EFFECTS OF COMMUNICATION MODE ON STEREOTYPING OF DEAF INDIVIDUALS

An Honors Thesis for the Department of Psychology

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ABSTRACT

The current study examined the effects of text- and video-based communication on the perception of Deaf and hearing individuals, with the larger goal of examining how these individuals may be stereotyped by perceivers. This study analyzed if one mode of communication was preferable to the other with regard to reducing Deaf stereotyping. Ninety-nine undergraduates were shown text- or video-based biographies of either hearing or Deaf individuals and given measures of Deaf stereotype endorsement, Deaf bias, and Deaf exposure. Participants in the text communication condition showed higher Deaf stereotyping on a limited number of stereotyped traits. Participants assigned to the Deaf identity conditions exhibited lower Deaf stereotyping than those assigned to the Hearing identity conditions, likely due to evaluation apprehension and a desire to appear unbiased. Increased stereotyping was also correlated with existing biases against Deaf individuals and several demographic variables. The significance of the effects of communication mode and individual identity on stereotyping is presented in conjunction with a literature review of text-based communication and Deaf stereotyping, a discussion of possible methodological limitations, and suggestions for future research directions.

CHAPTER ONE:

INTRODUCTION

This study examined the effects of text- and video-based communication on the

perception and stereotyping of Deaf and hearing individuals. This thesis will first discuss the

differences between text-and video-based communication modes, followed by a review of the

existing theories of text-based impression formation. Once this distinction has been established,

text-based communication will be examined in the context of facilitating self-expression and

reducing stereotyping processes. Next, the Deaf community will be introduced as a social group

that may benefit from text-based stereotype reduction, given the existing negative stereotypes

regarding Deaf individuals. Briefly, this thesis will touch upon the cultural differences between

Deafness and deafness and address the key distinction between identifying deafness as an

impairment rather than a disability. This chapter will conclude with a description of the available

methods of quantifying Deaf stereotyping and a description of the research methodology of the

current study. The remainder of this thesis will then address the results of the current study and

discuss their implications, in addition to addressing the methodological limitations of the present

study and directions for future research.

Text- and Video-Based Communication Modes

The mode of communication employed in an interpersonal interaction has a significant

influence on how people perceive one another (Bargh, McKenna, & Fitzsimons, 2002). Different

communication methods may cause people to portray themselves in distinct ways, resulting in

unique perceptions and impressions dependent on the specific communication mode chosen for

an interaction. For example, predominately visual and auditory interactions, such as interactions completed face-to-face or through a video phone, enable individuals to see and hear their interaction partners.[1] Conversely, text-based interactions such as email or text messaging remove these visual and auditory components, reducing the interaction to only the information that can be conveyed in a text-based medium. As these types of communication modes fundamentally alter the available information from which one can construct an impression of a person, it follows that different communication modes may trigger unique impression formation processes (Culnan & Markus, 1987; Lea & Spears, 1995; Walther, 1993, 1996).

In the absence of nonverbal behavior, conversational feedback, and cues indicating social status, text-based communication introduces a degree of anonymity that is lacking in video-based communication (Kiesler, Siegel, & McGuire, 1984). The extent of this anonymity hinges on an individual's level of self-disclosure. Additionally, the lack of nonverbal paralinguistic cues—such as speech speed, tone, and pitch—results in text-based communication that is a pared down, bare bones form of communication without many of the subtle nonverbal cues present in video-based communication. Coupled with the relaxed social standards of text-based communication (Kiesler et al., 1984), the increased anonymity of text-based interaction results in a decreased sense of accountability for one's identity in the text-based environment (Lee, 2006).

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[1] Though there are minor differences between video-based and face-to-face communication (Doherty-Sneddon et al., 1997; Fullwood, 2007), the present study will use video-based communication as an analogue for face-to-face communication. This decision was made to simplify the research methodology and enable the present study to be implemented with the resources available to the researcher.

Theories of Text-Based Impression Formation

A number of theories have been proposed for the modes of impression formation that may operate in a text-based communication environment. The earliest of these is Culnan and Markus' (1987) cues filtered-out (CFO) perspective, which was developed in part to explain inter-organizational electronic communication between companies. Given that text-based communication involves fewer nonverbal social cues than video-based communication, Culnan and Markus propose that text-based communication is more impersonal. Thus, impressions formed from text-based interactions are more unclear and poorly developed than those formed from visual communication. Walther's (1993) social information-processing theory expands upon this model by examining impression formation in a "text-based asynchronous medium" developed for computer conferencing.[2] Walther postulates that text-based communication slows impression formation, since there are so few existing social cues to form a cohesive impression. This paucity of cues initially results in slower, less-complete impression formation, but these impressions gradually become more complete over time as more cues are slowly revealed (Walther & Burgoon, 1992). In Walther's (1993) theory, the initial impression formed from a text-based interaction is less complete than an impression formed from a comparable face-to-face or video interaction. But as the text-based interaction continues, this impression gradually shifts to become more thorough and comparable to the impression formed from the face-to-face

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[2] Though the conferencing system used by Walther (1993) was a proprietary system designed by the University of Arizona, his description of the program is reasonably similar to an online text-based forum or message board. This is analogous to the text-based communication modes described in the CFO, SIDE, and hyperpersonal models.

interaction (Walther, 1993).

Lea and Spears (1995) present an alternative perspective with their social identification/deindividuation (SIDE) model, which was developed from an analysis of online text-based "electronic relationships" through email and online chat rooms. The SIDE model hypothesizes that the visual anonymity of text-based communication causes individuals to focus more attention on the limited number of social cues that exist in the text. These social cues, which convey information about social categorization and social group membership, are weighed more heavily than other textual information when forming an impression. Thus, impressions formed according to the SIDE model overemphasize social cues and social group membership at the expense of individuating information, resulting in an overattribution of these cues toward an interaction partner. For example, if an individual conveys in a text-based interaction that she has a disability, her interaction partner may associate this social categorization cue with certain traits and behaviors stereotypically associated with disabled individuals. The interaction partner will then overattribute these traits and behaviors to the disabled individual, integrating these stereotyped qualities into the impression of the disabled individual. According to the SIDE model, such misattributions result in highly stereotyped impressions, since they are exaggerated and extrapolated from the few social cues gleaned from the text-based interaction.

In light of the SIDE model, Walther (1996) developed a modified version of his social information-processing theory, the hyperpersonal model. This model combines the stereotype development processes of SIDE with the temporal limitations on impression formation described by social information-processing theory. As a result, text-based impressions form slowly over time, are initially highly stereotypical and incomplete, and grow to be more complete and accurate over time. Additionally, the scarcity of nonverbal cues in text-based communication

allows one to reallocate cognitive resources, which would have been used to attend to relevant nonverbal cues in a video-based or face-to-face interaction. Instead, these resources are reallocated to selective self-presentation, a form of impression management in which people intentionally highlight the positive and minimize the negative aspects of themselves. Selective self-presentation is facilitated by a number of advantages that text-based communication possesses over video-based interactions; namely, that one can edit text, spend more time composing one's thoughts, and devote more cognitive resources to composing those thoughts rather than monitoring nonexistent nonverbal cues (Walther, 2007). Though selective self-presentation is present—albeit to a lesser extent—in video-based and face-to-face communication, the advantages of text-based communication greatly ease this process by allowing more attention to be diverted to this impression management technique.

Given that selective self-presentation may help to improve how one is perceived by others, text-based communication requires a balance between one's desire for honesty and one's desire for impression management (Ellison, Heino, & Gibbs, 2006). Since one's need to present oneself in a positive light may at times be at odds with one's need to present oneself truthfully and authentically, the tension between these factors mediates one's amount of genuine self-disclosure in a text-based interaction. Those conflicting goals eventually force individuals to prioritize and determine which goal—honest self-expression or idealized self-expression—will be the primary motive behind their text-based communication.

Self-discrepancy theory addresses the inconsistency between these conflicting motivations, distinguishing between three distinct selves that may be expressed during an interaction (Higgins, 1987). These include the actual self, which functions as a genuine representation of oneself; the ideal self, which is an idealized perception of oneself that one

aspires to become; and the ought self, which espouses the traits that one feels one should have based on duties, obligations, and appropriate social behaviors. Discrepancies between the actual and ideal selves result in disappointment and a loss of self-esteem, while discrepancies between the actual and ought selves result in social anxiety and a fear of not living up to social standards. In both instances, these negative emotions may spur people to attempt to modify their behaviors in order to attain their ideals, though there are individual differences in the extent to which these emotions serve as motivational stimuli. Text-based communication facilitates the expression of the ideal self because it presents an environment in which one's self-presentation can be modified to meet those ideals (Bargh et al., 2002).

Text-Based Facilitation of Self-Expression

According to Amichai-Hamburger, McKenna, and Tal (2008), reframing one's identity is easier in text-based, online communication than in a face-to-face interaction. Indeed, text-based environments provide the freedom to "play with identity" (Bechar-Israeli, 1995) with less threat of failure, fear of rejection, social anxiety, and social constraints (Amichai-Hamburger, McKenna, & Tal, 2008, Amiel & Sargent, 2004; Barak & Sadovsky, 2008). Thus, text-based communication may facilitate the creation of novel identities and personas that may not necessarily be truthful expressions of the people they represent.

Text-based communication allows people to form impressions of others based on their expressed opinions and other textual cues, rather than superficial features or physical characteristics (Amichai-Hamburger, McKenna, & Tal, 2008; Reinhardt et al., 2011). This reduction in stereotyping is of particular importance to individuals who may feel stereotyped based on easily identifiable physical characteristics, such as individuals with limited motor

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function, paralysis, hearing impairment, or the like. In video-based communication, such visible physical impairments would be easily identifiable and act as cues to promote stereotyping of the individual. However, text-based communication provides the opportunity for one to conceal this information and decide whether to divulge it on one's own terms (Barak & Sadovsky, 2008).

People who may feel stigmatized due to visible impairments see online text-based communication as a way to facilitate their self-expression (Bargh et al., 2002) by equalizing the dynamic between the impaired and the non-impaired (Bechar-Israeli, 1995). In fact, people feel more equal communicating through text online as they can ignore their physical identities and communicate with one another on an equal plane (Barak & Sadovsky, 2008; Bechar-Israeli, 1995). Therefore, individuals may prefer to present themselves through text-based communication rather than through video-based and face-to-face methods. As text-based communication provides the opportunity to conceal stereotype-triggering information, it may promote the formation of a more authentic impression, free of stereotyping based on physical traits. If one forms such an initial impression and is later exposed to potentially biasing, stereotype-triggering cues, there is evidence that the initial unbiased impression may persist despite the new biasing information (Amichai-Hamburger, McKenna, & Tal, 2008). Thus, in the absence of stereotyping cues, text-based impression formation may have a preventative effect on future stereotyping.

