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# The Effect of Labels Related to Hearing Loss on Implicit Attitudes toward Deafness

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# The Effect of Labels Related to Hearing Loss on Implicit Attitudes toward Deafness

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By  
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An Honors Thesis Submitted in Partial Fulfillment of the  
Requirements for Graduation from the  
Western Oregon University Honors Program

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## Abstract

The present study sought to determine whether exposure to various labels about hearing loss has an influence on implicit attitudes about deafness. It was hypothesized that the term “hearing impaired” would elicit a more negative attitude than the terms “deaf”, “hard-of-hearing”, or no label. Thirty Western Oregon University students participated (males=11, females=19; mean age=20.67 years,  $SD = 2.19$ ). Eleven participants indicated that they had a relationship with someone who is D/deaf or hard-of-hearing, and four students had taken one or more American Sign Language (ASL) courses in the past. Participants read a vignette created by the researcher containing one of the previously mentioned labels associated with deafness, and then completed an Implicit Associations Test to measure implicit bias with regard to deafness (Greenwald, McGhee, & Schwartz, 1998). The results failed to reveal a significant difference between implicit bias of any of the groups, one-way between subjects ANOVA  $F(3, 26) = .018, p = .997, \eta^2 = .002$ , implying that exposure to deaf-related labels in a vignette likely does not influence implicit attitudes about deafness.

## Introduction

The word “stereotype” is often used in a negative connotation, indicating that the process of stereotyping is, inherently, a bad thing. However, in and of itself, stereotyping is a natural and necessary process (Dovidio, Hewstone, Glick, & Esses, 2010). Stereotypes are the brain’s way of categorizing people and things into groups, so that environmental stimuli and other information can be processed quickly and easily (Dovidio, Hewstone, Glick, & Esses, 2010). Because of its systematic nature, this process is very efficient and useful, since humans navigate through an extremely complex world. This efficiency comes at a cost, however, because stereotypes can also bring about unfair or inaccurate expectations regarding certain groups of people (Dovidio, Hewstone, Glick, & Esses, 2010). Thankfully, it is possible to combat these negative consequences through interventions. Prior research has indicated that intergroup contact can be an effective way to alleviate bias, as is education about prejudice and stereotyping (Dovidio, Hewstone, Glick, & Esses, 2010). This means that making an effort to understand people who are different, along with becoming aware of one’s own implicit biases and attitudes are important steps to reducing prejudice.

One group that is sorely underrepresented and misunderstood is the D/deaf population. The D/deaf and hard-of-hearing population has experienced discrimination for thousands of years. Aristotle, an ancient Greek philosopher, summed up the popular (and long-lasting) opinion about deafness when he said, “Those who are born deaf all become senseless and incapable of reason” (as cited in Nomeland & Nomeland, 2012). Since ancient times, hearing people have looked down on D/deaf people, considering

them to be of lower intelligence and social status, and viewing them as less capable than those who can hear. Although the oppression of D/deaf and hard-of-hearing people has been happening since the beginning of the human race, it wasn't until 1975 that the term, "audism," or, a sense of superiority based on hearing status, was officially coined (Bauman, 2004). According to Bauman (2004), there is a simple explanation for the existence of audism. This explanation, deemed "metaphysical audism", comes from one popular belief about what makes a human a human. Bauman (2004) explained that it is widely understood that humans are superior to other creatures on Earth because of our use of language. The historical view of language involves speech; something that many D/deaf people lack (Bauman, 2004). Thus, since speech is traditionally equated with human intelligence, D/deaf people are often viewed as less intelligent than hearing people (and sometimes even labeled "inhuman").

While the roots of audism have been explored in previous research, specific triggers of audism still remain undiscovered. In her work examining attitudes about various labels used to describe individuals with and without hearing loss, Rhoades (2010) posited that labels which connote any sort of deficiency can arouse feelings of marginalization among children with hearing loss. Thus, the purpose of the present study was to determine whether or not certain labels used to describe individuals who are D/deaf or hard-of-hearing are powerful enough to bring about audism in people exposed to these labels.

As a demonstration of the social stigma associated with deafness, researchers Ridsdale and Thompson (2002) put forth a study to determine the extent to which social

integration amongst mainstreamed D/deaf individuals and their hearing peers occurs, and what role it plays in their lives. Their hypothesis stated that social integration is less accessible and more difficult for mainstreamed D/deaf or hard-of-hearing adolescents than for their hearing peers (Ridsdale & Thompson, 2002). To examine this, researchers interviewed four students with hearing loss (three males and one female) in Britain from three different classes in years 8 and 10, who were mainstreamed in a large secondary school. The hearing loss of the participants stretched from “*mild*” to “*profound*.” The students did not sign; instead, they were taught strictly with the aural/oral method and forced to use radio aids along with hearing aids. One of these students was in a class with solely hearing students; the rest of the participants were in a class with other pupils with hearing loss. To measure social competence, an unspecified sociometric questionnaire was filled out by these students, along with all the hearing students enrolled in each D/deaf or hard-of-hearing pupil’s class. Interviews were also completed with two of each participants’ hearing peers (six total—two in each of the three classes studied), with their teachers, and with their tutors. In each class, one of the two hearing participants was considered popular, whereas the other was of relatively low social status (Ridsdale & Thompson, 2002).

