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THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

SUSAN MARIE THALDORF

ENTITLED... RELATIONSHIP BETWEEN KNOWLEDGE OF AND ATTITUDES TOWARD DEAFNESS

AMONG SEVERAL HEARING POPULATIONS

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE

BACHELOR OF SCIENCE

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**RELATIONSHIP BETWEEN KNOWLEDGE OF  
AND  
ATTITUDES TOWARD DEAFNESS  
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**BY**

**SUSAN MARIE THALDORF**

**THESIS**

**FOR THE**

**DEGREE OF BACHELOR OF SCIENCE**

**IN**

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## CHAPTER I

### INTRODUCTION

Since the time I was nine years old I have had a great interest in hearing-impairment and a desire to work with hearing-impaired individuals. Over the years I sought to increase my understanding of hearing-impaired people through whatever sources were available to me. My views were formed mainly from information and opinions expressed to me by my sister-in-law, an educator of the deaf. These were supplemented by several very positive experiences with hearing-impaired individuals. Due to the positive manner in which I was exposed to hearing-impairment, my attitudes toward hearing-impaired people have always been equally positive, and have allowed me to develop a general understanding and acceptance of hearing-impaired individuals.

As I became older and my resources for knowledge and opinions grew, I began to notice that not everyone had such a positive outlook on hearing-impairment. Many of the attitudes I encountered in the literature, as well as those expressed directly to me by friends and acquaintances were rather negative. Especially toward individuals classified as "deaf." Several terms need to be clarified here in order to avoid confusion due to the variety of definitions in use. The term hearing-impaired refers to any individual with a hearing loss. This includes deaf and hard of hearing people. Defining exactly where "hard of hearing" ends and "deaf" begins is somewhat more difficult. There is no standardization in the use of these terms, and several different definitions are commonly used. First, there is an audiometric

definition which categorizes hearing-impaired people by their degree of hearing loss. Even within this definition, the cut-off point between deaf and hard of hearing tends to vary. However, the most common division used classifies individuals with a hearing loss greater than 85dB as deaf, while those with a hearing loss of less than 85dB are referred to as hard of hearing. A second method of classification is based on a person's ability to understand speech with the use of amplification. Those individuals whose speech reception abilities are benefited by amplification are often referred to as hard of hearing. Individuals with little or no usable hearing for speech purposes, even with the use of amplification, are termed deaf. Still a third definition is one which focuses primarily on the educational setting of the hearing-impaired person. By this definition, any student in a self-contained classroom for the hearing-impaired is deaf, while those students within integrated educational settings are classified as hearing-impaired (Davis, 1978).

In order to avoid any confusion or misunderstanding, the term deaf as used throughout this paper will refer to severely or profoundly hearing-impaired persons. This somewhat combines the audiometric and speech reception definitions, and includes individuals with a hearing loss greater than 85dB, and with little or no usable hearing.

My interest in the relationship between the hearing and deaf communities has grown to such an extent that I have a desire to explore the interactions between these two groups. Hopefully, I will gain a better understanding as to why interactions between them are so often

unsuccessful.

In this thesis, I have chosen to examine the attitudes of hearing people toward deafness, since these attitudes may constitute one of the main barriers to successful relationships between the deaf and hearing communities. I am particularly interested in how these attitudes are affected by the hearing person's knowledge of and exposure to hearing loss and to deaf individuals. Specific questions to examine include:

1. Does increased exposure to information about hearing loss create more accurate knowledge about deafness and deaf individuals?
2. Does more accurate knowledge foster more positive attitudes toward deafness and deaf individuals?
3. Does lack of knowledge about hearing loss allow for the development of more negative attitudes toward deafness and deaf individuals?

## CHAPTER II

### REVIEW OF THE LITERATURE

A common idea found in much of the literature concerning interactions between deaf and hearing people is that many of the attitudes directed toward deaf people are based on certain assumptions which hearing people have about deafness (Higgins, 1980; Benderly, 1980). Because many of these assumptions are false, deaf people are often faced with negative attitudes from the hearing community. The majority of the literature examined for this research presented attitudes of the hearing population toward deafness as observed by deaf people themselves, or by people very close to the deaf community. The rest of the information was collected from courses concerning hearing-impairment and related topics, and from personal experiences with hearing people's attitudes toward deafness. There are a number of common assumptions which hearing people have about deafness, and some negative attitudes which frequently arise from these misconceptions.

To begin with, the majority of the hearing population has a general lack of knowledge about hearing-impairment. They are often not aware that a hearing loss means more than just not being able to hear. For instance, the role of hearing in acquiring speech and language is often underestimated by those who take their ability to hear for granted (Jacobs, 1980; Carney, personal communication). Other common misunderstandings focus on the ability of deaf individuals to use lipreading as a complete means of communication. It is often assumed



everything that is said through lipreading. It is also assumed that since it is common practice to look at a person's face when conversing, it is fairly convenient to lipread (Jacobs, 1980; Higgins, 1980; Ballin, 1930). Hearing people also often mistakenly believe that by exaggerating their mouth movements they are making their speech more readable for the deaf person (Higgins, 1980). Still more misconceptions are born of these assumptions. Those who are unaware of the extreme difficulties of acquiring adequate speech and lipreading skills may often place all the responsibility for improving communication on the deaf person. He is expected to learn these skills if he has any intention of being involved with the hearing community. It is also often the belief that speech and lipreading skills will allow a deaf person to interact normally and completely integrate into the "hearing world" (Supalla, personal communication). This is simply not true, since many other aspects of daily life besides face-to-face conversation are affected by a hearing loss.

There seem to be a number of other misconceptions which hearing people have about hearing loss. One such belief is that because of a hearing loss, a person's other senses become more acute in order to compensate. In fact, the person may just learn to make better use of his remaining senses, however accurate they may or may not be. Some people also seem to believe that if they shout, the deaf person will have to hear them (Higgins, 1980; Greenberg, 1970). However, one of the greatest misconceptions about hearing loss stems from the fact that it is not an observable disability, such as blindness or other physical

disabilities. Because deaf people look normal, they are often expected to act "normal." If deaf individuals do not act in the expected manner, they are usually considered "strange" or "odd" (Jacobs, 1980; Higgins, 1980).

