TOWSON UNIVERSITY
COLLEGE OF GRADUATE STUDIES AND RESEARCH

THE AWARENESS OF THE PROFESSION OF AUDIOLOGY AMONG COLLEGE STUDENTS

by

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AUDIOLOGY DOCTORAL THESIS APPROVAL PAGE

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ABSTRACT

THE AWARENESS OF THE PROFESSION OF AUDIOLOGY
AMONG COLLEGE STUDENTS

JEREMY DONAI

It is important for the profession of audiology to attract a large number of highly qualified students into the field early in their academic career, as they are making decisions regarding major field of study and eventual career path. This study was conducted to examine the awareness of the profession of audiology and the Communication Science and Disorders (CSD) department among college freshman students at California University of Pennsylvania (Cal U). Fifty-four percent of the students reported being unfamiliar with the profession of audiology, while 46% reported some degree of familiarity with the profession. Most of the students (88%) who were familiar with the profession were unaware of the undergraduate program in Communication Science and Disorders at their university. Many of these students reported their first encounter with the profession occurred during their high school experience. Recommendations regarding future recruiting and general audiology awareness activities are discussed.

TABLE OF CONTENTS

LIST OF FIGURES

Chapter 1

Introduction

Since its formal beginnings following World War II, the profession of audiology has undergone numerous changes. One of the most recent changes is a transition in the entry-level educational requirements from a two-year master's degree to a four-year doctoral degree. This is due to a tremendous increase in the scope of practice. For students to succeed at the doctoral level, the profession of audiology must attract highly qualified students early in their academic career, as students begin to make choices regarding what field or profession to pursue. Research examining students in the professions of medicine, dentistry, optometry, and physical therapy showed that the earlier a student became interested in a particular profession, the less likely they would pursue a career in another discipline (Knight, 1973; Levine, 1978; Pavalko, 1964; Rogoof, 1957; Stith, Butterfield, Stube, Deusinger, & Gillespie, 1998). Doyle and Freeman (2002) stressed the importance of raising the awareness of the profession of audiology early in a student's academic career. They found that 98% of audiology graduate students participating in their study first considered a career in audiology late in their academic career (after the age of 18), and 92% of those students seriously considered another occupation prior to their decision to pursue audiology.

One limitation of the aforementioned study may explain the reason for such a late interest in the profession of audiology. Were these audiology graduate students unaware of the profession prior to their college academic career? In order for the profession of audiology to increase the number of highly qualified students entering doctoral programs in audiology, it would seem prudent to explore when students become aware of the profession of audiology and/or how many students are exposed to the profession.

Chapter 2

Review of Literature

Expanding Scope of Practice

The profession of audiology developed from the aural rehabilitation programs instituted in the American armed services following World War II (Bergman, 2002). The purpose of these programs was to rehabilitate thousands of soldiers who acquired hearing loss during the war. At that time, the scope of practice in audiology was limited to basic diagnostic procedures, such as air and bone conduction testing, and aural rehabilitation services such as speechreading, speech improvement, auditory training, and hearing aid use (Bergman, 2002). Most aural rehabilitation services were provided by physicians, speech pathologists, psychologists, and deaf educators (Katz, 2002). The diagnostic capabilities available to audiologists began to emerge at this time (Katz, 2002).

Diagnostic Audiology in the 1950's and 1960's

With the advent of behavioral site of lesion testing in the 1950's and 1960's, audiologists were better able to differentially diagnose cochlear and retrocochlear (eight nerve or lower brainstem) site of lesion as causes for hearing loss (Brunt, 2002). Common behavioral site of lesion tests looked for indirect evidence of recruitment (the abnormal growth of loudness) and tone decay (poor sensitivity for prolonged tones).

Tests for recruitment included the alternate binaural loudness balance (ABLB), monaural loudness balance (MLB), and short increment sensitivity index (SISI) tests. Tone decay tests examined the change in threshold sensitivity in response to a prolonged tone presented at or near threshold (Carhart, 1957; Olsen & Noffsinger, 1974) and Bekesy audiometry yielded specific patterns in response to pulsed and continuous tones. Test results were examined for the possibility of retrocochlear pathology (Jerger, 1960).

Diagnostic Audiology in the 1970's

During the 1970's, clinical immittance measurement emerged as a clinical assessment tool for middle ear function (Jacobson & Northern, 1991). Clinical immittance audiometry consists of three parts: tympanometry, acoustic reflex threshold (ART) and acoustic reflex decay (ARD). Tympanometry is an objective test of middle ear function conducted by examining the response of the impedance (opposition to the flow of energy through a system) or admitance (ease at which energy travels through a system) properties of the ear using a variable pressure level (Fowler & Shanks, 2002).

The acoustic reflex is the bilateral reflexive contraction of the muscles in the middle ear resulting from acoustic stimulation (Stach & Jerger, 1991). The ART is the lowest intensity level at which a measurable change in the admittance of the middle ear occurs. Ipsilateral (uncrossed) and contralateral (crossed) reflexes are obtained and compared to aid in differentiating eighth nerve from brainstem disorders (Stach & Jerger, 1991). ARD is a reduction in the magnitude of the

acoustic reflex response during the presentation of a sustained acoustic stimulus and is associated with retrocochlear/eighth nerve disorders (Silman & Silverman, 1997).

Diagnostic Audiology in the 1970's and 1980's

During the late 1970's and 1980's, the electrophysiological evaluation of the auditory system was commonplace in the majority of clinical settings (Jacobson & Northern, 1991). First described by Jewett and Williston (1970), the far field recording known as the auditory brainstem response (ABR) was seen as a series of five to seven positive peaks occurring within ten milliseconds following the onset of an auditory stimulus. The ABR is most often measured using surface electrodes strategically placed on the scalp and external auditory structures. Jewett and Williston (1970) suggested that the ABR allowed for the study of electrical activity of the auditory system and could be used to determine the level of neural dysfunction in conditions such as "brain damage" and "space occupying lesions" (p. 1517). While the ABR served as a measure of neural synchrony and function, an additional type of auditory test provided a physiologic measure at the level of the cochlea. During this time period, the auditory phenomenon known as otoacoustic emissions (OAE's), first discovered by David Kemp (1978), provided an objective physiologic measure of cochlear function. OAE's originate in the outer hair cells of the cochlea and are believed to be the "preneural mechanisms of the cochlear amplifier" (Prieve & Fitzgerald, 2002, p. 440). In order to record OAE's, a sensitive microphone housed within a probe assembly is placed in the ear. This probe assembly presents a stimulus, usually a click or combination of pure tones, while the microphone simultaneously records and amplifies the resulting OAE.

Audiology Today

Today, audiologists provide extensive and sophisticated diagnostic and rehabilitative services (Katz, 2002). The current diagnostic procedures rely on an understanding of the technology and theory underlying past procedures and a solid foundation in the sciences. The current scope of practice in audiology includes diagnostic and rehabilitative services such as the dispensing and fitting of digital amplification, cerumen management, electrophysiological testing, auditory processing testing, measurement of sensory or motor evoked potentials during intraoperative room monitoring, and vestibular assessment and rehabilitation (ASHA, 1996). Because the available diagnostic and treatment services and scope of practice in audiology have increased dramatically, so have the educational requirements for entry into the profession.

Expanding Education of Audiologists

Historical Perspectives on Educational Requirements

Over the years, the educational requirements for certification in audiology have increased dramatically to keep pace with the expanding scope of practice. In 1952, the American Speech and Hearing Association (ASHA), the national certification body for the profession of audiology, established certification for audiologists at two levels, Basic and Advanced. The Basic certification required a bachelor's degree while the Advanced certification required a master's or doctoral level degree (Ainsworth, 1961; Malone, 1999). Both levels were accepted by the profession and considered adequate certification for practicing audiologists.

In order to achieve a national standard of competence, ASHA established, in 1959, the Educational Service Board (ESB). The ESB was charged with creating and implementing standards for academic programs (ASHA, 1964). In 1962, ASHA began accrediting academic programs in the communication sciences, and then in 1965, ASHA created a single level of certification requiring a master's degree for the Certificate of Clinical Competence (Minifie, 1983). ASHA issues the Certificate of Clinical Competence to clinicians who show evidence of their ability to provide independent clinical services to individuals with disorders of communication (ASHA, 2003a).

During the 1980's the effectiveness of the entry-level master's degree came into question and support for a professional doctorate became apparent. The 1982 ASHA Omnibus survey showed strong support among its members, with 63% of the participants responding in favor of the professional doctorate (ASHA, 1983). In 1983, ASHA stated that the master's degree did not provide adequate professional preparation for the scope of practice in audiology (Bloom, 2000). Miller and Deutsch (1983) suggested that "M.S.-M.A. graduates with majors in audiology are too often inadequately trained in basic sciences, unable to explain diagnostic and therapeutic procedures in meaningful anatomic and physiological terms, and inadequate in their understanding of the theory and practice of modern electrophysiologic procedures" (p. 39). They also suggested that the "master's degree is no longer viable as a terminal professional degree for audiologists" (p.40). A year later in 1984, exploration into the professional doctorate was recommended by an ASHA task force (Bloom, 2000).