The findings of the study support the hypothesis. First and foremost, the D/deaf and hard-of-hearing students believed themselves to be and were seen by others as “unpopular.” This belief was accompanied by low self-esteem among these individuals. In fact, the social experiences described by the D/deaf and hard-of-hearing students mirrored those of the relatively unpopular hearing students interviewed. Furthermore,



the D/deaf and hard-of-hearing students experienced active rejection from their hearing peers, although the degree of this discord was underestimated by the D/deaf and hard-of-hearing students. This study indicates that hearing status influences social standing, which supports the notion that audism is present, even in young children. Prior research has also indicated, however, that these attitudes can be changed (Zahn & Kelly, 1995).

Another article examined whether or not attitudes about the employability of D/deaf and hard-of-hearing individuals can be made more positive with a videotape intervention. Zahn and Kelly (1995) hypothesized that, after viewing a videotape featuring successful D/deaf and hard-of-hearing employees, participants would rate various occupations as more appropriate for D/deaf and hard-of-hearing workers than they did before viewing the videotape. Participants included 155 undergraduate students (117 females and 38 males, mean age=21) majoring in speech pathology, audiology, or communication. Fifty-two of the participants reported having had experience with D/deaf or hard-of-hearing individuals, while the remaining 103 did not. In this design, the independent variable was the educational intervention about deafness (which was manipulated by showing participants the videotape), and the dependent variable was participants' attitudes about the employability of D/deaf and hard-of-hearing individuals. These attitudes were measured with a 64-item questionnaire, which included questions about sixteen different occupations to be assessed using a 5-point Likert scale. Participants were asked to rate the suitability of each occupation for people who are D/deaf or hard-of-hearing, as well as to rate how competent they perceived a D/deaf or hard-of-hearing individual would be at taking on

duties associated with those professions. Participants were given the questionnaire first, then watched the video. The video was a compilation of eight segments, each of which presented a D/deaf or hard-of-hearing person in a different professional setting. After watching the video, participants immediately completed the same questionnaire again. Thirty days later, participants returned to take the same questionnaire one final time. Researchers Zahn and Kelly (1995) then compared the pretest scores to each of the posttest scores to determine the results.

Zahn and Kelly (1995) found a significant difference between participants' attitudes before watching the video, and after. The pretest indicated that most participants held neutral attitudes toward D/deaf and hard-of-hearing employees. After watching the video, however, these attitudes became more positive. Furthermore, these attitudes remained positive even thirty days after watching the video (the first and second posttest were more or less the same for each participant), thus indicating, as predicted, that the video intervention changed participants' opinions about the employability of D/deaf and hard-of-hearing people. Since this research did not compare attitudes about the employability of hearing people with attitudes about the employability of D/deaf and hard-of-hearing people, no conclusions about audism can be drawn from this study alone. This research does suggest, however, that it is possible to improve attitudes toward D/deaf individuals. When coupled with Ridsdale and Thompson's (2002) findings, these conclusions indicate that measures can be taken (such as video interventions) in order to successfully combat audism and create more positive and accepting attitudes toward the D/deaf population. Prior research has not

only focused on outsiders' views about (along with how to manipulate these views of) a stigmatized group of people, but past researchers have also examined the relationship between one's level of awareness of varying facets of one's own identity, and self-view.

In an attempt to determine how the salience of stereotypes influences self-image, researchers Wang and Dovidio (2011) put forth a study to observe how individuals with disabilities respond to being primed with thoughts of their identity as a student, versus thoughts of their identity as a disabled person. In other words, Wang and Dovidio (2011) sought to determine whether college students with disabilities access less autonomy-related thoughts and more dependency-related thoughts when made aware of their disability, as opposed to being made aware of their identity as a student. Wang and Dovidio (2011) hypothesized that, compared with participants primed with thoughts of their identity as a student, priming college students with thoughts of their identity as a disabled person would elicit less autonomy-related thoughts and more dependency-related thoughts. It was also predicted that, when primed with thoughts of their identity as a disabled person, these individuals would be more likely to seek help than those primed with thoughts of their identity as a student. The participants included 116 college students (35 men, 79 women, 2 unspecified; mean age=24) with various disabilities. The independent variable (being primed with thoughts of their disability versus thoughts of being a student) was manipulated with a questionnaire. Participants were asked either questions about their disability, or questions about their education, depending on which condition they had been assigned. Then, a word fragment completion task was used as an implicit measure of autonomy-

and dependency-related thoughts (the dependent variable). To measure help-seeking behavior, participants were then asked to list all prime numbers, in order, between 1 and 100, and were given the opportunity to ask for help if they wanted.

