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INDIVIDUAL AND SITUATIONAL FACTORS ASSOCIATED WITH
SOCIAL BARRIERS FOR PERSONS WITH MOBILITY IMPAIRMENT

BY

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DISSERTATION

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Abstract

Decades of research have examined factors involved in complex, and sometimes stressful, interpersonal interactions between individuals with and without disabilities. The present study applies structural equation modeling to test an integrative model of individual and situational factors affecting encounters between able-bodied college students and their peers with mobility impairments. A vignette design was employed that involved input from focus groups of college students with mobility impairments. Data was collected from 360 able-bodied students at a Mid-Western university. Results provided support for a structural model that included previous contact with disability, global disability attitudes, and negative affect in predicting behavioral intentions to avoid. Affective arousal emerged as a strong predictor of behavioral intentions to avoid peers with disabilities. Global disability attitudes were fairly strongly predictive of negative affect and weakly predictive of behavioral avoidance. Secondary analyses explored whether emotion regulation strategies would moderate the effect of negative affect on behavioral intentions to avoid future encounters with a peer in a wheelchair. Reappraisal and suppression emerged as weak but statistically significant predictors of behavioral avoidance. Further, results indicated modest support for the hypothesis that reappraisal can lower the likelihood that an able-bodied individual who experiences affective arousal will choose to avoid further interactions. Implications for research, clinical practice, and campus interventions are considered.

To Susie Cambre and Blossom Webb (Aunt B)

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Chapter 1

Introduction

Individuals with disabilities comprise a sizeable minority group in the United States who frequently face social, economic, and physical barriers. Negative stereotypes and attitudes about disability are often *most* costly because they adversely impact daily interactions and interpersonal relationships. The impetus for the present study emerged from clinical work with individuals with disabilities, particularly visible physical conditions, who reported having to work hard to put others at ease in their company. Research has shown that able-bodied individuals, even if well-intentioned, typically report feeling uncomfortable and anxious in the presence of a person with a visible disability (Bruce, Harman, & Baker, 2000; Fichten, Amsel, Robillard, Sabourin, & Wright, 1997). This discomfort tends to be associated with a range of thoughts, feelings, and behaviors including uncertainty about what to say or how to behave, suppression of curiosity, or feeling obliged to offer help. Studies examining casual social encounters between individuals with and without disabilities tend to conclude that these interactions are largely problematic and can involve psychosocial costs for both parties (Green et al., 2005; Pinel, 1999). Further exploration of the cognitive and emotional factors involved in this complex interpersonal process may assist counseling professionals in providing services to clients with diverse abilities and guide interventions that could promote more adaptive interpersonal functioning for able-bodied individuals.

In subsequent sections, I explore the scope of this interpersonal issue by describing national statistics and trends in postsecondary education for persons with disabilities. Second, I highlight important reasons to address stigmatization processes that impact relationships between

persons with and without disabilities through focused research efforts. Finally, I define the parameters and purpose of the proposed study.

Disability in America

Approximately 47.9 million Americans live with a disability as defined by the Americans with Disabilities Act of 1990 (U.S. Census Bureau, 2003), comprising roughly 19% of the population. An estimated 1.6 million have mobility impairments that require the use of a wheelchair (National Health Interview Survey on Disability, 1995). Following the implementation of various legislative mandates (e.g., Americans with Disabilities Act of 1990, Individuals with Disabilities Education Act) and the consequent growing awareness concerning students with disabilities, there are a number of positive developments supporting the access and retention of people with disabilities in postsecondary education. Increasing numbers of students with physical disabilities are enrolling in college, particularly institutions with progressive disability resource centers and accommodation policies. The percentage of college freshmen with self-identified disabilities more than tripled over the last few decades (3% in 1978 to over 9% in 1998; National Center for Education Statistics, 1999). Data from the 2003-2004 academic year indicate that over 11% of college undergraduates have a self-identified disability (National Center for Education Statistics, 2006) and roughly one fourth of those individuals report having a mobility impairment. Further, Census Bureau estimates show that more than 50% of students with disabilities enrolling in postsecondary education persist toward a degree or credential. These trends suggest a greater possibility that able-bodied college students will encounter peers with disabilities on campus in classroom and social settings and later in work settings.

Despite passage of laws to promote equal participation in society by persons with disabilities and moderate success enforcing such legislation, barriers remain for this social group. Statistical evidence has shown slow improvements in social integration since the passage of disability rights legislation (Kaye, 1998). Although structural and physical boundaries continue to be broken down, more subtle and pervasive attitudinal barriers persist and might explain this slow pace of positive change.

Mpofu and Conyers (2004) described how minority status shapes the disability experience. Minority status refers to a group's shared history of being denied access to resources and privileges including restriction of economic opportunities, constraints on communicative self-expression, and limited cultural access to a preferred way of life. The widespread use of language that is disrespectful of persons with disabilities illustrates how this group has faced constraints even on self-definition and identity. Person-first language stresses the importance of the person rather than the disabling condition; a "person with a disability" would be the preferred term rather than "disabled person." Although progress has been made, evidence suggests that the public, media, and general scientific community continue to use referent terms that are not acceptable and offensive to some persons with disabilities (Wilgosh & Sandulac, 1997), even in the language of widely used disability attitudes measures. Rather than the prevailing medical model, which focuses on inability and functional limitations, applying this minority group framework to understanding the disability experience involves adopting a sociopolitical perspective that public attitudes in the social environment are the primary difficulties facing persons with disabilities.

Rationale and Potential Implications

Research suggests that able-bodied persons often actively avoid or withdraw emotionally from interactions with persons with disabilities to reduce discomfort and manage their anxiety. Researchers have described this phenomenon as *social distancing*, when an individual without a disability constructs a social barrier to keep the individual with a disability at a comfortable emotional distance (Albrecht, Walker, & Levy, 1982; Dietrich et al., 2004). The desire for social distance varies depending on the relationship context (Grand, Bernier, & Strohmer, 1982) and the type of disability (Strohmer, Grand, & Purcell, 1984; Tringo, 1970). Social distancing represents a powerful form of stigmatization fueled by negative attitudes. Highly visible disabilities such as those that require wheelchair use for mobility may be even more likely to elicit these unfavorable attitudes and activate the social distancing process than less apparent disabilities.

The implications of this interpersonal process differ for persons with disabilities and their able-bodied peers. Potential psychosocial costs for individuals with disabilities are social exclusion and difficulties forming close relationships. These individuals may also experience internalized stigma, which can result in adverse psychological outcomes like a diminished sense of self-worth (Green et al., 2005; Pinel, 1999). The possible costs for able-bodied persons include a limited social network, unhealthy interpersonal functioning, and emotional strain. Results of this investigation could generalize to other intergroup relationships. Although I focus on disability status in social interactions, findings have high relevance for relationship problems that involve race, ethnic/cultural background, and sexual orientation. Exploring the social avoidance process and emotional reactions which underlie these behaviors may help researchers

and clinicians better understand the dynamics of interactions between persons with cultural differences.

Parameters and Purpose of Study

The origins and correlates of disability attitudes have been a research focus for decades in hopes that interventions might be developed to increase inclusion for individuals with diverse abilities. Measuring disability attitudes accurately is a complex task given their multidimensional nature and susceptibility to respondents' presentation biases. A longstanding legacy of research on correlates of disability attitudes has suffered from a lack of convergent findings and individuals with disabilities are often erroneously examined as a homogeneous group. Recent research studies have explored the cognitive and affective components of negative attitudes that interfere in interpersonal interactions and hinder relationship formation (Fichten, Robillard, & Sabourin, 1994; McCaughey & Hannum, 2006). Findings from these studies raise interesting questions about cognitive restructuring and emotion regulation as potential strategies for countering attitudinal barriers.

A critical next step in this line of disability research involves a comprehensive examination of the complex interpersonal process that occurs between individuals with and without disabilities in specific contexts. This undertaking would integrate findings in the extant literature regarding relevant factors such as faulty cognitions, negative affect, and lack of experience interacting with peers with disabilities. Intragroup differences among disability groups necessitate separate examinations of this process for specific disabilities and social contexts. Furthermore, recent developments in online data collection methodology offer

promising directions for the measurement of accurate attitudes when data can be contributed anonymously.

The present study explores the reactive cognitive and emotional processes that occur when an able-bodied person encounters an interpersonal challenge involving a peer with a disability. The focus is limited to casual interactions during the early stages of friendship development in college settings. Dynamics of this interpersonal process are examined specifically for persons who have mobility impairments that require the use of a wheelchair.

Chapter 2

Literature Review

Researchers that have addressed barriers to social inclusion for individuals with disabilities tend to focus on important but relatively narrow domains such as sex and age differences in disability attitudes (Yuker & Block, 1986), the influence of personal contact on disability attitudes (Fichten, Schipper, & Cutler, 2005; Yuker, 1988), and the types of inhibitory thoughts that occur during interpersonal interactions (Fichten, 1986). To help synthesize recent findings, I provide a broad review of individual and situational factors associated with barriers to inclusion. I begin by narrowing the focus of the present study to examining the interaction between persons with and without disabilities in interpersonal contexts. This requires embedding the study in what is already known about typical relationship development and considering the unique factors that emerge when one person has a disability. Findings from several studies are summarized that help characterize casual dyadic interactions involving a person with a visible physical disability in particular. Next, I describe how *social distancing* fits into a larger social stigmatization process and consider the ways this construct has been defined in the literature. I will then succinctly address the numerous individual factors (e.g., demographic, personality, general disability attitudes) and situational factors (e.g., cognitive and affective responses) that have been examined as precursors to social distance behaviors. I highlight key findings from research on emotional regulation, a promising avenue for intervention when emotional barriers are present. Finally, I discuss the construction of a parsimonious model of factors underlying problematic casual interactions between persons with and without disabilities.

Interpersonal Context: Typical Relationship Formation

According to Knobloch and Solomon (2002, p. 457), an important aspect of developing relationships is the “successful management of critical relationship events.” Knobloch (2005) asserted that challenging events give rise to *relational uncertainty*, defined as the degree of confidence people have in their perceived involvement within interpersonal relationships. Uncertainty stems from a variety of sources such as the discovery that the rules for an expected relationship might not be as anticipated. How a person responds to negative emotion associated with this uncertainty helps determine whether the relationship progresses or deteriorates. While Knobloch and colleagues specifically examined romantic relationships, relational uncertainty likely occurs in less intimate social relationships as well. Managing negative emotion during casual contact could predict whether the relationship progresses to more intimate social contexts such as friendship or dating.

Knobloch (2005) described a contextual model that consists of distal and proximal factors that contribute to how individuals respond to relational uncertainty. The distal context involves relatively stable personality variables and relationship characteristics that provide a backdrop for the challenging event. Intimacy, the closeness or emotional tone of the relationship, has been identified as a key distal factor that uniquely predicts behavioral responses to relational uncertainty (Knobloch, 2005). Some evidence exists for a curvilinear relationship between intimacy and relational uncertainty such that contexts with low to moderate levels of intimacy produce increasingly higher relational uncertainty when expectations are violated, while higher levels of intimacy in contexts like dating or committed relationships buffer against uncertainty (Knobloch & Solomon, 2002).

The proximal context encompasses a person's thoughts and feelings elicited by the immediate situation or event. Appraisal theory contends that that the appraisals people make and the emotions they experience guide how they behave (Roseman & Smith, 2001). Accordingly, Knobloch (2005) suggested that key proximal or situational factors associated with managing relational uncertainty are cognitive appraisals (e.g., evaluating the importance of the relationship, perception of insurmountable obstacles) and emotional responses. Knobloch and Solomon (2002) identified five strategies for responding to relational uncertainty that are indexed by two dimensions: (a) approach vs. avoidance and (b) positive vs. negative valence. Of these five strategies—integrative, distributive, closeness, distance, and avoidance—the latter two relate to outcomes explored in the present study. Strategies that involve emotional distancing or physical avoidance represent problematic responses to uncertainty and can be associated with relationship deterioration.

Similar to Knobloch's findings regarding typical relationship development, non-disabled individuals may develop expectations for what they will encounter in work, friendship, and dating interactions that may not hold in an interaction with a person with a disability. An unexpected challenge in an interpersonal relationship related to disability (e.g., an unanticipated special need or an inaccurate assumption about ability) can create a form of relational uncertainty, and a person who encounters this may be prone to significant increases in negative emotions such as discomfort and embarrassment. Furthermore, these negative emotions may be attributed to the person with the disability rather than to the self or the situation (Newman, Duff, & Baumeister, 1997). Navigating relational uncertainty effectively as it related to the disability-related challenge then becomes critical in determining relationship outcomes. Although it seems reasonable to apply this understanding of the relationship development process and relational

uncertainty to situations when one partner has a disability, this extension requires further research attention. It is evident, however, that unique challenges arise in interactions between persons with disabilities and their non-disabled peers that often threaten relationship formation and progression (Fichten, Robillard, Judd, & Amsel, 1989).

Presence of Disability in Interpersonal Interactions

Able-bodied individuals report that casual interactions with persons who have visible physical disabilities present difficulties and that they often avoid contact when possible. When interaction does take place, non-disabled individuals tend to behave in atypical ways. Research shows that when able-bodied persons interact with a stranger with a disability, they tend to behave in a more inhibited and overcontrolled manner, terminate the interaction sooner, use child-directed speech patterns, and show less variability in their behavior than when interacting with persons without disabilities (Gouvier, Coon, Todd, & Fuller, 1994; Kleck, 1966). Also, in dyads where one person has a visible disability, the able-bodied person tends to be unaware of their partner's vocal characteristics or the general range of their nonverbal behaviors, (Grove & Werkman, 1991) in part because of preoccupation with their own behaviors (Osborne & Gilbert, 1991).