In 1992, ASHA's Legislative Council passed a resolution (LC 4-92) in support of the doctorate as the future entry-level degree in audiology; however, the council did not specify the doctoral degree designator. By 1993, the Legislative Council approved resolution LC 44-93 that supported the doctoral degree as the entry-level requirement, with the Au.D. being the preferred designator. The resolution also recommended that the Standards Council change the degree requirement from a master's degree to a doctoral degree for the Certificate of Clinical Competence in audiology.

Doctoral Education

Given the expanded scope of practice and increased educational requirements, ASHA recognized the need to modify requirements for certification in audiology and implemented new policy accordingly (ASHA, 2003b). ASHA created two phases in the new standards for the Certification of Clinical Competence in Audiology (CCC-A) (ASHA, 2003b). Phase one mandated that individuals applying for initial ASHA certification on or after January 1, 2007 would be required to complete 75 post baccalaureate credits in audiology to be eligible for ASHA's CCC-A. Phase two mandated that individuals applying for initial ASHA certification on or after January 1, 2012 would be required to hold a doctoral degree in audiology to be eligible for ASHA's CCC-A; however, the doctoral degree designator was not specified. The Council on Academic Accreditation (CAA), the accrediting body for academic programs in audiology and speech pathology, also revised its requirements to state that after January 1, 2007, the CAA will no longer accredit academic programs offering a master's degree in audiology and will award candidacy, initial

accreditation, and/or re-accreditation only to doctoral level programs in audiology. Some of the current doctoral degree designators are the Doctorate of Philosophy (Ph.D.), Doctorate of Science (Sc.D.), the Doctorate of Education (Ed.D.), and the Doctorate of Audiology (Au.D.).

The Au.D.

The concept of the professional doctorate in audiology has been discussed by members of the profession of audiology since the 1950's (Minifie, 1983). However, it was given little attention until the cumulative affects of new diagnostic and treatment procedures on the audiology training model indicated the need for a professional degree (ASHA, 1992; Bloom, 2000). According to an American Academy of Audiology (1991) position paper, the professional doctorate is the "highest university award given in a particular field in recognition of completion of academic preparation for professional practice and does not require a dissertation for its completion." In addition, "the specific purpose of the professional doctorate in audiology (Au.D.) is to prepare highly skilled practitioners." Specifically, the purpose of Au.D. programs is to educate audiologists who are capable of autonomous provision of a wide variety of preventative, diagnostic, and treatment services.

The Au.D. is a 4-year, post baccalaureate, professional degree with it's major emphasis on clinical training (AAA, 1991). According to the ASHA Ad Hoc Committee on Professional Education in Audiology (1992), the Au.D. emphasizes clinical training and includes coursework in the following areas: basic science (physics, acoustics, anatomy, neuroanatomy, neurophysiology, clinical

pharmacology, etc.); audiologic assessment; clinical decision process and counseling; professional issues; prevention of hearing loss and hearing conservation; audiologic habilitation and rehabilitation; amplification; and vestibular function. Students in Au.D. programs should be exposed to a variety of challenging clinical environments including, audiology/medical practices, autonomous private practices in audiology, community clinics, hospitals, industrial settings, educational agencies, and university clinics. It is recommended that students enrolled in Au.D. programs receive between 2500 and 3000 hours of clinical experience prior to graduation (AAA, 1991; ASHA, 1992). The emergence and development of the Au.D. occurred as a tremendous growth was seen in the profession (Katz, 2002).

Societal Trends

Occupational Outlook

According to the 2001 employment projections by the U.S. Bureau of Labor Statistics, the professions of speech-language pathology and audiology ranked among the top 30 of the 700 fastest growing professions (Boswell, 2002). In particular, audiology was ranked 19th, and the number of positions within the field was predicted to grow by 45% from approximately 13,000 positions in the year 2000 to approximately 19,000 positions in 2010 (U.S. Bureau of Labor Statistics, 2001). The U.S. Bureau of Labor attributes this occupational growth to key trends in healthcare including the increasing number of aged individuals in America and the early identification of hearing loss in children identified through the Universal Newborn Hearing Screening program. Together, these two phenomena are

significantly increasing the number of individuals who will require audiological services in the United States.

Influence of Aging

Aging America.

According to Fabry (1996), the "graying" (p. 2) of America will dramatically increase the patient base for practicing audiologists. Weinstein (2000) reported that the over 65 population will grow to 70 million people by 2040, increasing from 12.5% to 20.7% of the total population. In the United States, individuals 85 years of age and older is the largest growing segment of the elderly population (Abrams, Beers, & Berkow, 1995). Their numbers are expected to double by the year 2050, increasing from 10% of the present elderly population to approximately 20% (Weinstein, 2000).

The "baby boom" generation is the term that describes the 78 million Americans born at a time when birth rates were extremely high following World War II (Fabry, 1996, p. 2). This generation officially began in 1946 due to the sharp rise in birth rates and ended in 1964 when fertility rates returned to pre-World War II levels (Morgan, 1998). As this cohort of the population nears and surpasses fifty years of age, audiologists, as well as all health care providers, are now faced with the issue of providing adequate health care for a significantly larger group of patients.

The aging auditory and vestibular system.

According to Silman and Silverman (1997), the aging process results in anatomic and physiologic degeneration at every level of the auditory system. One of the most common manifestations of aging on the auditory system is a loss or

reduction in hearing sensitivity. Presbyacusis, the reduction in auditory sensitivity that naturally occurs with age, is the most common cause of hearing loss in elderly individuals (Mencher, Gerber, & McCombe, 1997; Silman and Silverman, 1997; Weinstein, 2000). It has been estimated that individuals over the age of 65 are seven times more likely to have a hearing impairment than individuals under the age of 45 (Mencher et al., 1997). In fact, it is projected that by the year 2050 approximately 60% of the aged population will report having some type of hearing difficulty (Weinsten, 2002).

Like the changes that occur in the auditory system, the vestibular system also undergoes changes throughout the aging process. Degenerative changes have been found to occur at both the peripheral and central vestibular systems (Calder, 2000; Goebel, 2001). Kristinsdottir, Fransson, and Magnusson (2001) suggested that a decline in the body's sensory system function is a normal part of the aging process; therefore, a decline in vestibular function in elderly individuals is common. According to the National Institute of Health (NIH) (2003), 90 million Americans will experience vertigo or dizziness at least one time in their life, and vertigo is the number one complaint of patients over the age of 70. Furthermore, Goebel (2001) suggested that aging is one of the leading risk factors for dizziness and balance difficulties because of the degenerative changes that act to weaken the response to motion and acceleration.

Audiologists are now playing a more prominent role in the assessment and management of patients with symptoms of dizziness. Specifically, they are involved in terms of performing balance function testing (e.g., electronystomagraphy, rotary

chair, and dynamic posturography) and providing "non-medical treatments" to chronically dizzy patients (Calder, 2000, p. 141). Given the projected demographics of the elderly population and the increased prevalence of hearing loss and dizziness that occurs with age, the profession of audiology can expect a dramatic increase in the number of patient visits for audiological and balance function testing. Just as the number of aging individuals in the United States is noticeably increasing the patient base for audiology services, so are the children identified through the Universal Newborn Hearing Screening programs.

Universal Newborn Hearing Screenings

Unidentified hearing loss in children may have deleterious effects that can create a lifelong disability. Hearing loss can have negative implications on all areas of a child's development including speech and language development, psychosocial skills, academic progress, and vocational opportunities (Meyer, 2000). Therefore, early detection and appropriate intervention are critical in maximizing an individual's potential in all developmental areas (Diefendorf, 2002).

The underlying assumption of the Universal Newborn Hearing Screening (UNHS) program is that early detection of a hearing impairment followed by appropriate and timely intervention will maximize the benefits the child, family, and society will receive (Diefendorf, 2002). Each year it is estimated that 16,000 infants will be diagnosed with a hearing loss through UNHS (Arehart & Yoshinaga-Itano, 1999). UNHS programs, currently mandated in 38 states, have been shown to reduce the average age of identification for children with hearing loss from 12-18 months to 6 months or less (Keren, Helfand, Homer, McPhillips, & Lieu, 2002). If children

can be identified at this early age, then intervention including speech and language therapy, aural rehabilitation, appropriate amplification, and family support will likely optimize a child's communication during language development. Keren et al. (2002) have suggested that this early identification and intervention may significantly improve language skills by 2 through 5 years of age. Other positive outcomes associated with early identification include: better social and emotional development, language development similar to nonverbal cognitive development, less parental stress and better personal-social development of children, better language development by the age of 5 for those born in a hospital with newborn hearing screening programs, and better speech development due to better language development (Yoshinaga-Itano & Gravel, 2001). Fortunately, through early detection and intervention facilitated by the UNHS, children born with hearing impairment will be provided a more equal opportunity to succeed in all areas of life compared to their normal-hearing peers. However, in order to meet the increased challenges created by the UNHS programs as well as the aging population, the profession of audiology needs to recruit high quality students to effectively serve the unique needs of these individuals.