The results indicated that when participants were primed with their identity as a student, more autonomy-related thoughts were activated (as assessed by the word fragment completion task). In individuals primed with their identity as a person with disabilities, their autonomy-related thoughts depended on their level of stigma consciousness about disabilities (which was assessed for each person after the other tasks were completed). Participants high in stigma consciousness were found to be more influenced by priming manipulation. Wang and Dovidio (2011) noted that their hypothesis was supported with regard to autonomy-related thoughts; however, dependency-related thoughts and help-seeking behavior were not found to be influenced by identity-priming. This research suggests a relationship between stereotypes, identity, and self-concept, indicating that awareness of stigmas attached to certain aspects of one's identity have the power to influence one's attitude about oneself. Thus, the level of awareness of certain stigmas (as cued by the use of positive or negative labels) may also impact other people's attitudes toward a group of people.

As with hearing status, people are also oppressed based on sexual orientation. Because people who identify as homosexual are also a stigmatized group, it is possible that the factors which influence attitudes toward the gay population could shed some light on the influences of audism. In an article exploring homonegative terminology, researchers Nicolas and Skinner (2012) sought to determine whether or not using the

term “gay” in different contexts (i.e. as a slang term describing something negative versus the formal usage of the word) influences implicit attitudes about homosexuality. Sixty participants, all of whom identified as heterosexual, volunteered to take part in the study. The sample was comprised of undergraduate students (44 females, 16 males) at a liberal arts college in the United States, with an average age of 20.75. The researchers predicted that participants primed with the word “gay” as a derogatory term would elicit greater implicit anti-gay bias than those who had not been primed. In this study, the independent variable was the use of the word “gay” versus the use of the words “lame” and “stupid.” The dependent variable was the resulting implicit attitude toward people who are gay.

To put these variables to the test, researchers gave participants a vignette to read. In one vignette, the word “gay” was used as a description of something negative. In the other version, the words “lame” and “stupid” were used instead. Then, the subjects were given an Implicit Association Test (IAT) to measure implicit attitudes, which used images of gay, lesbian, and straight couples, along with a series of positive and negative attributes. Participants were given either one or the other vignette, and the results of the IATs between these two groups were compared. The results indicated that implicit attitudes toward homosexuality is impacted by the use of the word “gay” in a negative context, as the researchers predicted. The IATs of the experimental group (the participants who read the vignette using the word “gay”) elicited higher scores than those of the group that was not primed—meaning that the hypothesis was supported. This research indicates that labels have the ability to influence implicit attitudes about

specific groups of people, and that implied tones associated with terminology (negative versus positive) have an impact on biases toward these groups of people.

In summary, previous literature has provided some insight into the topic of audism. Ridsdale and Thompson (2002) revealed that one's social standing is impacted by one's ability to hear. However, opinions about D/deaf and hard-of-hearing people can be improved through intervention (Zahn & Kelly, 1995). The research of Wang and Dovidio (2011) indicated that one's beliefs about one's abilities are influenced by the level of awareness of the stigmas related to various aspects of one's identity. The prevalence of these stigmas within society is effected by the use of labels related to certain groups of people (Nicolas & Skinner, 2012). Thus, the aim of the present study was to determine the effect of labels about deafness on implicit attitudes toward individuals with hearing loss. Specifically, the researcher sought to examine whether referring to a person as "hearing impaired," as compared to "deaf," "hard-of-hearing," or with no label, elicits an implicit bias against D/deaf people. Because the term "impaired" seems to suggest that something is defective, or that it is broken and must be fixed, it is plausible that the use of this term might cause people to be more prejudiced toward the D/deaf population. In this study, the researcher gave participants a vignette about an average individual, in which the individual was either labeled as "hearing impaired," "deaf," or "hard-of-hearing." After reading the vignette, participants completed an Implicit Associations Test to measure implicit bias toward or against individuals who are D/deaf. The researcher predicted that participants who were

primed with a negative label of deafness (“hearing impaired”) would show a higher implicit anti-deaf bias than participants primed with more neutral labels.