Misconceptions or lack of knowledge on the part of the hearing community is also apparent concerning other aspects of hearing loss, including the communicative capacities of sign language. Hearing people seem to have many doubts about the use of sign language as a complete communication system. It is often the ethnocentric opinion of the hearing community that speech is the "natural" mode of communication and sign language is then necessarily inferior (Woodward, 1982). While American Sign Language (ASL) is an independent, natural language, many misconceptions detract from its credibility. Many people believe that ASL is iconic--simply pantomime or charades--and can easily be "acted out" and understood with a little imagination. Another false assumption is that ASL has no grammar, or is merely "broken" or improper English. Additionally it is often assumed that ASL is concrete and has no means for expressing abstract thought (Supalla, personal communication; Woodward, 1982). All of these assumptions, though untrue, have lowered ASL's status outside the deaf community. Recently, linguistic research has validated ASL as a viable, natural language with all the complexities of a spoken language. This has given the deaf community a new-found pride in their language and a desire to defend their right to use their own language (Supalla, personal communication; Schein, 1984).

Misconceptions on the part of the hearing community are also

apparent concerning the social abilities of deaf individuals. For the most part, the deaf community and its cultural and social aspects often go completely unnoticed by the hearing population. The deaf community can be most accurately described as "a group of people bound together not by geography or family ties, but by their language" (Schein, pg. 130). Communication by sign language is the main feature which links the members of the deaf community. It has also been observed that the majority of the deaf community is made up of those individuals who lost their hearing before nineteen years of age (Schein, 1984). So deafness does not automatically insure one's membership in the deaf community. In fact, most individuals classified as deaf are not members of the deaf community. Additionally, deafness is not an absolute requirement for membership. Many hearing-impaired people are members of the deaf community and feel more at home there than in the "hearing world" (Higgins, 1980).

Because so many hearing people are unaware of the deaf subculture, it is commonly assumed that all deaf people are isolated and helpless individuals (Benderly, 1980; Woodward, 1982; Becker, 1980; Supalla, personal communication). Contrary to this belief, the deaf community is a very active and thriving subculture. Its members have every opportunity to develop a full and satisfying social life. It is usually when deaf people attempt to participate in the hearing world that isolation is experienced (Higgins, 1980; Jacobs, 1980; Schein, 1984). For most hearing people, this will be their only encounter with deaf individuals, and it becomes easy to assume that this isolation is the

only way of life for deaf people. Due to this misconception, many hearing people may feel pity for deaf people or react in a paternalistic manner--two attitudes which deaf individuals find inappropriate and insulting (Benderly, 1980; Higgins, 1980; Supalla, personal communication).

Many misconceptions about deafness began centuries ago. It had been a common belief throughout history that deafness resulted in certain mental deficiencies. More specifically, speech was once perceived as necessary for thought and intelligence. Thus, it was a long-standing belief that those who could not speak were unable to think (Higgins, 1980). Fortunately people have seen the error in such extreme assumptions. However, traces of such archaic beliefs still exist today. It is still not uncommon to find a hearing person using the phrase "deaf and dumb." Not only does this phrase perpetuate the belief in a relationship between speech and intelligence, but it also fosters another misconception. When the word dumb is meant to convey the idea of muteness, people often use this statement to refer to deaf people who do not speak. However, mute actually means to be incapable of making any sound. Very few deaf people are actually mute in this sense of the word. Some may choose not to use their voices at all, while still others may develop very intelligible speech (Benderly, 1980; Higgins, 1980).

Along with the misconception about intellectual abilities and deafness come some further assumptions concerning the educational abilities of deaf individuals. One belief expressed by some hearing

people is that the curriculum in schools for the deaf sacrifices the typical school subjects to focus solely on speech, language, and lipreading skills. This idea may stem from the belief that deaf children are intellectually incapable of handling such subjects, or that communication skills are more important to them than other subjects. Of course neither of these beliefs is accurate. Hearing people are also frequently surprised to find that some deaf people continue their educational careers to a professional level. This may also come from the false assumption that deafness affects a person's intelligence. However, the number of deaf students in postsecondary programs has increased dramatically in recent years. This is largely due to the enactment of federal laws barring discrimination in higher education against disabled persons. Now numerous trade schools, colleges and universities are open to deaf students (Schein, 1984). Additionally, there are three postsecondary institutions which offer full four-year programs to deaf students. These are Gallaudet University, National Technical Institute for the Deaf (NTID), and California State University at Northridge (CSUN) (Jacobs, 1980).

It is also not uncommon to find hearing people questioning the mental health and maturity of deaf people. Deaf people are often assumed to have more psychological problems than hearing people and are frequently judged to be more "disturbed." Deaf people are also often described as being more "immature, impulsive and tactless" than hearing people (Woodward, 1982). This may be due to a number of factors. First of all, the communicative barrier between the deaf and hearing

populations may be a contributing factors. Deaf individuals may not speak clearly enough to be understood, they often miss a lot of information through lipreading, and they frequently have insufficient language for their communicative needs (Jacobs, 1980). Another factor which may cause deaf individuals to appear more "tactless" is their lack of incidental learning because of the hearing loss. People tend to learn a lot of social skills indirectly, often without even being aware of it. Deaf children miss out of much of this indirect learning, and therefore may not be aware that some of their words or actions may be judged socially inappropriate (Hendricks, personal communication). Many hearing persons are likely to jump to conclusions in such situations and label the deaf individual as "crude" or "insensitive."

Deaf individuals also face misconceptions and negative attitudes in the realms of employment, from employers and co-workers alike. These misconceptions may in turn create instances of discrimination against deaf individuals in opportunities for job attainment, as well as advancement. Many employers may be wary of hiring deaf employees due to concerns about the deaf individual's competence, reliability, and communication difficulties on the job. One very common excuse used by employers for not promoting deaf employees to supervisory or management positions is their inability to use the telephone. A simple solution to this problems would be to hire a secretary with interpreting skills.

Other employees may be apprehensive about having a deaf co-worker. Hearing employees frequently worry that they will end up doing more than their share of the work to compensate for the deaf employees,

or that the deaf employee's incompetence will create potential hazardous situations.

Due to all of these misconceptions and negative attitudes, plus numerous others, deaf people have been drastically underemployed, underpaid, and overlooked for promotions or advancement (Higgins, 1980; Jacobs, 198).

In reviewing the recent literature it becomes apparent that many hearing people have numerous misconceptions and assumptions about deaf individuals. As a result, some rather negative attitudes have been formed about deaf people as a group. In fact, this may be the one main misconception which allows for the development of all the other assumptions and attitudes discussed so far. Many hearing people seem to view deafness as a pervading characteristic which dominates all aspects of an individual, and thus creates a group of people who are essentially alike. In other words, deaf individuals may not be viewed as individuals. However, they actually constitute a very heterogeneous group. Naturally, some negative attitudes may be accurately applied to some deaf individuals and not to others, just as the same is true of hearing individuals.