Fichten and colleagues (1994, 1997) theorized that during encounters with persons with visible physical disabilities, able-bodied persons pay particular attention to aspects of the person that are novel or distinctive (e.g., wheelchair, disfigurement). Although a natural part of information processing, this attentional focus tends to activate stereotypes and can influence thoughts, feelings, and behaviors. In a study that identified general prototypes of disability groups (McCaughey & Strohmer, 2005), respondents defined persons with spinal cord injury as

“helpless”, “dependent on others”, and “confined to a wheelchair.” Similarly, Fichten and Amsel (1986) found that able-bodied persons were more likely to attribute less-desirable characteristics (e.g., insecure, socially anxious, and dependent) to persons with physical disabilities than those without disabilities. Stereotype literature further suggests that, once activated, group stereotypes significantly influence social judgments and may be difficult to alter even in the presence of contradictory evidence (Kahneman & Tversky, 1982).

Robust evidence exists to support the notion that able-bodied individuals often experience discomfort during encounters with persons with disability (Fichten, 1990; Fichten et al., 1989; Loo, 2000; McCaughey & Hannum, 2006). Two common questions have been explored in the disability literature related to potential social skills deficits: (a) Does the able-bodied individual lack skills for effectively managing disability-related challenges in interpersonal relationships? or (b) Does the person with a disability behave in socially inappropriate ways that promote discomfort? Fichten and Bourdon (1986) found that, in spite of knowledge about what constitutes adequate behavior, able-bodied college students failed to enact appropriate behaviors during interactions with peers with disabilities. They suggested that this response inhibition could be associated with social anxiety, faulty appraisals of one’s own performance and abilities, inaccurate evaluations of the other person’s feelings or intentions, or expectancy of negative consequences. Further, research with college students with disabilities suggests that they tend to possess social skills equivalent to their non-disabled peers, and they often exert significant effort trying to put others at ease in casual interactions (Fichten et al., 1989). While it remains possible that able-bodied persons with little experience interacting with peers with disabilities may lack some specific skills, the skill deficit hypothesis alone does not

adequately explain the resulting social strain. A more complex interpersonal process seems to be operating that involves both cognitive and affective factors.

In addition to the potential for attentional focus on disability attributes and stereotype activation, specific disability-related challenges can emerge in encounters with persons with disabilities. These challenges may be explicit and involve the provision of accommodations or attention to special needs (e.g., selecting a wheelchair-accessible restaurant, or moving obstacles directly in someone's path). More covert challenges also seem to exist for able-bodied persons such as the use of disability-sensitive language (e.g., person-first language) and learning to do typical activities in unexpected ways (e.g., dancing with a friend who uses a wheelchair). These types of challenges seem to produce different emotional barriers as the social context becomes more intimate. A recent study suggests that disability-related challenges involving persons with spinal cord injury elicit a significantly higher level of negative affect in work and friendship settings than do challenges related to mild differences in body size (McCaughey & Hannum, 2006). Further, negative affect increased dramatically in dating settings for challenges involving a person with spinal cord injury. Some individuals are able to manage disability-related challenges effectively and attend to aspects of the relationship other than negative affect or the disability. Those who do not may engage in social distancing or avoidance behaviors, which may be experienced by non-disabled individuals as a "tolerant" way of managing their emotional reactions, but represent indirect and powerful forms of stigmatization.

Social Stigmatization: Linking Devaluation and Social Distance

Goffman (1963, p. 3) defined stigma as "an attribute that is deeply discrediting that reduces the bearer from a whole and usual person to a tainted, discounted one." A recent review

of literature on the social psychology of stigma (Major & O'Brien, 2005) outlined the far-ranging negative outcomes of stigmatization on self-esteem and health and concluded that Goffman's classical definition of stigma holds much relevance today. They posited that stigma resides in the social context rather than the person and depends on social enactment to gain its effect. In other words, possession of a personal attribute only results in stigmatization when it becomes devalued within a social relationship or context.

Link and Phelan (2001) proposed a multi-component conceptualization of stigma. The first component in this process involves distinguishing and labeling human differences. Second, dominant cultural beliefs link labeled persons to undesirable characteristics or negative stereotypes. The third component involves separation from or avoidance of labeled individuals. Fourth, labeled persons experience status loss and discrimination. Other research supports that a fifth component could be included in the model—the internalization of negative stereotypes and stigma by individuals in the labeled group (Pinel, 1999; Steele & Aronson, 1995). According to Link and Phelan, when people are labeled and linked to negative stereotypes, a rationale is constructed for devaluing and excluding them.

As suggested by this model, able-bodied persons may actively avoid interaction with persons with disabilities to reduce discomfort and manage their anxiety. Another potential form of avoidance that can be equally problematic involves withdrawing emotionally from the interaction. *Social distancing* refers to the construction of a social barrier to keep an individual with a disability at a comfortable physical or emotional distance (Albrecht, Walker, & Levy, 1982; Dietrich et al., 2004). Some researchers have operationalized the desire for social distancing as unwillingness to engage in meaningful interaction that might foster relationship development (Lauber, Nordt, Falcató, & Rösler, 2004). For instance, a non-disabled individual

might willingly interact with a co-worker who uses a wheelchair but perhaps unknowingly distance themselves emotionally from developing a relationship with them that implies social closeness like friendship or dating. Studies have shown that desire for social distance varies depending on the relationship context (Grand, Bernier, & Strohmer, 1982) and the type of disability (Strohmer, Grand, & Purcell, 1984; Tringo, 1970). Often disabilities that are perceived as more severe, visible, or dangerous are associated with increased social distancing (Albrecht et al., 1982; Corrigan, Green, Lundin, Kubiak, & Penn, 2001; Lauber et al., 2004). In addition to these trends, a number of factors have been implicated as precursors to desire for social distance; a clearer understanding of how these factors function could identify promising ways to mitigate barriers to inclusion.

Factors Associated With Social Barriers to Inclusion

Research studies that attend to individual and situational factors associated with social barriers for persons with disabilities span more than 50 years. Yuker (1988) suggested that three types of factors impact interaction outcomes between persons with and without disabilities: (a) individual characteristics of the able-bodied person, (b) individual characteristics of the person with the disability, and (c) the context for the interaction. Although characteristics of persons with disabilities (e.g., personality factors) may be highly relevant to determining relationship outcomes, the present study focuses primarily on characteristics of the able-bodied individual in keeping with the sociopolitical perspective that negative attitudes and stereotypes in the social environment are the primary source of difficulties facing individuals with disabilities. In subsequent sections, I summarize research studies that have explored the roles of demographic,

personality, knowledge, attitudinal, and contextual factors associated with relationship outcomes in interpersonal interactions between persons with and without disabilities.

Demographic and personality factors. Numerous studies have examined the influence of demographic factors such as age, gender, race, and culture on disability attitudes. A review article by Yunker (1988) found that most of these studies yielded non-significant or relatively low correlations. Although some age-related changes in attitudes among children have been found, they are often a function of education and contact. Somewhat inconsistent findings seem to indicate that socioeconomic status and years of formal education are positively correlated with favorable attitudes. In the past, many studies reported that in the United States women have more positive attitudes than men, but gender differences seem to be diminishing (Yunker & Block, 1986). Race/ethnicity of the able-bodied person seems to have little influence on disability attitudes. Although some differences across cultures in disability attitudes have been documented, a relatively stable set of preferences emerge for types of disabilities; physical disabilities seem to be viewed more favorably than psychiatric disabilities (Loo, 2000).

According to Yunker (1988), most demographic characteristics are relatively unimportant in determining attitudes but do seem relevant as they relate to similarity in the dyad. That is, many people tend to associate with people similar to them in terms of age, race/ethnicity, gender, socioeconomic status, and educational background. It seems that demographic factors of the able-bodied person have minimal influence on formation of disability attitudes, yet may likely have significant influences on relationship outcomes when disability status interacts with other demographic variables in the dyad. For example, a dyad in which the individuals come from different racial/ethnic backgrounds and also differ regarding disability status introduces complex

interactions that complicate our understanding of this interpersonal process and undoubtedly impact relationship development.

Personality factors such as social anxiety, shyness, and the tendency to self-monitor have long been known to influence thoughts, feelings, and behaviors about social encounters in many contexts (Glass & Arnkoff, 1994; Pozo, Carver, Wellens, & Scheier, 1991). For example, people who are socially anxious or shy by disposition are more likely to be uncomfortable in most social situations as well as have more negative and fewer positive thoughts during social interactions. Interestingly, Fichten et al. (1997) found thoughts and feelings seem to be independent of social poise when an able-bodied person interacts with peers who have physical disabilities. Regardless of personality factors, encounters with peers who have physical disabilities tend to elicit more discomfort and negative thoughts. With regard to the big five theory of personality (McCrae & Costa, 1987), openness to experience seems the most likely factor associated with disability attitudes. One might reasonably predict that a person scoring high on this factor would be willing to participate in novel experiences such as increased contact with persons with disabilities that could promote favorable attitudes. Yet similar to Fichten, Yunker (1988) concluded from a review of the literature that low correlations were found between personality characteristics and disability attitudes.

Knowledge/personal contact. Decades of research support that the information able-bodied individuals have about disabilities seems to have an important influence on disability attitudes. This information is a product of prior contact with persons with disabilities, effects of education, and exposure through mass media sources. The manner in which disability information is presented influences whether it promotes favorable or unfavorable attitudes. For example, information that highlights inadequacies or problems with coping tends to produce

negative attitudes, while individualizing information reduces the effects of stereotypes and can promote more positive attitudes (Wright, 1988). The contact hypothesis, which has received considerable support in the literature with relation to both disability and race relations, states that positive attitudes are formed when contact includes equal status, cooperative interdependence, support from authority figures, and opportunities for knowing outgroup members as individuals (Amsel & Fichten, 1988; Weinberg, 1978; Yuker, 1988). Further, for contact to have a positive effect, it should convey information that disconfirms stereotypes (Rothbart & John, 1985). Unfortunately, a reliable measure that incorporates all these important contact variables has not been developed. The Contact with Disabled Persons scale (Yuker & Hurley, 1987) holds some promise as it begins to tap quality of the experience. Many researchers, however, simply use self-reported frequency scales of contact across settings (e.g., strangers, friends, or family members with disabilities). Nevertheless, we can tentatively conclude that prior contact with persons who have disabilities is associated with favorable disability attitudes (Hunt & Hunt, 2000; Meyer, Gouvier, Duke, & Advokat, 2001; Yuker, 1988) and less desire for social distance (Strohmer, Grand, & Purcell, 1984) when contact experiences are perceived as positive and involve collaboration between equal status partners.

Disability attitudes. Attitudes have been defined as reflections of deep-seated values and a pervasive force driving how people choose to act and respond to others (White & Olson, 1998). Esses, Haddock, and Zanna (1993) proposed that intergroup attitudes are comprised of feelings, beliefs, and overall evaluations of group members. Interests in the measurement and alteration of disability attitudes have spurred the development of numerous scales and research investigations in the last 50 years (Antonak & Livneh, 1988; Esses & Beaufoy, 1994; Yuker, 1994). Challenges for accurate measurement of disability attitudes arise given they are

multifaceted and susceptible to presentation bias. Perhaps the most widely used rating scale found in the literature to directly measure disability attitudes is the Attitudes Towards Disabled Persons scale (ATDP) developed by Yuker and colleagues (Yuker, Block, & Campbell, 1960; Yuker, Block, & Young, 1966). This measure was based on the assumption that attitudes vary by the degree that individuals with disabilities are viewed as similar to or different from individuals without disabilities. An ATDP score that reflects a high degree of perceived difference is thought to be associated with negative attitudes toward individuals with disabilities. Many studies that have used the ATDP scale have identified information and prior contact as important correlates with disability attitudes, yet targeted education and simulation interventions have yielded mixed effects in terms of changing disability attitudes (see Timms, McHugh, O'Carroll, & James, 1997; White & Olson, 1998). Although a widely used instrument, the ATDP scale has been criticized for its unidimensional focus on cognitive components of attitudes (Thomas, 2001), vulnerability to faking (Roush & Klockars, 1988; Yuker, 1986), and failure to address how attitudes likely differ depending on the specific type of disability.

While the ATDP scale assesses beliefs and evaluative components of general attitudes toward disability, the Interactions with Disabled Persons scale (IDP; Gething, 1994) taps more affective components of disability attitudes. On the IDP scale, high scores reflect greater social discomfort, pity, and fear related to interactions with persons with disabilities, which according to Gething reflect negative attitudes. Thus, taken together, able-bodied person's scores on the ATDP and IDP scales represent cognitive and affective components of *general* attitudes toward persons with disabilities. These global evaluations likely influence the context-specific cognitive and emotional responses of able-bodied persons during interactions. In fact, research on intergroup attitudes and relations tends to support this notion. Individuals' general beliefs and

expectancies about others are apt to shape their specific interpersonal experiences (Hyers & Swim, 1998; Shelton & Richeson, 2006; Tropp, 2006). Further, global disability attitudes are positively associated with inhibitory thinking and negative affect in specific contexts. For example, Fichten, Schipper, and Cutler (2005) found strong associations between attitude scales (i.e., ATDP and IDP scales) and frequency of negative self-referent thinking in interactions with college peers who had disabilities.