## **Method**

### **Participants**

Thirty college students from Western Oregon University were conveniently sampled via their Psychology professors, who offered extra credit to students who volunteered to participate in research. Research was conducted in a small study room in the university’s library. The gender distribution included 19 females and 11 males, and the age range was 18 to 28 years ( $M = 20.67$  years,  $SD = 2.19$ ). Six students identified themselves as freshman, seven as sophomores, ten as juniors, and seven as seniors. Participants’ majors in school included Psychology (13), Education (5), Criminal Justice (4), Nursing (2), Exercise Science (1), Communications (1), Math (1), History (1), American Sign Language Studies (1), and Gerontology (1). The ethnicities reported were Caucasian (20), Hispanic (3), African American (2), Native American (2), Asian (2), and Middle Eastern (1). Eleven of the thirty participants indicated that they were close to someone who is D/deaf or hard-of-hearing, and four of the thirty participants had taken one or more American Sign Language (ASL) courses in the past.

### **Apparatus**

To manipulate exposure to specific labels associated with deafness, participants read a vignette created by the researcher (see Appendix A). This vignette was about an average person, and described this individual’s likes, hobbies, occupation, and schooling. In one version of the vignette, the individual was labeled as “hearing

impaired.” Another version used the term “deaf” to describe the individual; in another, the term “hard-of-hearing” was used; and in the control, no label was assigned to the individual. Participants were randomly assigned into four groups and were given one of these four versions of the vignette to read.

After reading the vignette, participants completed an Implicit Associations Test (IAT) to measure implicit attitudes toward individuals who are D/deaf (Greenwald, McGhee, & Schwartz, 1998). The research of Greenwald, McGhee, and Schwartz (1998) demonstrated that this computer operated test is a successful measure of implicit biases toward one concept or group over another. This test pairs positive and negative stimuli with words or pictures associated with two opposing concepts (for example, pairing African American names with positive stimuli and traditional Caucasian names with negative stimuli, and vice versa). The idea is to measure the reaction times of participants organizing stimuli into these categories (in this example, the categories “good” and “African American,” or “bad” and “Caucasian” and vice versa). If reaction times are longer when two concepts are paired together (i.e. when “good” and “African American” are paired into one category), this indicates an implicit bias against this pairing.

Using the research of Greenwald, McGhee, and Schwartz (1998) as a guide, an IAT was adapted from the Disability Implicit Associations Test created by the nonprofit organization, Project Implicit Mental Health (Teachman & Nock, 2011). The stimuli included in the IAT used in the present study, hereafter referred to as the Audism IAT, comprised of “good” and “bad” attributes (*joy, love, peace, wonderful, pleasure, and*



*excellent* for “good”; *evil, angry, terrible, rotten, nasty, and bomb* for “bad”) as well as images depicting the concepts of “deaf” and “hearing” with symbols (such as the international symbol for deafness, and the speaker symbol for computers; see Appendix B). Reaction times for each category pairing were measured and recorded via computer, and then compared within each group to determine the extent to which an implicit bias against or toward deafness was present. To quantify implicit bias, a D score was calculated for each participant. The formula for this D score was described in the research of Lane, Banaji, Nosek, and Greenwald (2007). To calculate D, the researcher first subtracted the average response time for the trial with the term pairings “Hearing-Good” and “Deaf-Bad” from the average response time for the trial with the term pairings “Hearing-Bad” and “Deaf-Good”. This value was then divided by the inclusive standard deviation (the standard deviation of both trials combined), and this new value equals D (the quantified value of implicit bias). The D scores for each group were then averaged and compared. Positive scores indicated implicit biases *against* deafness (signifying a negative attitude about deafness), and negative scores indicated implicit biases *toward* deafness (signifying a negative attitude about the hearing population). The further the score was from zero, the stronger the implicit bias. The researcher used these scores to determine which group demonstrated the strongest bias against deafness. According to Greenwald, Nosek, and Banaji (2003), IAT scores are typically interpreted as follows: Little-to-no bias=  $0 < D < .15$ ; slight bias=  $.15 < D < .35$ ; moderate bias=  $.35 < D < .65$ ; and large bias=  $D > .65$ . The researcher used these standards to interpret the average D scores of each experimental condition.

At the end of the study, participants completed a demographics form, which included questions about gender, race, ethnicity, year in school, academic major, age, whether or not the participant is close (friend or family member) to someone who is D/deaf or hard-of-hearing, and whether or not the participant has completed ASL classes in the past.

### **Procedure**

Participants entered the study room, one at a time, and read and signed the consent form, which noted that the study was examining the effect of labels on implicit attitudes. The students were informed that the study was IRB approved, and were reminded that they could exit the study at any time without penalty.

