: I think people can definitely attain happiness through living and experiencing life and more so often than not, have control over it somehow. Sometimes people have organic problems that hinder such goal.

Participant 3: I believe people do have choice to be happy, if they want to be.

Participant 6: To a certain extent. Right now, I have a ton of family problems currently, but I'm in a pretty happy state of mind. However, there comes a limit as to how much one can take.

Participant 7: I haven't found my happiness yet but I believe everyone have their own way find happiness if they choose to or not.

Participant 9: i think it goes both ways

Participant 13: People can choose to be happy... 8)

Participant 14: I believe people choose to be happy because if they want to live.

Participant 16: Yes, all it takes to change one's sense of happiness is to change their lens of what life means to them. One may simply put on rose-colored glasses to change their perspectives of their life quality, even if one's life has been through difficult times, it is possible with mind and willpower to keep one's chin up despite of all difficult times one has gone through.

Participant 17: I finally understand the meaning of happiness when I got saved by Jesus Christ. Before that, I was in vain looking for happiness and almost gave up. I didn't realize that Jesus Christ was the only answer to everything in my life so I put my faith and trust in Him. He will take control of everything on my behalf, I feel the total satifiscation and joy beyond my comprehension.

Participant 30: I choose to be happy.

Question 29: What do you consider the single most important societal problem today and why?

Participant 2: Regarding me? With my hearing loss, being able to keep up with hearing people during group conversations is a challenge. I dont passively listen like hearing people can; I must actively listen all day long and it grows tiring after awhile. Regarding society? Ignorance. People are ignorant and afraid of what they dont know so they arent as accepting and willing to open up to new ideas. They dont necessarily have to agree or conform, but they should be able to open, absorb and accept anything. Now, Im not saying murder and rape are acceptable...but you get my drift.

Participant 3: The societal problem occurs because people don't ask, or their assumption is the answer itself.

Participant 6: The Economy and Education

Participant 7: I thinks people very interest to societal with other but the problem is they may be scaring try something new instead think negative.

Participant 9: people don't know much about us and take us for granted

Participant 13: Deaf community should pick one language. I believe ASL is new and begining in the community!

Participant 14: "Time" I believe in the society, people are always worried about time, not being able to take days off from work, being too focused in their workplace. I believe the team need more people in the workplace that could give eachother their turn to complete their tasks. I believe it's very healthy to have some time off and take a vaction. I believe in the country, the team do not know how to enjoy the time off.

Participant 16: I believe the problem with today's society and generation(s) is that nobody has time for anything. Americans differenates from other cultures in terms of timeliness-- the team are in a hurry-- to what, to where, the team have no idea but the team don't sit down and enjoy what life has to offer to us. For instance, in Turkey they don't order their coffee to go. For the Turks, having coffee means you have to sit down for at least two hours, chatting with whoever is in the room, sipping coffee and enjoying to kill time. Now, imagine a Turk in America-- with the Starbucks on every other corner and customers texting in their orders so they don't have to utter their orders to the cashiers. Because the team are in a hurry, the team are missing that connection with other people-- that human connection that enables us to be more compassionate and empathetic towards the peers. That is what's wrong with the society in America today. It is not

only the youth, but every generation that is still alive. The team all are just too obsessed and worrisome with time ticking away. The team need to stop staring at the clock, and turn the heads toward the children, the parents, the grandparents, the friends, the nature around us and most importantly of all-- ourselves.

Participant 17: Faith. My heart is broken when America no longer sees or knows what is right or wrong anymore. Most are not practicing their faiths or accepting other faiths that are different. It poses big problems to America nowadays. They are blind to see the real problems. Faith helps them to see the way as it should be.

Participant 30: War. Kills people, costs money.

Who?

What?

Team AUDIO is an undergraduate research team at the University of Maryland, College Park. We are seeking deaf individuals who:

- Have hearing loss of 70+ decibels
- Have completed at least 2 years of undergraduate education, but are no more than 2 years removed from undergraduate status

Please fill out a brief online survey to help us understand the effects of different college educations on communication skills.

WIN $25!!!

Where?

Access our survey on our team website at
http://teams.gemstone.umd.edu/classof2010/audio/

When?

NOW!!!

Principal Investigator: Tracy Zeeger
Local Sponsor: Dr. Marc Marschark
Funded by the Gemstone Program at the University of Maryland

GEMSTONE
UNIVERSITY OF MARYLAND

Appendix H – General Recruitment Materials

Email to the participants

We are Team Assessing and Understanding Deaf Individuals' Occupations at the University of Maryland in the Gemstone undergraduate research program. You are invited to participate in our study that gauges the effect of mainstream versus specialized education on communication skills and job acquisition of deaf individuals. Your participation in this study is voluntary, but much appreciated. Your information will remain confidential. If interested, please refer to the attached advertisement for more information.