CHAPTER III  
METHODS AND PROCEDURES

Survey Development

In developing this survey, hearing people's common beliefs and attitudes toward deafness were collected from recent literature and from personal experiences. These beliefs and attitudes were grouped under five headings pertaining to various aspects of hearing loss:

1. Communication abilities of deaf people
2. Mental/intellectual capabilities of deaf people
3. Occupational Equality of deaf people
4. Social interactions of deaf people
5. Knowledge about hearing loss in general

Although much of the information tended to overlap between categories, the headings provided a general guideline for formulating questions. Five or six questions were constructed under each heading (see Appendix A). The majority of the questions sampled the subjects' knowledge of certain aspects of hearing loss. Each category also contained questions to examine attitudes which may have been influenced by the extent of each subject's knowledge within each category. In addition to these five categories, three questions were included which described some very common general reactions to deafness. These attempted to express some attitudes of pity, paternalism and curiosity which deaf people often face. The questions were then randomized and put into survey forms (see Appendix B).

The survey used a 6-point scale. With no neutral point available,



subjects were forced to respond in either a positive or negative direction. A 6-point, rather than a 4-point scale, was chosen in order to give subjects a greater range to express their opinions more accurately. The scale was modeled after the Attitudes Toward Disabled Persons Scale, developed by Yuker, Block and Youngg (1966).

### Subjects

Three populations to be surveyed were selected for their varying degrees of knowledge of and exposure to the subject of deafness. The groups chosen to represent these three varying populations were selected on the basis of their accessibility and willingness to cooperate. (For detailed demographic data, see Appendix C.)

Group A consisted of 32 seniors and graduate students in the University of Illinois Speech and Hearing Science program. Due to their extensive coursework in their major, these subjects were expected to have a fair degree of exposure to and knowledge of the topics being surveyed.

Group B consisted of 32 students enrolled in the Voice and Articulation course at the University of Illinois. This course tends to attract students from a wide variety of majors and backgrounds, and thus provided a good mixture of college students with no particular interest or involvement with deafness or deaf individuals.

Group C consisted of 32 individuals in a Mental Health Technician Training Program at the Shapiro Developmental Services Center in Kankakee, Illinois. The subjects were

surveyed at the onset of the training program, before they were sensitized to the subject of hearing-impairment and related topics.

By observing the demographic data in Appendix C, it can be seen that groups B and C were very similar in their knowledge of a experience with deafness and deaf individuals. With this in mind, Group B was included mainly to serve as a control for the University students in Group A. It was anticipated that the typically more liberal attitudes of college students may have been reflected in more positive attitudes toward deaf individuals. Therefore, Group B, comprised of college students with the assumedly more liberal attitudes, yet with no particular interest or involvement with deafness, was intended to control for this variability between Groups A and C.

#### Survey Distribution

All three groups of subjects were provided with the same information before distribution of the survey. Subjects were told only that the survey was being used to collect data for a senior thesis and that all information would be completely anonymous. The survey was entitled "Deaf Awareness Survey" and no implications were made that attitudes, as well as knowledge, were being examined.

Subjects were first asked to fill out a background information sheet in order to provide demographic data as well as to briefly describe the extent of each subject's knowledge of and exposure to deafness and deaf individuals.

Immediately preceding the 32 survey questions was an explanation of

the term deaf as it was used throughout the survey. This was included to avoid any confusion or misunderstanding due to possible varying definitions among the subjects.

Subjects were then instructed on the scale being used and were told to indicate their answer by circling the appropriate number.

## CHAPTER IV

## RESULTS AND DISCUSSION

In order to analyze the data, the +3 to -3 scale was converted to a +6 to +1 scale. Means and standard deviations were computed for all three groups for each individual question (see Appendix D).

Data for each question were subjected to a single-classification analysis of variance treatment. The independent variable (increased exposure to information about hearing loss) was reviewed in three ways: (1) between groups, (2) within groups, and (3) total. The between groups variation was further broken down into two more groups: (a) the university groups vs. the nonuniversity group (Groups A and B vs. C) and (b) between the two university groups (Group A vs. Group B) (see Appendix E).

The results of the analysis of variance were examined within the categories of questions, to determine if the groups differed significantly in their extent of knowledge in particular areas, and if this in turn was reflected in their attitudes. The first category, Communication Abilities of Deaf People, examined subjects' knowledge of manual communication and its relationship to spoken and written English. All six questions in this category showed some statistical significance at the .01 or .05 level. For questions 7, 10, 13, 22 and 30, which were knowledge-related questions, there was always a significant difference between Groups A and B vs. C. Also, the two university populations, Groups A and B, were significantly different from each other in their knowledge for all questions but #7. Question

28 was the one attitude question of this section. It showed no significant difference between Groups A and B, although it did have a significant F ( $p < 0.5$ ) for Groups A and B vs C. However, it is interesting to note from the means for Question 28 (see Appendix D) that the significantly different attitude of Group C was actually more positive than for Groups A or B. Looking at this category as a whole, it seems that the additional exposure of Group A to the subject of hearing loss has resulted in more accurate knowledge than either Group B or C. However, even with less accurate knowledge, Groups B and C did not demonstrate a more negative attitude than Group A.

In the category concerning Mental and Intellectual Capabilities of Deaf People only two questions showed any statistical significance. Questions 21 and 32, both knowledge-related, showed significantly greater knowledge on the part of the two university groups. None of the other questions showed any statistical significance. All groups indicated strong disagreement with questions 12, 15 and 16, and agreement with question 29. Each question in this category reflected subjects' knowledge and attitudes to some extent. For this section, it seemed that increased exposure to the subject of hearing loss did not have much effect on the subjects' perception of the mental and intellectual capabilities of deaf people.

Under the category of Occupational Equality of Deaf People, two of the five questions showed statistical significance at the 0.05 level. Question 6, examining subjects' awareness of discrimination against deaf workers, showed a significant difference between Groups A and B only.

Question 20 focused more on subjects' perceptions of the capabilities of deaf workers, and was significantly different for Groups A and B vs. C. The mean averages for both of these questions indicated stronger agreement with the statements by Group A. For questions 11, 23 and 24, all groups showed strong disagreement with these statements, indicating positive attitudes toward deaf workers.