Text-Based Stereotype Reduction

As discussed above, text-based interactions may reduce stereotyping by removing the visual cues which may activate stereotypes. The Internet has emerged as a novel mode of such text-based communication, in which people can interact with each other in a virtually anonymous

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setting. As such, the Internet provides a unique opportunity for members of stereotyped social groups to interact without fear of prejudice, in a context in which they are judged solely based on voluntarily divulged information. The level of social pressure present in a text-based interaction also is markedly less than what is present in face-to-face communication, creating an atmosphere in which stigmatized individuals may express themselves more freely and with little fear of social rebuke (Barak & Sadovsky, 2008). Text-based communication may lessen the fear that an individual may inadvertently "prove" a stereotype by demonstrating stereotype-consistent behavior. This decreased anxiety may then decrease an individual's tendency toward self-monitoring, so that one is not constantly scrutinizing one's behavior to ensure a stereotype-inconsistent impression. For example, a woman stereotyped as a poor athlete due to her weight may feel pressure to act athletic and to minimize unathletic behaviors in order to subvert the stereotype in face-to-face and video-based interactions. However, text-based interactions would remove the visual information that triggers this stereotype, allowing the woman to express herself more candidly without being as concerned about moderating her behavior to undermine the stereotype.

Visible physical disabilities and impairments are the "most potent catalyst for discriminatory attitudes and practices" (Seymour & Lupton, 2004). Communicating in a text-based environment allows impaired individuals the opportunity to conceal their impaired status and avoid associated stigma and stereotyping (Barak & Sadovsky, 2008). Many impaired people prefer online text-based communication as they feel it promotes uncontaminated judgment, a component of Bowker and Tuffin's (2007) positive subjectivity theory. Bowker and Tuffin (2007) define uncontaminated judgment as an impression formation process in which judgments of others made solely on their text-based contributions, rather than physical or speech

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characteristics. Since these characteristics are not present in a text-based interaction, they do not "contaminate" impression formation and trigger stereotyping processes. Conversely, face-to-face and video-based communication is considered to be "contaminated" by these stereotyping triggers, which preclude genuine, non-stereotyped impression formation.

Thus, individuals with physical impairments may be more motivated to use text-based communication in order to promote more authentic interactions with others. As it relates to the present study, Barak and Sadovsky (2008) found that hearing impaired participants are more motivated to use the Internet (i.e. text-based communication) and actually did use the Internet more frequently than non-hearing impaired participants. They also noted that a higher frequency of Internet use in hearing impaired participants was correlated with higher levels of self-esteem, but were unable to determine a causal relationship between these factors. Nevertheless, it is a reasonable supposition that the reduced stereotyping present in a text-based communication environment may promote more genuine conversations and unbiased impression formation.

Deafness, deafness, and Disability

The American Deaf community is a prominent example of a social group with a visually identifiable manifestation of their impairment; namely, the use of American Sign Language (ASL) for communication. ASL is the native language of Deaf Americans (Luey, Glass, & Elliot, 1995) and an easily identifiable visual indicator of Deafness; thus, the use of sign language may act as a visual cue to trigger stereotyping in video-based communication methods. Therefore, members of the Deaf community may benefit from the stereotype-reducing properties of text-based interaction when interacting with others, as this mode of communication may greater positive subjectivity (Bowker & Tuffin, 2007).

Before exploring this topic further, it is important to clarify several key issues regarding cultural Deafness and disability. This paper will use the convention of "deaf" to describe the audiological condition and "Deaf" to describe the cultural group that comprises the Deaf community (Padden & Humphries, 1988). This distinction is not merely one of semantics, as individuals who are medically deaf may not necessarily identify as culturally Deaf, and may not feel that they are members of the Deaf community. Thus, it is possible for a grandfather who lost his hearing late in life to identify as deaf but not Deaf, just as it is possible for a hearing daughter of Deaf parents to identify as Deaf but not deaf. In that regard, it is crucial to recognize that individuals who are Deaf perceive Deafness as a culture in the sense that it is based on a shared language, common traditions, and is predominately endogamous (Levy & Langer, 1994). Though deaf people may use a number communication methods—including ASL, oral speech, writing, signed English, lipreading, or cued speech—ASL is considered the predominant language of the American Deaf community (Luey, Glass, & Elliot, 1995). As ASL is the dominant language that binds the American Deaf community together as a culture, it acts as a potent visual trigger for stereotyping in video-based and face-to-face communication. Socially, the American Deaf community is identified as a minority group, as profoundly deaf individuals compose only 1% of the population and not all of these individuals may identify as Deaf (Luey, Glass, & Elliot, 1995).

Members of the Deaf community do not view deafness as a disability and do not identify as disabled (D'Aoust, 1999; Padden & Humphries, 1988). Rather, Deafness is seen as a linguistic minority, comparable to other American cultural groups for whom spoken English is not the dominant language (D'Aoust, 1999). Accordingly, deafness corresponds to the physical impairment of hearing loss, which does not limit Deaf individuals from taking part in the Deaf

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community. This distinction between impairment and disability has been succinctly articulated by the Disabled People's International (DPI), an organization which advocates for the rights of disabled people. In recent years, the DPI has adopted the following definitions of impairment and disability from the social model of disability (Enns, 1989, Fougeyrollas & Beauregard, 2001):

- Impairment is the "functional limitation with the individual caused by physical, mental, or sensory impairment."

- Disability is the "loss or limitation of opportunities to take part in the normal life of the community on an equal level with others due to physical and social barriers."

This model stresses that, though an impairment may occur concurrently with a disability, there is not necessarily a causal relationship between the two (Enns, 1989; Fougeyrollas & Beauregard, 2001). Thus, referring to deafness as a disability implies that deaf individuals are unable to take part in their community and that the lives of deaf individuals are somehow socially unequal to the lives of hearing individuals. Though it is true that the impairment of deafness causes the lives of deaf individuals to be different from those of hearing individuals, this difference does not impose significant social barriers.

Though the Deaf community is largely unified in the belief that Deafness is not a disability, the hearing community rarely shares this belief. Hearing individuals, as well as people with acquired hearing loss, commonly view deafness as a disability (Luey, Glass, & Elliot, 1995). This belief stems primarily from the medical model of disability, which treats deafness as a pathological condition that must be treated to attempt to "cure" the deaf person (Munoz-Baell & Ruiz, 2000). The impairment of deafness is viewed as an unfortunate loss, and deaf people are seen as disadvantaged and incomplete (Padden & Humphries, 1988). The medical model of disability does not address any cultural components of Deafness, and indeed the social model of disability arose largely in response to this omission.

Social Perception of Deaf Stereotypes

The external manifestations of Deafness—an inability to hear and the use of ASL to communicate—may act as a mechanism for triggering stereotyping processes (Seymour & Lupton, 2004). Deaf people have historically been subjected to negative stereotypes and prejudiced attitudes (Altshuler, 1978; Cambra, 1996; Cowen, Bobrove, Rockway, & Stevenson, 1967; Isaacs, 1973; Kiger, 1997; Munoz-Baell & Ruiz, 2000; Schiff & Thayer, 1974; Weinberg, 1976). Though the components of the Deaf stereotype are varied in scope, empirical research has found that hearing people typically stereotype the Deaf as:

- more impulsive (Altshuler, 1978);

- more uncommunicative, unkind, unpleasant, unconfident, reserved, solitary, passive, dependent, and unsure of themselves (Cambra, 1996);

- more unpleasant, immature, withdrawn, unfriendly, tense, suspicious, cold, and dull (Cowen et al., 1967);

- more emotional, aggressive, and immature (Isaacs, 1973);

- more happy, solitary, and angry (Kiger, 1997);

- more immature and impulsive (Schiff & Thayer, 1974); and

- more socially unskilled and more dependent on others (Weinberg, 1976) than people without audiological impairments.

In some instances, these negative stereotypes may even be endorsed by deaf people themselves. Deaf people who identify as culturally hearing and do not identify with the Deaf community tend to feel that Deaf people are less smart, less happy, and more easily upset than hearing people (Bat-Chava, 2000). These beliefs are moderated by the extent to which a deaf individual identifies with Deaf culture and the Deaf community. The endorsement of Deaf stereotypes by deaf individuals is disconcerting. Given that some studies have found Deaf people to have lower

self-esteem than hearing people (Bat-Chava, 1993; Mulcahy, 1998; Schlesinger, 2000), the existence of negative stereotyping within the deaf/Deaf communities does not bode well for alleviating this trend.

A number of correlational studies have found that hearing endorsement of negative Deaf stereotypes varies as a function of a number of sociocultural and demographic factors. More positive attitudes toward Deaf individuals have been correlated with greater contact and interaction with Deaf people (Cambra, 1996; Cooper, Rose, & Mason, 2003; Cooper, Rose, & Mason, 2004), specifically by having Deaf friends (Enns, Boudreault, & Palmer, 2010); by interacting with Deaf people in a situation with a shared, superordinate goal (Strong & Shaver, 1991); by interacting with Deaf people in a setting where they are the minority group (Strong & Shaver, 1991); and by being exposed to positive Deaf role models in employment settings (Zahn & Kelly, 1995). Other factors that have been found to mitigate negative stereotyping include knowledge of Deafness, Deaf issues, and Deaf culture (Cooper et al., 2003) and enrollment in sign language courses (Nikolaraizi & Makri, 2004). Additionally, young people, particularly young women, have been found to have more positive attitudes toward Deaf people than older people and men (Cooper et al., 2003). To my knowledge, there are no known studies to date that have attempted to correlate the negative stereotyping of Deaf individuals with the race or ethnicity of either Deaf individuals or their interaction partners.

Quantifying Deaf Bias and Deaf Stereotyping

A number of scales have been proposed in the literature for measuring and quantifying Deaf bias. However, the majority of these scales are fraught with severe methodological flaws and are unsuitable for use in contemporary research studies. Early scales designed to measure

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attitudes toward the Deaf were adapted from scales designed to measure attitudes toward blind and disabled people, severely hampering their construct validity (Beaudry & Hetu, 1990; Cowen et al., 1967; Ferguson, 1970; Schroedel & Schiff, 1972; Siller, Ferguson, Holland, & Vann, 1967; Yuker, Block, & Campbell, 1960). Quite a few of these scales simply replaced all mentions of "blindness" with "deafness" or references to "disabled person" with "deaf person:" a wholly inappropriate design choice, given that stereotypes about disabilities vary greatly between blind individuals, deaf individuals, and individuals with other impairments or disabilities (Cambra, 1996). None of these scales were developed specifically for measuring attitudes toward Deaf people but were simply adapted from other scales intended for other uses.