Cognitive responses. During encounters with persons who have disabilities, cognitive responses of able-bodied persons often include underestimations of their own abilities, inaccurate evaluations of the feelings or intentions of the person with a disability, and other inhibitory automatic thoughts (Fichten and Bourdon, 1986). Fichten and colleagues have examined the frequency and nature of self-, other-, and situation-referent thoughts during casual interactions between persons with and without disabilities (Fichten, 1986; Fichten & Amsel, 1988; Fichten, Amsel, Robillard, & Tagalakis, 1991). They noted a high total number of automatic thoughts reported by able-bodied respondents, especially negative self-referent (e.g., “I have to be careful what I say”) and other-referent (e.g., “She is probably embarrassed”) thoughts, which tended to exacerbate the negative emotion experienced during the interaction (Fichten, Robillard, & Sabourin, 1994). When comparing interactions with a person with no disability, a person with a visual impairment, and a person with a spinal cord injury, Fichten and Amsel (1988) found that the latter type of interaction yielded the highest number of negative thoughts for able-bodied individuals. Fichten, Amsel, et al. (1991) later argued that the ratio between positive and negative thoughts, or *states-of-mind (SOM) ratio*, was more important than thought frequencies. Overall, the valence of a person’s SOM ratio and the attentional focus of their automatic thoughts (i.e., on self, others, situation) are discrete factors that differentially impact affect and

self-efficacy beliefs. Arnkoff and Glass (1982, p. 11) contended that “positive, facilitative thoughts may be less important than the presence of negative self-statements.” It seems clear that self-evaluations, especially those that are negative, play a critical role in this interpersonal process.

According to appraisal theory, (a) individuals perceive and appraise a change in their surroundings, (b) those appraisals evoke emotions, and (c) those emotions, in turn motivate them to perform particular behaviors (Roseman & Smith, 2001). Dillard, Kinney, and Cruz (1996) identified six appraisals that drive this process in relation to interpersonal communication: attentional activity (i.e., motivation to attend to event/relationship), valence (i.e., perception that the experience is pleasant vs. unpleasant), relevance (i.e., importance of event/person), predictability (i.e., knowledge about what will happen next), control (i.e., attribution of responsibility to self, other, or situation), and anticipated obstacles/required effort. Disability-related challenges in interpersonal encounters that produce relational uncertainty can elicit these types of cognitive appraisals. For instance, negative affect is likely to follow if a person appraising a challenging event concludes the experience was unpleasant and perceived obstacles seem insurmountable. Thus, a particularly relevant factor might be the perceived threat posed by a particular situation and appraisal of one’s abilities to overcome such challenges.

The relationship between threat appraisals and anxiety is well established; threat appraisals suggest potential danger to one’s self-esteem and low confidence in one’s ability to cope with the threat (Lazarus, 1991; Lazarus & Folkman, 1984). Those who consistently appraise certain social encounters as stressful and threatening tend to anticipate failure and are likely to avoid interactions that elicit high levels of anxiety (Skinner & Brewer, 2002). Likewise, threat appraisals regarding interactions with peers with disabilities may activate a cyclical

process of negative affect and inhibitory thoughts that increases the chance of emotional withdrawal or avoidance unless cognitive and/or affective interventions occur.

The relation between cognition and affect has received tremendous research attention; recent reviews place disparate findings in two camps. The first position is rooted in Schacter and Singer's (1962) cognitive labeling theory of emotion, also referred to as the "two-stage" model because of the assertion that emotions arise *after* cognitive appraisal of physiological arousal. The notion that cognitive appraisals precede affective response is consistent with appraisal theory and has received empirical support (for review, see Smith & Lazarus, 1993). The opposing position holds that what we think and how we think are reliant upon and intertwined with what we feel (LeDoux, 1996). Some researchers argue that cognitive and affective factors are interdependent and that emotions are evaluative responses that centrally involve cognition. From either perspective, cognition and affect are highly interrelated and relevant factors during social information processing.

Affective responses. Researchers have long recognized that encountering a person with a disability can be a stress-inducing experience for many non-disabled people (Fichten, Amsel, et al., 1991; Fichten, Goodrick, Amsel, & McKenzie, 1991; Livneh, 1988) that can elicit a range of emotional responses. Even seemingly positive emotions can be problematic. For example, Fiske, Cuddy, Glick, and Xu (2002) observed pity and compassion in response to disability; such emotions can cause problems when they activate stereotyped beliefs and produce condescending attitudes. Qualitative studies have found that participants openly report fear, disgust, blame, guilt, discomfort, and embarrassment as reasons to avoid interpersonal relationships with persons with disabilities (Albrecht et al., 1982; Corrigan, Green, Lundin, Kubiak, & Penn, 2001; Corrigan et al., 2002). More specifically, Loo (2000) found that individuals in work settings

expressed discomfort and uncertainty about how to act in the presence of an individual with a disability.

Hirschberger, Florian, and Mikulincer (2005) further suggested that disability reminds the observer of their own physical vulnerability, which may arouse fear and then lead to avoidance, fear, and decreased compassion. They provided support for Livneh's (1980) "approach-avoidance conflict" which reflects the tension often reported between feelings of interest and aversion experienced by a non-disabled person in the presence of a person with a disability. Most evidence supports the emergence of negative or ambivalent emotional reactions to disability. These affective responses are critical because theorists assert that emotions produce action tendencies that shape behavioral responses (Roseman, Wietz, & Swartz, 1994). Before exploring behavioral intentions, however, I consider factors that characterize the context for interaction, namely type of disability and intimacy in the social relationship.

Type of disability. Many studies erroneously treat persons with disabilities as a homogeneous group. In fact, the most widely used measure of attitudes (i.e., Attitudes Toward Disabled Persons scale (Yuker, Block, & Campbell, 1960) assesses disability attitudes broadly despite emerging evidence that affective barriers and desire for social distance differ significantly depending on the type of disability. Decades of research using multidimensional scaling techniques indicate that individuals use the following dimensions in the perception of individuals with disabilities: visibility of the disability (Jones et al., 1984; Rounds & Zevon, 1993; Schmelkin, 1984), physical versus cognitive nature of the disability (Garver & Schmelkin, 1989; Rounds & Zevon, 1993; Schmelkin, 1982, 1985), degree of perceived impairment/severity (Jones et al., 1984; Schmelkin, 1988), perceived personal responsibility (Rounds & Zevon, 1993), and degree of stigma attached to disability (Schmelkin, 1984). In a recent study, undergraduate

students ($N = 250$) reported significantly higher negative affect toward persons with a psychiatric disorder (i.e., schizophrenia) compared to two physical disabilities, amputation and spinal cord injury (McCaughey & Hannum, 2006). This finding was consistent with a number of cross-cultural studies that have found a relatively stable preference for interaction with persons who have physical rather than psychiatric disabilities (Loo, 2000). In addition, studies suggest that the general public holds more negative attitudes and greater tendency to distancing themselves from persons with conditions perceived to be severe, highly visible, and attributable to the person's choices or behaviors.

Social context. Measures of social distance such as Bogardus' (1925) Social Distance Scale and the later Disability Social Distance Scale (Tringo, 1970) and Disability Social Relationships Scale (DSRS; Grand et al., 1982) consider how varying the degree of intimacy in social relationships could influence disability attitudes. The DSRS was designed to measure willingness to interact with persons with disabilities in friendship, dating, and marriage contexts. Two studies using this measure (Grand et al., 1982; Strohmer et al., 1984) concluded that social context interacted with type of disability to explain desire for social distance. Participants indicated significantly higher acceptance of individuals across disabilities in work relationships than either dating or marriage relationships. Similarly, a recent study found a significant interaction between social context (i.e., work, friendship, and dating) and type of disability in determining level of negative affect reported during encounters that involved disability-related challenges (McCaughey & Hannum, 2006). Clearly, both type of disability and social context have bearings on attitudes toward disabilities and by extension should be considered in research addressing social barriers that face this population.

Behavioral intentions. Festinger's (1957) theory of cognitive dissonance introduced the notion that cognition, affect, and behaviors are interconnected and that changing attitudes can alter behaviors. Later research demonstrated that individuals move towards stability within themselves through consistency between attitudes and behaviors (Canary & Seibold, 1984). Inconsistencies between attitudes and behaviors may not be noticed by the individual holding them; instead they are either resolved through rationalization or behavioral change. For instance, an able-bodied individual may see himself or herself as someone who is caring and tolerant of differences, while they may behave in contrary ways towards individuals with disabilities. In turn, they may rationalize this behavior by thinking that people with disabilities are socially awkward or needy.

Although the relationship between attitudes and actual behaviors has been a controversial topic, a number of studies claim to provide evidence of a strong relationship between these constructs (see Canary and Seibold, 1984 for a comprehensive summary of this debate). According to Ajzen and Fishbein (1980), the relationship between attitudes and behaviors is mediated by variables such as context, perceived social norms, motivation to comply with norms, and the specificity of both the attitudes and behaviors. Thus, a convincing body of research has emerged exploring the association between attitudes and *behavioral intentions*. Behavioral intentions are assessed by asking individuals to describe what action they would take in a given situation, rather than assessing actual behaviors, which cannot be readily measured in non-experimental settings. With regard to disability, behavioral intentions typically relate to the able-bodied person's desire for social distance before, during, and/or after encounters with persons who have disabilities.

Scale developers have constructed hierarchies of situations or contexts that introduce increasing levels of closeness in a relationship and ask respondents to indicate how they might respond. Such scales include the Social Relationship Index (SRI; Gething, 1994), which assesses willingness to associate with persons with disabilities across ten distant and ten close types of relationships, and the Disability Social Relationship Scale (Grand et al., 1982), which assesses behavioral intentions regarding disability-specific situations. Further, the Behavioral Intentions Scale (Knobloch, 2005) measures whether an individual intends to engage in specific actions following periods of relational uncertainty. Most relevant are scales that tap approach behaviors (e.g., directly communicating feelings) versus avoidance behaviors (e.g., emotionally distancing oneself) because these can have differential impacts on relationship outcomes. These behavioral intentions likely result from conscious and unconscious psychological processes that help regulate emotion associated with interpersonal interactions in general, and disability encounters in particular. Thus, it seems important to explore the role of emotion regulation strategies more explicitly in intergroup relations.

The Role of Emotion Regulation

Recent research by John and Gross (2004) investigated the general use and outcomes of emotion regulation strategies. A promising direction for disability researchers is the application of this knowledge to understanding emotional barriers of able-bodied persons during encounters with persons who have disabilities. According to John and Gross, two strategies are commonly used to regulate emotion—cognitive reappraisal and emotional suppression. They propose that emotional regulation strategies are employed with regard to a temporal continuum and represent examples of antecedent-focused and response-focused strategies respectively. John and Gross

base this notion in the theoretical understanding that emotion begins with an evaluation of emotional cues that trigger a coordinated set of response tendencies. Cognitive reappraisal can occur at the point of evaluating the event and constructing meaning of emotional cues, while emotional suppression can occur once the emotional response and behavioral tendency is activated. Reappraisal involves changing the way one perceives and thinks about an emotion-eliciting event in order to reduce its emotional impact. Using reappraisal, one might still initially experience discomfort when interacting with an individual with a disability in an unfamiliar intimate setting. Rather than avoiding the situation, this person would learn to attend to other aspects of a relationship besides the negative emotions or think about the situation in a way that diminishes negative emotions (e.g., “Every mistake provides a chance for learning”).

Alternatively, suppression involves changing the way one responds behaviorally to an emotion-eliciting event without changing the emotion. One may avoid an uncomfortable or embarrassing social context such as interaction with a person with a disability to regulate their emotional experience or they may attempt to not express the emotions they experience. Although negative emotion is experienced privately, the public or behavioral expression of emotion is suppressed. Experimental investigations and studies of individual differences in the chronic use of emotion regulation strategies indicate that reappraisal is associated with healthier affect, higher social and cognitive functioning, and greater well-being compared to suppression (Butler et al., 2003; Gross, 1998; Gross & John, 2003; John & Gross, 2004; Richards & Gross, 1998, 2000; Sheldon et al., 1997).

To date numerous research studies have reported mixed findings from interventions aimed at improving intergroup attitudes through education and increased contact (Miller, Smith, & Mackie, 2004). In a meta-analysis of over 500 studies, Pettigrew and Tropp (2006) found

robust evidence that intergroup contact can reduce both affective and cognitive forms of prejudice, although intergroup contact typically has more powerful effects on affective rather than cognitive measures. Reducing intergroup anxiety, negative emotional arousal that can characterize encounters, seems to be a key mechanism underlying the effect of intergroup contact (Stephan & Stephan, 1985; Turner, Hewstone, Voci, Vonofakou, 2008; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). Further research in this area has revealed that the positive effects of intergroup contact can be realized, albeit less strongly, through indirect contact (Wright et al., 1997) and even imagined contact (Turner, Crisp, & Lambert, 2007). Thus, it seems that the individual need not have actually experienced contact with the outgroup themselves to develop more positive intergroup attitudes.

Despite indications that reducing anxiety in intergroup interactions is vitally important for reducing prejudice, no study has directly evaluated the use of adaptive emotion regulation strategies in interpersonal interactions between persons with and without disabilities. In race relations research (Goff, Steele, & Davies, 2008; Trawalter & Richeson, 2006), results support that biased behaviors are reduced when ingroup members are directed to foster positive contact through active engagement with outgroup members rather than prevention-focused goals like avoiding the appearance of prejudice. These conditions appear to fit with the aforementioned definitions of reappraisal and suppression, suggesting that the use of emotion regulation strategies could play an important role in determining behavioral intentions to avoid persons with disabilities. It is plausible that the association between affective arousal and biased behaviors like emotional distancing or avoidance could depend on an individual's tendency to use cognitive reappraisal readily to reduce arousal. Conversely, the use of suppression to regulate emotion

might not impact the likelihood for behavioral avoidance because the experience of negative emotion may go unchanged even if not expressed.