In the fourth category, Social Interactions of Deaf People, only questions 9, 19, and 26 showed no statistically significant differences. All three groups were in strong disagreement with these statements. For question 9, this was indicative of a positive attitude toward deaf individuals. For questions 19 and 26, the subjects' disagreement showed that they possessed a reasonable degree of knowledge in the area. Question 8 dealt with the subjects' awareness of the deaf community and showed a significant difference between all three groups, which indicated that Group A had a greater awareness of the deaf community. Questions 2 and 31 focused on attitudes and showed statistical significance as well. Question 2 indicated a significant difference between groups, while question 31 showed statistical significance between groups as well as between Groups A and B vs. C. While all three groups responded very positively to both of these questions, it was interesting to note from the mean averages that Group C responded more positively than Groups A and B. In both cases, this indicated a slightly more positive attitude toward deaf individuals on Group C's behalf.

The fifth category focused on Knowledge about Hearing Loss in

General. Questions 1, 4, 5, 14 and 17 all showed statistically significant differences between the three groups, which in all cases indicated more accurate knowledge on the part of Group A. The one attitude-related question in this category (question 25) showed no significant difference between any of the groups. The means for all groups indicated mild disagreement with this statement. Overall in this category, it seemed that the lack of knowledge about hearing loss in general on the part of Groups B and C was not reflected at all in their attitudes toward deaf individuals.

Finally, concerning the three additional questions which represented common reactions to deafness, there appeared to be no statistically significant difference between Groups A, B, and C. All groups indicated moderate disagreement with question 3, and strong agreement with questions 18 and 27.

In reviewing the results just presented for each category and considering them for the survey as a whole, several observations can be made. First of all, it seems obvious that in most cases, Group A's increased exposure to the subject of hearing loss has resulted in more accurate information in all areas examined. Also, many of the common misconceptions about deafness and deaf individuals that were reported in the literature were apparent in Groups B and C as well. However, from the data collected for questions examining subjects' attitudes toward deafness and deaf individuals, it cannot be concluded that either increased knowledge or lack of knowledge has had any effect on subjects' attitudes. There are several possible explanations for these results.

First of all, it is entirely possible that the extent of a person's knowledge about hearing loss really does not influence his attitudes towards deaf individuals. Secondly, even though all subjects were assured that their responses would be completely anonymous, it is possible that some subjects indicated more positive attitudes than they actually felt. Generally, even when people are not told that their attitudes and opinions are being surveyed, they are usually aware that this is the case. They may talk themselves into responding more toward what they believe is considered to be the "acceptable" response. Even though they realize that no one will be aware of their response or judge them by it, many people may not be willing to admit their true feelings even to themselves--and if put in writing, these feelings would have to be confronted and accepted by the subjects themselves.

There is a third possible explanation for the very positive attitudes which were observed in this survey, but are not as easily found in real life encounters between deaf and hearing individuals. Most hearing people have had few, if any, opportunities to interact with deaf individuals on a personal level. For subjects who have never actually encountered a deaf person, they may have responded in the way they truly believed they felt. However, an actual encounter with a deaf individual may produce very different results. As one author points out (Higgins, 1980), attitude surveys must be interpreted cautiously. When abstract attitudes are not equivalent to actual reactions, then it is the actions which must be considered to reflect a person's true feelings. So in some cases, subjects may have been speculating about



their true feelings, and will not know for certain if these speculations are accurate until they actually encounter a situation in which they are forced to act upon their true feelings.

Finally, a certain trend which was noted in the responses of Group C subjects may have caused some attitudes to appear more positive than was actually the case. It was observed that subjects in Group C tended to cling to the extremes of the scale, much more so than either Group A or B. Group C subjects responded mostly with  $\pm 3$  or  $\pm 2$ , and rarely used  $\pm 1$  in indicating their beliefs of attitudes. In contrast to this, Group A subjects were much more likely than subjects of either Group B or C to respond closer to the middle of the continuum, and to select +1 or -1 as their response. This might be attributed to the fact that Group A's greater knowledge and exposure to the topic at hand has made these subjects more aware that all situations are not always so clear-cut and well-defined, but depend greatly on the individuals involved. So it seems that in most cases, Group A subjects were not as willing to respond with the extremes as were Group C subjects. This contributed to several cases in which Group C appeared to exhibit more positive attitudes toward deaf individuals than either Group A or B.

Returning to the three questions for examination which were presented at the beginning of this study, it is now possible to speculate on the answers to these questions.

1. Does increased exposure to information about hearing loss produce more accurate knowledge about deafness and deaf individuals?

By observing the knowledge questions of this survey and the statistically significant differences seen between responses of the three groups, it can almost certainly be stated that Group A's increased exposure to the subject of hearing loss was reflected in more accurate and more extensive knowledge about deafness and deaf individuals.

2. Does more accurate knowledge foster more positive attitudes toward deafness and deaf individuals?

more positive than those of Group B or C. In fact, at times attitudes of Group A subjects seemed more neutral or objective than those of the other two groups.

3. Does lack of knowledge about hearing loss allow for the development of more negative attitudes toward deafness and deaf individuals?

Once again, from the data collected there is no evidence that lack of knowledge created more negative attitudes toward deafness and deaf individuals. There still may be some question as to the accuracy of attitudes expressed in this survey. Future research may be directed toward probing this question in more detail and more cautiously than was done in this survey.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

The purpose of this study was to determine if misconceptions and false assumptions about hearing loss allowed for the development of more negative attitudes toward deafness and deaf individuals, and if more accurate knowledge would create more positive attitudes.

A 32-question survey which investigated subjects' knowledge of and attitudes toward particular aspects of hearing loss was distributed to three hearing populations. Group A consisted of 32 subjects who were seniors and graduate students in the University of Illinois speech and hearing science program. Group B consisted of 32 college students at the University of Illinois who were enrolled in a voice and articulation course. These subjects had no particular interest in or involvement with deafness or deaf individuals. Group C subjects were 32 nonuniversity individuals taking part in a mental health technician training program in Kankakee, Illinois. Means and standard deviations were calculated for each question from subjects' responses on a 6-point scale. A single classification analysis of variance was computed for each question and statistical significance was noted at 0.05 and 0.01 levels.

Results of the data analysis indicated that increased exposure to the subject of hearing loss resulted in more accurate knowledge about deafness and deaf individuals. However, no conclusions were reached concerning the influence of the extent of a person's knowledge about hearing loss on his attitudes toward deafness and deaf individuals.