Next, participants were randomly assigned to groups by drawing a number out of a bag, which had four slips of paper in it. The papers were either labeled with a 1, 2, 3, or 4. The number drawn corresponded to the group the participant was assigned to, meaning if they drew a one, they were assigned to Group 1, and so on. Participants assigned to Group 1 were given the vignette which labeled the individual as “hearing impaired”; Group 2’s vignette used the label “deaf”; Group 3’s vignette described the individual as “hard-of-hearing”; and Group 4’s vignette did not use a label to indicate hearing status. After reading the vignette, the subjects then were assigned to IAT conditions (which differed only by the order in which the stimuli categories were paired together) by drawing a letter out of a bag, which had two slips of paper in it (one labeled “A”, and the other labeled “B”). The IAT condition which corresponded with “A” paired “hearing-good” and “deaf-bad” stimuli first on the test; condition “B” paired the

categories “deaf-good” and “hearing-bad” first on the test. The researcher then wrote the participant number, experimental condition, and IAT condition on the top of the participant’s demographics form (which was filled out by the participant later on in the study), in order to connect the computer score with the subject’s condition. After assignment, participants used a laptop computer (16” screen) to complete the Audism IAT. The scores of the IAT were recorded automatically onto the computer, without including information about the participant’s identity, thus ensuring confidentiality and privacy. Participants then completed a demographics form, and were asked to place the finished demographics sheet face down in a folder, to ensure privacy and confidentiality.

When finished, the students were given a debriefing statement, which provided information about the purpose of this study (to examine the relationship between exposure to labels associated with deafness and implicit attitudes about deafness) as well as the hypothesis (that exposure to the term “hearing impaired” would bring about a larger implicit bias against deafness). Because participants were not initially informed that this study was examining implicit attitudes about *deafness*, minimal deception was involved. Thus, the debriefing form also included desensitization by noting that there is a lot of variability when it comes to word associations, and that implicit biases are a natural occurrence that do not necessitate negative or discriminatory behavior. This form also asked participants not to discuss the study, and thanked them for their participation. Before exiting, the participants were given an extra credit slip. Students typically took approximately ten minutes to complete the study.

## Results

A one-way between subjects ANOVA was conducted to compare the effect of exposure to a particular label related to hearing loss (“hearing impaired”, “deaf”, “hard-of-hearing”, or no label) on implicit attitude about deafness (quantified by the numeric D score obtained from the IAT). The researcher predicted that participants exposed to the label “hearing impaired” would elicit the strongest implicit bias against deafness (a higher D score), as compared to participants exposed to the other labels. However, the hypothesis test indicated that there was no significant difference in participants’ D scores between the group exposed to the term “hearing impaired” ( $M = .499$ ,  $SD = .471$ ), the group exposed to the term “deaf” ( $M = .517$ ,  $SD = .494$ ), the group exposed to the term “hard-of-hearing” ( $M = .502$ ,  $SD = .585$ ), and the group exposed to no label ( $M = .556$ ,  $SD = .653$ ),  $F(3, 26) = .018$ ,  $p = .997$ ,  $\eta^2 = .002$  (see Figure 1). The mean scores on the IAT for the four groups are presented in Table 1. All groups had an average D score between .35 and .65, which indicates a moderate bias against deafness (Greenwald, Nosek, & Banaji, 2003).

## Discussion

The researcher hypothesized that the group which read the vignette including the label “hearing impaired” would demonstrate the highest IAT score, and thus have the highest implicit bias against deafness, compared to the other three labeling conditions. The results, however, indicated no significant differences between any of the groups. This means that, on average, the participants in each group had about the same degree of bias against deafness. The effect size ( $\eta^2 = .002$ ) was very small,

indicating that the magnitude of the difference observed between all the groups was not significant. Given that effect size measures this magnitude independent of sample size, including more participants in this research likely would not have changed the effect size. However, involving participants from a greater pool of people (thus using a sample that more accurately reflects the general population, rather than just college students at one particular university) could influence the average scores of each group, which could in turn change the effect size.

The implications of this research are that exposure to these labels (“hearing impaired”, “deaf”, “hard-of-hearing”, and no label) in a short vignette does not influence implicit attitudes about deafness. However, because the variability of IAT scores within each group was so great, it is possible that individual differences between participants played an important role in this experiment. Thus, future research may benefit from studying the effect of labels about hearing-loss on implicit attitudes about deafness in a within-subjects or mixed design. If participants’ attitudes were measured both before and after exposure to labels, it would be possible to determine whether or not these labels have the capacity to change an individual’s bias toward or against deafness.

One important factor that had the potential to impact the results of this study was each participants’ background with regard to deafness. Given that eleven out of the thirty participants recorded that they knew someone who was D/deaf, the implicit biases against deafness of this group could have been unusually low, in comparison with the greater population. If these participants had had positive experiences with these

D/deaf individuals, this could have affected their implicit biases about deafness. Furthermore, at Western Oregon University (WOU), the American Sign Language (ASL) program is prominent, and many students on this campus are involved in ASL classes. Most of these ASL courses are taught by D/deaf instructors and involve the study of Deaf culture. All thirty of the participants in this study attended WOU, and were thus exposed to a campus culture that is accepting of the Deaf community. This, too, possibly had the power to influence this group's implicit biases about deafness. A within-subjects or mixed design would account for these initial attitudes, and thus would be beneficial to use in future research related to this topic.