Student Recruitment

Due to the expansion in scope of practice, the current transition from a master's level to doctoral level profession, and the growing number of individuals requiring audiological services created by healthcare trends such as the number of aging individuals in the U.S. and the UNHS, there is a need for a robust effort to recruit students into the field of audiology (Fabry, 1996; Jacobson, 2000;

Turner, 1993). In addition to the need for an increase in the number of students, Linda Hood (1993) urged the profession to "not forget the importance of recruiting highly qualified students into audiology and assuring that they enter graduate education with an appropriate knowledge base" (p. 6). She suggested that students in academic disciplines other than the communication sciences, such as engineering, mathematics, and the sciences, have backgrounds well suited for a career in audiology. She recommended that the profession make an active effort to recruit students early in their academic careers, including high school as well as college level students.

In order to address recruitment needs, ASHA created a campaign to raise the awareness of the professions of speech-language pathology and audiology among high school students across the country (ASHA, 2001). ASHA has designed and distributed information kits targeting high school guidance counselors, speech-language pathologists, and audiologists within the high schools to gain support for the campaign and increase the profile of the profession. In an effort to attract a more ethnically diverse workforce, ASHA also distributed book covers promoting both professions to high schools containing large and culturally diverse student populations. ASHA also produced a videotape including an overview of the two professions. ASHA suggested that this video titled "Communication: The Human Connection" be used in a variety of ways, including presentations to student groups at health fairs or career fairs; educational presentations to professional, business, or community groups; and clients who are unfamiliar with the professions of speech pathology or audiology.

Education of Future Audiologists

Another challenge facing the profession of audiology is a lack of Ph.D. level audiologists, who are responsible for the majority of teaching and research activity that occurs in university training programs. Recent demographic information from programs offering a Ph.D. in Communication Sciences and Disorders in the United States suggests a severe shortage of doctoral students (Scott & Wilcox, 2002). With the change in the entry-level education requirement to a doctoral degree, students enrolled in audiology graduate programs are now faced with the decision of choosing between the clinical doctorate (i.e., Au.D.) and the research doctorate (i.e., Ph.D., Sc.D.) (Uffen, 2002). This decision is made even more difficult with the availability of the clinical Ph.D. and Sc.D. degrees and the varying research requirements within Au.D. programs; thus the differentiation between the degree designators as clinical versus research degree can appear blurred to the student exploring doctoral education options.

A survey including 85% of all doctoral programs showed that there were 333 unfilled positions for audiology research-doctoral students (Scott & Wilcox, 2002). According to the 1996-1997 National Biennial Survey conducted by the Council of Academic Programs in Communication Sciences and Disorders (CAPCSD), the number of doctoral degrees granted by programs in the communication sciences has decreased by 21.4 % compared to the council's previous survey in 1993-1994. A more recent survey conducted by the CAPCSD found similar results (Petrosino, Lieberman, & McNeil, 1997). The "Survey of Undergraduate and Graduate Programs in Communication Sciences and Disorders" conducted in 1998-1999

suggested that the total number of doctoral degrees granted in CSD programs was the lowest in the history of the survey (Petrosino, Lieberman, McNeil, & Shinn, 1999). The number of doctoral degrees granted in audiology, in particular, showed a 50% decrease in the number of degrees granted compared to those reported in 1996-1997 and was also the lowest in the history of the survey. They also suggested that the number of doctoral graduates in CSD was inadequate to fill the projected number of available doctoral faculty positions for the 1999-2000 academic year. The most recent survey by the CAPCSD, "Demographic Survey of Undergraduate and Graduate Programs in Communication Sciences and Disorders," found a slight increase in the number of research doctoral degrees granted in audiology as compared to the previous survey (Shinn, Goldberg, Kimelman, & Messick, 2001). They found that there were 18 research doctoral degrees granted in 1999-2000 compared to 14 in 1997-1998. Even though the number of degrees being granted is slightly increasing, there has been a 16% decrease in the number of students enrolled in audiology research doctoral programs since 1998-1999. Another pertinent finding was a decrease in the number of undergraduate programs in CSD as well as audiology doctoral research programs. The number of undergraduate programs in CSD and the number of students enrolled in research doctoral programs in audiology were at the lowest levels in the history of the survey. Undergraduate programs in CSD have been decreasing steadily over the years from 301 programs in 1988-1999 to 234 programs in 2000-2001, while the student enrollment in research programs has decreased from 239 students in 1998-1999 to 202 students in 2000-2001. As a

result, undergraduate enrollment showed a 54% decrease from 1998-1999, with the lowest student enrollment since 1988-1989.

The findings of these surveys of undergraduate and graduate programs in CSD suggest that there are a number of important issues facing the education of future audiologists. First, the decreasing number of undergraduate programs in CSD may translate into a smaller number of qualified students to pursue the doctoral degree in audiology. Secondly, with the steady decline in the number of audiology students pursuing the Ph.D., the profession may suffer due to a lack of individuals who are trained to conduct basic and applied research. Lastly, given the decreasing number of research doctoral degree students and the increasing need for qualified doctoral faculty at the university level, the profession must examine the education of future audiologists. According to Jacobson (2000), "the scientific advancement of the profession is highly dependent on the training of adequate numbers of Ph.D. level audiologists to maintain the quality of research conducted by past and current innovators within the profession" (p. 58). Jacobson also states:

> In the end, it takes research to create tools and to make the breakthroughs that help us understand how the auditory and vestibular systems work, how to better evaluate them, and how to intervene when they fail… and without research being done by a new group of bright students mentored by those leaving the scene, future audiologists could inherit an empty profession. (p. 58)

Therefore, it is critical to the survival of the profession to recruit qualified graduate students not only to clinical Au.D. programs but also programs that offer the Ph.D.

(Burkhard, 2002). Otherwise, the profession of audiology may suffer due a lack of both applied and clinical research as well as a lack of doctoral-level faculty.

Knowledge of the Profession

According to Neal (1994), most graduate students enrolled in audiology programs are not fully aware of the profession until early in their undergraduate coursework (as cited in Doyle & Freeman, 2002). This unpublished doctoral dissertation examined many issues surrounding the professional characteristics of audiology graduate students, including factors that influenced the students' decision to pursue a graduate degree in audiology. Neal reported that many audiology students decide to enter the profession later in their life, most likely due to a lack of exposure to the field.

A study by Doyle and Freeman (2002) found that 60% of the audiology graduate students who participated in their study initially discovered audiology through introductory coursework in speech-language pathology/audiology. In fact, the authors suggest that many students may actually "stumble" upon the profession of audiology. Given the fact that the majority of audiology graduate students discovered the profession of audiology in undergraduate coursework in the communication sciences, it is possible that many highly qualified college students who are enrolled in other academic disciplines may be unaware of audiology as an academic major and ultimately a possible career choice. If this is true, then audiology as a profession needs to work more diligently to increase awareness of the profession in high school students. It is critical to first examine what knowledge

high school students have regarding the profession in order to determine the extent of the need for further recruiting efforts for the profession.

Purpose of Study

Doyle and Freeman (2002) used a retrospective design to determine when audiology graduate students "discovered" the field of audiology. To date, there have been no published studies designed to determine student awareness of the field of audiology much earlier in the education process. Therefore, the purpose of this study was to survey the awareness of the profession of audiology among students early in their undergraduate career, particularly freshman college students. More specifically, the aim of the study was to survey freshman students entering a state-supported university to determine if they were aware of the profession of audiology, if they could accurately describe the job duties of an audiologist, and if so, when and by what means were they first introduced to the profession. Students attending a state supported university in Southwestern Pennsylvania were selected to complete the survey. Freshman students were chosen because the majority of participants were recent high school graduates making decisions concerning a major field of study and eventual career path. It is hoped that the results of this study will aid in determining future directions for audiology awareness activities and the recruitment of audiology students as they enter their undergraduate degree program.

Chapter 3

Methods

Participants

Towson University Institutional Review Board (IRB) for the Protection of Human Subjects classified the project as "exempt" (Appendix A). A cover letter describing the study was distributed to all participants (Appendix B) along with a survey. A survey titled "A Survey of College Students" (Appendix C) was distributed to 1005 entering college freshman students at California University of Pennsylvania (Cal U) as part of the Fall 2003 new student orientation process. California University of Pennsylvania is a state-supported university in Southwestern Pennsylvania. The surveys were distributed during an orientation held for two days in June, seven days in July, and two days in August. Surveys were given to students as part of an orientation packet during a scheduled activity and collected by orientation staff prior to proceeding to the next activity. Participation in the survey was completely anonymous, as the identity of the participants was not requested on the survey.