Berkay, Gardner, and Smith's (1995a, 1995b) Opinions about Deaf People scale was developed in response to the methodological flaws present in earlier Deaf attitude scales. This scale was developed by interviewing Deaf individuals and using existing literature to generate a series of 20 attitude statements about Deaf individuals (see Appendix C). When using the scale, individuals respond to each attitude statement on a 4-point Likert-type scale. A total score is calculated for each individual, with higher scores indicating more biased opinions about Deaf individuals. As this scale was developed specifically for measuring attitudes toward Deaf people and not adapted from an earlier scale, it is much more widely used as a measure of Deaf bias and Deaf stereotyping. Cooper et al.'s (2004) Attitudes toward Deaf People scale uses a similar paradigm, in which individuals respond to a series of 22 attitude statements on a 6-point Likert scale (see Appendix B). These attitude statements were designed by conducting a Deaf focus group, in tandem with a review of earlier literature. A total score is calculated for each individual, with higher scores indicating more positive attitudes toward Deaf individuals. Though Cooper et al.'s (2004) scale was developed for use with human service and mental health

professionals, the broadness of the attitude items included in the scale enables it to be used with more general populations.

The present study will employ both Berkay et al.'s (1995a, 1995b) and Cooper et al.'s (2004) Deaf attitude scales.

Research Directions

To summarize, a review of the existing literature suggests that text-based communication may have an effect on the stereotyping of Deaf individuals. This effect may be inhibitive, as the removal of visual cues to deafness may prompt more genuine consideration of an individual without reliance on stereotypes and biases. Alternatively, this effect may be promotive, as the limited social cues present in text-based communication may result in perceivers placing undue emphasis on these cues and related stereotypes, resulting in increased stereotyping of the Deaf individual. This present study aims to analyze whether one mode of communication is preferable to the other with regard to stereotyping, and if a particular mode of communication can be used to inhibit stereotyping.

The present study will be split into two components. The first component will present participants with a text-based or video-based biography of a hypothetical individual, who will be hearing or Deaf. In the text-based condition, participants will read a written biography, while participants in the video-based condition will watch a biographical video which uses the written biography as a script. Subsequently, participants will complete a comprehension measure to determine if they were attentive to the biography. This will be followed by a Deaf stereotype endorsement measure, which will determine if participants' impressions of the hypothetical person from the biography were consistent with a Deaf stereotype. Next, participants will

complete two Deaf bias measures—the Attitudes toward Deaf People scale (Cooper et al., 2004) and the Opinions about Deaf People scale (Berkay et al., 1995a, 1995b)—in order to determine if general bias against Deaf individuals is correlated with stereotyping behavior. Participants will then complete a Deaf exposure measure, a demographic questionnaire, and a suspicion check.

Based on the trends in earlier research, the present study poses three hypotheses to describe the effects of communication mode (text, video) and individual identity (hearing, Deaf) on stereotyping of Deaf individuals:

> **Hypothesis 1**: There will be a difference in the amount of Deaf stereotyping in text- and video- based communication.

By removing visible ASL use, a prominent visual indicator of Deafness, text-based communication may serve to lessen stereotyping of Deaf individuals (Amichai-Hamburger, McKenna, & Tal, 2008; Barak & Sadovsky, 2008; Seymour & Lupton, 2004). Alternatively, text-based communication may cause one to place undue focus on the limited social cues available within the text. This may result in an overattribution of relevant social cues, resulting in a highly stereotyped impression of an interaction partner (Lea & Spears, 1995, Walther, 1996). Based on these conflicting models, the current research predicts there will be a difference in the amounts of stereotyping between experimental conditions and will determine which model is supported by the study data.

> **Hypothesis 2**: There will be a higher level of Deaf stereotyping in the Deaf identity conditions than in the hearing identity conditions.

The hearing community has historically stigmatized Deaf individuals with a number of negative stereotypes (Altshuler, 1978; Cambra, 1996; Cowen, Bobrove, Rockway, & Stevenson, 1967; Isaacs, 1973; Kiger, 1997; Munoz-Baell & Ruiz, 2000; Schiff & Thayer, 1974; Weinberg, 1976). Though endorsement of these stereotypes is modified by a number of demographic and

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social factors (Cambra, 1996; Cooper et al., 2003, 2004; Enns, Boudreault, & Palmer, 2010; Strong & Shaver, 1991; Zahn & Kelly, 1995), these stereotypes appear to still be prevalent in the hearing community. The present research will aim to empirically demonstrate the existence of these stereotyping behaviors.

Hypothesis 3: An interaction between communication mode and individual identity will determine the amount of stereotyping in each condition.

The effects of communication mode and individual identity are predicted to work in tandem to determine the amount of stereotyping in each condition. Though the Deaf identity condition is predicted to show increased stereotyping compared to the hearing condition, the effects of text-based versus video-based communication do not fall into a clear predictive pattern. Thus, whether text-based communication limits or enhances stereotyping remains to be seen.

Though this research focuses on the impact of communication mode on hearing and Deaf stereotyping, it has wider implications for the psychological study of stereotyping and impression formation as more general social phenomena. The outcome of the current study will be of value to an emerging field of study that analyzes online impression formation and the peculiarities of text-based interaction in such an environment. The interplay of anonymity and deception by omission inherent in an online, text-based interaction serves to create an atmosphere in which individuals may redefine themselves and construct identities wholly distinct from their "face-to-face" social selves. The methods by which people construct their online identities to convey specific impressions, as well as the factors that motivate people to redefine themselves online, open a new field of study that has widespread applications.

CHAPTER TWO:

METHOD

Participants

A sample of 100 participants were recruited from Tufts University for course credit. One participant indicated that he knew the actress from the biographical video, so his data were excluded from any further analysis, resulting in a final sample of 99 participants (64 female) whose ages ranged from 17 to 24, with a mean age of 18.96 ($SD = 1.220$). The majority of participants were White/Caucasian (62%), with the remaining participants self-identifying as Asian (17%), Spanish/Hispanic/Latino/a (10%), Black/African American (6%), Multiracial (3%), or declining to answer (2%). No participants identified as Deaf/deaf and only one participant identified as hard-of-hearing (1%); all other participants identified as hearing (99%).

Materials

Biographical Stimuli

Participants were presented with biographical stimuli that described a hypothetical college student. The identity of this hypothetical individual (hearing, Deaf) was crossed with the communication mode (text, video) in a 2x2 factorial design to generate four different stimuli. Thus, each participant was exposed to one of the following stimuli types: a biographical text about a hearing individual, a biographical video about a hearing individual, a biographical text about a Deaf individual, and a biographical video about a Deaf individual. Both biographical texts were written in the first person. The biographical information conveyed in these stimuli was

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general information about a hypothetical student, and information about the student's family, life at college, academic courses, and hobbies (see Appendix A).

The biographical information conveyed in all four conditions was identical with the exception of whether the hypothetical individual was presented as hearing or Deaf. The biographical scripts for all conditions attempted to present this information in a subtle, unobtrusive manner, so as not to overtly call attention to this detail. Identity-relevant information (hearing, Deaf) was presented when describing the hypothetical individual's experiences in a lecture hall, as this was a comparable experience that could be presented in both hearing and Deaf identity conditions.

The biographical text of the hearing identity did not include any information explicitly referring to the individual as "hearing," as this would have increased participant suspicion about the purpose of the present study. Instead, hearing was considered the default identity that would be ascribed to a textual biography that gave no evidence to the contrary. This condition also included a comparable statement about the individual's experiences in a lecture hall, to the effect of the individual occasionally bringing a laptop computer to lecture in order to take notes.

The biographical video of the hearing identity used the hearing-identity biographical text as a script to produce a short video of an actress reading the biography aloud from a teleprompter. This actress was a Tufts University Psychology graduate student and was filmed standing in front of a neutral white background, with only her upper torso within the frame.

The biographical text of the Deaf identity expressed the individual's identity by describing the difficulties faced by Deaf students in a lecture hall. The text for this condition mentioned that the hypothetical individual is Deaf, has an interpreter with her during class, and has difficulty with lipreading. A comparable statement about using a laptop to take notes during

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lecture was also included in this condition.

The biographical video of the Deaf identity used the Deaf-identity biographical text as a script to produce a short video of an actress signing the biography in ASL. The following statement was added at the beginning of the script to indicate that an interpreter would be translating the biography into spoken English: "The voice that you hear is that of an interpreter, who will speak for me." The actress filmed for the Deaf identity video was the same actress filmed to produce the biographical video of the hearing identity and was bilingual in spoken English and ASL. After signing the biographical text, the actress read the text aloud off-screen in order to generate an interpreter voiceover audio track. This audio track was edited in iMovie to be played over the video of the actress signing, so that participants saw the actress signing while they heard the interpreter voiceover audio. Both the hearing and the Deaf identity videos were pretested to be comparable in emotional expressiveness.

Comprehension Measure

The comprehension measure included six multiple-choice questions about conceptual information conveyed by the biography. These questions were pretested to ensure that they were not overly difficult and that they appropriately measured if a participant had indeed been attentive to the biography. Questions focused on memorable and easily recalled information, such as the individual's name, class year, and general hobbies.

Stereotype Endorsement Measure

The stereotype endorsement measure included questions regarding traits of the person described in the biographical text or video. This measure addressed the extent to which

participants felt the hypothetical individual expressed traits found to be stereotypical of Deaf individuals. This measure included traits adapted from previous studies measuring perceptions of Deaf individuals: impulsive, incommunicative, unkind, unpleasant, unconfident, reserved, passive, dependent, unsure, immature, withdrawn, unfriendly, tense, suspicious, cold, dull, emotional, aggressive, happy, angry, solitary, and socially unskilled (Altshuler, 1978; Cambra, 1996; Cowen et al., 1967; Isaacs, 1973; Kiger, 1997; Schiff & Thayer, 1974; Weinberg, 1976). To account for potential order effects, the order of the trait items was randomized for each participant.

Trait ratings were given on a 6-point Likert-type scale, which ranged from 1 (*strongly agree*) to 6 (*strongly disagree*). So as not to confuse participants, the Likert scale anchors were kept consistent between the stereotype endorsement measure and the following "Attitudes toward Deaf People" and "Opinions about Deaf People" scales.

Deaf Bias Measures

The following Deaf bias measures were employed in the present study. Though both scales ostensibly measure similar attitudes and opinions about Deaf people, both were included to allow scores from each scale to be correlated to one another.

Attitudes toward Deaf People Scale

Participants completed Cooper et al.'s (2004) Attitudes toward Deaf People scale, which asked participants to rate the extent to which they agree or disagree with 22 statements regarding deafness and Deaf people (see Appendix B). Attitude ratings were given on a 6-point Likert-type scale, which ranged from 1 (*strongly agree*) to 6 (*strongly disagree*), and 14 items on the scale

were reverse-scored. The order of the scale items was randomized for each participant to account for order effects. A total score was calculated for each participant, with higher cumulative scores on this scale indicating more positive attitudes toward Deaf people.