Another possible problem with this methodology was how the participants were exposed to the labels. Each participant was given a vignette to read about a fictitious individual, which described the individual as either "hearing impaired", "deaf", "hard-of-hearing", or did not include a label. However, it is possible that this type of exposure to these labels is not enough to impact implicit attitudes. Perhaps participants did not pay attention to or give much thought to the label in their vignette. Nicolas and Skinner (2012)'s research about homonegative terminology (using the word "gay" as a negative slang term) and its impact on attitudes about homosexuality relates to this dilemma. Their research, similar to the present study, exposed participants to labels in a vignette; however, in their case, the label was found to have an influence on implicit attitudes, while the present research found that the label did not have a significant influence. This difference in results could be due to the nature of the labels used. The term "gay" is popularly used as a slang term meaning "bad" or "unpleasant"; however, "hearing

impaired” is not as widespread a term, and is not directly synonymous with the terms “bad” and “unpleasant”. Therefore, because “hearing impaired” is a more specialized and less prevalent label, it may be the case that, in order to impact one’s implicit attitude about deafness, people need to be more overtly exposed to labels about deafness, or exposed more than once. To determine whether or not this is the case, future studies could manipulate the number of times participants hear or read a label, or the modality in which the label was presented to them (in a story, on a video, in person, etc.).

It is also possible that the vignette, itself, did not have an influence on participants’ performance on the Implicit Association Test. Participants may not have associated what they read in the vignette with the test; in other words, they may have forgotten about the label in their vignette by the time they took the test. Thus, the vignette may not have been a proper means through which to expose participants to the labels. To remedy this, future research could change the labels within the Implicit Association Tests, themselves. For example, the labels for the categories could be changed based on the experimental condition (instead of always sorting stimuli into “hearing” and “deaf” categories, one group could sort stimuli into the categories “hearing impaired” and “hearing”). This way, exposure to labels would be more direct and prominent, and thus may have a bigger influence on implicit attitude.

An important complication with the present research was the lack of a standardized measure for implicit attitudes about deafness. To the researcher’s knowledge, there is no prior-researched, credible test for quantifying implicit bias

against hearing loss. Thus, the researcher had to adapt a test for implicit attitudes about disabilities. This type of test may have been inappropriate for hearing loss, however, or it may not have effectively measured the participants' implicit attitudes about deafness. If implicit attitudes were not accurately measured, then it is impossible to know, from this research, whether or not exposure to labels impacts implicit attitudes about deafness. Furthermore, because symbols for deafness (such as the ones used as stimuli in the present study's IAT; see Appendix B) are not very well-known among the hearing population, it is possible that these symbols are less recognizable than hearing symbols. If this were the case, the reaction time for the "deaf" stimuli would be different than the reaction time for the "hearing" stimuli, and would thus skew the IAT scores and the results. More research must be done on implicit attitudes about deafness, so that standard measures and effective stimuli can be developed and used in future research. Furthermore, future research should include pre-tests for symbols used in Audism IATs, in order to determine whether or not the population being sampled recognizes and understands the symbols and the concepts they are intended to depict.

While very little research has been done regarding *implicit* attitudes about deafness, *explicit* beliefs and behaviors toward D/deaf individuals have been studied. The research of Ridsdale and Thompson (2002), for instance, demonstrated that students' hearing status has an influence on social standing in mainstream school settings, and that hearing children view their D/deaf and hard-of-hearing peers more negatively than their hearing peers. These researchers utilized interviews and surveys to quantify explicit attitudes, whereas the present research measured implicit attitudes



with a computerized IAT. Furthermore, Ridsdale and Thompson (2002) did not aim to examine any factors which trigger audism, but instead sought to determine whether or not audism was present in mainstream elementary school settings. The present researcher wanted to expand on this by determining whether or not labels impact one's degree of audism. While labels were not found to have influenced implicit attitudes, the present research did reveal that audism (or an implicit bias against deafness) is present within a university setting, thus adding to knowledge about the prevalence of audism in the world.