The University

California University has approximately 5,392 undergraduate students, 1046 graduate students, 357 full and part time faculty, and 302 full-time equivalency faculty (California University of Pennsylvania, 2004). The demographic composition of the students enrolled at the university is as follows: Caucasian (82%),

Multi-racial/unknown (10%), African American (5%), Asian/Pacific Islander (1.3%), American Indian (< 1%), and Hispanic (<1%) (Pennsylvania State System of Higher Education, 2002). The Carnegie Foundation classifies California University as a Master's College and University I. These institutions typically offer a wide range of baccalaureate programs, and they are committed to graduate education through the Master's degree and have awarded, on average, 40 or more Master's degrees per year across three or more disciplines (Carnegie Foundation, 2000).

California University Communication Sciences

California University of Pennsylvania offers an undergraduate program leading to a Bachelor's of Science (B.S.) degree in Communication Sciences and Disorders and a graduate program leading to a Master's of Science (M.S.) degree in Speech-Language Pathology. Their graduate program in Speech-Language Pathology admits approximately 12 to 15 graduate students each year. Presently, they have 24 traditional graduate students (14 first year and 10 second year students). They do not offer a graduate degree in audiology. Therefore, it was hoped that the lack of a graduate degree program in audiology would allow the survey to accurately reflect the knowledge of freshman students, without a potential bias toward the field of audiology or students who may have entered the university with the intention of pursuing a career in the field of audiology.

California University is regionally accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools and nationally accredited by the National Council for Accreditation of Teacher Education. The graduate program in speech-language pathology also holds national accreditation

from the Council on Academic Accreditation (CAA) of the American Speech-Language-Hearing Association.

Survey

The survey included background/demographic information, academic major/area(s) of interest, an individual's knowledge of California University of Pennsylvania's undergraduate program in Communication Sciences and Disorders, plans for graduate education, and specific knowledge and individual perceptions pertaining to the profession of audiology. The background/demographic information section included questions related to age, gender, marital status, ethnicity, parent's level of education, and academic major. A review of current and past survey research was conducted to ensure thoroughness in the development of this section of the survey. Thirteen questions contained in the survey were closed-ended, and three were open-ended questions in which personal opinions or specific knowledge of the profession of audiology was requested. A pilot study of the survey was conducted with 35 undergraduate students enrolled at Towson University. Based on the results of the pilot study, revisions to the survey were made.

Analysis

The results of individual items of the survey were analyzed using descriptive statistics. In addition, qualitative analyses were performed for open-ended questions.

Chapter 4

Results

Demographics

Five hundred eighty two of the 1005 surveys were returned, yielding a 58% response rate. Questions 1-4 requested demographic information. Ninety seven percent (n=564) of the respondents were 18-25 years of age. One percent was 26-30 years of age, 1.5% were 31-40 years of age, and .5% were 41 years of age or above. Fifty five percent (n=321) of the respondents were female and forty five percent (n=260) were male. Ninety six percent of the respondents were single and 2% were married. The remaining 2% were divorced, engaged, or other. Race/ethnic status were identified as follows: 89% Caucasian, 8% African American, 1% Hispanic, 1% Other/Mixed, .5% American Indian, and .5% Asian/Pacific Islander.

Figure 1 provides a summary of the educational level of the parents of the respondents. Examination of this figure indicates approximately 50% of the students reported that both parent's highest level of education was high school. Nineteen and eighteen percent reported 1-2 years of college for their mother's and father's level of education, respectively. Twelve percent reported 2 to 4 years of college as the level of education for their mother, while 14% reported a similar level of education for their father. Seven percent reported an undergraduate degree for both their mother and father's level of education. Eleven percent reported a graduate/professional

degree for their mother's level of education, while 10% reported a similar level of education for their father.

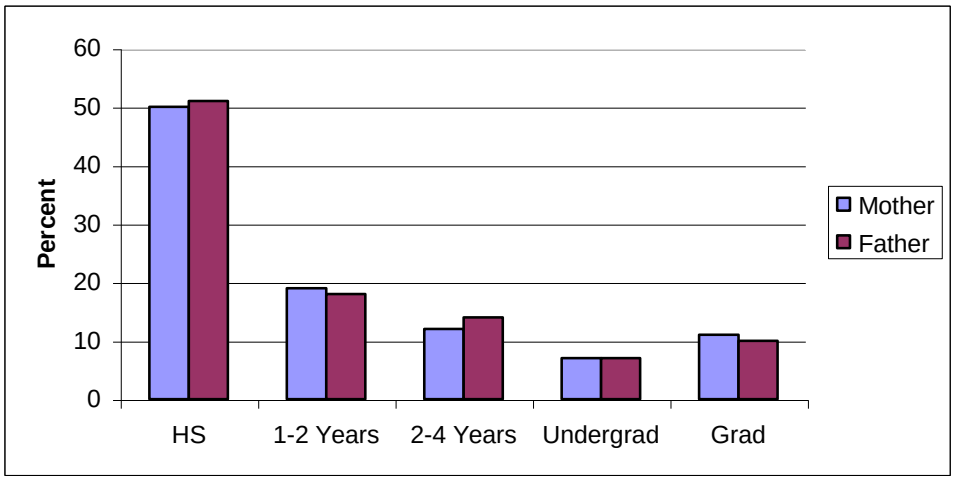

Figure 1. Responses to question #5 "Parent's Level of Education"

Academic Major

At California University, all undergraduate academic majors are classified within three colleges, the College of Education and Human Services, the College of Liberal Arts, and the College of Science and Technology (see Table 1). Question 6 asked the participants to list their academic major.

The results of question 6 are illustrated in Figure 2. Fifty one percent of the respondents reported choosing academic programs in the College of Education and Human Services. The majority of these students (61%) were education majors (e.g., elementary education, secondary education, special education), making education one of the most popular majors overall (31% of total respondents). Thirty two percent of the students chose academic programs in the College of Science and Technology. Nursing was the most popular program in the College of Science and Technology, with 23% of the respondents in that college majoring in that field

(7% of total respondents). The remaining 17% of participants had declared majors within the College of Liberal Arts. Psychology was the most popular major in the College of Liberal Arts, with 23% of the students in that college choosing the major (4% of total respondents).

Table 1
Undergraduate Degree Programs by California University College Classification

College of Education and Human Services	**College of Liberal Arts**
Communication Sciences and Disorders	Art
Counselor Education	Communications
Education	Earth Science
Gerontology	English
Health Sciences	Foreign Languages
Sport Studies	History
Social Work	Music
Special Education	Philosophy
	Psychology
	Social Sciences
	Theatre

College of Science and Technology
Applied Engineering Technology
Biological and Environmental Sciences
Business
Economics
Chemistry
Physics
Math
Computer Science
Nursing

Source: http://www.cup.edu/ugcatalog/index.htm

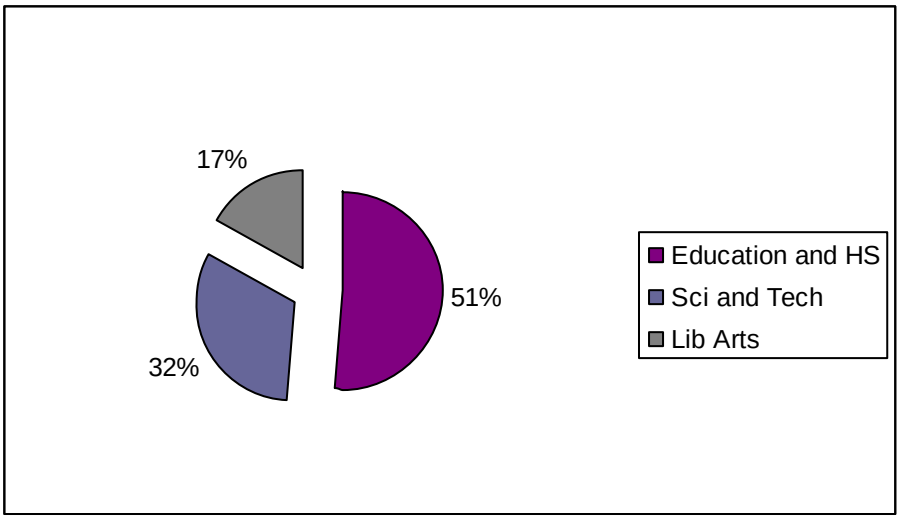

Figure 2. Responses to question #6, "What is your declared major?"

Question 7 asked the participants to provide a reason for choosing an academic major/area of interest. Students from all academic areas reported having a general "interest" in their specific field of study, with some generalities that crossed disciplines, such as working with/helping people and a favorable work schedule, listed as a secondary consideration. For example, education majors, particularly those majoring in elementary education, stated they enjoy working with children. Having a favorable work schedule and not having to work in the summer months were also popular responses among this group. The influence of former teachers was also mentioned as a reason for choosing education as an academic major. Most individuals majoring in the sport sciences (e.g. sports management and athletic training) reported having a "love" for sports and/or an "interest" in working in an athletic environment. A few respondents in this group also noted that working in an "active" environment motivated them to choose their academic major.