Research beyond the scope of this study would be needed to explore how reappraisal specifically functions to regulate emotion with regard to disability. That is, reappraisal might require re-evaluating one's self-efficacy about managing disability-related challenges or, as suggested in a study by McCaughey and Strohmer (2005), increased flexibility in thinking about prototypical characteristics of disability. Alternately, reappraisal might involve attending to similarities between oneself and the person with a disability rather than dissimilarities. Nonetheless, it seems that some individuals are able to become desensitized to negative affect or reappraise it as they come to value the relationship. For those who are not able to manage their negative affect, avoidance and suppression of feelings may actually maintain and heighten negative reactions to disability-related challenges. A first step in exploring the potential role of emotion regulation involves considering if one's tendency to use reappraisal or suppression moderates the association between negative affect and behavioral intentions during interactions with persons with disabilities. A better understanding of emotion regulation with regard to addressing emotional barriers could have valuable applications in counselor training, disability sensitivity interventions, and clinical practice.

A central question that emerges from this literature review is how knowledge, attitudinal factors, emotion regulation, and behavioral intentions might interact during this complex interpersonal process to influence relationship progression or deterioration. I now consider how to integrate research findings on factors associated with social barriers to inclusion within a theoretical model and present a rationale for using structural equation modeling address relevant research questions.

Applying Structural Equation Modeling

Structural equation modeling (SEM) is a valuable methodological tool in counseling psychology research when the goal is to compare competing theoretical models based on the relative consistency of those models with the pattern of empirical relationships reflected in the data. According to Quintana and Maxwell (1999), SEM procedures should proceed in four steps: (a) construct identification, (b) measurement model specification, (c) structural model specification, and (d) alternative model consideration.

First, I considered the range of theoretical constructs to be included in the model and decided how these constructs should be operationalized and measured. Using latent variable path analysis, multiple measurement instruments or indicators were selected to represent the underlying construct and error terms were specified for each of the indicators. The theoretical latent variables under consideration were identified in the above literature review as factors associated with social barriers to inclusion for persons with disabilities. The selection of multiple indicators for each of these latent variables is described in detail in Chapter 3 (Methods).

The second step in SEM involved specifying the measurement model by defining the relations between measured variables (indicators) and the latent variables. During this step, confirmatory factor analysis was conducted to evaluate how well the latent variables are indicated by the respective measures (Bollen, 1989). A diagram of the measurement model depicts the factor structure and modifications were made when theoretically defensible to improve the measurement model.

Third, I specified the structural model by presenting a hypothesized causal structure among latent variables. Caution was taken regarding specification error, the failure to include critical variables or the inclusion of irrelevant variables in the model. A path diagram illustrates

the theoretical relations between latent and measured variables with path coefficients and error terms. I then proceeded to assess “goodness of fit” for the model by comparing the estimated covariance matrix with the sample or observed covariance matrix using several measures of statistical fit. Finally, the fourth step in this analysis involved comparing the proposed structural model with alternative models. The subsequent section delineates how the theoretical model was conceptualized, presents the proposed path diagram, and identifies key research questions for the study.

Model Conceptualization

Fichten et al. (1994, p.241) observed that while a variety of theories about the origins of negative cognitive and affective factors abound, “none have resulted in a parsimonious model or in a good understanding of the basis underlying problematic interaction between nondisabled and disabled individuals.” However, researchers generally agree that the social stigmatization of disability involves the interplay of cognitive and affective factors, general disability attitudes, prior contact, and problematic behaviors. Appraisal theory provides a framework for understanding how cognitive appraisals elicit emotions, which in turn enact behavior tendencies (Roseman & Smith, 2001). Although far from indisputable, appraisal theory has garnered robust support (Frijda, 1987, 1993; Frijda, Kuipers, ter Schure, 1989; Scherer, 2001) and represented a firm basis on which to build a model of for understanding interpersonal processes. I also considered an integrative model of cognitive and affective factors during the measurement phase of analysis.

Only one known model has attempted to capture the interaction process between persons with and without disabilities. Fichten and colleagues (1994, 1997) introduced the Attentional

Mechanism Model of Interaction Strain (AMMIS) which proposed that the discomfort and negative self-focused thinking that characterize encounters with persons who are stigmatized are influenced by attentional focus, primarily heightened self-focused attention. Attentional focus can be directed at oneself, novel disability attributes, or non-disability attributes of the other person. They further explained that a person preoccupied with the self relies largely on automatic, stereotypic, top-down thinking when encountering a person with a disability and hence engages in biased behaviors. Empirical testing of this model is sparse and graphical representations are unclear, yet the AMMIS model, in conjunction with appraisal theory and correlational findings in the extant literature, provided a guide for building an integrative theoretical model.

This integrative model, which is termed the Basic Model in the present study, incorporates the following factors: prior contact, general disability attitudes, cognitive self-appraisals, affective responses, and behavioral intentions. Demographic and personality factors were excluded from the model for two important reasons. First, Yuker's (1988) review concluded these factors remain relatively unimportant in terms of influencing attitudes. Second, the complex interactions that exist between disability status, race/ethnicity, socioeconomic status, and other demographic factors extend beyond the scope of this proposed study. Context-specific variables were measured with reference to casual friendship encounters with persons who use wheelchairs for mobility.

Similar to Knobloch's (2004) research on typical relationship formation, factors that characterize interactions between persons with and without disabilities can be grouped into distal and proximal categories. An able-bodied person's prior contact and general disability attitudes represent individual, distal factors. These distal factors provide a backdrop for events that may occur during encounters with persons who have disabilities. In contrast, proximal factors include

context-specific, cognitive self-appraisals and affective responses. Both distal and proximal factors have bearings on behavioral intentions, yet placement of these factors in relation to one another involved careful consideration of associations already identified in the literature.

Proposed path model. The Basic Model (see Figure A1) under investigation includes prior contact as an exogenous latent variable, which was expected to have a direct influence on general disability attitudes. Prior contact is comprised of general frequency and quality of contact experiences with persons who have disabilities. Disability attitudes consist of beliefs and emotions regarding persons with disabilities in general. Prior contact and disability attitudes characterize the distal context within which the interpersonal process occurs. The next portion of the Basic Model includes proximal or context-specific factors such as cognitive appraisals, affective responses, and behavioral intentions. Negative disability attitudes were expected to mediate the relationship between prior contact and cognitive self-appraisal. Further, negative disability attitudes were expected to have direct influences on context-specific cognitive appraisals and affective responses as well as behavioral intentions. Consistent with appraisal theory, I tentatively assumed that cognitive appraisals and affective responses were distinct latent variables and that affect mediates the relationship between cognitive self-appraisals and behavioral intentions. This assumption was evaluated in the measurement phase to determine if the data indicated cognitive-affective response as a single latent variable in the model (see Figure A2). This consideration acknowledged the interrelation often found between these factors in measurement, theory, and empirical research. Finally, affective responses were expected to have a direct influence on behavioral intentions and cognitive self-appraisals were expected to have an indirect effect on behavioral intentions via negative affect. It is important to note that anticipated associations in this model do not imply causal relationships.

According to McDonald and Ho (2002), multiple models that might explain the data are found in most multivariate data sets. MacCallum, Wegener, Uchino, and Fabrigar (1993) asserted that failure to deal adequately with alternative models represents one of the most disturbing issues in the current applications of SEM research. Alternate models were evaluated that explore less constrictive relationships among latent variables. For example, I planned to examine a structural model that included a direct effect between disability attitudes and behavioral intentions in addition to the indirect effect illustrated in the Basic Model via negative affect, provided that the measurement model was viable.

Assessing for moderation. It is plausible that an able-bodied person's inhibitory thoughts and negative affect during encounters with persons with disabilities do not necessarily result in behavioral intentions such as avoidance or social distancing. Instead, their ability to regulate emotion in adaptive ways could influence relationship outcomes. I proposed that an individual difference in ability to regulate emotion using cognitive reappraisal may moderate the relationship between context-specific affective response and behavioral intentions (shown in Figure A1). This hypothesis was tested using a multiple regression analysis because constraints in SEM using Amos 17.0 (Arbuckle, 2008) did not allow for testing the interaction factor between affective response and the use of reappraisal.

Research Questions

The primary purpose of this study is to test an integrative theoretical model of factors that create social barriers for persons with disabilities, particularly those with mobility impairments. I also aim to explore the potential role of emotional regulation in this structural model as a moderating variable. Research questions include (a) identifying the associations among latent

variables (i.e., prior contact, disability attitudes, cognitive-affective responses, and behavioral intentions) in interpersonal relationships involving persons with mobility impairments, (b) comparing how competing theoretical models explain the structure of individual and situational variables associated with behavioral intentions, and (c) determining whether emotion regulation moderates the relationship between cognitive-affective responses and behavioral intentions.

Chapter 3

Methods

This research study aims to increase understanding of social barriers that emerge in interpersonal contexts for persons with disabilities. I tested an integrative model of individual and situational factors that influence behavioral intentions of able-bodied persons when interacting with a peer in a wheelchair. This study explores the association between prior contact, general disability attitudes, cognitive and affective responses to disability-related challenges, and behavioral intentions. In addition, this investigation considers the potential role of adaptive emotion regulation as a moderator between cognitive-affective response and behavioral intentions. Measures, data collection procedures, and analyses are described in subsequent sections.

Selection of Indicators for Latent Variables

Five latent constructs were identified in the extant literature as relevant factors associated with social barriers for individuals with disabilities. These latent variables are prior contact, global disability attitudes, cognitive self-appraisal, affective response, and behavioral intentions. A measurement model was specified that included three indicators for each of these latent variables. According to Quintana and Maxwell (1999), there are conceptual and statistical advantages to selecting multiple indicators to represent each construct. Conceptually, any single indicator is only an indirect reflection of the underlying theoretical construct (Maxwell & Delaney, 1990). A statistical advantage is that SEM procedures allow estimation of measurement errors associated with multiple indicators, and these estimates can be used to adjust path coefficients for the presence of measurement error (Bollen, 1989). Experts suggest that two

indicators per latent variable is adequate, three or four are ideal if possible, and including more than four is not recommended (Kenny, 1979; Quintana & Maxwell, 1999). In the following section, I describe the instruments used to assess the measured variables that serve as indicators of each construct. Evidence of adequate reliability and validity was an important consideration in the selection of these measures.

Prior contact. An adapted version of the Contact with Disabled Persons scale (CDP; Yuker & Hurley, 1987) was selected to measure two aspects of prior contact—frequency of close contact and quality of contact experiences. The original CDP scale contained 20 items that were scored on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*very often*). A recent factor analysis of the CDP scale (Pruett, Chan & Lee, 2006; Pruett, Lee, Chan, Wang, & Lee, 2008), suggested that 4 items be dropped from the scale and found strong support for a multidimensional factor structure. The three identified factors with loadings ranging from .49 to .91 were frequency of prior close contact (9 items; e.g., “How often have you had a long talk with a person with a disability?”), positive experiences (4 items; e.g., “How often have you had pleasant experiences interacting with persons with disabilities?”), and negative experiences (3 items; e.g., “How often have you been annoyed or disturbed by the behavior of a person with a disability?”). The CDP scale was adapted to reflect person-first language as has been done in more recent studies (Junco, 2004; Pruett et al., 2008). Scores on the original CDP scale have shown Cronbach alpha estimates ranging from .89 to .95 (Yuker & Hurley, 1987) for the total scale; equivalent internal reliability was found for the abbreviated, 16-item scale ($\alpha = .91$; Pruett et al., 2008). Interscale correlations were highest between frequency of close contact and positive experience ($r = .87$), and also high between frequency and negative experience ($r = .53$) and between positive and negative experience ($r = .59$). Each of these subscales was identified as an

indicator of the contact latent variable in the present study. Scores on the CDP scale tend to relate to scores on the Attitudes Toward Disabled Persons scale with correlations ranging from -.26 (positive experiences) to .40 (negative experiences; Yunker & Hurley, 1987).

Disability attitudes. The Attitudes Towards Disabled Persons scale (ATDP, Form O; Yunker, Block, & Campbell, 1960) measures global attitudes towards individuals with disabilities. This measure asks individuals to indicate agreement with 20 statements using a 6-point Likert-type scale that ranges from +3 (*I agree very much*) to -3 (*I disagree very much*). Higher scores reflect less favorable attitudes. The premise of the scale is that higher endorsement of beliefs that persons with disabilities differ greatly from those without disabilities indicates more negative global disability attitudes. Most researchers accept that the ATDP is unidimensional in nature and that it largely taps cognitive aspects of disability attitudes (Thomas, 2001; Yunker & Block, 1986). Sample items include “People with disabilities cannot have a normal social life,” “People with disabilities are the same as everyone else (reverse-scored),” and “You have to be careful what you say when you are with people with disabilities.” The ATDP scale was adapted to reflect person-first language, which has not been done widely before but seems necessary to reflect changes in accepted language in the United States. I will explore how the psychometrics of this adapted scale compare with those of the original scale.

The ATDP scale has been used widely in the literature (Antonak, 1988; Hafer, Wright, & Godley, 1983; Timms, McHugh, O’Carroll, & James, 1997; White & Olson, 1998). Yunker and Hurley (1987) summarized early evidence regarding the reliability and validity of the measure. Scores on the ATDP have shown split half reliability estimates ranging .78 - .81 and adequate Cronbach alpha estimates ($\alpha = .78 - .89$). Stability of scores over 5 weeks was high (test-retest $r = .84$), though this estimate dropped to .68 in studies over 4 months (Yunker & Hurley, 1987).

The ATDP showed moderate to high correlations with other measures of disability attitudes such as the Interactions with Disabled Persons scale (Gething, 1994) ranging from $r = .54 - .98$.

Furthermore, ATDP scale scores are positively correlated ($r = .40$) with a measure of prejudice and social restrictiveness (Yuker & Hurley, 1987). Two parcels were created from the 20-item ATDP scale for the present study. Identification of parcels was based on a factor analysis of the adapted scale; items with equivalent factor loadings were assigned to each parcel.