Opinions about Deaf People Scale

Participants completed Berkay et al.'s (1995a, 1995b) Opinions about Deaf People scale, which asked participants to rate the extent to which they agree or disagree with 20 statements regarding deafness and Deaf people (see Appendix C). Opinion ratings were given on a 4-point Likert-type scale, which ranged from 1 (*strongly agree*) to 4 (*strongly disagree*), and 10 items on the scale were reverse scored. The order of the scale items was randomized for each participant to account for order effects. A total score was calculated for each participant, with higher cumulative scores on this scale indicating more biased opinions about Deaf people.

Deaf Exposure Measure

The Deaf exposure measure included questions about participants' level of exposure to deaf individuals and Deaf culture. These questions addressed if participants had taken academic courses related to Deaf culture, the Deaf community, or ASL; each participant's level of ASL proficiency and fluency; if each participant has Deaf relatives, friends, or classmates; and whether participants have interacted with Deaf people at school, at home, or at work.

Demographic Questionnaire

The demographic questionnaire presented to participants included questions regarding each participant's gender, age, race, class year, native country, native language, identity (hearing,

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Hard-of-Hearing, Deaf), involvement in the Deaf community, and membership in the Deaf community. All demographic questions allowed participants the opportunity to decline to answer.

Procedure

Each participant was greeted by a female experimenter and directed into a cubicle. The experimenter then verbally explained the consent procedure and provided each participant with a consent form. After consenting to participate, participants were randomly assigned to one of four experimental conditions.

Once assigned to condition, the experimenter prompted each participant to complete the present study on a computer monitor. The subsequent experimental tasks were automated, so that participants would proceed automatically when they were finished with a task. Participants were first asked to view the biographical stimuli, which were presented as biographies of fellow college students. Participants then completed the remaining experimental tasks in the following order: the comprehension measure, the stereotype endorsement measure, the Attitudes toward Deaf People scale, the Opinions about Deaf People scale, and the Deaf exposure measure. After the Deaf exposure measure, each participant completed a free response suspicion check to ascertain if he or she was able to discover the purpose of the experiment. Finally, each participant completed the demographic questionnaire. The experimenter then verbally debriefed the participant and provided a debriefing form.

CHAPTER THREE:

RESULTS

All participants attained 67% or higher accuracy on the comprehension measure (see Figure 1). As all participants were able to complete the comprehension measure with greater than chance (50%) accuracy, no data were excluded based on this measure.
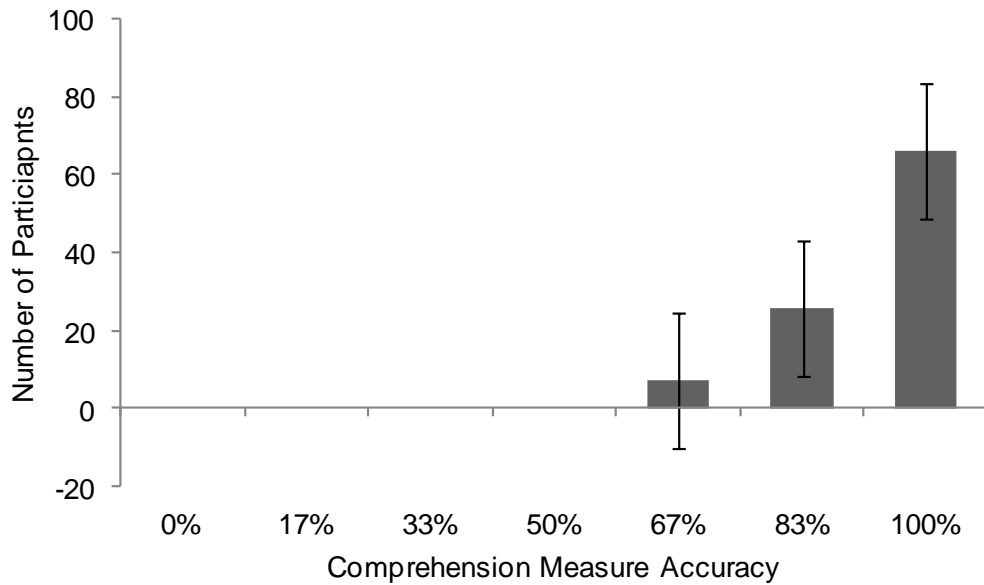
Figure 1. Comprehension measure accuracy

To simplify analysis, all stereotype endorsement measure scores were reverse scored so that higher means indicated a greater level of agreement with a particular trait and a greater level of consistency with the Deaf stereotype. There were no significant differences in the stereotype endorsement measure across participant gender, age, and race. A Multivariate Analysis Of Variance (MANOVA) revealed significant main effects of communication mode, $F (1, 98) = 2.277$, $p = .003$, and individual identity, $F (1, 98) = 1.837$, $p = .022$, on the stereotype endorsement measure. However, there was no interaction between these variables, $F (1, 98) =$

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1.458, *n.s.*

Two-Way Univariate Analyses Of Variance (ANOVA) were conducted to examine the effects of communication mode on the stereotype endorsement measure (see Table 1 for main effects of communication mode).

Table 1. Stereotype endorsement measure traits by communication mode (text, video)

Stereotype endorsement measure	Text (*n* = 50)		Video (*n* = 49)			
	M	*SD*	*M*	*SD*	*F*	*p*
unconfident	**3.66**	**1.303**	**2.65**	**1.267**	**17.112**	**.000**
unsure	**4.50**	**1.474**	**3.65**	**1.640**	**8.044**	**.006**
withdrawn	**3.00**	**1.539**	**2.27**	**1.319**	**6.533**	**.012**
immature	**2.84**	**1.530**	**2.16**	**1.264**	**6.111**	**.015**
uncommunicative	**2.62**	**1.260**	**2.14**	**0.935**	**4.512**	**.036**
happy	**4.22**	**1.148**	**4.67**	**1.088**	**4.264**	**.042**
reserved	**3.60**	**1.340**	**3.06**	**1.376**	**4.002**	**.048**
suspicious	1.96	1.277	1.53	0.868	3.831	.053
dull	3.22	1.516	2.65	1.508	3.485	.065
angry	1.92	1.209	1.53	0.868	3.302	.072
passive	3.72	1.386	3.27	1.565	2.415	.124
tense	2.88	1.573	2.45	1.324	2.130	.148
emotional	3.28	1.196	3.02	1.070	1.284	.260
impulsive	2.26	1.192	2.47	1.260	0.713	.401
cold	1.92	1.243	1.76	1.031	0.500	.481
unpleasant	2.20	1.161	2.08	0.932	0.298	.586
unkind	2.14	1.030	2.24	0.990	0.279	.598
unfriendly	1.86	1.212	1.78	1.026	0.132	.718
socially unskilled	4.64	1.467	4.57	1.190	0.063	.803
aggressive	1.70	1.282	1.65	0.991	0.046	.831
solitary	2.58	1.513	2.53	1.209	0.029	.864
dependent	3.36	1.396	3.35	1.332	0.003	.954

Note. Boldface type indicates *p* < .05.

Participants in the text communication mode condition rated the hypothetical individual as more

consistent with the Deaf stereotype for the following traits: unconfident, $F (1, 98) = 17.112$, $p < .000$; unsure, $F (1, 98) = 8.044$, $p = .006$; withdrawn, $F (1, 98) = 6.533$, $p = .012$; immature, $F (1, 98) = 6.111$, $p = .015$; uncommunicative, $F (1, 98) = 4.512$, $p = .036$; and reserved, $F (1, 98) = 4.002$, $p = .048$ (see Figure 2). Participants in the video communication mode condition rated the hypothetical individual as more consistent with the Deaf stereotype for the trait of happiness, $F (1, 98) = 4.264$, $p = .042$.

Figure 2. Ratings for stereotype endorsement measure traits by communication mode

Two-Way ANOVA were also used to examine the effects of individual identity on the stereotype endorsement measure (see Table 2 for main effects of individual identity).

Table 2. Stereotype endorsement measure traits by individual identity (Hearing, Deaf)

Stereotype endorsement measure	Hearing ($n = 49$)		Deaf ($n = 50$)			
	M	SD	M	SD	F	p
unsure	**4.61**	**1.397**	**3.56**	**1.643**	**12.826**	**.001**
unconfident	**3.57**	**1.323**	**2.76**	**1.318**	**11.328**	**.001**
happy	**4.10**	**1.141**	**4.78**	**1.036**	**9.871**	**.002**

Note. Boldface type indicates $p < .05$.

Table 2, cont. Stereotype endorsement measure traits by individual identity (Hearing, Deaf)

Stereotype endorsement measure	Hearing (n = 49)		Deaf (n = 50)		F	p
	M	SD	M	SD		
passive	**3.94**	**1.478**	**3.06**	**1.376**	**9.442**	**.003**
immature	**2.88**	**1.536**	**2.14**	**1.246**	**7.118**	**.009**
dull	**3.27**	**1.455**	**2.62**	**1.550**	**4.552**	**.035**
unpleasant	**2.37**	**1.185**	**1.92**	**0.853**	**4.548**	**.036**
tense	2.92	1.512	2.42	1.386	2.932	.090
unfriendly	2.00	1.127	1.64	1.083	2.532	.115
unkind	2.33	1.144	2.06	0.843	1.729	.192
uncommunicative	2.51	1.082	2.26	1.175	1.188	.278
reserved	3.47	1.473	3.20	1.278	1.064	.305
socially unskilled	4.47	1.243	4.74	1.411	1.003	.319
solitary	2.69	1.402	2.42	1.326	0.968	.328
impulsive	2.45	1.276	2.28	1.179	0.464	.497
withdrawn	2.73	1.552	2.54	1.403	0.462	.498
dependent	3.27	1.381	3.44	1.343	0.405	.526
suspicious	1.82	1.185	1.68	1.039	0.344	.559
aggressive	1.73	1.169	1.62	1.123	0.232	.631
cold	1.88	1.111	1.80	1.178	0.107	.745
angry	1.76	1.090	1.70	1.055	0.056	.813
emotional	3.16	1.124	3.14	1.161	0.007	.934

Note. Boldface type indicates $p < .05$.