Knowledge of Cal U's Communication Sciences and Disorders Undergraduate Program

Question 8 asked the respondents about their knowledge of California University's undergraduate program in Communication Sciences and Disorders (CSD). Information regarding responses to this question is displayed in Figure 3. The majority (88%) reported they had never heard of California University's undergraduate CSD program. The remaining twelve percent reported having heard of the CSD undergraduate degree program. Of the 12% of the respondents who were aware of the program, 25% were education majors, 12% were nursing majors, 8% were criminal justice or radio/tv majors, 7% were psychology majors, and 5% were CSD majors. The remaining 35% included student's from 18 different academic areas of study including biology, chemistry, social work, history, and music.

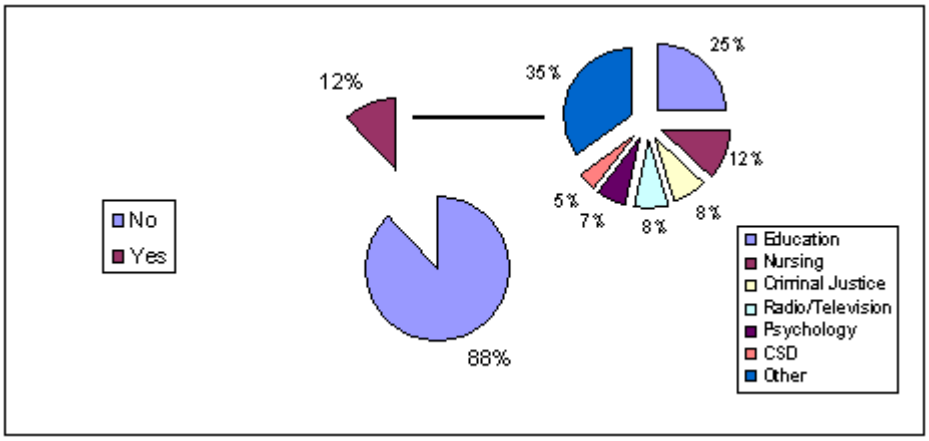

Figure 3. Responses to question #8, "Have you heard of California University's undergraduate program in Communication Science and Disorders?"

Plans for Graduate Education

Question 10 asked the participants "Do you plan on pursuing a graduate degree after your undergraduate education?" Forty percent of all respondents said they planned on pursuing a graduate degree upon completion of their undergraduate coursework, while only 7% reported that they had no plans of pursuing a graduate degree. Fifty three percent reported that they did not know if they would pursue a graduate degree.

Perception of the Profession of Audiology

Question 11 asked the participants "Do you know what an audiologist does?" Responses to this question are illustrated in Figure 4. Fourteen percent reported, "no, definitely not," while 40% reported they were "not sure." Twenty four percent reported they were "somewhat sure," 13% reported they were "rather sure," and 9% reported they "definitely know."

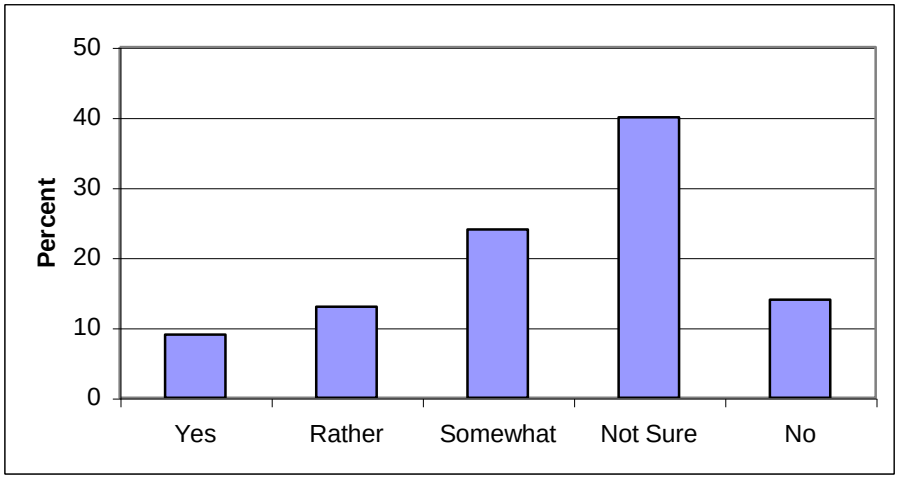

Figure 4. Responses to question #11 "Do you know what an audiologist does?"

Question 12 asked the respondents the question, "How did you first learn of the profession of audiology?" Responses to this question for the 46% of participants

who reported, “definitely know,” “rather sure,” and “somewhat sure” of what an audiologist does are displayed in Figure 5. Respondents who said they “definitely know” what an audiologist does reported that their first encounter with the profession was through a friend/family member (40%), or via school (27%). In contrast, 11% reported don’t know, 8% reported other, 5% reported television/radio, 3% reported career fair, 2% reported health fair, 2% reported guidance counselor, and 2% reported World Wide Web.

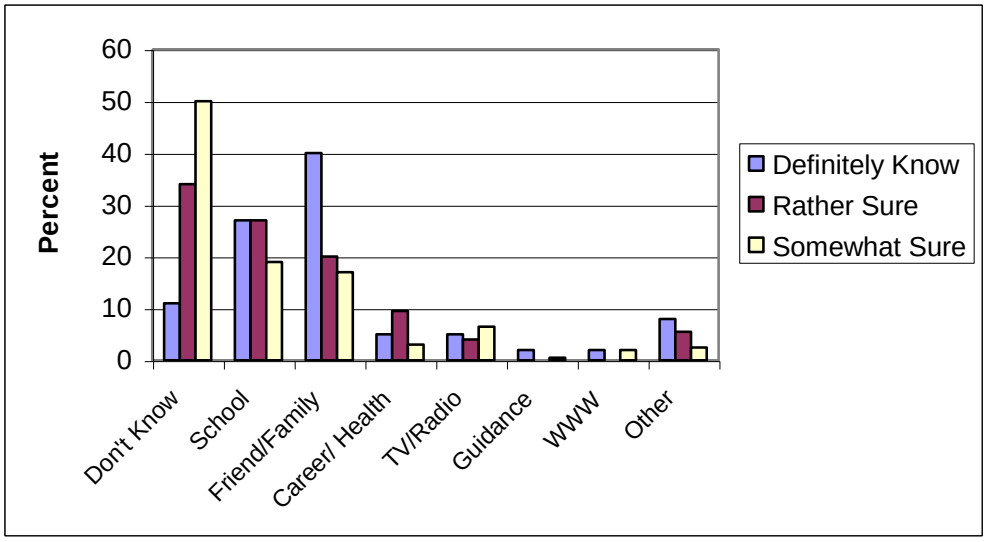

Figure 5. Responses to question #12 “How did you first learn of the profession of audiology?”

Thirty four percent of the participants who said that they were “rather sure” of what an audiologist does responded they don’t know how they first learned of the profession. In contrast, 27% responded school, while 20% responded friend/family member. The remaining 19% responded as follows: other (5.5%), career fair (5.5%), television/radio (4%), and health fair (4%).

Fifty percent of the participants who said they were “somewhat sure” of what an audiologist does responded they don’t know how they became aware of the profession. In contrast, 19% responded school, while 17% responded friend/family member. The remaining 14% responded as follows: television/radio (6.5%), other (2%), World Wide Web (2%), health fair (1.5%), career fair (1.5%), and guidance counselor (.5%).

Question 13 asked the respondents the question, “When did you first learn of the profession of audiology?” Responses to this question for the participants who reported they “definitely know,” are “rather sure,” and “somewhat sure” of what an audiologist does are displayed in Figure 6. Thirty two percent of the respondents who reported they “definitely know” what an audiologist does said that they first learned of the profession of audiology during high school. Contrary to this, 23% said elementary school, while 22.5% said they don’t know. Thirteen percent said middle school, while 5.5% said other, and 4% said college.

Forty three percent of the respondents who reported they were “rather sure” what an audiologist does said that they first learned of the profession during high school. In contrast, 39% said they don’t know, 8.5% said middle school, 5% said elementary school, 3% said college, and 1.5% said other.

Fifty six percent of the respondents who reported they were “somewhat sure” what an audiologist does said that they don’t know when they first learned of the profession. Contrary to this, 32% said high school, 7% said middle school, .5% said elementary school, 1.5% said college, and 3.5% said other.