The discomfort subscale of the Interaction with Disabled Persons scale (IDP; Gething, 1994) was selected as an additional indicator because it assesses affective aspects of global disability attitudes. The 5-item IDP subscale purports to measure the general level of discomfort reported by able-bodied persons during typical interactions with people who have disabilities. Respondents indicate agreement with statements such as “I feel uncomfortable and find it hard to relax” and “I feel unsure because I don’t know how to behave” experienced during encounters with persons with disabilities. In the present study, one rather confusing item was reworded to improve clarity of meaning. This item originally read “I feel overwhelmed with discomfort about my lack of disability;” the reworded item read “I feel uncomfortable knowing that I am able to do things that this person cannot.” The 6-point Likert-type response scale ranges from 1 (*I disagree very much*) to 6 (*I agree very much*). Higher scores indicate more self-reported discomfort and less favorable attitudes. Cronbach’s alpha coefficient estimates have ranged .74 to .86 across international studies and test-retest reliability estimates ranged .51 for a one-year period to .82 over a two-week period (Gething, 1994). Recent evaluations of the full IDP factor structure provide support for three distinct emotional domains as factors—discomfort, empathy, and fear (Thomas, Palmer, Coker-Juneau, & Williams, 2003); factor loadings ranged .40 - .76 for items associated with these domains. According to Thomas and colleagues, these three factors

were related in appropriate directions with other measures of disability attitudes (e.g., ATDP), self-esteem, and amount of prior contact, suggesting support for convergent validity.

Cognitive self-appraisal. The 10-item negative self-statements subscale of the College Interaction Self-Statement Test (CISST; Fichten & Amsel, 1988) was selected to measure self-referent thoughts about interactions with peers who have physical disabilities. This scale was adapted from Glass et al.'s (1982) Social Interaction Self-Statement Test, which dealt with broad social situations; Fichten and Amsel developed the CISST to address interactions more typical for college settings. The full-scale CISST explores two dimensions: focus of attention (i.e., on the self versus on the other person) and valence (positive versus negative). Respondents rate on a 6-point Likert-type scale (1 = *strongly disagree*, 6 = *strongly agree*) agreement with 40 statements in response to a specific encounter (the four vignettes in this study). Ten thoughts are listed from each of the following categories: positive thoughts about oneself, negative thoughts about oneself, positive thoughts about the other person, and negative thoughts about the other person. Sample items from the negative self-statement subscale include "I don't want to offend him/her" and "I'd better be careful how I say things." Psychometric data indicate internal reliability estimates ranging .54 to .88, and test-retest correlation coefficients appear adequate ($r = .51 - .89$). Validity data show that subscale scores are meaningfully related to pertinent criterion variables (e.g., self-reported ease or interaction comfort), and the scale distinguishes between interactions with individuals who do and do not have disabilities (Amsel & Fichten, 1998; Bruce et al., 2000). I created two parcels from the negative self-referent thoughts subscale to serve as indicators for the latent variable. Identification of parcels was based on a factor analysis of the CISST subscale; items with equivalent factor loadings were assigned to each parcel.

The 10-item threat appraisal subscale of the Cognitive Appraisal Scale (CAS; Skinner & Brewer, 2002) was selected as a third indicator of cognitive self-appraisal. The threat subscale addresses the tendency to focus on possible harm to one's self-esteem and social identity posed by the disapproval and negative evaluation of others. It also assesses low self-confidence in one's ability to cope with stressful or demanding situations. Sample items include "I worry that I will say or do the wrong things" and "I worry about the kind of impression I will make." Participants indicate agreement using a 6-point Likert-type response scale (1 = strongly disagree, 6 = strongly agree) in response to each of the four vignettes presented. Higher scores indicate perception of greater threat and lower self-confidence. Internal consistency of the CAS threat appraisal subscale is adequate ($\alpha = .89 - .92$) and it is negatively correlated with the CAS challenge appraisal subscale ($r = -.40$ to $-.46$) and the Coping Expectancies Scale ($r = -.38$ to $-.41$), which both assess confidence and anticipation of positive outcomes (Skinner & Brewer, 2002).

Affective response. Three scales were used to assess affective response to particular vignettes that portray casual interactions with persons who use wheelchairs. First, an adapted version of the social discomfort subscale of the Interactions with Disabled Persons (IDP) scale was administered. The original IDP scale measures global affect in response to disability in general; the adapted version was developed by Gething (1994) to specify disability type. The IDP instrument instructions can be altered to prompt respondents to consider a specific context or situation. Psychometric properties of the adapted IDP scale appear equivalent to those for the original scale described previously (Gething, 1994).

Second, the Affective Response Scale (ARS), developed by McCaughey and Hannum (2006), was used to assess context-specific emotions during an interaction with a peer who uses a

wheelchair. This scale was developed to assess for emotions typically reported by able-bodied persons in interactions with individuals with disabilities; these emotions were identified in qualitative research studies (Albrecht, Walker, & Levy, 1982; Loo, 2000; McCaughey & Strohmer, 2005). On the ARS, participants rate whether they would likely feel fearful, pity, uncomfortable, embarrassed, concerned, and surprised during the interaction. Respondents use a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*) and higher scores reflect greater affective arousal. McCaughey and Hannum (2006) reported an internal reliability estimate of .78 and that ARS scores were strongly associated ($r = .46$) with the Disability Social Relationship Scale, a measure of desire for social distance. Further information will be gathered in this study about how the ARS is related to other affective and attitudinal measures.

The negative affect subscale of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was selected as the third indicator of affective response in this study. This subscale of the PANAS asks individuals to rate the extent to which they would feel ten negative emotions during specific situations involving interactions with a peer in a wheelchair. The 5-point response scale ranges from 1 (*very slightly or not at all*) to 5 (*extremely*). Higher scores indicate the experience of greater negative affect. Estimates of internal consistency for the negative affect subscale of the PANAS have been adequate ($\alpha = .84 - .93$) and this subscale tends to have a low to moderate negative correlation with the positive affect subscale of the PANAS ($r = -.09$ to $-.38$).

Behavioral intentions. The Behavioral Intentions Scale (BIS; Knobloch, 2005) was selected to measure behavioral intentions in response to specific encounters depicted in the four vignettes. The BIS was adapted from items developed by Guerrero et al.'s (1995) study of communicative behaviors following events that produce relational certainty in interpersonal

relationships. Although the factor structure of the BIS has not yet been evaluated, the authors purport that five domains are present that relate to two dimensions: (a) positive versus negative valence and (b) approach versus avoidance behaviors. Respondents use a 6-point Likert-type scale to indicate likelihood (1 = *very unlikely*, 6 = *very likely*) they would engage in specific behaviors during or after interpersonal contact with a person in a wheelchair. *Integrative* items reflect positive approach behaviors (e.g., “Tell the person how I feel”). *Closeness* items, while also positive in valence, reflect avoidance of emotions or the uncertainty-increasing event (e.g., “Spend more time with this person than normal”). *Distributive* items reflect negative approach behaviors (e.g., “Act rude towards the person”). The remaining domains both tap negative avoidance behaviors but to varying degrees. Some negative avoidant behaviors still involve remaining in the interaction despite conscious or subconscious efforts to distance emotionally. *Emotional distance* items tap these intentions (e.g., “Get quiet and do not say much to this person”). Finally, overt negative avoidant behaviors are reflected *avoidant* items (e.g., “Avoid future interactions with this person”). Preliminary psychometric data support internal consistency for integrative ($\alpha = .92$), closeness ($\alpha = .84$), distributive ($\alpha = .98$), distance ($\alpha = .80$), and avoidance ($\alpha = .81$) items (Knobloch, 2005; Knobloch & Solomon, 2002).

Intercorrelations between items in the avoidance vs. approach domains were not reported by the authors. As a preliminary step, I conducted an exploratory factor analysis of the BIS items to investigate if and how items in these domains are related. I anticipated that approach and avoidance behaviors would be negatively correlated but it remains possible that no relationship exists. For items that comprise the emotional distance and avoidant domains, I created parcels to represent avoidance behavioral intentions with equivalent factor loadings of items.

Measuring Emotion Regulation

In the initial planning stages of this study, more than one measure of adaptive emotional regulation was included with the intent that its moderating effect on the relationship between negative affect and behavioral intentions be explored using SEM. The two measures selected to adaptive emotional regulation were the reappraisal subscale of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) and the reinterpretation subscale of the COPE scales (Carver, Scheier, & Weintraub, 1989). Given multiple regression was ultimately used to assess for this moderating effect, the ERQ was retained for the analyses and the COPE scale was dropped. This decision was based on examination of information about scale properties in the literature including internal reliability and factor loading of items for these measures.

The ERQ measures individual differences in the chronic use of suppression and reappraisal as emotion regulation strategies. This 10-item scale asks respondents to indicate agreement with statements regarding how they typically manage positive and negative emotions. Respondents use a 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The ERQ is comprised of two distinct subscales: suppression (4 items; e.g., “I control my emotions by not expressing them”) and reappraisal (6 items, e.g., “I control my emotions by changing the way I think about the situation I am in”). Internal consistency estimates have been rather low for both scales ($\alpha = .64 - .69$ for suppression subscale, $\alpha = .72 - .79$ for the reappraisal subscale). Gross and John (2003) conducted a factor analysis of the ERQ and items loaded substantially on the expected factors, indicating a rather clear and simple structure. Scale intercorrelations were low ($r = .03 - .05$) across several samples. With regard to convergent validity, Gross and John (2003) found that suppression had a strong positive correlation with inauthenticity and avoidant coping. In addition, reappraisal was strongly associated with a well-

developed capacity for negative mood regulation and the tendency to use reinterpretation as a coping tool. Evaluations of discriminant validity showed strong negative associations between suppression and extraversion and between reappraisal and neuroticism. Taken together these findings are consistent with the notion that suppression and reappraisal should have rather different affective consequences.

The 4-item reinterpretation subscale of the COPE scales assesses coping aimed at managing distress emotions by construing a stressful situation in positive terms. Sample items include “I look for something good in what is happening” and “I try to see it in a different light.” Respondents use a 4-point scale to indicate their tendency to use this way of coping (1 = *I usually do not do this at all*, 4 = *I do this a lot*). The COPE scales consist of 14 theoretically distinct yet interrelated coping approach subscales. According to Carver et al. (1989), internal consistency of items on the reinterpretation subscale tends to be somewhat low ($\alpha = .68$). A factor analysis of the COPE scales showed that factor loadings on the reinterpretation subscale ranged from .75 to a very low .19, indicating the factor structure of the scales may need further evaluation. The reinterpretation subscale tends to be positively correlated with optimism as measured by the Life Orientations Test ($r = .40$) and the ERQ reappraisal subscale ($r = .45$; Carver et al., 1989; Gross & John, 2003).

Data Collection

Focus group. A vignette design was chosen to generate social contexts that approximate realistic challenges in social interactions involving persons with physical disabilities who use wheelchairs for mobility. The stimulus for vignette development came from a scenario used in the College Interaction Self-Statement Test (CISST):

Imagine that you are sitting with some friends in the cafeteria. A male/female student (in a wheelchair) whom you don't know well comes and joins the group. You are introduced and shortly thereafter everyone else leaves. You have 15 minutes before class. Try to imagine that you are actually in the scene.

This scenario was used as a model for generating preliminary vignettes. Each scenario depicts two individuals, one able-bodied and one in a wheelchair, interacting in typical college settings such as a student organization meeting, a campus bus, or a classroom with an opportunity to get to know one another. A focus group procedure was then used to validate and refine these preliminary vignettes. College students with mobility impairments requiring the use of wheelchairs were invited to participate in the focus group to assist in developing vignettes for the study that represented real-life situations. Participation for the focus group was solicited using flyers posted in the disability services building and a listserv for students with significant physical disabilities in an assisted-living residence hall (see recruitment flyer, Appendix B). To meet participants' accessibility needs, a decision was made to conduct two focus group meetings, one in the disability services building and one in the assisted-living residence hall. Individuals received \$10 as an incentive for participating in these 90-minute focus group meetings.

Six individuals (5 female and 1 male) ranging in age from 18 to 35 participated in these focus groups. Participants disclosed that their physical disabilities included cerebral palsy, spinal cord injury, and spina bifida. Each of the focus groups began with introductions made by the facilitator, process observer, and participants. This was followed by an explanation of informed consent and guidelines for the group. A copy of the informed consent form and procedure for the focus groups can be found in Appendix B. Two initial topics were raised to create an open discussion about real-life experiences on campus with able-bodied students. First, participants were invited to share experiences of positive early interactions with an able-bodied peer on campus that may have developed into a friendship or close relationship. Second, they were

invited to share experiences of uncomfortable or awkward interactions with an able-bodied peer on campus. Next, the four preliminary vignettes were distributed in written form and read aloud for evaluation by the group. Participants were asked to consider whether each vignette was realistic and ecologically valid. They offered suggestions for adapting each vignette and brainstormed alternate settings and situations that reflected their own experiences.

Three themes emerged from these focus group discussions. Participants emphasized that the vignettes should present interactions where the two individuals have similar interests and some familiarity with each other so that any discomfort normally associated with talking with a stranger is minimized. Participants also highlighted physical accessibility issues that might occur in the situations and provided suggestions for adapting the vignette so that interpersonal interaction became the primary focus rather than any access concerns. Finally, several group participants talked about how the vignettes should refrain from showing that the individual in a wheelchair takes the initiative to “put the able-bodied person at ease,” which they reported as a typical occurrence in their experience. Feedback from focus group participants was used to refine the vignettes and, in the case of the original CISST scenario, replace it with a scenario deemed more naturalistic in the college setting. The following vignettes represent the final versions used in the present study (original and final versions are shown for comparison in Appendix B).