Participants in the hearing identity condition rated the hypothetical individual as more consistent with the Deaf stereotype for the following traits: unsure, $F (1, 98) = 12.826$, $p = .001$; unconfident, $F (1, 98) = 11.328$, $p = .001$; passive, $F (1, 98) = 9.442$, $p = .003$; immature, $F (1, 98) = 7.118$, $p = .009$; dull, $F (1, 98) = 4.552$, $p = .035$; and unpleasant, $F (1, 98) = 4.548$, $p = .036$ (see Figure 3). Participants in the Deaf identity condition rated the hypothetical individual as more consistent with the Deaf stereotype for the trait of happiness, $F (1, 98) = 9.871$, $p = .002$.
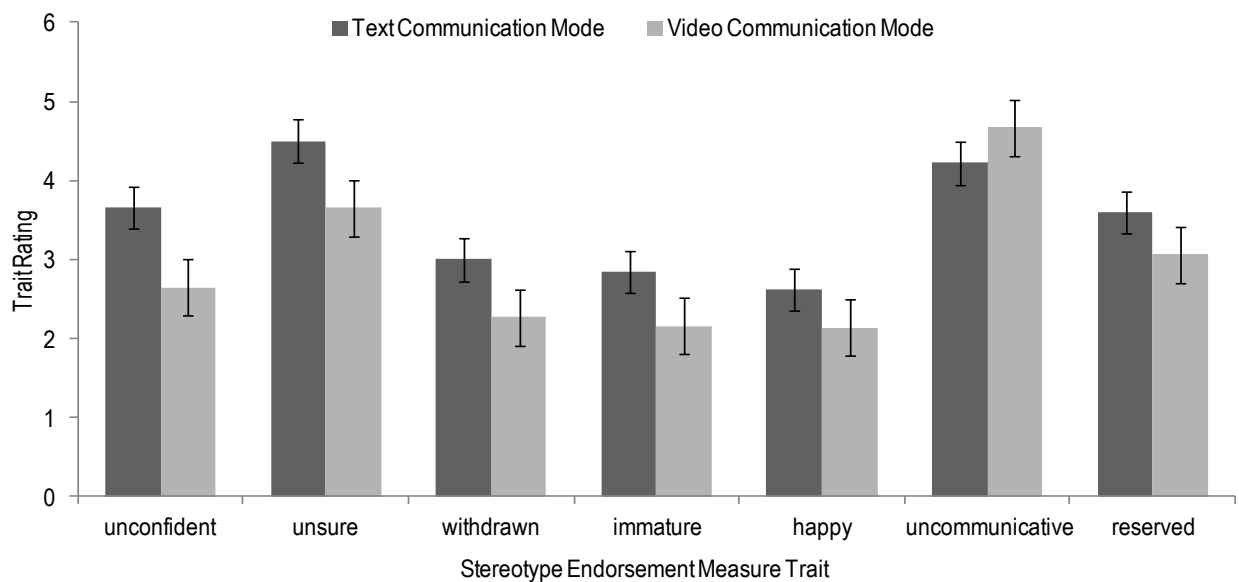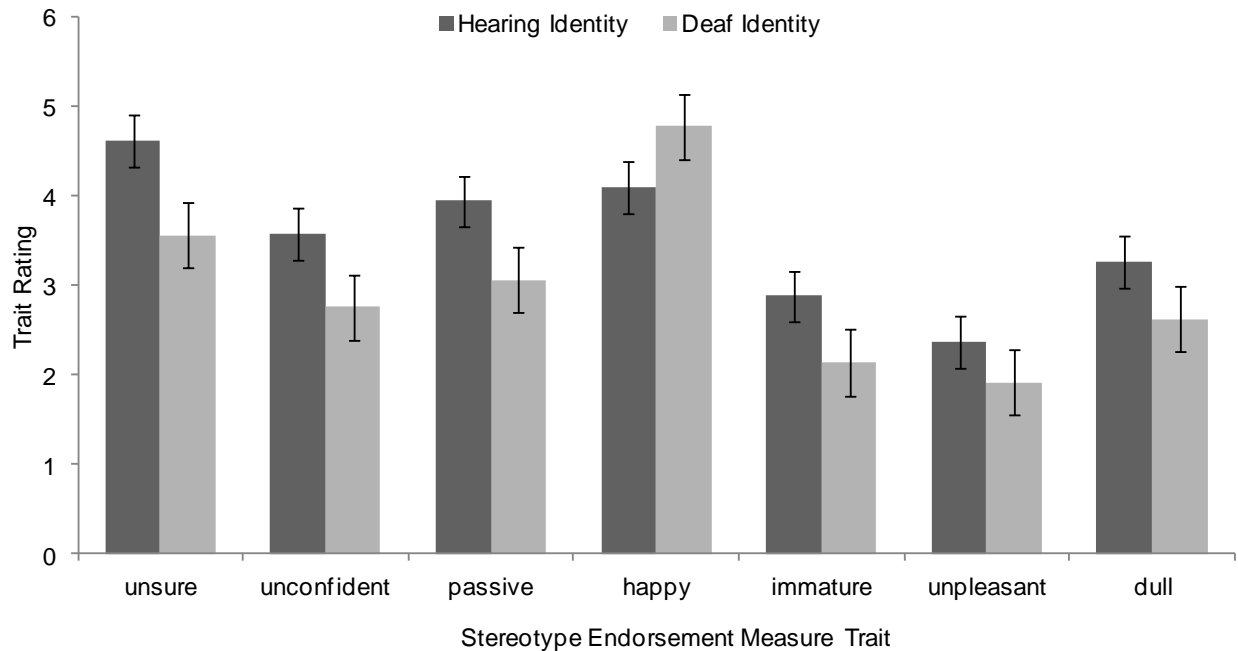
Figure 3. Ratings for stereotype endorsement measure traits by individual identity

Independent Samples T-Tests were conducted to examine the relative levels of Deaf stereotype endorsement within the Deaf and hearing identity conditions; that is, comparing the video- and text-based communication modes within the Deaf identity condition, and repeating the process for both communication modes within the hearing identity condition (see Tables 3, 4). In the Deaf identity conditions, the text-based communication mode showed higher consistency with the Deaf stereotype. This effect was observed for the following traits: unconfident, $F (1, 49) = 28.916$, $p < .000$; reserved, $F (1, 49) = 16.516$, $p < .000$; withdrawn, $F (1, 49) = 14.006$, $p < .000$; and unsure, $F (1, 49) = 10.163$, $p = .003$ (see Figure 4). The Deaf identity, text-based communication mode condition showed less stereotyping than the comparable video-communication mode for the trait of happiness, $F (1, 49) = 5.928$, $p = .019$. In the hearing identity conditions, text-based communication also resulted in more stereotyped impressions; increased stereotyping occurred on the following traits: immature, $F (1, 48) = 6.592$, $p = .013$, and suspicious, $F (1, 48) = 4.621$, $p = .037$.

Table 3. Stereotype endorsement measure traits by individual identity and communication mode

Stereotype endorsement measure	Deaf, text (n = 25)		Deaf, video (n = 25)		Hearing, text (n = 25)		Hearing, video (n = 24)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
aggressive	1.480	1.085	1.760	1.165	1.920	1.441	1.542	0.779
angry	1.880	1.054	1.520	1.046	1.960	1.369	1.515	0.658
cold	1.880	1.269	1.720	1.100	1.960	1.241	1.792	0.977
dependent	3.400	1.384	3.480	1.327	3.320	1.435	3.208	1.351
dull	2.920	1.605	2.320	1.464	3.520	1.388	3.000	1.504
emotional	3.200	1.190	3.080	1.152	3.360	1.221	2.958	0.999
happy	4.440	1.044	5.120	0.927	4.000	1.225	4.208	1.062
immature	2.280	1.275	2.000	1.225	3.400	1.581	2.333	1.308
impulsive	2.000	0.957	2.560	1.325	2.520	1.358	2.375	1.209
passive	3.400	1.323	2.720	1.370	4.040	1.399	3.833	1.579
reserved	3.840	1.028	2.560	1.193	3.360	1.578	3.583	1.381
socially unskilled	2.000	1.443	2.520	1.358	2.720	1.429	2.333	1.007
solitary	2.400	1.414	2.440	1.261	2.760	1.615	2.625	1.173
suspicious	1.760	1.128	1.600	0.975	2.160	1.405	1.458	0.790
tense	2.760	1.562	2.080	1.115	3.000	1.607	2.833	1.435
uncommunicative	2.440	1.325	2.080	0.997	2.800	1.190	2.208	0.884
unconfident	3.560	1.325	1.960	0.676	3.760	1.300	3.375	1.345
unfriendly	1.640	1.114	1.640	1.075	2.080	1.288	1.917	0.974
unkind	2.000	0.816	2.120	0.881	2.280	1.208	2.375	1.096
unpleasant	1.960	0.978	1.880	0.726	2.440	1.294	2.292	1.083
unsure	4.240	1.480	2.880	1.536	4.760	1.451	4.458	1.351
withdrawn	3.200	1.414	1.880	1.054	2.800	1.658	2.667	1.465

Table 4. Variance between individual identity and communication mode

Stereotype endorsement measure	Deaf, text vs. Deaf, video		Hearing, text vs. Hearing, video		Deaf, text vs. Hearing, text		Deaf, video vs. Hearing, video	
	F	*p*	*F*	*p*	*F*	*p*	*F*	*p*
aggressive	0.774	.383	1.291	.262	1.488	.229	0.590	.446
angry	1.470	.231	1.834	.182	0.054	.818	0.007	.932
cold	0.227	.636	0.277	.601	0.051	.823	0.058	.811
dependent	0.044	.836	0.079	.781	0.040	.842	0.504	.481
dull	1.907	.174	1.584	.214	1.999	.164	2.573	.115
emotional	0.131	.719	1.581	.215	0.220	.641	0.155	.695
happy	**5.928**	**.019**	0.403	.529	1.869	.178	**10.265**	**.002**
immature	0.627	.432	**6.592**	**.013**	**7.599**	**.008**	0.849	.362
impulsive	2.933	.093	0.155	.695	2.449	.124	0.260	.613
passive	3.188	.081	0.236	.630	2.763	.103	**6.968**	**.011**
reserved	**16.516**	**.000**	0.277	.601	1.624	.209	**7.727**	**.008**
socially unskilled	1.722	.196	1.189	.281	3.141	.083	0.297	.588
solitary	0.011	.916	0.111	.740	0.703	.406	0.282	.598
suspicious	0.292	.591	**4.621**	**.037**	1.232	.273	0.321	.574
tense	3.138	.083	0.146	.704	0.287	.595	**4.232**	**.045**
uncommunicative	1.178	.283	3.878	.055	1.021	.317	0.227	.636
unconfident	**28.916**	**.000**	1.038	.314	0.290	.593	**21.913**	**.000**
unfriendly	0.000	1.000	0.249	.620	1.669	.203	0.888	.351
unkind	0.249	.620	0.083	.775	0.922	.342	0.809	.373
unpleasant	0.108	.744	0.189	.666	2.190	.145	2.463	.123
unsure	**10.163**	**.003**	0.566	.456	1.573	.216	**14.541**	**.000**
withdrawn	**14.006**	**.000**	0.089	.767	0.842	.363	**4.688**	**.035**