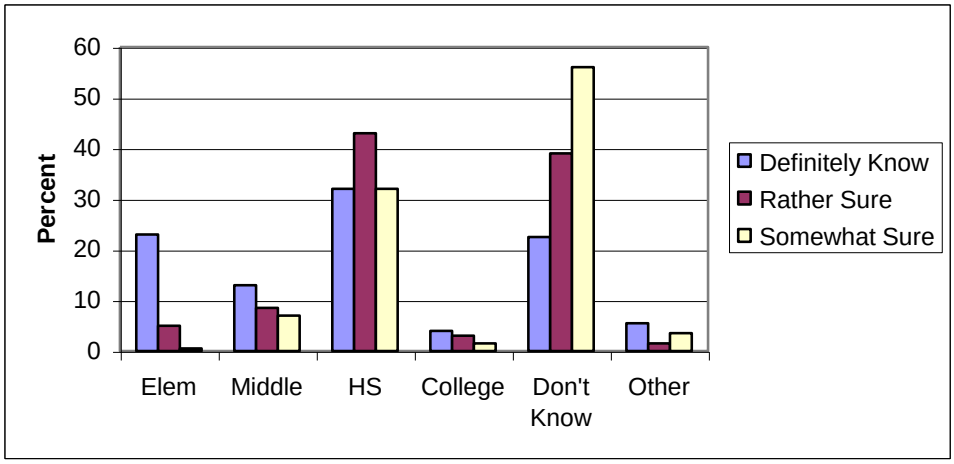

Figure 6. Responses to question #13 "How did you first learn of the profession of audiology?"

Question 14 asked the participants if they "have ever been seen by an audiologist and/or accompanied someone to an audiologist?" A graphic illustration of the responses to this question is displayed in Figure 7. The majority of the 9% of the respondents who said they "definitely know" what an audiologist does said yes (53%), while 47% said no. The 13% of the respondents who said they were "rather sure" of what an audiologist does responded yes (28%), while 72% responded no. The 24% of the participants who reported they were "somewhat sure" of what an audiologist does responded yes (15%), while 85% responded no. In other words, the more sure the participant was regarding what an audiologist does, the more likely they had been to and/or accompanied someone to an audiologist.

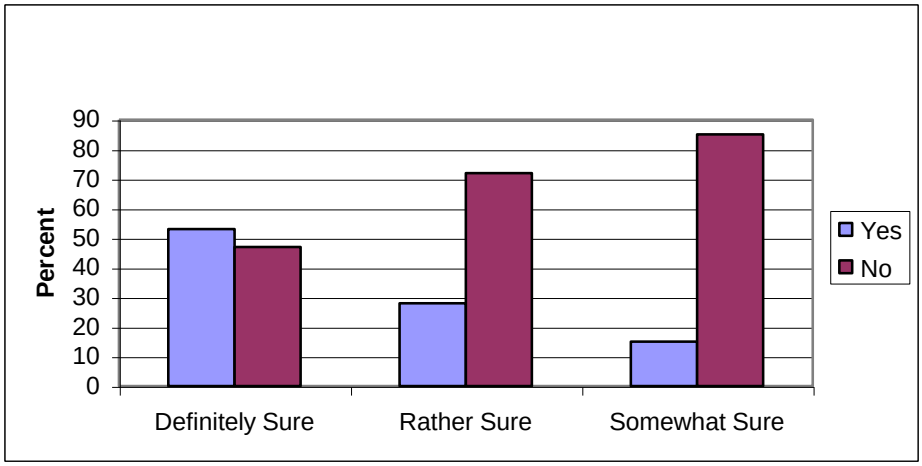

Figure 7. Responses to question #14 "Have you ever been seen by an audiologist and/or accompanied someone to an audiologist?"

Question 15 asked the participants, "What do you think is the minimum entry-level education requirement to become a certified audiologist?" As seen in Figure 8, 4% of the respondents who said they were "definitely sure" what an audiologist does (see question 11) reported a high school diploma as the entry-level educational requirement, 40% reported a bachelor's degree, 25% reported a master's degree, 13.5% reported doctoral degree, and 17.5% said they don't know.

Respondents who said they were "rather sure" what an audiologist does (see question 11) reported the following for entry-level education requirements: high school diploma (3%), bachelor's degree (27%), master's degree (22%), doctoral degree (20%), and don't know (28%).

Respondents who said they were "somewhat sure" what an audiologist does (see question 11) reported the following for entry-level education requirements: high school diploma (4%), bachelor's degree (27%), master's degree (23%), doctoral degree (18%), and don't know (28%).

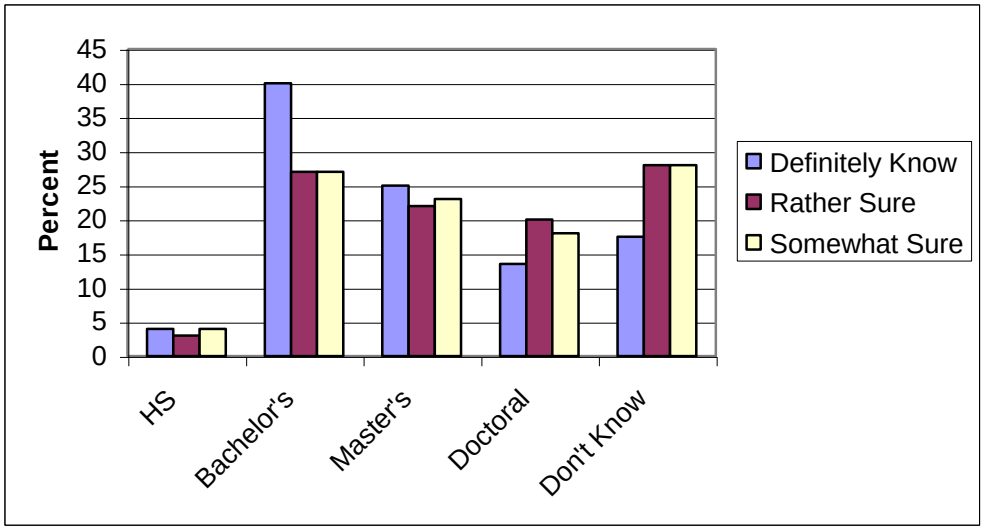

Figure 8. Responses to question #15 "What do you think is the entry-level (minimum) education requirement to become a certified audiologist?

What Does an Audiologist Do?

Question 16 asked the respondents to "briefly state what you think an audiologist does." Seventy seven percent (n=450) of the participants completed the question. Responses to this question were grouped into six general categories. These categories, shown in Figure 9, are: (1) hearing, (2) don't know, (3) sound, (4) other/miscellaneous, (5) ears, and (6) speech.

Forty four percent of all respondents provided answers that were related to hearing such as: hearing, the study of hearing, hearing doctor, tests hearing, hearing aids, and so forth. Twenty four percent of the participants responded, "don't know," and 14% of the responses were related to sound such as: sound, the study of sound, sound technology, sound engineer, and so forth. Four percent of the responses were related to ears, 4% related to speech–language pathology, and 10% were

miscellaneous including radio/tv, audio equipment, sound crew, movies, and so forth.

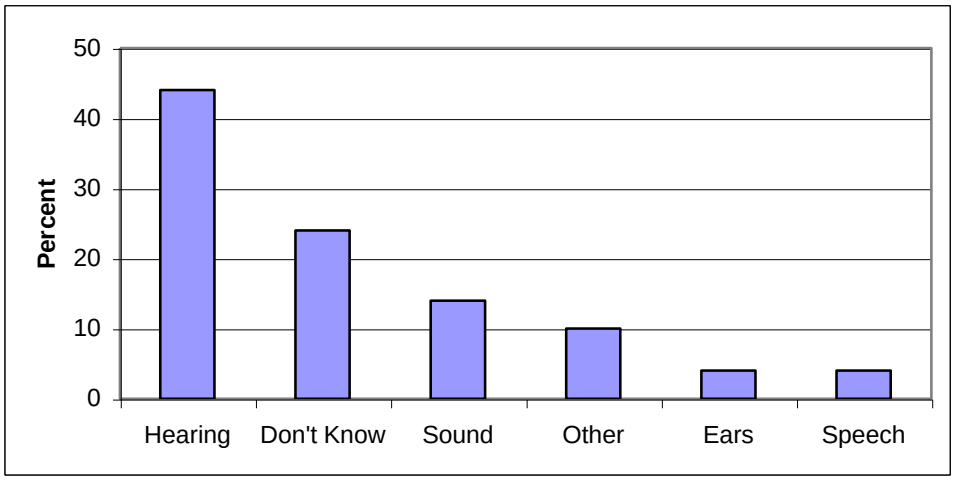

Figure 9. Responses to question #16 "Briefly state what you think an audiologist does."

Chapter 5

Discussion

The United States Bureau of Labor Statistics ranked the profession of audiology as the 19th fastest growing professions in the United States, with the projected number of professionals in the field increasing from 13,000 in the year 2000 to 19,000 in 2010 (U.S. Bureau of Labor Statistics, 2001). Key healthcare trends, such as the increasing number of aged individuals in the U.S. and the early identification of hearing loss in children through Universal Newborn Hearing Screening programs, are two of the major contributors to this growth. In addition to the expansion of the field of audiology, the entry-level educational requirements for certification in audiology are increasing from a master's degree to a doctoral degree due to the dramatic increase in scope of practice that has occurred over the last 25 years (ASHA, 1992). At the same time, student enrollment in undergraduate programs in the communication sciences and audiology research doctoral programs is declining (Shinn, Goldberg, Kimelman, & Messick, 2001).