Vignette #1: Group Work

Imagine you are in class and the instructor assigns a project requiring you to work closely with another student over the next few weeks. You notice a classmate who uses a wheelchair glancing around him/her, which indicates to you that he/she does not yet have a partner. You do not know this student well but have observed her/him to be reliable and friendly. After class, you have a chance to talk with this student about the possibility of working together.

Vignette #2: Student Organization

Imagine you have been participating in a student organization on campus with other students who share your interests. After one afternoon meeting, you hold the door on the way out for a student in a wheelchair with whom you have interacted a few times before. He/she thanks you and mentions he/she is heading back to the dorm. You live in the same dorm and were planning to go there after the meeting as well. You could easily walk across campus with him/her.

Vignette #3: Bus Stop

Imagine you arrive at a bus stop on campus and notice a student in a wheelchair waiting near you. He/she says hello and you recognize him/her from a class earlier that day where you both sit in the back row. He/she remarks generally that the class you share is particularly difficult. You agree and think to yourself that it would be helpful to know someone better in class with whom to review homework problems. You have several minutes to wait before the bus will arrive.

Vignette #4: Classroom

Imagine you have attended class for about two weeks and notice that a classmate who uses a wheelchair tends to sit next to you. You have spoken during small group discussions before and he/she seems to be an interesting person. During the ten minutes before lecture begins, many other students around you have begun to chat with each other. You have an opportunity to do the same with this classmate.

Participants and recruitment procedures. A convenience sample of able-bodied college students was surveyed that was representative across race/ethnicity and gender. Participants were recruited from undergraduate classes and a signup sheet was posted requesting involvement in a study on social interactions (Appendix C). A Web address was provided that directed participants to an online survey developed using Survey Monkey. Data collected online remained secure and accessible online only to the researcher by password protection for the duration of data collection. Data were then transferred to the researcher's personal computer for analysis and permanently deleted from the Survey Monkey server. Further, participants provided data anonymously and no identifying information besides basic demographics (i.e., sex, age, race/ethnicity, disability status, year in school, and academic major) was required. The average time to complete the full survey was 30-40 minutes. Because of the online format, the survey was accessible to participants at any location where Web access was available. They were instructed to complete the survey in its entirety during one sitting. Individuals received research credit for classes as an incentive to participate in the study.

Data collection procedure. When participants accessed the online survey, they first viewed a brief description of the study and then were directed to a second page that explained participant rights and informed consent (Appendix C). This informed consent statement

addressed the unique issues that arise with internet data collection. Although a helpful tool, using the World Wide Web for data transmission always carries some minimal risks to confidentiality even when password protected. It was fully explained that transmission of survey data via the Internet is not absolutely secure and that complete confidentiality of data can therefore not be ensured. Participants, however, were reassured that data would be given anonymously and secured on a password-protected computer once fully collected for the study. Participants were told that they will be answering questions regarding their thoughts, feelings, and behaviors during social interactions. After reviewing the consent form, participants marked a check box to indicate that they had read the consent statement and would like to take the survey. Those who wished to withdraw from participating could mark a check box that then exited them from the survey. Individuals who consented to participate were prompted at the end of each subsequent survey page to proceed until the end. They were not allowed to move backward in the survey to review previous sections. They could decide to withdraw from participation at any point during the survey and all cases with incomplete data were excluded from analysis.

Administration of the online survey proceeded in three sections: (a) vignette presentation and context-specific survey items, (b) global survey items, and (c) demographic items. See Appendix C for full list of scale and demographic items included in the online survey. Four vignettes were displayed that depicted casual interactions in college settings with peers who have mobility impairments. The vignettes appeared one at a time and remained visible on the screen while participants responded to context-specific survey items. The order of the four vignettes was varied. Participants responded to items from the negative self-referent thoughts subscale of College Interaction Self-Statement Test (10 items), the threat appraisal subscale of the Cognitive Appraisal Scale (10 items), the discomfort subscale of the Interaction with Disabled Persons

Scale (context-specific version; 5 items), the Affective Response Scale (6 items), the negative affect subscale of the Positive and Negative Affect Schedule (10 items), and the Behavioral Intentions Scale (24 items). That is, they completed these scales with reference to each vignette (four times in total). Responses were averaged across vignettes for subsequent analyses as there was no significant differences in responding to the four vignettes.

After completing the context-specific items, participants read another set of instructions that prompted them to complete the second section which included questions about their general experiences, thoughts, and feelings regarding disability. This section was comprised of the Contact with Disabled Persons Scale (16 items), the Attitudes Toward Disabled Persons Scale (Form O; 20 items), the discomfort subscale of the Interactions with Disabled Persons Scale (global version; 5 items), the Emotion Regulation Questionnaire (10 items), and the reinterpretation subscale of the COPE Scales (4 items).

Participants were then asked to complete a demographic questionnaire that collected information about their sex, race/ethnicity, age, year in school, college major, disability status (i.e., presence of a disability and type of disability), personal contact with others with disabilities, and exposure to disability information through training or academic courses. Finally, participants indicated whether their responses on this online survey reflected their actual thoughts, feelings, and experiences. Once the survey was complete, a final page debriefed participants about the purposes of the study and invited them to contact the researchers with any additional questions. Upon completion of the survey, students were instructed to print a verification of participation form they submitted for one hour of research participation credit.

Although data from all interested volunteers was collected, data was excluded from analyses from participants who indicated they had a physical disability. This exclusion criterion

was determined because this study focuses on factors that impact behavioral intentions of *able-bodied* individuals when interacting with persons with disabilities. For a discussion of factors that characterize the experience of individuals with disabilities in such interactions, readers are referred to earlier research in this area (Comer & Piliavin, 1975; Fichten, Robillard, Judd, & Amsel, 1989; Pinel, 1999).

Internet-based research has been steadily growing since its inception in the mid 1990's (Birnbaum, 2000, 2001). Some criticisms of internet data-collection methodologies relate to the greater likelihood of self-selection bias in Internet samples and susceptibility to participants who supply incorrect data to sabotage the research (Schmidt, 1997). These concerns are considered minimal in the present study because access to the online survey was provided only to students enrolled in specified undergraduate classes. All potential respondents had internet access through personal use or campus computers. They may have been motivated to respond honestly to survey items because they were receiving research participation credit to fulfill a course requirement. Moreover, online data collection presents some important advantages for disability attitudes research because it allows participants to submit anonymous data, thereby reducing the influence of social desirability bias.

Data Analysis

Internal reliabilities and factor structures of scales included in the study were examined. Descriptive statistics were calculated to explore interscale correlations and to evaluate univariate and multivariate normality of the data. Structural equation modeling (SEM) was conducted with Amos 17.0, using Maximum Likelihood Estimation to estimate path coefficients and factor loadings. SEM is inherently a large-sample technique. Some have suggested that sample size

should be at least 200 (Baldwin, 1989; Lomax, 1989). Furthermore, the ratio of number of people to number of measures or observed variables ($n:v$) should be at least 10:1 (Mueller, 1997) if not 15:1 or 20:1. Thus, in even the most straightforward SEM applications, sample size should probably be the minimum of either (a) 100-200 people or (b) an $n:v$ ratio of at least 10:1 or 15:1. Given the present study has 5 latent variables measured by 15 indicators, 150-250 participants are *minimally* required to satisfy this guideline.

Analyses proceeded in two phases: the measurement phase and the structural phase. In the measurement phase, a confirmatory factor analysis (CFA) model in which all latent variables are allowed to covary was imposed on the variance-covariance matrix. This method ensures that failure to fit is the result of measurement model misspecification rather than of inadequate structural relations among the latent variables. As is commonly done (see Byrne, 1998), the measurement model was evaluated in this phase to see whether any meaningful improvements could be made. Specifically, it was explored whether the IDPG and IDPC indicators should be allowed to covary given they derive from the same scale. Another consideration was whether cognitive self-appraisal and negative affect would be best represented as distinct constructs or a single latent variable. Adjustments to the measurement model were only considered when theoretically defensible.

During the structural phase, I tested whether the hypothesized model fit the observed data. Model fit was compared for the Basic Model (with adaptations driven by the measurement phase) and alternative models. Fit was evaluated via several goodness-of-fit indices: chi-square (χ^2), chi-square-to-degrees of freedom ratio (χ^2 / df ratio), comparative fit index (CFI), standardized root mean-square residual (SRMR), and root mean-square error of approximation (RMSEA). Byrne (1998, p.119) asserted that the “assessment of model adequacy must be based

on multiple criteria that take into account theoretical, statistical, and practical considerations.”

The various fit indices provide a constellation of information about the competing models under consideration, each evaluating a different aspect of model fit. Goodness of fit was determined but criteria for fit indices published in the literature (Gerbing & Anderson, 1993, Hu & Bentler, 1995, 1999); actual cutoffs are shown in Table A7.

A Priori Hypotheses

I expected to have to modify the measurement model to reflect the strong interrelation between cognitive and affective factors. Theory certainly supported this possibility, and perhaps more relevant to the proposed study, the measurement of cognitive and affective responses seemed to overlap for selected instruments. For instance, the CISST purports to assess the negative self-directed cognitions “I feel uncomfortable” and “Will she think I feel sorry for her?” yet implies discomfort and pity/fear respectively. Similarly, the IDP scale purports to assess affective responses such empathy with the item “I feel frustrated because I don’t know how to help.” Although this item undoubtedly taps affect, it also implies how the person is thinking about the encounter. Therefore, participants’ scores on these measures were anticipated to be highly correlated, suggesting that the data should be aggregated to form a single latent variable (i.e., cognitive-affective response). This issue will be addressed by making necessary adjustments to the measurement model.

Another concern relates to how indicators are expected to map onto latent variables. Although strong positive correlations have been shown among the three subscales of the CDP scale, the magnitude of these correlations as identified in the literature vary a substantial amount indicating that these subscales may not load equally onto the latent variable. In particular, I

anticipated that the negative experiences subscale may need to be dropped from the measurement model. Further, Yuker and Hurley (1987) indicated that the negative and positive experiences subscales of the CDP scale showed correlations with the ADTP scale in opposite directions, further supporting the prediction that the negative experiences subscale may not perform well in the measurement model.

A similar measurement issue that was anticipated to arise related to the use of the global and context-specific versions of the IDP discomfort subscale. I expected to have to address to the covariance between these indicators in the model but played close attention to how these indicators mapped onto the disability attitudes and negative affect latent variables. It was possible that the IDPG scale would present a weakness in the measurement model as this measure has not been typically used as an attitudes measure even though Gething (1994) argued the value in doing so.

In addition to the measurement issues described above, it was anticipated that some variables in the model would be positively skewed in the sample data. Namely, contact with persons with disabilities could be rather low as found in similar studies using college students. It was also considered that social desirability effects could attenuate the level of reported behavioral intent to avoid. Nevertheless, I anticipated that the proposed Basic Model, allowing for modification in the measurement phase, might reasonably fit the data. A final hypothesized that adaptive emotion regulation might moderate the relationship between negative affective response and behavioral intentions.

Chapter 4

Results

Description of Sample

Data were collected for 412 participants at a large Midwestern university; data from 360 participants were included in the analysis after 52 cases were deemed unusable. Of the deleted cases, 19 had incomplete data indicating that the participants exited the survey before completing it. An additional 33 cases were considered invalid and deleted because participants indicated “strongly disagree” or “disagree” when asked at the end of the online survey if their responses were honest reflections of their thoughts, feelings, and experiences.

The sample included 253 women (70.3%) and 107 men (29.7%) ranging in age from 18 to 49 years ($M = 19.98$, $SD = 2.21$). The vast majority of participants identified as having no disability ($n = 346$, 96.1%) while 3.9% ($n = 14$) reported having learning disabilities, hearing impairments, and mood disorders. Exclusion criteria specified that any respondents who identified as having a physical disability impairing mobility would not be included in the study given the intention was to measure reactions of able-bodied students to peers within this disability group. No cases had to be dropped for this reason. With regard to race/ethnicity, 70.8% ($n = 255$) of participants self-identified as Caucasian/White, 11.4% ($n = 41$) identified as African American/Black, 6.4% ($n = 23$) identified as Latino/a, 6.1% ($n = 22$) identified as Asian/Asian American, 0.3% ($n = 1$) identified as Native American, and 4.4% ($n = 16$) identified as biracial or multiracial.

The majority of participants (98.9%, $n = 356$) were undergraduates, although graduate and professional students were also sampled (1.1%, $n = 4$). In terms of year in school, 119 (33.1%) were freshman, 128 (35.5%) were sophomores, 51 (14.2%) were juniors, and 58

(16.1%) were seniors. The sample was comprised of students in a range of academic programs including social science (27.5%, $n = 99$), business (11.1%, $n = 40$), education (10.8%, $n = 39$), communications (9.3%, $n = 33$), art/design (6.9%, $n = 25$), math (5.0%, $n = 18$), physical science (4.2%, $n = 15$), health (3.3%, $n = 12$), agriculture (1.7%, $n = 6$), and engineering (1.7%, $n = 6$). The highest represented groups included undecided (16.9%, $n = 61$) and psychology (13.6%, $n = 49$) majors. See Table A1 for full summary of demographic variables.

Participants were asked to rate their levels of exposure to various sources of disability information. With regard to disability information in employment inservice programs, 58.3% ($n = 210$) of participants indicated extensive exposure and 25.8% ($n = 93$) indicated moderate exposure. With regard to disability information in academic classes, 23.9% ($n = 86$) reported extensive exposure and 39.2% ($n = 141$) reported moderate exposure. With regard to volunteer work involving interaction with persons who have disabilities, 24.7% ($n = 89$) reported extensive exposure and 30.3% ($n = 109$) reported moderate exposure. Participants who reported exposure to disability information in academic, work, and/or volunteer settings indicated the nature of disability-focused information they encountered: types of disabilities ($n = 74$, 20.6%), psychological and social aspects of disability ($n = 62$, 17.2%), educational accommodations ($n = 60$, 16.7%), medical issues ($n = 46$, 12.8%), vocational/job accommodations ($n = 45$, 12.5%), and media and/or cultural portrayals of disability ($n = 45$, 12.5%). A summary of participants' reported exposure to disability information can be found in Table A2.