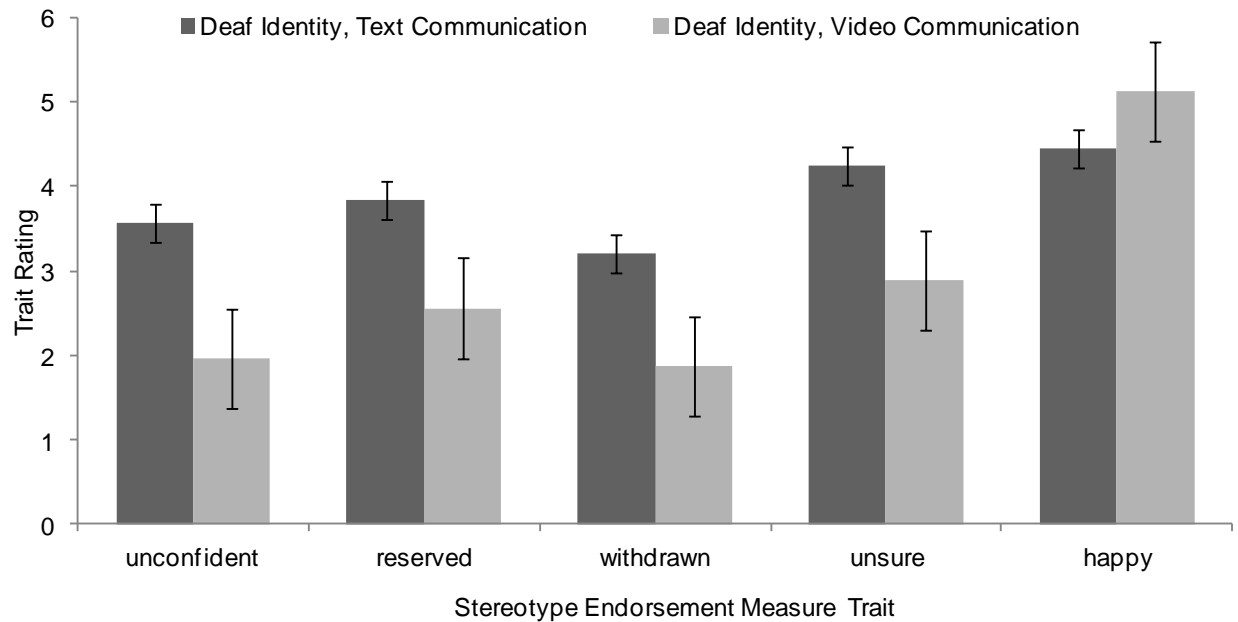*Note*. Boldface type indicates *p* < .05.

Figure 4. Ratings for stereotype endorsement measure traits by communication mode in Deaf identity conditions

Further Independent Samples T-Tests were conducted to examine the relative levels of Deaf stereotype endorsement across both individual identity conditions when communication mode is left unchanged; that is, comparing the Deaf and hearing identity conditions within the text-based communication condition, and repeating the process for both individual identities within the video-based communication condition (see Tables 3, 4). In the text communication conditions, hearing and Deaf identities differed only on the rating of immaturity, with the hearing identity condition showing greater consistency with the Deaf stereotype, $F(1, 49) = 7.599$, $p = .008$. In the video communication conditions, the hearing identity condition showed greater stereotyping for the following traits: unconfident, $F(1, 48) = 21.913$, $p = .000$; unsure, $F(1, 48) = 14.541$, $p = .000$; reserved, $F(1, 48) = 7.727$, $p = .008$; passive, $F(1, 48) = 6.968$, $p = .011$; withdrawn, $F(1, 48) = 4.688$, $p = .035$; and tense, $F(1, 48) = 4.232$, $p = .045$ (see Figure 5). The Deaf identity and video communication mode was showed higher stereotyping for the trait of happiness, $F(1, 48) = 10.265$, $p = .002$.
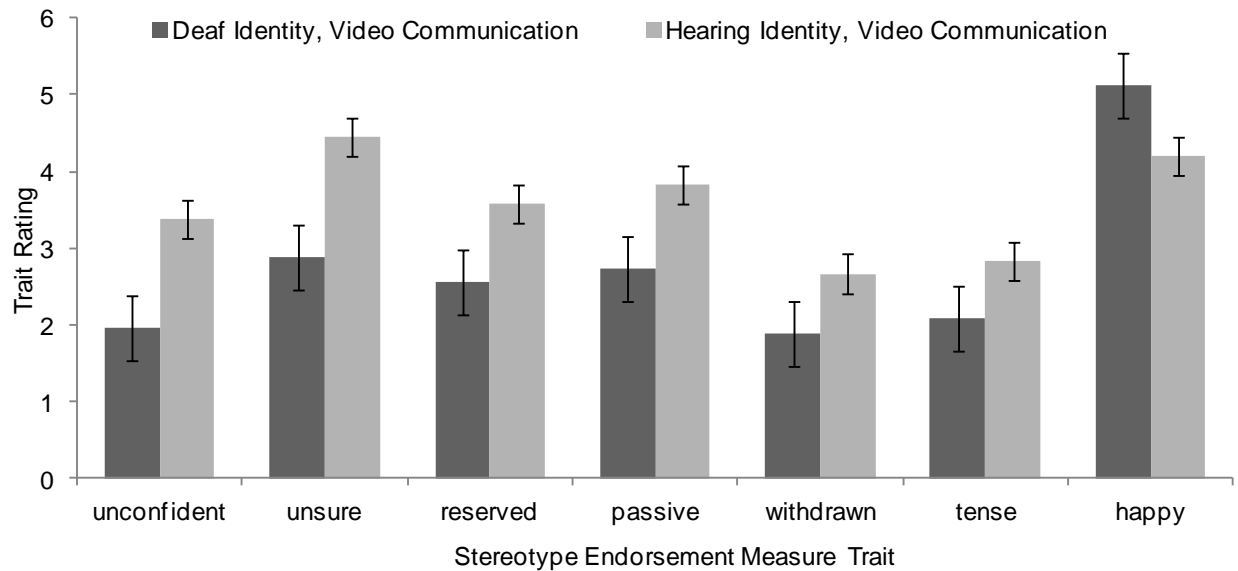
Figure 5. Ratings for stereotype endorsement measure traits by individual identity in video communication mode conditions

Participants' scores on the Attitudes toward Deaf People scale (Cooper et al., 2004) ranged from 59 to 112 ($M = 84.39$, $SD = 10.072$), while scores on the Opinions about Deaf People scale (Berkay et al, 1995a, 1995b) ranged from 20 to 49 ($M = 29.98$, $SD = 5.113$). Scores on the Attitudes toward Deaf People scale tended to be higher than the median possible score ($Mdn = 77$), indicating generally positive attitudes toward Deaf individuals. Scores on the Opinions about Deaf People scale tended to be lower than the median possible score ($Mdn = 50$), indicating generally unbiased attitudes toward Deaf individuals. Participants' scores on both Deaf bias measures were strongly correlated to each other, $r = -.421$, $p < .000$.

Participants' scores on the Attitudes toward Deaf People scale (Cooper et al., 2004) were correlated with the stereotype endorsement measure for the following traits: passive, $r = -.257$, $p = .010$; emotional, $r = .243$, $p = .015$; unsure, $r = -.202$, $p = .045$; tense, $r = .202$, $p = .045$; and angry, $r = .200$, $p = .048$. Participants' scores on the Opinions about Deaf People scale (Berkay et al, 1995a, 1995b) were correlated with the stereotype endorsement measure for the following

traits: immature, $r = .347$, $p = .000$; aggressive, $r = .275$, $p = .006$; suspicious, $r = .256$, $p = .011$; reserved, $r = -.236$, $p = .019$; angry, $r = .217$, $p = .031$; and unpleasant, $r = .204$, $p = .042$.

Additional ANOVA revealed the effects of certain demographic and Deaf exposure variables on a number of stereotype endorsement traits. Participants who indicated that they had Deaf or hard-of-hearing grandparents ($n = 26$) rated the hypothetical individual as less cold ($M = 2.08$) than participants who did not ($M = 2.60$), $F (1, 98) = 4.458$, $p = .037$. Participants who had Deaf classmates in preschool or kindergarten ($n = 11$) rated the hypothetical individual as more unpleasant ($M = 2.64$) than participants who had not ($M = 1.81$), $F (1, 98) = 4.790$, $p = .031$. Participants who had Deaf classmates in middle school ($n = 22$) rated the hypothetical individual as more socially unskilled ($M = 3.00$) than those who had not ($M = 2.22$), $F (1, 98) = 6.173$, $p = .015$, respectively. Participants who had Deaf classmates in college or university ($n = 24$) rated the hypothetical individual as more cold ($M = 2.29$) than those who had not ($M = 1.69$), $F (1, 98) = 5.222$, $p = .024$.

Participants who indicated that they "almost never" interact with Deaf or hard-of-hearing people at school ($n = 79$) rated the hypothetical individual as more tense ($M = 2.48$) than participants who indicated that they have such interactions at least once a year ($n = 20$, $M = 3.84$), $F (1, 98) = 2.220$, $p = .048$. Participants who indicated that they "almost never" interact with Deaf or hard-of-hearing people socially ($n = 79$) rated the hypothetical individual as less incommunicative ($M = 2.46$) than participants who indicated that they have such interactions at least once a year ($n = 20$, $M = 5.06$), $F (1, 98) = 2.502$, $p = .048$. Though participants' own hearing or Deaf status did not have an effect on the stereotype endorsement measure, participants who identified as members of the Deaf community rated the hypothetical individual as less emotional ($M = 1.50$) than participants who did not ($M = 3.19$), $F (1, 98) = 2.502$, $p = .048$.

CHAPTER FOUR:

DISCUSSION AND CONCLUSIONS

General Discussion

In summary, the results of the present study revealed a significant main effect of communication mode on the stereotype endorsement measure. This is in support of hypothesis one, which predicted that there would be a difference in the amount of stereotyping dependent on text- or video- based communication. Participants in the text communication mode condition rated the hypothetical individual as more stereotypically Deaf than participants in the video communication mode condition for the following traits: unconfident, unsure, withdrawn, immature, uncommunicative, and reserved. When examined independently, both Deaf identity conditions showed differential levels of stereotyping by communication mode. Higher Deaf stereotyping was observed in the Deaf identity, text communication mode condition than in the Deaf identity, video communication mode condition for the following traits: unconfident, reserved, withdrawn, and unsure. These results are consistent with Lea and Spears (1995) SIDE model of text-based impression formation. This model predicts that that lack of visual cues in text-based communication causes individuals to place undue focus on the few relevant social cues that are present in the text. Individuals then overattribute these cues to their interaction partners, forming an exaggerated and stereotypical impression from the text-based interaction.