Another study, from researchers Zahn and Kelly (1995), indicated that attitudes about deafness can be improved through videotape intervention. These researchers found that, after watching a videotape about successful D/deaf and hard-of-hearing employees, participants' ratings of the employability of people with hearing loss increased. As with the research of Ridsdale and Thompson (2002), Zahn and Kelly's (1995) research examined explicit attitudes (as opposed to implicit attitudes, which were measured in the present study). However, more similarly to the present research, Zahn and Kelly (1995) sought to discover the ways in which attitudes about individuals who are D/deaf can be improved. Instead of studying labels, however, these researchers used a videotape to expose participants to various workers with a hearing loss, and found that videotape interventions are effective in improving attitudes about deafness. The present research, on the other hand, found that exposure to labels in a vignette does not have a significant impact on implicit attitudes about deafness. Zahn and Kelly (1995) also used a questionnaire to measure attitudes, instead of an IAT.

Additionally, the research of Wang and Dovidio (2011) demonstrated that stigma awareness and priming participants with thoughts of their disability impacted their opinions about themselves and their beliefs of their own capabilities. These researchers found that thinking about certain aspects of one's identity can either improve or diminish one's self esteem. This research indicated that stereotypes, identity, and attitude about oneself are related, while the present study sought to determine the relationship between labels and implicit attitude about others. The present study, however, failed to reveal a significant relationship. Wang and Dovidio (2011) used questionnaires and a word fragment completion task as their manipulation and measures, while the present study used a vignette and an IAT. The questionnaires and word fragment completion task were implicit exposures, similar to the present study. However, this type of exposure was more pervasive and powerful because it involved prompting the participants to actively generate one's own ideas and resulting emotions, rather than passively reading a word or phrase once (as in the present study).

Lastly, Nicolas and Skinner's (2012) research showed that the context in which the word "gay" appears has an influence on implicit attitudes about homosexuality. Similarly to the present study, Nicolas and Skinner (2012) used an IAT to measure implicit attitudes. Additionally, this research also used a vignette to expose participants to the word "gay", to determine if using "gay" in place of negative slang terms such as "lame" and "stupid" impacts attitudes toward homosexuality. The researchers did not specify how many times the term "gay" was used in the vignette (to indicate how intensely the participants were primed). The present research maintained a similar

concept, using a vignette to expose participants to various labels associated with hearing loss to determine whether or not the use of certain labels has an effect on implicit attitudes about deafness. While the present research failed to find a relationship between labels and attitudes, Nicolas and Skinner (2012) found that the context of the label “gay” does influence implicit attitudes about homosexuality. As discussed previously, this difference in results could be due to the fact that “gay” is a more common word and popular negative slang term in comparison to the phrase “hearing impaired”, which has a narrower scope of applicability. Perhaps the more specialized nature of the term “hearing impaired” makes it so that a single exposure in a short vignette is not strong enough priming for most participants.

Even though the results of the present study did not support the hypothesis that the use of the term “hearing impaired” would bring about a stronger implicit bias than other labels about hearing loss, it is still possible that labels do have an influence on implicit attitudes about deafness. Because this topic has never been researched before, the methodology of the present study could be flawed and need improvement in order to effectively research the impact of labels on implicit biases against deafness. Furthermore, this research did reveal a moderate bias against deafness among participants, on average, which indicates that future research needs to focus on ways in which audism can be combatted. This data compliments prior research about the existence of audism, such as the work of Bauman (2004), who argued that D/deaf people are discriminated against because of the belief that skill in speech (which does not come naturally to those who are D/deaf) equates to intelligence and capability. For

centuries, D/deaf people have experienced inequality and discrimination, as they attempt to navigate through a hearing-oriented world. It is time the hearing world take notice of the D/deaf population, and listen (so to speak) to their needs, and the ways in which we can make the world a more deaf-friendly place.