Participants indicated personal contact in their lives with persons with disabilities among intimate partners, family members, and close friends. A small percentage (1.7%, $n = 6$) reported having a relationship with dating partner/spouse/significant other with a disability sometime in the past or at present. 15.2% ($n = 55$) reported having at least one family member (e.g., parent,

sibling, grandparent, aunt/uncle, cousin) with a disability. With regard to close friendships, 13.1% ($n = 47$) reported having at least one friend with a disability. The most commonly identified disabilities among these personal relationships were mobility impairments (e.g., spinal cord injury, cerebral palsy, amputation), learning disabilities (e.g., ADHD, dyslexia), hearing and visual impairments, mental retardation, autism-spectrum disorders, and mood disorders (e.g., depression, anxiety). A summary of participants' reported contact with persons with disabilities can be found in Table A3.

Contact data from the demographic questionnaire was correlated with self-reported data from the Contact with Disabled Persons (CDP) scale as a validity check. Correlations between CDP subscales and having a significant other with a disability were non-significant due likely to the low percentage of participants reporting this type of relationship. Participants who reported having a family member with a disability reported a higher frequency ($r = .214$) and more positive experiences ($r = .312$) with persons with disabilities in general. Similarly, participants who reported having a close friend with a disability reported a higher frequency ($r = .259$) and more positive experiences ($r = .411$) with persons with disabilities in general. There also was a weak correlation between having a close friend with a disability and negative contact experiences ($r = .131$).

Reliability of Measures

Internal reliabilities using Cronbach's alpha coefficient were computed for each indicator (see Table A4). Internal consistencies ranged from .70 through .95 and were similar to those previously reported in the literature. Some measures were adapted for the present study by changing wording of particular items to improve clarity or update language. With one reworded

item on the IDP scale (Gething, 1994), the internal reliability ($\alpha = 0.88$) showed a modest improvement compared to the range indicated in the literature for the original scale ($\alpha = 0.74 - 0.86$). With items revised on the ATDP scale (Yuker, Block, & Campbell, 1960) to reflect person-first language, the internal reliability ($\alpha = 0.86$) was similar to full-scale reliability estimates for the originally worded ATDP scale ($\alpha = 0.78 - 0.89$).

Limited information had been published about the reliability of other measures so performance in this study was observed closely. The internal reliabilities for the IDP-global (IDPG; $\alpha = 0.88$) and the adapted version (IDPC; $\alpha = 0.91$) were roughly equivalent as found by Gething (1994). The internal reliability estimate for the ARS (McCaughey & Hannum, 2006) was higher in the present study ($\alpha = 0.92$) than the estimate from the original study ($\alpha = 0.78$). Reliability estimates for the BIS (Knobloch, 2005), which had been estimated to range 0.80 to 0.81 for the negative avoidance subscale, improved to 0.97 in the present study ($\alpha = .93-.95$ when items separated into parcels). Finally, other measures had somewhat low reliability estimates in the literature but appeared higher in the present study. Reliability estimates for the suppression and reappraisal subscales of the ERQ improved ($\alpha = 0.81$ compared to 0.64-0.69 for suppression; $\alpha = 0.89$ compared to 0.72-0.79 for reappraisal). Reliability for the COPE reinterpretation subscale also improved to an acceptable level ($\alpha = 0.80$ compared to 0.68).

Trustworthiness of data submitted by participants was evaluated with a single question at the conclusion of the survey which asked if responses were honest reflections of participants' thoughts, feelings, and experiences. The majority of participants (64.4%, $n = 232$) indicated that they strongly agreed with this statement and 35.6% ($n = 128$) agreed. Respondents who responded "disagree" or "strongly disagree" were dropped from the analyses ($n = 33$).

Descriptive Statistics

Descriptive statistics were calculated to examine basic characteristics of the data. These statistics included subscale means, standard deviations, skewness, kurtosis, and bivariate correlations between scales (see Tables A5 and A6).

Distribution of observed variables. Distribution of data for the CDP subscales showed that participants on average reported close contact with persons with disabilities “once or twice” or “a few times” in the past. Participants’ self-reported positive experiences with persons with disabilities approximated a normal distribution between “never” and “a lot” with most reporting “a few times.” Negative experiences were reported on average “1-2 times” but a high percentage of participants (22%, $n = 80$) reported never having a negative experience. With regard to global disability attitudes as measured by the ATDP scale, participants’ responses reflected a range of strong disagreement to strong agreement with statements thought to reflect negative attitudes. These statements assess attitudes/beliefs about whether persons with disabilities are similar to or different from those without disabilities. The distribution of scores on the global IDP scale (IDPG) showed a slight positive skew, indicating that the majority of participants disagreed that they would experience discomfort when interacting with a person with a disability. This was similar for the IDPC scale which assessed discomfort in context-specific situations.

Participants’ responses on the CISST and CAS approximated a normal distribution between strong disagreement and strong agreement with statements reflecting negative self-appraisals. Negative affect, as measured by the ARS, was also fairly normally distributed between “strongly disagree” and “strongly agree” in response to the vignettes presented. The PANAS, however, showed an extreme positive skew indicating that most participants strongly disagreed that they experienced negative emotions evaluated by the scale. Finally, the

distribution of the BIS negative avoidance subscale was positively skewed indicating that the majority of participants stated they would be unlikely to engage in avoidance behaviors based on information presented in the vignettes.

According to data from the ERQ reappraisal subscale, participants ranged in their self-reported use of reappraisal as an adaptive emotion regulation strategy. The data were slightly skewed in a negative direction (although still within acceptable limits) indicating that more than half of the sample agreed or strongly agreed that they use reappraisal often to regulate emotion. Data from the ERQ suppression subscale was normally distributed. The distribution of data for the reinterpretation subscale of the COPE scale was slightly skewed in a negative direction, indicating that the majority of participants had reported using reinterpretation to cope “a moderate amount” of the time.

Univariate and multivariate normality. Item and scale distributions were examined to assess for degree of skewness and kurtosis. Finney and DiStefano (2006) suggested that an absolute value of 1.0 indicates only slight non-normality. Other researchers have asserted that values greater than 2.0 for skewness and 7.0 for kurtosis were thought to negatively impact structural equation modeling (Lei & Lomax, 2005). Two scales in the present study had values that exceeded these cutoffs due to positive skewness. A log 10 transformation was applied for the negative affect subscale of the PANAS and an inverse transformation was applied for the negative avoidance subscale of the BIS in an effort to produce more normal distributions before conducting advanced statistical analyses (Bollen, 1989; Quintana & Maxwell, 1999). Skewness and kurtosis statistics for all variables (after transformation for PANAS and BIS) are presented in Table A5.

Multivariate normality was evaluated using Mardia's coefficient of multivariate kurtosis (Mardia, 1970), which was calculated at a value of 10.60 ($SE = 7.14$). This value exceeds the theorized critical ratio for this statistic of 1.96 (at 0.05 significance level), indicating multivariate non-normality. Departure from normality tends to result in inflated chi-square statistics and increased Type I error rates (Finney & DiStefano, 2006). Thus, it is unlikely that non-normality would result in accepting an incorrectly specified model. Multivariate non-normality can also lead to underestimation of standard errors of parameter estimates, which could inflate statistics and cause erroneous attributions of significance for specific relationships in the model. Nevertheless, researchers have argued that even when multivariate kurtosis values are as high as 21, biases for standard errors of parameter estimates were no more than 5% (Gao, Mokhtarian, & Johnston, 2007; Muthen & Kaplan, 1985).

Given multivariate non-normality is present in the data, appropriate precautions were taken during further steps in the analyses. Fit indices were chosen based on recommendations for use with non-normal data. Additionally, because non-normality can lead to attenuated parameter standard errors, bootstrapping techniques were applied in a later analysis to estimate those standard errors as recommended by Nevitt & Hancock (2001). Bootstrapping is used to calculate less biased standard errors and create confidence intervals around the estimate of a parameter under non-normal conditions. Details of the bootstrapping analysis are described in a later section.

Relations among variables. Bivariate correlations between scales included in this study are shown in Table A6. As expected, significant positive relations were found between indicators that were assumed to be related to the same latent variable. Interscale correlations between the approach and avoidance subscales of the BIS were not reported in the original study by

Knobloch (2005). In the present study, those subscales were negatively correlated ($r = -0.47$). Consistent with findings by Gross and John (2003), the correlations between reappraisal and suppression subscales of the ERQ were non-significant ($r = 0.10$).

It appears that the CDP subscales are differentially related to the global attitudes measures. The negative experiences subscale seems to be related in an opposite direction to the ATDP scale than the positive experiences or frequency of contact subscales. This finding is consistent with Yuker and Hurley's (1987) article and suggests that this subscale may be a poor indicator of the contact latent variable in the measurement model. As expected, strong correlations were observed between cognitive self-appraisal indicators and the negative affect measures ($r = .67 - .84$).

Structural Equation Modeling

Structural equation modeling (SEM) was conducted using AMOS 17.0 (Arbuckle, 2008) to test the relative fit of the data to the measurement model and structural model. Estimation methods and fit indices were chosen based on Monte Carlo studies conducted by Hu and Bentler (1998). Maximum likelihood estimation (ML) was used because studies indicate that most fit indices obtained from ML are less likely to be influenced by effects of sample size and distribution than those obtained from other estimation methods. Several authors have recommended that multiple fit indices be reviewed to provide a more complete evaluation of model fit (Bentler & Bonett, 1980; Breckler, 1990). Specifically, Monte Carlo studies suggest that models be evaluated with the ML-based standardized root mean square residual (SRMR) supplemented by the comparative fit index (CFI), normed fit index (NFI), and root-mean-square error of approximation (RMSEA; Hu & Bentler, 1998). These authors have also indicated that

NFI and ML-based overall χ^2 goodness of fit statistic are insensitive to distribution. Further, CFI, SRMR, and ML-based RMSEA statistics show little sensitivity to non-normal distributions. In the present study, the above indices were used along with the goodness-of-fit index (GFI) and 95% confidence intervals for RMSEA statistics. The magnitude and signs of estimated parameters and the magnitude and pattern of standardized residuals were also examined in each model.

Measurement model specification. In the measurement phase, confirmatory factor analysis was conducted to define the relations between indicators and the latent variables. A diagram of the initial measurement model, which included 14 indicators and 5 latent variables, is presented in Figure A3. All factor loadings were significant and in the predicted direction. Only 14.3% of the standardized residuals were greater than an absolute value of 2.58 as recommended by Byrne (1998). However, all fit indices for this initial measurement model suggested a poor fit with the data.

A closer examination of factor loadings reveals two potential weaknesses in the model that had been previously anticipated. First, the CDPn (negative experiences) indicator has a much lower factor loading (.43) than the other CDP subscales on the contact latent variable. Second, parameter estimates for pathways between the global attitudes latent variable and its proposed indicators suggest that the ATDP and IDPG indicators do not have equivalent loadings. A decision was made to drop these two indicators (CDPn and IDPG) in an effort to improve the measurement model. Quintana & Maxwell (1999) asserted that model modification is allowable when theoretically defensible. In this case, it was clear that the negative experiences CDP subscale, although highly correlated with the other CDP subscales, seems to tap a slightly different construct. The argument for using the IDPG discomfort subscale to measure affective

components of global attitudes is strong (see Gething, 1994) but the content of this measure may be too different from the ATDP to adequately map onto the latent construct. The ATDP was retained rather than the IDPG because it has been the primary measure used in attitudes research.

A modified measurement model was tested with 12 indicators (CDPn and IDPG dropped from the model) and 5 latent variables. All factor loadings were significant and in the predicted direction and only 1.5% of the standardized residuals were greater than an absolute value of 2.58. Nevertheless, the modifications did not significantly improve the model fit. The comparative fit index appeared at an acceptable level (CFI = 0.959) but all other fit indices suggested a poor fit with the data (CMIN/df = 4.987, $p = .000$; SRMR = .051; NFI = .949; GFI = .913; RMSEA = .105 [.092, .119]). Some improvement was evident with this modification so these two indicators were not included in the subsequent analyses.

The next consideration for measurement modification involved exploring the possibility that the cognitive-self appraisal and negative affect measures were conflated in the study. The measurement model was modified to include a latent variable termed cognitive-affective response which was comprised of the 6 indicators that had originally been included to measure cognitive self-appraisal and negative affect. All factor loadings were significant and in the predicted direction. Only 1.5% of the standardized residuals were greater than an absolute value of 2.58. The standardized root mean square residual was at an acceptable level (SRMR = .0408) but all other fit indices suggested a poor fit with the data (CMIN/df = 7.247, $p = .000$; CFI = .930; NFI = .920; GFI = .879; RMSEA = .132 [.119, .145]).

Although the model that included cognitive-affective response as a latent variable was not supported, it is clear that interscale correlations between cognitive measures (i.e., CISST, CAS) and affective measures (i.e., ARS, PANAS, IDPC) were high and an exploratory factor

analysis of these measures revealed substantial cross-loadings. A potential explanation for this conflation, besides the interrelation between cognitive and affective factors, is that the cognitive self-appraisal measures chosen for this study included a number of items that actually assessed for emotional reactions rather than cognitive factors. For example, one item on the CISST states “I feel concerned that others will not approve of me” which is closely aligned with the ARS item “I would feel concerned.” It seems that the CISST measure may contain some measurement error in its attempt to capture cognitive factors separate from affective factors. Based on these observations, a decision was made to modify the measurement model by excluding the cognitive self-appraisal latent variable. This newly modified model, which included 9 indicators and 4 latent variables, is presented in Figure A4. All factor loadings were significant and in the predicted direction. All of the standardized residuals were less than the absolute value of 2.58 as recommended by Byrne (1998). Further, all fit indices were within acceptable limits and suggested a good fit with the data (CMIN/df = 1.331, $p = .141$; SRMR = .0203; CFI = .998; NFI = .990; GFI = .983; RMSEA = .030 [.000, .057]). This modified measurement model was retained for use in subsequent tests of structural models. Fit indices for the measurement model modifications are shown for comparison in Table A7.