Crucially, these results contradict findings that online, text-based communication may reduce stereotyping by removing the visual cues that trigger stereotyped associations (Barak & Sadovsky, 2008; Bowker & Tuffin, 2007; Seymour & Lupton, 2004). The divergence between such conclusions and the results of the present study is likely due to the duration of the text-

based communication. As participants were presented with fairly short biographical texts, it is possible that the impressions they formed of the hypothetical individual were consistent with the hyperpersonal model of impression formation (Walther, 1996); that is, those impressions were formed quickly and based on relatively few social cues, resulting in incomplete, less coherent impressions. As a result, these impressions were more highly stereotypical and registered as higher trait ratings on the Deaf stereotype endorsement measure. If the results of the current study do indeed conform to the hyperpersonal model, then this model predicts that impressions will become more complete, more coherent, and less stereotyped with additional text-based communication (Walther, 1996). Thus, the short term stereotyping trends present in the current study would likely diminish over time if participants were presented with multiple biographical excerpts and given repeated Deaf stereotype endorsement measures. Given the short time scale of the present study, it is possible that the observed effects of communication mode only represent temporary effects that occur at the time of impression formation and do not persist over repeated communication. Further research is necessary to determine if this is indeed the case.

The experimental results also demonstrated a significant main effect of individual identity on the stereotype endorsement measure. This does not support hypothesis two, as participants did not show higher stereotyping in the Deaf identity condition. Rather, participants rated the hypothetical *hearing* individual as more consistent with the Deaf stereotype for the following traits: unsure, unconfident, passive, immature, unpleasant, and dull. Additionally, both video communication mode conditions showed differential levels of stereotyping by individual identity when examined independently. Higher Deaf stereotyping was observed in the hearing identity, video communication mode than in the Deaf identity, video communication mode condition for the following traits: unconfident, unsure, reserved, passive, withdrawn, and tense.

These results were unexpected, as it is puzzling why participants would perceive a hearing individual to espouse a greater number of stereotypically Deaf traits than a Deaf individual.

These anomalous results may be attributed to a number of potential experimental confounds. Experimenter bias was unlikely, as the entirety of the present study was completed online, with experimenter interaction only to administer consent and debriefing forms. Similarly, order effects were likely not at fault, as all participants viewed the biography and completed the Deaf stereotype endorsement measure before completing the Deaf bias measures. As the Deaf bias measures were presented once participants had already given trait ratings, it is not likely that the Deaf attitude statements had any effect on the responses to the stereotype endorsement measure. Alternatively, participants may have been responding to demand characteristics if they were able to correctly guess the purpose of the experiment and attempted to modify their behavior in order to better suit the experimental goals (Orne, 1962). Participants may have correctly determine that the study was aimed at measuring Deaf stereotyping and Deaf bias and reacted by trying to hide these behaviors. However, this reactionary response was unlikely as only one participant correctly guessed the purpose of the study on the suspicion check. The most likely explanation for these results stems from evaluation apprehension on the Deaf stereotype endorsement measure. Even if participants were naïve to the purpose of the current study, they may have felt that they were being evaluated by the experimenter and been anxious to make a positive impression (Rosenberg, 1965). Therefore, participants may have reacted by rating the Deaf individual more positively in an attempt to appear unbiased and portray themselves in a more favorable light to the experimenter. Given the alternative explanations, evaluation apprehension appears to be the most probable justification for the effect of individual identity observed in the data.

Though significant main effects of communication mode and individual identity did emerge, the results of the current study revealed no significant interaction between these variables. This refutes hypothesis three, which predicted that an interaction between communication mode and individual identity would determine the amount of stereotyping in each condition. The lack of an interaction between these variables may be due to conflicting main effects of communication mode and individual identity. Increased stereotyping was observed in both the text-based communication and hearing identity conditions, while decreased stereotyping was observed in both the video-based communication and Deaf identity conditions. It is possible that the relative effect sizes of these observed effects cancelled each other out to the extent that there was no resulting interaction.

Scores on the Attitudes toward Deaf People scale (Cooper et al., 2004) and the Opinions about Deaf People scale (Berkay et al., 1995a, 1995b) were strongly negatively correlated to one another. This negative correlation is explained by the different scoring procedures for each scale; more positive, unbiased attitudes are identified as higher scores on the Attitudes toward Deaf People scale and lower scores on the Opinions about Deaf People scale (Berkay et al., 1995a, 1995b; Cooper et al., 2004) Participants' scores on both scales were correlated with increased stereotyping on some of the Deaf stereotype endorsement measure traits. Scores on the Attitudes toward Deaf People scale (Cooper et al., 2004) were correlated with increased stereotyping for the following traits: passive, emotional, unsure, tense, and angry. Scores on the Opinions about Deaf People scale (Berkay et al, 1995a, 1995b) were correlated with increased stereotyping for the following traits: immature, aggressive, suspicious, reserved, angry, and unpleasant. The correlational relationships between the Deaf bias scales and increased stereotyping indicates that both Deaf bias measures have some predictive value for determining one's tendency to ascribe

negative stereotypes to Deaf individuals. Thus, individuals who demonstrate increased bias and strongly negative attitudes against Deaf individuals may, in some cases, show increased stereotyping of Deaf individuals. However, as these correlations hold true for a limited number of stereotyped traits, it may be inadvisable to put much stock in the predictive validity of Deaf bias measures until further testing is conducted.

A number of Deaf exposure and demographic variables predicted the level of stereotyping present in each condition. Participants who indicated that they have Deaf grandparents, interact with Deaf people at school, interact with Deaf people in social settings, or identify as members of the Deaf community showed lower levels of stereotyping on certain traits than participants who did not. This is consistent with earlier research that has demonstrated that more positive attitudes toward Deaf individuals have been correlated with increased exposure to Deaf people (Cambra, 1996; Cooper, Rose, & Mason, 2003; Cooper, Rose, & Mason, 2004). However, participants who had Deaf classmates in preschool, middle school, and college showed higher levels of stereotyping on a limited number of traits than participants who did not. Though this contradicts the predicted relationship between greater exposure and decreased stereotyping, these results may be statistical artifacts due to the small sample sizes ($n = 11, 22, 24$, respectively) included in this analysis. Additionally, though a number of Deaf exposure and demographic variables appear to be consistent with the conclusions drawn from earlier research, many of these effects were only significant on a limited number of stereotyped traits. Therefore, it may not be appropriate to draw any causal relationships between these variables and predicted levels of Deaf stereotyping without additional research.

To summarize, statistical analyses of the experimental data allow the following relationships to be established:

- Deaf individuals are more highly stereotyped in text-based communication than in video-based communication, supporting hypothesis one.

- Identifying as "Deaf" in either communication mode limits stereotyping, but this may be due to participants experiencing evaluation apprehension and consciously inhibiting their biases. This finding conditionally supports hypothesis two, which predicted different levels of stereotyping in the Deaf and hearing identity conditions.

- There was no observed interaction between communication mode and individual identity, refuting hypothesis three.

- Existing biases against Deaf individuals are correlated with increased stereotyping on some traits.

- Under certain conditions, increased exposure to Deaf people is related to decreased stereotyping.

Methodological Limitations

The present study was hindered by several methodological limitations inherent in the research design. A major concern was the use of a sample of college undergraduate students to represent the general population. Though this sample may not be a wholly accurate representation of the overall population, it was adequate for establishing preliminary relationships between communication mode, individual identity, and Deaf stereotyping in an undergraduate population. As limited resources precluded the recruitment of other research participants, a decision was made to focus the present study on the available undergraduate sample and to examine Deaf bias and stereotyping processes in a student population. Though this was done for convenience, it may be necessary to replicate the current study with a broader sample to determine the extent of the observed effects in the population at large.

The study methodology may also be improved by presenting participants with multiple actors in each biographical condition. Presenting more than one hypothetical individual in each experimental condition would enable more comprehensive statistical analyses and greatly

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strengthen the conclusions of the present study. Such a procedural modification would also allow for greater generalizability of the present study's findings. Including more than one actor would also allow an analysis of the effects of demographic factors—such as the actors' genders, races, ethnicities, and ages—on participants' levels of Deaf stereotyping. However, the added difficulty of recruiting actors who are bilingual in spoken English and ASL and able to convincingly portray both hearing and Deaf roles on camera made this modified design difficult to implement, so the present research focused on analyzing Deaf stereotyping of only one bilingual actress.

Though the present study simulated video- and text- based communication by presenting participants with video- or text-based biographies, an alternative methodology would have involved a genuine interaction between study participants and confederates. To implement this, real-time text or video chat would need to be established between study participants and confederates assuming the roles of hearing or Deaf individuals. Although this design would be more externally valid, it introduces a number of additional complications which must be overcome in order to implement this design successfully. These include recruiting a sufficient number of bilingual confederates, recruiting ASL interpreters, standardizing the interactions by providing discussion scripts or topics, and establishing three-way video links between the participant, confederate, and interpreter in the video-based communication condition. Needless to say, such an experimental procedure would be remarkably complex and difficult to orchestrate in real-time. Not only would this experimental design require a great deal of technical equipment, but also coordinating interactions between participants, confederates, and interpreter-confederates would require an enormous amount of resources and preparation. Nevertheless, such an experimental paradigm would do much to increase the external validity of the present study, and should be considered if the present methodology is to be replicated in future research.

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Directions for Future Research

Future research may expand upon the present study by examining if certain demographic characteristics may influence Deaf biases and Deaf stereotyping. At present, the effects of age, gender, race, and ethnicity on Deaf stereotyping are largely unknown, so it may be worthwhile to alter the present study by varying the age, gender, race, and ethnicity of the actor in both hearing and Deaf conditions. The universality of Deaf stereotyping may also be examined by replicating the current study design with participants and actors in broader populations, in order to determine if the observed effects are limited to undergraduate student populations or if the effects generalize to the public at large. A comparative analysis of Deaf stereotyping across populations from different countries would also do much to inform current stereotyping research and examine the true universality of the present study's conclusions.

Virtually no research has been conducted on the effects of interpreter mediation on the impression formation of Deaf individuals, so it is unknown if the demographic characteristics of an interpreter influence the perception of the Deaf person being interpreted. Is it possible for the characteristics of the interpreter to "bleed over" into the impression of the Deaf person being interpreted? If there is a discrepancy between the age, gender, race, or ethnicity of the interpreter and the Deaf person, how do these discrepancies affect impression formation? For example, if a White, thirty-year-old, Deaf man is being interpreted by a Hispanic, twenty-year-old hearing woman, how is the impression one forms of the Deaf person affected by the characteristics of the interpreter? Though both the Deaf man and the hearing interpreter are distinct individuals, the effect of the interpreter speaking for the Deaf man may serve to hybridize their identities, so that the perceiver of the interaction may form an impression of the Deaf man that mistakenly contains

elements of the interpreter. As this is a novel area of research, no predictions can be proposed for this interaction; thus, replications of the present study that vary the demographic characteristics of the interpreter should consider these potential effects.