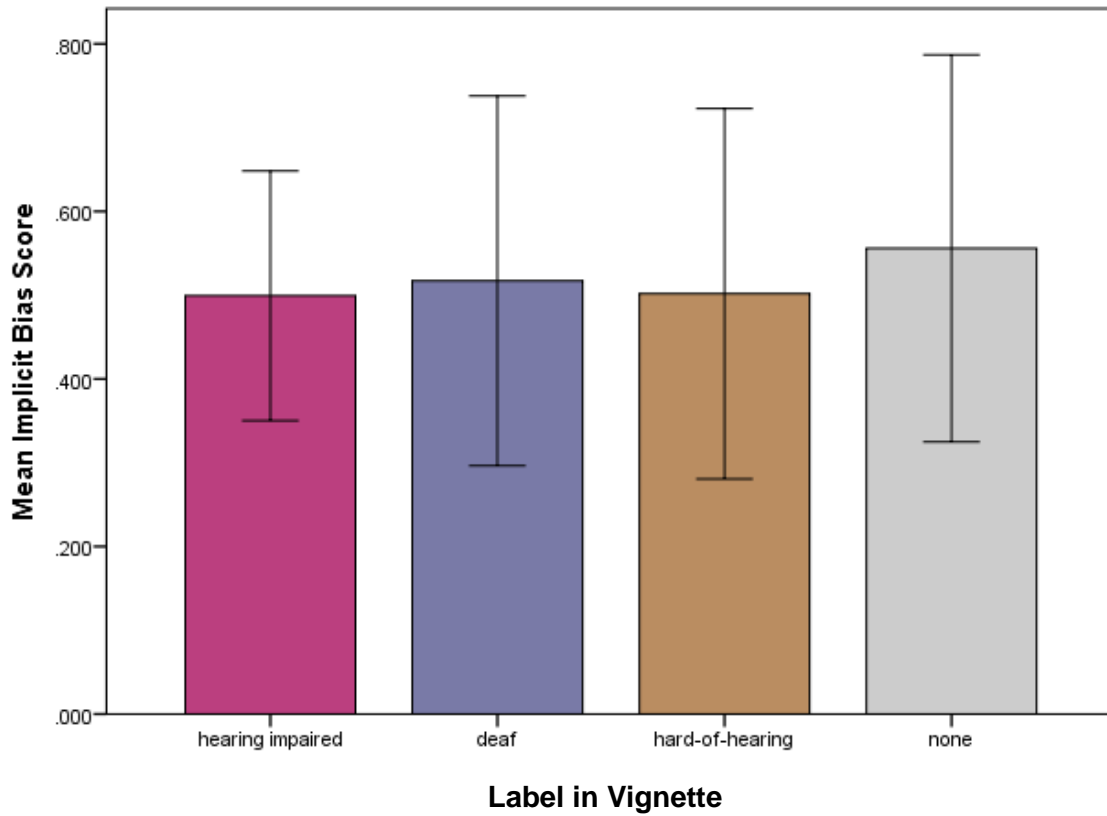
*Note: The term “Deaf” with a capital “D” is used to indicate the culture associated with deafness, as well as the individuals who choose to identify themselves within that community. When “deaf” appears with a lowercase “d”, it refers simply to audiological status. When used in conjunction (i.e. “D/deaf”), the author is abstaining from assuming the referent’s identity. “D/deaf” is used to be inclusive to those who are a part of the Deaf community, as well as those who have hearing loss but do not consider themselves a part of Deaf culture.*

Table 1

*Number of subjects (n), Mean IAT Score, and Standard Error (SE) for each experimental condition*

Label in Vignette	n	Mean IAT Score	SE
Hearing impaired	10	.499	.149
Deaf	5	.517	.221
Hard-of-hearing	7	.502	.221
None	8	.556	.231

Figure 1. Mean IAT scores based on label condition. Standard errors are presented in the figure by the error bars attached to each column.



Error bars: +/- 1 SE

## Appendix A

**Group 1 Vignette:**

John is a hearing impaired college student at a 4-year university who works part-time at a local coffee shop. He lives in an apartment off-campus with two roommates. He enjoys watching movies, reading, running, spending time with friends and family, and playing video games. He also likes spending time outdoors. John's favorite color is blue and favorite food is pizza. Eventually, John sees himself settling down with a wife and raising children.

**Group 2 Vignette:**

John is a deaf college student at a 4-year university who works part-time at a local coffee shop. He lives in an apartment off-campus with two roommates. He enjoys watching movies, reading, running, spending time with friends and family, and playing video games. He also likes spending time outdoors. John's favorite color is blue and favorite food is pizza. Eventually, John sees himself settling down with a wife and raising children.

**Group 3 Vignette:**

John is a hard-of-hearing college student at a 4-year university who works part-time at a local coffee shop. He lives in an apartment off-campus with two roommates. He enjoys watching movies, reading, running, spending time with friends and family, and playing video games. He also likes spending time outdoors. John's favorite color is blue and favorite food is pizza. Eventually, John sees himself settling down with a wife and raising children.

**Group 4 Vignette:**

John is a college student at a 4-year university who works part-time at a local coffee shop. He lives in an apartment off-campus with two roommates. He enjoys watching movies, reading, running, spending time with friends and family, and playing video games. He also likes spending time outdoors. John's favorite color is blue and favorite food is pizza. Eventually, John sees himself settling down with a wife and raising children.

Appendix B

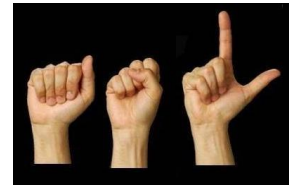
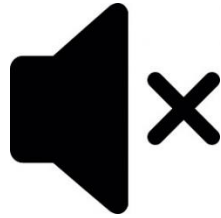
**“Good” stimuli:**

Joy  
Love  
Peace  
Wonderful  
Pleasure  
Excellent

**“Bad” stimuli:**

Evil  
Angry  
Terrible  
Rotten  
Nasty  
Bomb

**“Deaf” stimuli:**



**“Hearing” stimuli:**





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