APPENDIX A

SURVEY QUESTIONS WITHIN CATEGORIES

## SURVEY QUESTIONS WITHIN CATEGORIES

### Communication Abilities

7. There is no limitation to the ideas that can be expressed in sign language. Anything that can be said in English can be said in sign language.
10. Deaf people who use sign language can go anywhere in the world and communicate with other deaf people.
13. Even though deaf people have difficulty with their speech, most can gain complete mastery of the English language.
22. American Sign Language is an independent language and is totally unrelated to English.
28. Sign language is the natural language of the deaf, and they should have the right to use their own language.
30. If a deaf person knows sign language, he will be able to read and write normally.

### Mental and Intellectual Capabilities

12. Deaf people tend to be more impulsive and tactless than hearing people.
15. In general, deaf people are less intelligent than hearing people.
16. I would have much more respect for a deaf person if he could speak.
21. Deaf people who can speak are more intelligent than those who cannot.
29. Deaf people have no more psychological problems than hearing people.
32. At special schools for the deaf, students learn only sign language, speech and lipreading, since these are more important to them than regular subjects.

### Occupational Equality

6. There is a great deal of discrimination against deaf people in employment opportunities.
11. Deaf employees tend to be less responsible and reliable than hearing employees.

20. Deaf workers can be as successful as other workers, as long as the job does not specifically require the ability to hear.
23. If I had a deaf co-worker, I'd probably end up doing more than my share of the work.
24. A good job to give a deaf person would be one in which there is a lot of noise.

#### Social Integration

2. A deaf person can lead a full and satisfying life.
8. Deaf people prefer to associate mainly with other deaf people.
9. A deaf person should only marry another deaf person .
19. Most deaf people tend to stay to themselves and do not have much of a social life.
26. Most deaf people have deaf children.
31. Most deaf people do not expect any special treatment.

#### Knowledge about Hearing Loss in General

1. Lipreading allows a person to understand complicated messages at great distances.
4. Deaf people are excellent lipreaders and can learn to "see" each sound.
5. The use of a hearing aid will restore a deaf person's hearing to almost normal.
14. Because of the hearing loss, a deaf person's other sense become keener in order to compensate.
17. The ability to lipread and speak will allow a deaf person to interact normally in society.
25. If a deaf person wants to communicate with hearing people, he should definitely learn to speak and read lips.

#### General Reactions to Deafness

3. It must be very embarrassing for a deaf person to have everyone notice him signing and know that he's deaf.

18. Whenever I see a deaf person trying to communicate, I wish there was something I could do to help him.
27. I find it fascinating to watch a deaf person signing.

APPENDIX B  
DEAF AWARENESS SURVEY



Deaf Awareness Survey

1. Age: \_\_\_\_\_ 2. Sex: M F
3. Major/year: \_\_\_\_\_
4. Do you have a hearing loss? Yes No
- If yes: How long have you had the loss? \_\_\_\_\_
- What is the cause of the loss? \_\_\_\_\_
- What is the degree of loss (i.e., How Severe)? \_\_\_\_\_
- \_\_\_\_\_
5. Have you known any deaf people?
- \_\_\_\_\_ Relatives \_\_\_\_\_
- (relationship)
- \_\_\_\_\_ Friends \_\_\_\_\_
- \_\_\_\_\_ Acquaintances \_\_\_\_\_
- \_\_\_\_\_ Colleague/co-worker \_\_\_\_\_
- \_\_\_\_\_ Client/customer/patient \_\_\_\_\_
- \_\_\_\_\_ None \_\_\_\_\_
6. Other sources of knowledge about hearing loss:
- \_\_\_\_\_ Television Programs: \_\_\_\_\_
- \_\_\_\_\_ Movies/Plays: \_\_\_\_\_
- \_\_\_\_\_ Books: Fiction/Nonfiction: \_\_\_\_\_
- \_\_\_\_\_ Periodicals: \_\_\_\_\_
- \_\_\_\_\_ Courses: \_\_\_\_\_
- \_\_\_\_\_ Professionals: \_\_\_\_\_
- \_\_\_\_\_ Other: \_\_\_\_\_

**Note:** The word "deaf" as used in this survey refers to severely or profoundly hearing-impaired individuals. That is, hearing-impaired persons with little or no usable hearing.

Deaf Awareness Survey

1. Age: \_\_\_\_\_ 2. Sex: M F
3. a) Occupation: \_\_\_\_\_  
 b) Highest Educational Level Completed:  
 \_\_\_ Grade School \_\_\_ High School \_\_\_ College \_\_\_ Trade School
4. Do you have a hearing loss? Yes No  
 If yes: How long have you had the loss? \_\_\_\_\_  
 What is the cause of the loss? \_\_\_\_\_  
 What is the degree of loss (i.e., How Severe)? \_\_\_\_\_  
 \_\_\_\_\_
5. Have you known any deaf people?  
 \_\_\_ Relatives \_\_\_\_\_  
 (relationship)  
 \_\_\_ Friends \_\_\_\_\_ Acquaintances  
 \_\_\_ Colleague/co-worker \_\_\_\_\_ Client/customer/patient  
 \_\_\_ None
6. Other sources of knowledge about hearing loss:  
 \_\_\_ Television Programs: \_\_\_\_\_  
 \_\_\_ Movies/Plays: \_\_\_\_\_  
 \_\_\_ Books: Fiction/Nonfiction: \_\_\_\_\_  
 \_\_\_ Periodicals: \_\_\_\_\_  
 \_\_\_ Courses: \_\_\_\_\_  
 \_\_\_ Professionals: \_\_\_\_\_  
 \_\_\_ Other: \_\_\_\_\_

**Note:** The word "deaf" as used in this survey refers to severely or profoundly hearing-impaired individuals. That is, hearing-impaired persons with little or no usable hearing.

Use the following scale in responding to each statement that follows.

- +3 I agree very much.
- +2 I agree pretty much.
- +1 I agree a little.
- 1 I disagree a little.
- 2 I disagree pretty much.
- 3 I disagree very much.

Circle the number which best expresses your opinion.

Please answer every item.