More detailed correlational research may also be conducted to examine the relationships between Deaf bias, Deaf stereotyping, and other demographic and sociocultural factors. Though none of the participants in the present study identified as deaf, a larger sample of participants may include those who do have physical impairments such as deafness or blindness. Would participants who are physically impaired show a different level of Deaf stereotyping than participants who do not have such impairments? Would impaired participants experience greater empathy for the hypothetical individual in the both Deaf identity conditions due to the commonality of impairment? Or would impaired participants share the same Deaf biases as the non-impaired participants and show equal levels of Deaf stereotyping? As little of the existing research has focused specifically on the impairment of deafness, new research ought to endeavor to shed light on these and other intriguing research questions.

Significance of Current Research

The results of the present study demonstrate that negative stereotyping of Deaf individuals is a persistent phenomenon that had not abated despite growing acceptance of deafness as an impairment rather than a disability (Enns, 1989; Fougeyrollas & Beauregard, 2001). However, the demographic and correlational components of the current study have potential implications for moderating such stereotyping and increasing unbiased perception of Deaf individuals. The correlation of decreased stereotyping with increased exposure to Deaf individuals suggests that encouraging interactions between hearing and Deaf individuals may

help to promote more positive attitudes towards the Deaf. Though the causal relationship between exposure and stereotyping was not demonstrated in the present study, earlier research suggests that educating participants about Deaf culture, Deaf issues, and ASL may help to mitigate negative stereotyping of the Deaf (Cooper et al., 2003; Nikolaraizi & Makri, 2004). Increased interactions between the hearing and the Deaf would likely result in hearing individuals learning more about Deaf culture simply by being around Deaf individuals. Thus, there is ample reason to promote such interactions in environments where hearing and Deaf individuals may have the opportunity to learn from one another and develop relationships that humanize the other party.

The current research has additional implications for selective self-representation. According to Walther (2007), this is a type of impression management technique in which people diminish their negative qualities while simultaneously stressing their positive attributes. The present research has demonstrated that different communication modes result in different levels of stereotyping, suggesting that individuals employing selective self-representation can choose the particular communication mode in which they will be best represented and least likely to be stereotyped. For Deaf individuals this appears to be video-based communication, which showed decreased levels of Deaf stereotype endorsement. Thus, Deaf individuals wishing to employ selective self-representation to make the best possible impression may wish to interact over video or in a face-to-face setting rather than through text-based communication, such as text chat, letter writing, or email. If communication must be text-based, there is evidence to support that repeated communication may decrease the level of stereotyping, so that the impression formed from a text-based communication will be comparable to a video- or face-to-face interaction if the interaction is extensive enough or repeated multiple times (Walther, 2007). Any

type of text-based communication should therefore be longer and repeated more frequently in order to form a less stereotyped impression comparable to video- or face-to-face communication. These distinctions are crucial for situations in first impressions largely determine the outcome of the communication, such as job interviews, academic recruitment interviews, dating, and other types of social interactions.

More generally, the present research has significance for the broader understanding of cues that may trigger biased attitudes and stereotyping processes. By examining the differences between textual and visual cues that may trigger stereotyping, it may be possible to identify differences in the cognitive processing of these cues that result in the observed differences in stereotype endorsement between communication conditions. A more complete understanding of the cognitive underpinnings of stereotyping may enable the development of other techniques that can moderate the stereotyping of Deaf individuals, as well as other impaired and minority populations. Such techniques will be of particular importance as society's increasing reliance on digital technology changes the ways in which it is possible to communicate, bringing about the emergence of novel modes of communication as well as novel stereotyping processes.

APPENDIX A:

BIOGRAPHICAL STIMULI

Condition 1: Hearing Identity

Hi. My name is Emily Harris, and I'm a sophomore at Tufts University. I was born in Montana, but I grew up in southern New Hampshire, near Portsmouth. My mom also went to Tufts, so my parents were really happy that I decided to go to school here. I sort of wanted to go somewhere warm, but I guess I'm stuck with the cold for a couple more years.

Let's see — I've got two older brothers, Tim and Erik. Tim graduated from U-NH a couple of years ago, and now he's working as an environmental engineer for a mining company. Erik's still in school. He's just starting his senior year at Keene State. I think he's majoring in Political Science, but he's changed his major so many times by now that I really have no idea.

I'm still undecided, but I'm thinking about majoring in Child Development. I've taken a few really good classes Professor Dobrow, and I really like the idea of working with kids, but I'm just not sure of what I'd do after graduation. I'm not the best student, but I've been working pretty hard this semester to try to get my GPA up. I've even started taking my laptop to class so I can type my notes, but it's sort of awkward, especially when I'm in a big lecture hall with those tiny fold-over desks in the armrests. Anyway, hopefully I can figure something out.

I'm stuck living on campus this year, but I'd really like to move off campus as soon as I can. I've got a suite in Wren with a bunch of my friends, and we were hoping to find an off campus house that we could move into. Plus, the Wren kitchen is awful, and I really want to be able to cook something nice. I'd really love to learn to make pastries, like éclairs and things, but that might be a bit too hard. I think I'll stick to microwave popcorn until I can get a bigger kitchen.

What else — I'm really into tennis, so I was thinking of joining the tennis team, but I'm not sure if I'll have the time. I'm already in TDC and a bunch of other clubs, so joining something else might not be the best idea. It'd probably be better for me to focus on my classes, anyway. I have to take calculus this semester for one of my pre-reqs, and I don't think I'm doing too well. One of my friends is in my recitation section, so I should probably ask her for some help before the next midterm.

Condition 2: Deaf Identity

Hi. My name is Emily Harris, and I'm a sophomore at Tufts University. I was born in Montana, but I grew up in southern New Hampshire, near Portsmouth. My mom also went to Tufts, so my parents were really happy that I decided to go to school here. I sort of wanted to go somewhere warm, but I guess I'm stuck with the cold for a couple more years.

Let's see — I've got two older brothers, Tim and Erik. Tim graduated from U-NH a couple of years ago, and now he's working as an environmental engineer for a mining company. Erik's still in school. He's just starting his senior year at Keene State. I think he's majoring in Political Science, but he's changed his major so many times by now that I really have no idea.

I'm still undecided, but I'm thinking about majoring in Child Development. I've taken a

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few really good classes Professor Dobrow, and I really like the idea of working with kids, but I'm just not sure of what I'd do after graduation. I'm not the best student, but I've been working pretty hard this semester to try to get my GPA up. I'm deaf, so I always have to have an interpreter with me during my classes - and I've been really good this semester about making sure he actually shows up. I can get by without him, but it gets pretty tricky, especially when professors talk while they're facing the blackboard and I can't see their lips. I've even started taking my laptop to class so I can type my notes, but it's sort of awkward, especially when I'm in a big lecture hall with those tiny fold-over desks in the armrests. Anyway, hopefully I can figure something out.

I'm stuck living on campus this year, but I'd really like to move off campus as soon as I can. I've got a suite in Wren with a bunch of my friends, and we were hoping to find an off campus house that we could move into. Plus, the Wren kitchen is awful, and I really want to be able to cook something nice. I'd really love to learn to make pastries, like éclairs and things, but that might be a bit too hard. I think I'll stick to microwave popcorn until I can get a bigger kitchen.

What else — I'm really into tennis, so I was thinking of joining the tennis team, but I'm not sure if I'll have the time. I'm already in TDC and a bunch of other clubs, so joining something else might not be the best idea. It'd probably be better for me to focus on my classes, anyway. I have to take calculus this semester for one of my pre-reqs, and I don't think I'm doing too well. One of my friends is in my recitation section, so I should probably ask her for some help before the next midterm.

APPENDIX B:

ATTITUDES TOWARD DEAF PEOPLE SCALE (Cooper et al., 2004)

Attitude ratings are given on a 6-point Likert-type scale, which ranges from 1 (*strongly agree*) to 6 (*strongly disagree*). Items marked "R" are reverse-scored. Potential scores range from 22 to 132, with higher scores indicating a more positive attitude.

R: Deaf couples should receive genetic counseling to avoid having deaf children.
R: Deaf children should learn to speak to communicate with hearing parents.
I would like to have more deaf friends.
R: Deaf schools and deaf clubs create deaf "ghettos."
R: Deaf people should learn speech rather than sign language.
R: Deaf people are handicapped.
R: More research should be done to find cures for deafness.
Deaf children should be taught in sign language
R: Hearing children of deaf parents are at risk of emotional deprivation
Deaf people are safe drivers
I would like to have more deaf colleagues.
R: Deaf people should learn to lipread.
Interpreters should be available for deaf people at work
R: Deaf people should automatically receive help in their home environment.
R: All deaf people should be offered corrective surgery.
R: Training more professionals to work with deaf clients would be a waste of time.
R: Having a deaf colleague would cause problems in the workplace.
R: Deaf people are physiologically impaired.
Deaf people should not be viewed as "impaired."
I would like to see more deaf people at the clubs/societies I attend.
R: Having a deaf friend would be difficult.
Deaf people have their own culture.

APPENDIX C:

OPINIONS OF DEAF PEOPLE SCALE (Berkay et al., 1995)

Opinion ratings are given on a 4-point Likert-type scale, which ranges from 1 (*strongly agree*) to 4 (*strongly disagree*). Items marked "R" are reverse-scored. Potential scores range from 20 to 80, with higher scores indicating a more biased attitude.

R: Smarter deaf people have better speech than deaf people who are less intelligent.
Deaf people drive just as safely as hearing people.
A deaf person has the leadership abilities needed to run an organization
It is unfair to limit deaf people to low-paying, unskilled jobs.
A deaf person can get a Ph.D. or a Masters degree.
R: If a boss has a problem with a deaf employee, the boss should talk with the interpreter, rather than the deaf person.
A deaf person can be promoted to a management position.
An 18-year-old deaf adult is capable of living alone and taking care of him- or herself.
R: It is nearly impossible for a deaf person to keep up with a hearing person in school.
R: It can be frustrating to pay a visit to deaf people because they can't hear you knock at the front door.
R: Deaf people cost taxpayers lots of money because they can't keep their jobs.
R: Deaf people should only work in jobs where they don't need to communicate with anyone.
R: It is a mistake to leave a baby alone with a deaf person, because he/she can't hear the baby cry.
R: Deaf adults must depend on their parents to make important decisions.
R: Signing is not really a language because only simple thoughts can be communicated.
R: A deaf person could not go to a restaurant without a hearing person, because he/she could not order food without assistance.
A deaf person can be an excellent writer.
Deaf people are as intelligent as hearing people.
If there was a fire, a deaf person could get out of a building safely without help just as easily as a hearing person could.
Deaf adults are able to communicate with their hearing children.

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