We appreciate your time,
Team Assessing and Understanding Deaf Individuals' Occupations

TAKE OUR SURVEY!

GEMSTONE
UNIVERSITY OF MARYLAND

- If you are:
  - Undergraduate junior or higher
  - Grad student in 1st or 2nd year
  - Graduated college in the last 2 years

- Click here to access survey!

- Our University of Maryland team is conducting a research project. We are studying the effects of college education on communication skills. Thank you for your participation!

The survey contains ?s about:

1. Communication Style

2. Writing Style

3. Type of Schooling

For more information check out the team website at:
http://teams.gemstone.umd.edu/classof2010/audio/ or email zeeger@health.umd.edu.

Appendix I – Written Rubric

	5	4	3	2	1	0	Grade Given
Content	Even, balanced, and relevant information (90% + of the time)		Information is mostly relevant approximately 40% - 60% of the time		Information is often unrelated or incoherent	Response information does not answer the question	
	Examples and details are thorough and focused		Examples and details are somewhat focused and reasonably thorough		Examples/details are vague or too brief; they may be listed	There are no examples provided	
	Ideas clearly support the topic		Ideas somewhat relate to the topic in a way that the reader can understand their relevance		Reader has difficulty deciphering how the ideas relate to the topic, may be distracted by trying to find relevance	It is evident to the reader that the response does not relate to the topic	
Organization	Ideas are clearly related to one another and arranged in a logical sequence		Ideas are somewhat related and somewhat arranged in a logical order		Ideas are unrelated to one another and are arranged illogically	The reader took no effort to arrange information in order to aid the reader	
Purpose	The purpose of the writing is clear and evident		The purpose of the writing is moderately strong		The purpose of the writing seems vague or inconsistent	There seems to be no constructive intent in the response	
Voice/Tone	The writer never strays from their purpose		The writer sometimes strays from their purpose		The writer lacks a purpose	The respondent did not answer the question	
	The writing is compelling and demands attention		Responses are generally engaging, with some personality		The writing lacks personality or interest	The writing is dry or otherwise lacks any personality. Response is too short to define a tone	
	The writing is written in a mature and sophisticated manner and acknowledges the audience well		The writing is written in adolescent manner, it somewhat acknowledges the audience's needs and shows signs of development		The writing is written in an immature or juvenile tone and is inappropriate for research purposes	The writing is inappropriate for the survey. It may be vulgar or otherwise offensive	
Sentence Structure	Sentences are complex and display proficiency in written language		Sentences show some variety and a general adequacy of written language		Sentences seem of stock structure and show little command over written language	There are sentence fragments, lists, or bullet points that are used incorrectly	
	Sentences flow smoothly		Sentences flow relatively well but sometimes distract the reader		Sentences are awkward or require rereading	Sentences do not make sense as they are written	
	There are no grammatical errors in this response		Between 2 and 4 grammatical errors within the response		More than 6 grammatical errors in the response	Grammatical errors make it very difficult to understand the reading	
Word Choice	Writer uses a high level of vocabulary; word choice enhances the response and makes it clearer.		Word choice generally helps clarify the response; vocabulary is of an intermediate level		Word choice is distracting a causes the writing to be difficult to understand; vocabulary is elementary	Word choice is inappropriate or not relevant to the topic at hand	
	All words are used properly		Almost all words are used properly, 2-4 misuses		More than 6 words are used incorrectly	The incorrect use of words makes sentences have different meaning or the meaning of the writer unclear	
						Total	