- |   |    |    |    |    |    |    |
|---|----|----|----|----|----|----|
| 1. Lipreading allows a person to understand complicated messages at great distances.  | +3 | +2 | +1 | -1 | -2 | -3 |
| 2. A deaf person can lead a full and satisfying life.   | +3 | +2 | +1 | -1 | -2 | -3 |
| 3. It must be very embarrassing for a deaf person to have everyone notice him signing and know that he's deaf.                                    | +3 | +2 | +1 | -1 | -2 | -3 |
| 4. Deaf people are excellent lipreaders and can learn to "see" each sound.  | +3 | +2 | +1 | -1 | -2 | -3 |
| 5. The use of a hearing aid will restore a deaf person's hearing to almost normal.  | +3 | +2 | +1 | -1 | -2 | -3 |
| 6. There is a great deal of discrimination against deaf people in employment opportunities.   | +3 | +2 | +1 | -1 | -2 | -3 |
| 7. There is no limitation to the ideas that can be expressed in sign language. Anything that can be said in English can be said in sign language. | +3 | +2 | +1 | -1 | -2 | -3 |
| 8. Deaf people prefer to associate mainly with other deaf people.   | +3 | +2 | +1 | -1 | -2 | -3 |
| 9. A deaf person should only marry another deaf person.   | +3 | +2 | +1 | -1 | -2 | -3 |

10. Deaf people who use sign language can go anywhere in the world and communicate with other deaf people.	+3	+2	+1	-1	-2	-3
11. Deaf employees tend to be less responsible and reliable than hearing employees.	+3	+2	+1	-1	-2	-3
12. Deaf people tend to be more impulsive and tactless than hearing people.	+3	+2	+1	-1	-2	-3
13. Even though deaf people have difficulty with their speech, most can gain complete mastery of the English language.	+3	+2	+1	-1	-2	-3
14. Because of the hearing loss, a deaf person's other senses become keener in order to compensate.	+3	+2	+1	-1	-2	-3
15. In general, deaf people are less intelligent than hearing people.	+3	+2	+1	-1	-2	-3
16. I would have much more respect for a deaf person if he could speak.	+3	+2	+1	-1	-2	-3
17. The ability to lipread and speak will allow a deaf person to interact normally in society.	+3	+2	+1	-1	-2	-3
18. Whenever I see a deaf person trying to communicate, I wish there was something I could do to help him.	+3	+2	+1	-1	-2	-3
19. Most deaf people tend to stay t. themselves and do not have much of a social life.	+3	+2	+1	-1	-2	-3
20. Deaf workers can be as successful as other workers, as long as the job does not specifically require the ability to hear.	+3	+2	+1	-1	-2	-3
21. Deaf people who can speak are more intelligent than those who cannot.	+3	+2	+1	-1	-2	-3
22. American Sign Language is an independent language and is totally unrelated to English.	+3	+2	+1	-1	-2	-3
23. If I had a deaf co-worker, I'd probably end up doing more than my share of the work.	+3	+2	+1	-1	-2	-3

24.	A good job to give a deaf person would be one in which there is a lot of noise.	+3	+2	+1	-1	-2	-3
25.	If a deaf person wants to communicate with hearing people, he should definitely learn to speak and read lips.	+3	+2	+1	-1	-2	-3
26.	Most deaf people have deaf children.	+3	+2	+1	-1	-2	-3
27.	I find it fascinating to watch a deaf person signing.	+3	+2	+1	-1	-2	-3
28.	Sign language is the natural language of the deaf, and they should have the right to use their own language.	+3	+2	+1	-1	-2	-3
29.	Deaf people have no more psychological problems than hearing people.	+3	+2	+1	-1	-2	-3
30.	If a deaf person knows sign language, he will be able to read and write normally.	+3	+2	+1	-1	-2	-3
31.	Most deaf people do not expect any special treatment.	+3	+2	+1	-1	-2	-3
32.	At special schools for the deaf, students learn only sign language, speech and lip-reading, since these are more important to them than regular subjects.	+3	+2	+1	-1	-2	-3

APPENDIX C  
DEMOGRAPHIC DATA

DEMOGRAPHIC DATA

GROUP A: 32 University of Illinois Speech and Hearing Science Seniors and Graduate Students

Age: Range - 21-43 years  
Average - 23 years

Sex: Male - 0  
Female - 32

Year in School: Senior - 5  
Graduate Student - 27

Majors: Audiology - 8  
Speech/Language Pathology - 24

Associations with Deaf People: Relatives - 2  
Friends - 4  
Acquaintances - 12  
Colleague/Coworker - 1  
Client/Customer/Patient - 21  
None - 5

Other Sources of Knowledge: All subjects indicated a wide variety of sources

GROUP B: 32 University of Illinois of students enrolled in Voice and Articulation

Age: Range - 18-22  
Average - 20

Sex: Male - 15  
Female - 17

Year in School: Freshman - 4  
Sophomore - 9  
Junior - 9  
Senior - 10

Majors: Accounting - 1  
Advertising - 1  
Applied Life Studies - 1  
Biomechanics - 1  
Business - 1

English - 1  
 History - 1  
 Human Development and Family Ecology - 1  
 Sociology - 1  
 Economics - 2  
 Education - 2  
 Marketing - 2  
 Finance - 3  
 Journalism - 3  
 Speech and Hearing Science - 3<sup>a</sup>  
 Speech Communication - 7  
 Undecided - 1

<sup>a</sup>The three Speech and Hearing Science majors were freshmen and sophomores and had not yet begun coursework in their fields.

Hearing Loss:

Mild - 2

Associations with Deaf People:

Relatives - 4 (2 grandfathers, 2 cousins)  
 Friends - 6  
 Acquaintances - 9  
 Colleague/Coworker - 1  
 Client/Customer/Patient - 12  
 None - 15

Other Sources of Knowledge:

TV and Movies Only - 20  
 TV and Movies Plus Other Sources - 10  
 None - 2

GROUP C:

32 Mental Health Technician Trainees in Kankakee, IL

Age:

Range - 19-57 years  
 Average - 25 years

Sex:

Male - 7  
 Female - 25

Occupation:

Mental Health Technical Trainee - 32

Hearing Loss:

None

Associations with Deaf Persons:

Relatives - 3 (Father, Cousin, Brother)  
 Friends - 9  
 Acquaintances - 4



Other Sources of  
Knowledge:

Colleague/Coworker -  
Client/Customer/Patient - 1  
None - 16

TV and Movies Only - 24  
TV and Movies Plus Other Sources - 4  
None - 4

Highest Educational  
Level Completed:

High School -25  
G.E.D. - 2  
College - 2  
Trade School - 3

APPENDIX D  
MEANS AND STANDARD DEVIATIONS FOR EACH QUESTION  
BY CATEGORY

COMMUNICATION ABILITIESQuestion 7:

Group A	M = 4.09	SD = 1.672
Group B	M = 4.19	SD = 1.330
Group C	M = 5.25	SD = 1.344

Question 10:

Group A	M = 1.78	SD = .975
Group B	M = 4.16	SD = 1.609
Group C	M = 4.78	SD = 1.338

Question 13:

Group A	M = 2.59	SD = 1.434
Group B	M = 4.25	SD = 1.368
Group C	M = 4.22	SD = 1.621

Question 22:

Group A	M = 4.19	SD = 2.147
Group B	M = 2.75	SD = 1.218
Group C	M = 1.84	SD = 1.019

Question 28:

Group A	M = 4.91	SD = 1.254
Group B	M = 4.41	SD = 1.583
Group C	M = 5.34	SD = 1.234

Question 30:

Group A	M = 1.69	SD = .781
Group B	M = 3.31	SD = 1.554
Group C	M = 3.79	SD = 1.674

MENTAL AND INTELLECTUAL CAPABILITIESQuestion 12:

Group A	M = 1.47	SD = .983
Group B	M = 1.37	SD = .707
Group C	M = 1.75	SD = 1.270

Question 15:

Group A	M = 1.125	SD = .492
Group B	M = 1.06	SD = .246
Group C	M = 1.19	SD = .738

Question 16:

Group A	M = 1.31	SD = .780
Group B	M = 1.62	SD = 1.185
Group C	M = 1.44	SD = 1.190

Question 21:

Group A	M = 1.16	SD = .369
Group B	M = 1.25	SD = .568
Group C	M = 1.62	SD = 1.100

Question 29:

Group A	M = 4.12	SD = 2.152
Group B	M = 4.09	SD = 1.634
Group C	M = 4.00	SD = 2.896

Question 32:

Group A	M = 1.28	SD = .581
Group B	M = 1.84	SD = 1.081
Group C	M = 2.28	SD = 1.782

OCCUPATIONAL EQUALITYQuestion 6:

Group A	M = 4.56	SD = .669
Group B	M = 3.94	SD = 1.134
Group C	M = 4.25	SD = 1.646

Question 11:

Group A	M = 1.25	SD = 1.016
Group B	M = 1.25	SD = .508
Group C	M = 1.38	SD = .976

Question 20:

Group A	M = 5.81	SD = .397
Group B	M = 5.38	SD = .907
Group C	M = 4.94	SD = 1.831

Question 23:

Group A	M = 1.59	SD = .837
Group B	M = 1.63	SD = .907
Group C	M = 1.66	SD = 1.353

Question 24:

Group A	M = 1.91	SD = .837
Group B	M = 1.94	SD = 1.243
Group C	M = 1.69	SD = 1.306

SOCIAL INTERACTIONSQuestion 2:

Group A	M = 5.81	SD = .471
Group B	M = 5.59	SD = .665
Group C	M = 5.91	SD = .088

Question 8:

Group A	M = 3.65	SD = .919
Group B	M = 2.22	SD = .870
Group C	M = 2.44	SD = 1.544

Question 9:

Group A	M = 1.28	SD = .924
Group B	M = 1.22	SD = .420
Group C	M = 1.59	SD = 1.521

Question 19:

Group A	M = 2.43	SD = .707
Group B	M = 2.03	SD = 1.031
Group C	M = 2.15	SD = 1.609

Question 26

Group A	M = 1.47	SD = .671
Group B	M = 1.56	SD = .914
Group C	M = 1.72	SD = 1.631

Question 31:

Group A	M = 4.00	SD = 1.218
Group B	M = 4.31	SD = 1.330
Group C	M = 5.44	SD = .982

KNOWLEDGE ABOUT HEARING LOSS IN GENERALQuestion 1:

Group A	M = 1.34	SD = .827
Group B	M = 2.16	SD = 1.462
Group C	M = 3.16	SD = 2.073

Question 4:

Group A	M = 2.16	SD = .808
Group B	M = 4.09	SD = 1.304
Group C	M = 4.72	SD = 1.373

Question 5:

Group A	M = 1.41	SD = 1.012
Group B	M = 2.03	SD = 1.402
Group C	M = 2.84	SD = 1.880

Question 14:

Group A	M = 3.56	SD = 1.585
Group B	M = 5.38	SD = .751
Group C	M = 5.38	SD = .871

Question 17:

Group A	M = 3.62	SD = 1.454
Group B	M = 4.88	SD = 1.129
Group C	M = 4.50	SD = 1.741

Question 25:

Group A	M = 3.66	SD = 1.310
Group B	M = 3.84	SD = 1.462
Group C	M = 3.19	SD = 1.908

GENERAL REACTIONS TO DEAFNESSQuestion 3:

Group A	M = 2.16	SD = 1.194
Group B	M = 2.22	SD = 1.039
Group C	M = 1.72	SD = 1.836

Question 18:

Group A	M = 4.31	SD = 1.469
Group B	M = 4.88	SD = 1.264
Group C	M = 4.69	SD = 1.554

Question 27:

Group A	M = 5.21	SD = .906
Group B	M = 4.75	SD = 1.078
Group C	M = 5.25	SD = 1.218

APPENDIX E

SINGLE-CLASSIFICATION ANALYSIS OF VARIANCE  
FOR EACH QUESTION BY CATEGORY



COMMUNICATION ABILITIESQuestion 7:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	26.41	13.21	6.23**
A & B vs C	1	26.26	26.26	12.38**
A vs B	1	0.15	0.15	0.07
Within groups	93	197.59	2.12	
Total	95	224.00		

\* Significant 0.05

\*\* Significant 0.01

Question 10:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	160.33	80.16	45.09**
A & B vs C	1	70.08	70.08	39.37**
A vs B	1	90.25	90.25	50.70**
Within groups	93	165.16	1.78	
Total	95	325.49		

Question 13:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	57.43	28.72	13.17**
A & B vs C	1	13.54	13.54	6.21*
A vs B	1	43.89	43.89	20.13**
Within groups	93	203.19	2.18	
Total	95	260.62		

Question 22:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	89.48	44.74	18.28**
A & B vs C	1	56.33	56.33	23.07**
A vs B	1	33.15	33.15	13.21**
Within groups	93	221.69	2.38	
Total	95	310.49		