Research has indicated that 60% of audiology graduate students are first exposed to the profession during undergraduate coursework in speech-language pathology and audiology, and these students may actually "stumble" upon the profession (Doyle & Freeman, 2002, p. 126). In order to raise awareness of the profession and attract a large number of highly qualified students to audiology

doctoral programs, it would be beneficial for students to be aware of the profession of audiology early in their academic experience. Therefore, the purpose of this study was to survey the awareness of the profession of audiology among students early in their undergraduate career, particularly entering college students.

Demographics and Academic Major

Most of the respondents (97%) were between 18-25 years of age, as expected because the surveys were distributed to entering students during freshman summer orientation. The responses from this age group were of particular importance because the purpose of this study was to examine the awareness of the profession of audiology among college students early in their undergraduate academic career, as they are making decisions that will determine their vocational path.

The ethnic composition of the respondents who completed the survey was similar to the ethnic composition of the entire university. In this study, 89% of respondents were Caucasian compared to 82% for the entire student body. Eight percent of the respondents were African American compared to 5% for the entire student body. It should be noted that 10% of Cal U's population was listed as Multiracial/Unknown (Pennsylvania State System of Higher Education, 2002). This category was not listed as an option on the survey. Therefore, some of the students who may have responded with Multiracial/Unknown were forced to choose a specific ethnicity. Overall, these numbers suggest that the responses obtained from this survey were gathered from students ethnically representative of the general student body at Cal U.

Fifty one percent of the students in this survey chose academic programs in the College of Education and Human Services, compared to 47% of the freshman class at Cal U. Students majoring in education totaled 31% of the entire surveyed population compared to 27% of the freshman at Cal U. Seventeen percent of the students chose academic majors in the College of Liberal Arts, compared to 25% of the freshman at Cal U. Students majoring in psychology totaled 4% of the entire surveyed population compared to 2% of the freshman at Cal U. Thirty two percent of the students chose academic majors in the College of Science and Technology, compared to 28% of freshman at Cal U. Students majoring in nursing totaled 7% of the entire surveyed population, compared to 5% of the freshman at Cal U. These numbers suggest that the responses from this survey were gathered from students representative of the entire student body at the university. When asked for the reason they chose their major, the majority of students enrolled in education stated that they were interested in working with children. Many students also cited the influence of former teachers as the reason for their choice. Students from all academic majors reported having a general "interest" in their field of study, while many others reported working with/helping people as the reason for choosing their major. A study by Brodsky and Cooke (2000) found that audiology professionals as well as audiology students were drawn to the profession due to reasons similar to those cited by Cal U students such as "work in a helping profession" and "desire to work with people."

Knowledge of Cal U's Communication Sciences and Disorders Undergraduate Program

Most of the respondents (88%) stated that they were not aware of Cal U's undergraduate program in CSD, the undergraduate degree program leading to a degree in audiology and speech-language pathology. A study by Hyman and Shewan (1987) found that professionals in audiology and speech-language pathology were likely to have considered alternative careers in service professions such as education, psychology, or medicine during their undergraduate education. It is possible that many of the entering students in education and psychology at Cal U may be excellent candidates for the professions of audiology and/or speech-language pathology. Given the lack of awareness of Cal U's undergraduate CSD program and the large number of students in this study who are pursuing academic majors in education and psychology, it is possible that within these two academic programs many students who may be considering a career in a health or service profession, such as audiology, remain unaware of the undergraduate program ultimately leading to the degree in audiology. This is unfortunate, considering the anticipated growth in the field and the need to recruit high quality students to the profession.

Perception of the Profession of Audiology

A majority (54%) of the respondents reported that they were not familiar with the profession of audiology, thirty seven percent of the respondents stated that they possessed some limited knowledge, and only 9% stated that they were definitely familiar with the profession. Most students with knowledge regarding the profession of audiology stated that they first learned of the profession through a friend/family member or school. More than half (53%) of those who responded they "definitely

know" what an audiologist does reported having first hand contact with an audiologist. Only 28% who were "rather sure" and 15% who were "somewhat sure" reported having personal contact with the profession. These numbers suggest that a large number of students who were familiar with the profession acquired that knowledge because of this personal contact with someone in the profession. DeAngelis, Dean, and Pace (2003) suggested that personal contact with someone in the dental hygiene profession had the most influence in guiding them to a career in dental hygiene. This speaks to the need to increase the awareness of the profession beyond those who encounter audiological services directly.

A small number of the respondents stated that their initial encounter with the profession was through a guidance counselor. For example, only 2% of the respondents who stated they "definitely know" what an audiologist does reported that a guidance counselor provided knowledge of the profession. For those who stated that they were "somewhat sure" of what an audiologist does, only .5% provided a similar response. A study by Lass et al. (1995) found that 45.6% of the students in their study considered a high school or college guidance counselor to be "unimportant in making them aware of the profession of speech pathology or audiology" (p. 49). A study examining personal and professional characteristics of students in dental hygiene programs suggested that high school guidance counselors and college career counselors received the lowest ratings and were the least influential in guiding students to a career in dental hygiene (DeAngelis et al., 2003). Given the responses from the present survey and the results of the aforementioned studies, it is unknown if it would be beneficial for the profession of audiology to

extend information to high school guidance counselors and undergraduate academic advisors to raise the awareness of the profession; although it is one of the easiest avenues for the distribution of this information.

Similar to the small number of students who were introduced the profession by a guidance counselor, a small number of students discovered the profession through a career fair/health fair. For example, 5% of those who said they "definitely know" what an audiologist does stated they first learned of the profession through a career fair/health fair, while only 3% of those who stated they were "somewhat sure" provided a similar response. A study by Lass et al. (1995) found that nearly half of the students in their study found "college fairs" and "health fairs" to be "unimportant in making them aware of the professions of speech pathology and audiology" (p.49). Linda Hood (1993) stated, "we must reach high schools and colleges while at the same time work within our profession to assure future autonomy and benefits of an audiology career" (p. 6). To help accomplish this, she recommended that audiologists volunteer time speaking at community groups, in the classroom, and career/health fairs. If less than half of the students are informed via this mechanism, a more global approach to audiology awareness appears to be prudent.

A large number of students with knowledge of the profession reported that their first encounter with the profession occurred during their high school experience. For example, 43% of those who were "rather sure," 32% who "definitely know," and 32% who were "somewhat sure" what an audiologist does indicated they first learned of the profession in high school. The fact that many students in this study first discovered the profession during high school gives support

to Hood's (1993) suggestion that it would be beneficial for the profession of audiology to raise the awareness and actively recruit students during their high school academic experience, as they are making decisions that will determine their future vocational path.

Only 13.5% of the respondents who stated they "definitely know" what an audiologist does reported a doctoral degree as the entry-level education requirement for certification in audiology. This suggests a lack of accurate knowledge regarding the entry-level educational requirements in audiology among individuals who reported being certain of the job description of an audiologist. Any awareness campaign looking to target students at the high school level should include information regarding educational requirements to accurately reflect audiology as a doctoral level profession.

What Does an Audiologist Do?

Almost half (44%) of the respondents stated that an audiologist deals with hearing or the study of hearing, 24% said they don't know, 14% said sound or the study of sound, and 10% were miscellaneous such as radio/tv, audio equipment, or sound crew. These responses seem to suggest that many of the respondents appeared to be guessing based on the semantics of the word audiologist. It should also be noted that many students circled the root word "audio" when they answered question 16, as to imply they were able to determine the answer from the root word "audio." Given the general lack of familiarity with the profession as suggested by the results of this survey, it would seem prudent to actively recruit high quality students to the

profession. It may be beneficial for the profession to consider successful recruiting strategies from other from other health care professions (i.e., medicine).

Student Recruiting in Medicine

Audiology as a profession must address the issue of recruiting the best and brightest students to the profession (Jacobson, 2000). In their article, "Recruiting Students for Medicine," Geokas and Branson (1989) suggested recruiting quality applicants for admission into medical schools is the foundation for maintaining excellence in health care. Some of their ideas are presented in a later section of this paper that provides recommendations for student recruiting for the profession of audiology. For a more thorough review, please see Geokas and Branson (1989).

Student Recruiting in Clinical Laboratory Science

Stuart and Fenn (2002) reported that the profession of clinical laboratory science is struggling for student applicants due to a lack of public awareness regarding the profession. In their article, "Lessons Learned in Student Recruiting" they suggested increasing public awareness and actively recruiting students to help resolve this issue. In their article, basic concepts and ideas that were successful in recruiting students at the University of Utah Medical Laboratory Science program were presented. These activities include "Internet recruiting," "personal student contact," "personal professional contact," and "exposure through public awareness."