Appendix J – Interview Rubric

	5	4	3	2	1	Grade Given
Content	Information is relevant and concise		Inoformation is not concise enough to answer the question, but not extensively		Information is often unrelated or incoherent	
	There is not a stray or misleading fact		Speaker may stray at times but always returns to the topic		Strays from the topic constantly	
Organization	Uses relevant examples effectively		Examples are helpful but are underdeveloped		There are no examples or those given are unrelated to the topic	
	Ideas are clearly related to one another and arranged in a logical sequence		Ideas are somewhat related and somewhat arranged in a logical order		Ideas are unrelated to one another and are arranged illogically	
	Transitions are well defined and responses follow a logical progression		Transitions are apparent but not smooth. May be awkward at times		Transitions are awkward. The answer does not follow a logical progression.	
Delivery / Language	Ideas seem spontaneous and natural; they are not rehearsed or prepared		Ideas are average but may seem rehearsed or lack emotion.		Delivery of ideas is haphazard, confusing, or detract from the discussion	
	Response avoids the use of inarticulates (likes, ums, etc.) / slang		Respondent attempts to avoid using inarticulates/slang but may use them sporadically		There is an overabundance of inarticulates/slang	
Body Language	Gestures are natural and purposeful. They enhance communication		Gestures may seem forced or otherwise awkward.		Gestures are inappropriate, excessive, or detract from the conversation	
	Professional posture; no slouching, etc.		Posture does not detract from the discussion but may seem somewhat awkward or forced		Person may be slouching or have otherwise unprofessional posture	
	Strong, direct, and consistent eye contact is maintained at all times		Person tries to make eye contact but may be somewhat hesitant to do so. Eye contact approximately 50% of the time.		Lack of eye contact is distracting. Person may stare at the floor or other unrelated items	
Attitude and Energy	Establishes a meaningful rapport with interviewer; professional relationship		Polite but distant relationship between respondent and interviewer		Unprofessional relationship with interviewer	
	Is anxious to communicate with the interviewer		Politely answers questions but not necessarily interested		Not enthusiastic; disinterested	
	Interview is more conversational than one-sided		Interviewee answers questions, but does not seem interested in going beyond this to converse with the interviewer		Not conversational; straight back and forth question/answer	
Total						

Appendix K – Acknowledgement of Receipt Form

A. JAMES CLARK
SCHOOL OF ENGINEERING

GEMSTONE PROGRAM
0100 Ellicott Hall
College Park, Maryland 207423011
(301) 4058047
Fax (301) 3148469

Acknowledgement of Receipt

"I hereby acknowledge receipt of a gift card or other incentive for my participation in a research study and/or survey for the Gemstone Program."

PRINTED NAME: _____

ADDRESS: _____

_____

Are you an employee of the University of Maryland? Please circle one: *YES or NO*

If yes, please provide UNIVERSITY ID #: _____

Please Note: When the incentive is a gift card, the UM Payroll Office will be notified of any individuals who are UM employees. The value of the gift card will then be recorded as income for tax purposes.

_____   _____

Signature of the Recipient   **Date**

FOR INTERNAL USE ONLY:

Description of Gift Card / Incentive:
_____
Name of Gemstone Team: _____
Description of Team Research / Purpose of Survey:
_____
_____
____
Other information:
Has this study received IRB approval? Please indicate: ___*YES* ___*NO* ___*Not Applicable*
****
****
_____ _____
Department Head Approval: Date
Dr. James Wallace, Gemstone Program Director

If you accept the incentive for participating in this research study, please PRINT your name below. Your name will not be linked to the research that is collected in any way. Your survey, interview, or focus group responses are kept completely confidential

Appendix L – Videotape Release Form

VIDEOTAPE RELEASE FORM

I _____ agree to be videotaped as part of my participation in the study, "_____" conducted by _____.
I understand that the videotape will not have my name on it and will have a code number for identification instead. I understand that the videotape will be kept in a secure place and destroyed upon completion of the study. I grant the experimenter _____Team Assessing and Understanding Deaf Individuals' Occupations ___ of ___University of Maryland___, permission to videotape me during participation in the interview. I understand that this form will be renewed annually. This form expires one year from date signed.

_____   _____
Participant's Signature   Date

_____   _____
Primary Investigator's Signature   Date

Appendix M – Interpreter Confidentiality

INTERPRETER CONFIDENTIALITY AGREEMENT

I, _____ , understand that I will have access to private information of the individuals participating in the study, "Assessing and Understanding Deaf Individuals' Occupations" conducted by _____ Team Assessing and Understanding Deaf Individuals' Occupations_____. I understand that any information passed from participant to the experimenter is confidential. I agree to keep any and all information about the participant confidential. I further understand that any private information learned about the participant's family is to remain confidential as well.

I grant the experimenter _____ Team Assessing and Understanding Deaf Individuals' Occupations___ of ___University of Maryland___, permission to videotape me during participation in the interview. I understand that this form will be renewed annually. I also understand that this confidentiality agreement extends beyond the time of which my duties were required. My signature below indicates that I have read the above information, and that I understand and agree to keep the privacy and confidentiality protocols set forth by this study.

_____   _____

Interpreter's Signature   Date

_____   _____

Witness/ Experimenter's Signature   Date

_____   _____

Primary Investigator's Signature   Date

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