Question 28:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	14.08	7.04	3.76*
A & B vs C	1	10.08	10.08	5.39**
A vs B	1	4.00	4.00	2.14*
Within groups	93	173.66	1.87	
Total	95	187.74		

\* Significant 0.05

\*\* Significant 0.01

Question 30:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	72.34	36.17	18.63**
A & B vs C	1	30.08	30.08	15.51**
A vs B	1	42.26	42.26	21.78**
Within groups	93	180.65	1.94	
Total	95	252.96		

MENTAL AND INTELLECTUAL CAPABILITIESQuestion 12:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	2.44	1.22	1.20
A & B vs C	1	2.30	2.30	2.25
A vs B	1	0.14	0.14	0.14
Within groups	93	95.47	1.02	
Total	95	97.91		

Question 15:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	0.25	0.125	0.25
A & B vs C	1	0.18	0.18	0.25
A vs B	1	0.07	0.07	0.25
Within groups	93	25.25	0.28	
Total	95	25.50		

Question 16:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	1.58	0.79	0.69
A & B vs C	1	0.01	0.01	0.01
A vs B	1	1.57	1.57	1.38
Within groups	93	106.25	1.14	
Total	95	107.83		

\* Significant 0.05

\*\* Significant 0.01

Question 21:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	3.94	1.97	3.52*
A & B vs C	1	3.80	3.80	6.78**
A vs B	1	0.14	0.14	0.25
Within groups	93	51.72	0.56	
Total	95	55.66		

Question 29:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	0.27	0.14	0.03
A & B vs C	1	0.25	0.25	0.05
A vs B	1	0.02	0.02	0.0004
Within groups	93	486.22	5.23	
Total	95	486.49		

Question 32:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	16.08	8.04	5.15**
A & B vs C	1	11.02	11.02	7.06**
A vs B	1	5.06	5.06	3.24
Within groups	93	145.16	1.56	
Total	95	161.24		

Question 6:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	6.25	3.12	2.11
A & B vs C	1	0.00	0.00	0.00
A vs B	1	6.25	6.25	4.32*
Within groups	93	137.75	1.48	
Total	95	144.00		

\* Significant 0.05

\*\* Significant 0.01

Question 11:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	0.33	0.16	0.21
A & B vs C	1	0.33	0.33	0.44
A vs B	1	0.00	0.00	0.00
Within groups	93	69.53	0.75	
Total	95	69.83		

Question 20:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	12.25	6.12	4.25*
A & B vs C	1	9.18	9.18	6.38**
A vs B	1	3.07	3.07	2.13
Within groups	93	134.25	1.44	
Total	95	146.50		

Question 23:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	0.06	0.03	0.027
A & B vs C	1	0.04	0.04	0.036
A vs B	1	0.02	0.02	0.018
Within groups	93	102.44	1.10	
Total	95	102.50		

Question 24:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	1.19	0.60	0.45
A & B vs C	1	1.18	1.18	0.89
A vs B	1	0.01	0.01	0.007
Within groups	93	122.47	1.32	
Total	95	123.66		

\* Significant 0.05

\*\* Significant 0.01

SOCIAL INTERACTIONSQuestion 2:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	1.64	0.82	3.28*
A & B vs C	1	0.88	0.88	3.52
A vs B	1	0.76	0.76	3.04
Within groups	93	23.31	0.25	
Total	95	24.96		

Question 8:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	38.40	19.20	14.43**
A & B vs C	1	5.33	5.33	4.01*
A vs B	1	33.07	33.07	24.86**
Within groups	93	123.56	1.33	
Total	95	161.96		

Question 9:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	2.58	1.29	1.16
A & B vs C	1	2.52	2.52	2.27
A vs B	1	0.06	0.06	0.05
Within groups	93	103.66	1.11	
Total	95	106.24		

Question 19:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	2.67	1.34	0.78
A & B vs C	1	0.12	0.12	0.07
A vs B	1	2.55	2.55	1.49
Within groups	93	159.16	1.71	
Total	95	161.83		

\* Significant 0.05

\*\* Significant 0.01

Question 26:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	1.02	0.51	0.39
A & B vs C	1	0.88	0.88	0.67
A vs B	1	0.14	0.14	0.11
Within groups	93	122.31	1.32	
Total	95	123.33		

Question 31:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	36.58	18.29	12.97**
A & B vs C	1	35.01	35.01	24.83**
A vs B	1	1.57	1.57	1.11
Within groups	93	130.75	1.41	
Total	95	167.33		

KNOWLEDGE ABOUT HEARING LOSS IN GENERALQuestion 1:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	52.75	26.38	11.13**
A & B vs C	1	42.19	42.19	17.80**
A vs B	1	10.56	10.56	4.48*
Within groups	93	220.66	2.37	
Total	95	273.41		

Question 4:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	114.25	57.12	40.51**
A & B vs C	1	54.19	54.19	38.43**
A vs B	1	60.06	60.06	42.60**
Within groups	93	131.41	1.41	
Total	95	245.66		

\* Significant 0.05

\*\* Significant 0.01

Question 5:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	33.25	16.62	7.62**
A & B vs C	1	27.00	27.00	12.38**
A vs B	1	6.25	6.25	2.87
Within groups	93	202.91	2.18	
Total	95	236.16		

Question 14:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	70.08	35.04	27.38**
A & B vs C	1	17.52	17.52	13.69**
A vs B	1	52.56	52.56	41.06**
Within groups	93	118.88	1.28	
Total	95	188.96		

Question 17:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	26.33	13.16	6.15**
A & B vs C	1	1.33	1.33	0.62
A vs B	1	25.00	25.00	11.68**
Within groups	93	199.00	2.14	
Total	95	225.33		

Question 25:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	7.31	3.66	1.46
A & B vs C	1	6.74	6.74	2.70
A vs B	1	0.57	0.57	0.23
Within groups	93	232.31	2.50	
Total	95	239.62		

Question 3:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	4.75	2.38	1.21
A & B vs C	1	4.69	4.69	2.53
A vs B	1	0.06	0.06	0.03
Within groups	93	182.16	1.96	
Total	95	186.91		

Question 18:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	5.25	2.68	1.30
A & B vs C	1	0.18	0.18	0.09
A vs B	1	5.07	5.07	2.46
Within groups	93	191.25	2.06	
Total	95	196.50		

Question 27:

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Between groups	2	5.02	2.51	2.16
A & B vs C	1	1.51	1.51	1.30
A vs B	1	3.51	3.51	3.02
Within groups	93	107.47	1.16	
Total	95	112.49		



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