According to Stuart and Fenn (2002), prior to developing, enhancing and/or implementing a recruitment program, academic programs should identify the current perception of the program and how the "academic community" promotes it (p. 72). In order to do this, several questions regarding current recruiting strategies should be

addressed. The majority of questions pertain to current activities between the institution and high school recruiting services. Specifically, is there a liaison between the institution and prospective undergraduate students? If so, what activities are currently being employed in the recruitment of undergraduate students? The remaining questions pertain to current recruiting and promotional materials provided by the academic institution.

Academic program information should be examined for accuracy and designed to provide up-to-date information. Once the updated information is listed, this information should be distributed to the office of student recruitment and high school services. This information should be provided not only to students but also to parents and high school employees involved in academic advising (i.e., guidance/career counselors).

Stuart and Fenn (2002) suggest that the internet can be used as an effective recruitment tool. They suggest that the web page must provide clear and essential information to the student regarding the academic program. The web page should also be easy to access and be updated frequently for accuracy. The site should also provide important hyperlinks to allow the student to explore areas other than the academic department (e.g., local and national professional organizations and/or related student organizations).

Another recruitment strategy that proved to be the most successful in student recruiting was personal student contact. They suggest that creating personal relationships while at the same time creating a “welcoming and friendly atmosphere” is critical for student recruiting (p.72). After personal meetings/advising sessions,

individuals should “follow up within a week” using written letters, e-mails, and phone calls to facilitate the “one-on-one level” with the student (p.72). Stuart and Fenn (2002) state, “students value attention and promptness, and they want to know that the advisor cares about them and their academic progress” (p. 72).

They also suggested that “developing and maintaining” relationships with high school guidance counselors can be an effective recruiting strategy (p. 73). This can be accomplished by giving lectures at career fairs, health fairs, and/or sponsoring workshops for junior and senior high school teachers.

Stuart and Fenn (2002) stated, “more exposure brings more contacts” (p. 74). Some strategies they found to be successful in increasing public awareness of their academic program include: advertising in a local newspapers’ career section, advertising academic programs in high school newspapers, participating in school health fairs at various academic levels, speaking to local civic groups, utilizing former students to promote the program during recruiting events, and including program web addresses on department letterhead and envelopes.

It is also recommended that academic programs reach out and create a strong relationship with individuals involved in closely related academic programs. This will allow students who are uncertain regarding the vocational path to pursue informational access to a variety of other associated academic options. Personal contact should be initiated with these students to allow them to determine if your academic program meets their needs and requirements.

Student Recruiting in Audiology

Results from this study suggest that the profession of audiology and the educational requirements are not widely known by entering college students. If audiology is to meet the increasing need for future audiologists, the awareness of the profession among graduating high school students and/or entering college students must be addressed. In order to accomplish this, audiology as a profession must assume a more active role in student recruiting. To aid in doing so, audiology should expand their research on successful recruiting strategies provided by Stuart and Fenn (2002) and Geokas and Branson (1989), and consider employing some of the successful recruiting strategies from other professions. The following is a summary of a few of these ideas.

1. The focus of student recruiting should be at the high school level, when students are making decisions regarding what academic discipline to pursue.
2. Personal and professional relationships with individuals working within the educational system (e.g., career/guidance counselors) should be initiated and maintained to allow for the provision of information regarding the profession.
3. Professionals in the field should participate in presentations to high school students at venues including career days, career fairs, and health fairs in order to increase the number of "personal student contacts" with prospective students.
4. Academic programs in audiology should corroborate with closely related academic programs (e.g., education, psychology, pre-medicine) to provide

undecided students with information regarding associated academic and career options.

5. Local and national organizations should create a “factual campaign” to raise the awareness of the profession in hopes of creating an interest in the profession among students early in their academic career.

In order to address student recruiting needs, ASHA recently created a campaign to raise the awareness of the professions of audiology and speech-language pathology among high school students (ASHA, 2001). Information kits designed to increase the profile of the professions were distributed to high school guidance counselors, speech-language pathologists, and audiologists across the country. Book covers as well as videos providing an overview of the professions have also been distributed in high schools containing a culturally diverse student population. A follow-up study of the effectiveness of these materials should be conducted. These recruiting and audiology awareness activities will require much time and effort on the part of audiologists at the individual level and as an entire profession.

Chapter 6

Future Research

This study was conducted at California University of Pennsylvania. Although the results may be applicable to other colleges with a similar profile or within the same geographic location, similar surveys should be administered to entering freshman students attending colleges and universities varying in size, geographic location, and Carnegie Foundation classification. Research examining the perception of the profession of audiology among high school guidance counselors should also be explored. The accuracy of the information provided to students via professionals involved in career/academic advising should also be examined. Future research should also be conducted to examine the effectiveness of current audiology awareness activities and student recruiting techniques in audiology.

APPENDICES

APPENDIX A

APPENDIX B

February 4, 2003

Dear Participant,

My name is Jeremy Donai and I am a graduate student in the Department of Communication Sciences and Disorders at Towson University. As part of the research requirement for the Doctor of Audiology (Au.D.) degree, I will be conducting a survey to determine the perception of the profession of audiology among college freshmen at California University of Pennsylvania. Participation in this is voluntary. If you choose to participate in my project, you will be asked to complete a short, 2-page survey. It is not necessary to answer every question, and you may discontinue your participation in the project at any time.

If you do choose to participate in the study, your participation will be completely anonymous. Neither anyone reading the results of the survey nor I will be able to identify you. Please do not put your name or any other identifying marks on the survey.

If you have any questions about the project, you may contact me at (410) 663-1070, my faculty advisor Dr. Diana Emanuel at (410) 704-2417, or the Chairperson of Towson University's Institutional Review Board for the Protection of Human Participants, Dr. Patricia Alt, at (410) 704-2236.

Thank you for your time.

Sincerely,

Jeremy J. Donai
Doctoral Candidate

APPENDIX C
A Survey of College Students

Check the appropriate answer. Please DO NOT put your name on any page!!

1. Age:
_____18-25
_____26-30
_____31-40
_____41 and above

2. Sex:
_____Female
_____Male

3. Marital Status:
_____Single
_____Married
_____Divorced
_____Engaged
_____Other:_____

4. Ethnicity:
_____Caucasian
_____African American
_____American Indian
_____Hispanic
_____Asian/Pacific Islander
_____Other:_____

5. Parent's Level of Education:

Mother	**Father**
_____High School	_____High School
_____1-2 years of college	_____1-2 years of college
_____2-4 years of college	_____2-4 years of college
_____Undergraduate Degree	_____Undergraduate Degree
_____Graduate or Professional Degree	_____Graduate or Professional Degree

6. What is your declared major? If undeclared, what is your area(s) of interest?

_____

7. What made you choose this major/area(s) of interest?

_____

8. Have you heard of California University's undergraduate program in Communication Sciences and Disorders? _____Yes _____No

9. Which discipline(s) are you interested in taking classes in: Check *ALL* that apply.
_____Life Sciences (Biology, Anthropology, Earth Sciences, etc.)
_____Physical Sciences (Chemistry, Physics, etc.)
_____Behavioral Sciences (Psychology, Sociology, etc.)
_____Liberal Arts (English, Communications, Media Studies, History, etc.)
_____Business (Accounting, Marketing, etc.)
_____Education (Elementary Education, Secondary Education, Special Education)
_____Communication Sciences and Disorders (Audiology, Speech Pathology, etc.)
_____Health Professions (Nursing, Athletic Training, Physical Therapy, etc.)
_____Mathematics
_____Other:_____

APPENDIX C (Cont.)

10. Do you plan on pursuing a graduate degree after your undergraduate education?
_____Yes _____No _____Don't Know

If you answered **YES,** what type?
_____Master's Degree (e.g., M.S., M.A., M.B.A., M.F.A)
_____Research Doctorate (e.g., Ph.D., Sc.D.)
_____Educational Doctorate (i.e., Ed.D.)
_____Professional Doctorate (e.g., Medicine, Law, Pharmacy, Dentistry, Chiropractics, etc.)
_____Other:_____

11. Do you know what an Audiologist does? Choose the ONE that best describes your level of knowledge.
____Yes, Definitely Know
____Rather Sure
____Somewhat Sure
____Not Sure
____No, Definitely Not

12. How did you first learn about the profession Audiology? Check *ALL* that apply.
____Television/Radio
____ Friend/Family Member
____Career Fair
____School
____Other:_____
____ World Wide Web
____ Health Fair
____ Guidance Counselor
____Don't Know

13. When did you <u>first</u> learn about the profession of Audiology?
____ Elementary School
____ Middle School
____ High School
____ College
____ Other:_____
____ Don't Know

14. Have you ever been seen by an audiologist and/or accompanied someone to an audiologist?
_____Yes _____No

15. What do you think is the entry--level (minimum) educational requirement to become a certified audiologist?
____High School Diploma
____Bachelor's Degree
____Master's Degree
____Doctoral Degree
____Don't Know

16. <u>Briefly state</u> what you think an Audiologist does:

_____

_____

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