Structural model 1. The first structural model to be tested was the proposed Basic Model minus the cognitive self-appraisal latent variable as indicated by the measurement model. Estimates of structural model coefficients and standard errors are shown in Figure A5. All parameters were significant and in expected directions. As expected, the pathway between prior contact and attitudes (-.27) was negative, confirming an inverse relationship between the variables. The pathway between attitudes and behavioral intentions was marginally significant (.18), which raises the question of whether this direct relationship, rather than just the indirect

relationship of attitudes on behavioral intentions, is necessary to the model. Fit indices (see Table A7) indicated a good fit to the data (CMIN/df = 1.376, $p = .108$; SRMR = .032; CFI = .997; NFI = .989; GFI = .981; RMSEA = .032 [.000, .058]). The Akaike information criterion (AIC = 75.64) was used to compare model fit between this and alternate models. Only 2.7% of standardized residuals were greater than an absolute value of 2.58, also supporting good fit of this modified Basic Model to the data.

Structural model 2. An alternate structural model was tested to evaluate the importance of the direct relation between global attitudes and behavioral intentions in the model. An illustration of this structural model is presented in Figure A6 with parameter estimates and standard errors. The pathways between attitudes and negative affect (.54) and between negative attitudes and behavioral intentions (.87) remained similar to those for structural model 1. All of the standardized residuals were smaller than an absolute value of 2.58. Examination of fit indices suggested a poorer fit with the data compared to structural model 1. Several indices were within adequate limits (SRMR = .045; CFI = .989; NFI = .981; GFI = .968) while other indices suggested a poor fit (CMIN/df = 2.289, $p = .000$; RMSEA = .060 [.031, .089]). The AIC (96.94) was larger than that for the structural model 1, suggesting rejection of this alternate model. Thus, the adapted Basic Model was retained as the model with the best fit to the data. Fit indices for all measurement and structural models tested are shown for comparison in Table A7.

Bootstrap analysis. As discussed previously, bootstrap analyses were conducted for the adapted Basic Model (structural model 1) to calculate less biased standard errors and create confidence intervals around the estimate of the parameter under non-normal conditions (Nevitt & Hancock, 2001). Standardized estimates, standard errors, and 95% confidence intervals based on bootstrap percentiles for all pathways in the model are presented in Table A8. All direct

pathways, including the relatively small coefficient between attitudes and behavioral intentions, were significant. Indirect pathways were also examined, and based on 95% confidence intervals, the relation between contact and negative affect as well as the relation between contact and behavioral intentions were small but significant. The indirect relation between attitudes and behavioral intentions was fairly large (.40). This bootstrap analysis provides support that the adapted Basic Model holds even when biases created by non-normal data are considered.

Secondary Analysis: Assessing for Moderation

Researchers have outlined steps for testing for moderation within structural equation modeling (Holmbeck, 1997; Jaccard & Wan, 1996; Jöreskog & Yang, 1996) using LISREL. At present, AMOS 17.0 does not allow for testing moderation effects. Multiple regression analyses were conducted to explore the viability of this moderation relationship. Two separate multiple regression analyses were conducted to explore the potential roles of reappraisal and suppression in predicting behavioral intentions and moderating the relation between affect and behavioral intentions to avoid.

Variables entered into subsequent regression analyses were centered to control for multicollinearity among predictor variables (Aiken & West, 1991; Holmbeck, 1997). Indicators with the highest loadings on latent variables in the primary analyses were selected as predictor variables. These included CDPp (positive experiences) as measure of contact, ATDP1 as measure of disability attitudes, and IDPC as a measure of negative affective response. The reappraisal (ERQr) and suppression (ERQs) subscales of the Emotion Regulation Scale were also entered as predictor variables in respective analyses. The negative avoidance subscale of the Behavioral Intentions Scale was used as the outcome variable in these analyses.

First, moderation was assessed with regard to participants' use of reappraisal for emotion regulation. CDPp was initially included in the analyses but was not shown to be a significant predictor of behavioral intentions so the variable was dropped from subsequent analyses. Negative global disability attitudes (ATDP1), negative affect (IDPC), and reappraisal (ERQr) were all significant predictors of behavioral intentions to avoid and 71% of variance was explained by the model (see Table A9). When an interaction term (IDPC \times ERQr) was entered into the model to assess for moderation effects, there was a small but significant increase in variance explained ($R^2 = .715$, $\Delta R^2 = .04$, $p = .034$). These results provide modest support for the moderating effect of reappraisal on the relation between negative affect and behavioral intentions to avoid.

Second, moderation was assessed with regard to participants' use of suppression for emotion regulation. Negative global disability attitudes (ATDP1), negative affect (IDPC), and suppression (ERQs) were all significant predictors of behavioral intentions to avoid and 71% of variance was explained by the model (see Table A9). When the interaction term (IDPC \times ERQs) was entered into the model to assess for moderation effects, this predictor was not significant ($p = .182$) and the increase in variance explained ($R^2 = .711$, $\Delta R^2 = .001$, $p = .182$) was non-significant. While the use of suppression was a significant predictor of behavioral intentions to avoid, these results do not support that suppression moderates the relation between negative affect and behavioral intentions.

Chapter 5

Discussion

Factors that impact the development of relationships between individuals with and without disabilities have been examined extensively in the extant literature but this study represents an initial effort to test an integrated model of this complex interpersonal process. This advancement increases understanding of intergroup interactions and may assist mental health professionals in identifying interventions that could promote inclusion and healthy relationship development. The Basic Model outlined in this study did not hold but an adapted model that emphasized the role of negative affect was supported by the data. Several significant relations between latent variables in the model were consistent with evidence from previous studies, and further, structural path analysis revealed a more comprehensive picture of direct and indirect effects. Results also indicated modest support for the moderating effect of reappraisal between negative affect and behavioral intentions to avoid. Key contributions from the study, implications for research and clinical practice, limitations of the study, and future research directions are considered in subsequent sections.

Contributions of Model

Central role of affective response. Results indicated that negative affective response was strongly predictive of behavioral intentions to avoid persons with mobility impairments. This finding stresses the central role of affective arousal and is consistent with a broader body of literature on intergroup interactions, which asserts that anxiety in particular is the underlying mechanism that mediates the effects of contact on prejudicial behaviors towards members of an outgroup (Turner, Crisp, & Lambert, 2007; Turner, Hewstone, Voci, & Vonofakou, 2008). These

researchers found that high levels of anxiety can amplify other emotional reactions, cause cognitive information processing biases, and intensify self-awareness. Such cognitive and emotional responses may ultimately be associated with avoidance of intergroup encounters, such as between persons with and without disabilities. Conversely, positive contact experiences involving persons with disabilities may provide opportunities to reduce anxiety and in turn increase the possibility that a closer friendship might develop. It is possible that even able-bodied individuals who have had few or largely negative contact experiences may learn to regulate feelings of anxiety, discomfort, or other negative emotions so as not to disrupt opportunities for relationship formation.

Disability attitudes and behavioral intentions. Global disability attitudes were fairly strongly predictive of negative affect and weakly predictive of behavioral intentions to avoid. The translation of attitudes to behaviors has been a matter of considerable interest in psychology and it has been generally accepted that behavioral intentions mediate this relationship. This study presents support for a weak but significant association between negative, global disability attitudes and behavioral intentions to avoid. Perhaps more interesting is the mediating role of negative affect in the relation between global attitudes and behavioral avoidance to avoid. This is consistent with the premise that global disability attitudes prime able-bodied individuals to experience negative emotions when anticipating an interaction. Clearly, interventions to improve global attitudes should consider these affective processes as an important mechanism for reducing biased behaviors.

Relation between contact and attitudes. Results indicate that frequency of close contact with disability was moderately predictive of global disability attitudes. More contact, particularly positive experiences, was negatively associated with negative attitudes. The influence of contact

on global disability attitudes has been obscured by inconsistent research findings, due in part to the variable nature and quality of contact experiences. The present study supports the notion that quality of contact does indeed matter in predicting global attitudes. The negative experiences subscale of the Contact with Disabled Persons scale was dropped from the measurement model as it seemed to be differentially related to other measured variables. Although strongly correlated with frequency of contact and positive experiences, the negative experiences subscale seems to tap a different latent construct. Interestingly, close examination of interscale correlations shows that positive contact experiences (CDPp) were more strongly associated with global attitudes and negative affect (i.e., inverse relationship) than negative contact experiences (CDPn). Perhaps positive contact experiences are more salient to the formation of global attitudes than negative experiences or they may buffer an individual from inevitable anxious moments. It remains possible, however, that the low percentage of participants reporting negative contact experiences in this study (i.e., 23% reported none at all, another 47% reported once or twice) limited the power to identify significant relations with other variables.

Emotion Regulation: Direct and Moderating Effects

Direct effects for reappraisal and suppression were examined and both were significant predictors of behavioral intentions to avoid. These effects were relatively weak when compared to other predictors like global attitudes and negative affect. Increased use of reappraisal (i.e., changing the way one perceives and thinks about an emotion-eliciting event to reduce its emotional impact) predicted lower intentions for behavioral avoidance while increased use of suppression (i.e., changing the way one responds behaviorally to an emotion-eliciting event without changing the emotion) predicted higher intentions for behavioral avoidance.

The direct effects of reappraisal and suppression should be considered within the context of a wider body of research on intergroup interactions. Trawalter and Richeson (2006) compared the use of promotion and prevention-focused strategies in interracial interactions on cognitive functioning. Findings suggested that focusing on positive contact through active engagement (reappraisal) rather than prejudice avoidance (suppression) attenuated the previously documented finding that suppressing negative feelings can be cognitively taxing. With relation to disability status, we can surmise that the use of suppressive emotion regulation strategies by able-bodied individuals will carry cognitive costs that ultimately lessen the chance of positive relationship formation. Trawalter and Richeson's (2006) findings suggest one way reappraisal might operate via regulatory focus to promote positive interactions and reduce cognitive load.

Goff, Steele, and Davies (2008) also examined interracial contexts and found that concerns about being perceived as prejudiced (termed *stereotype threat*) produced social distancing behaviors independent of implicit and explicit attitudes. Taken in conjunction with the present study, we can surmise that a similar form of stereotype threat may be present for able-bodied individuals, which increases affective arousal and in turn leads to avoidance behaviors. Further, present findings suggest that affective arousal specifically related to concerns about being perceived as prejudiced might contribute to using suppression to regulate emotion and an increased likelihood of avoidance in future interactions.

Evidence for the mitigating effect of reappraisal on the relationship between negative affect and behavioral intentions to avoid was modest at best. The use of reappraisal seemed to lower the likelihood that an able-bodied individual who experiences emotional arousal during an interaction with a disabled peer will choose to avoid further interactions. On the other hand, suppression predicted *greater* behavioral avoidance and had no apparent moderating effect. It is

evident that some discomfort or anxiety may be normative when encountering a peer with a disability in an unfamiliar intimate setting. Yet it appears that individual differences in the use of reappraisal, a teachable and adaptive emotion regulation skill, might promote positive relationship outcomes. This assertion is tentative given the small effects found in the present study and experimental research is needed to provide further evidence.

Further research is needed to determine specifically how reappraisal might function in this interpersonal context. Perhaps reappraisal assists an able-bodied individual to focus on aspects of the relationship other than negative emotion or they are able to employ perspective-taking self-statements that diminish negative emotions (e.g., “I can learn from this experience”). According to Trawalter and Richeson (2006), reappraisal might involve intentional efforts to promote a positive interaction rather than focusing on avoiding negative outcomes such as being perceived as offensive or prejudiced. Further, reappraisal reduces the cognitive load that suppression seems to require (John & Gross, 2004; Trawalter & Richeson, 2006). Another consideration is the temporal sequence proposed by John and Gross (2004) that includes antecedent-focused and response-focused strategies for emotion regulation. There may be less need to contain negative emotions via suppression later in the sequence if they are reappraised early in the interaction sequence.

This study represents an initial exploration of how the use emotion regulation strategies can impact interactions between individuals with and without disabilities within the context of early relationship formation. Clearly, additional research is needed to support the relevance of emotion regulation strategies and to clarify how reappraisal might operate specifically in interpersonal contexts. Implications for clinical practice and educational programming are considered below.

Implications for Practice

The primary focus of this study was the internal process of able-bodied individuals when interacting with peers who have disabilities. Thus, findings have direct implications for able-bodied individuals who might present in clinical settings with concerns about social disconnection or interpersonal stress related to the formation of new relationships. Clinical interventions aimed at identification of core beliefs and attitudes could increase insight about personal biases that impede the development of relationships. Emotion-focused interventions might also be employed that assist an able-bodied client to explore affective responses in intergroup encounters and to build skills for effectively managing negative emotions such as discomfort and anxiety. The able-bodied client could be encouraged to build skills for adaptive emotion regulation, particularly reappraisal, and educated about the less desirable outcomes associated with using suppression. Outcome goals might include widening their social network and increasing connectedness while supporting healthy emotional functioning.

Although possible, such individual interventions may be uncommon because able-bodied students tend to be less aware of the interpersonal costs of biased behaviors compared to their peers with disabilities who may face these experiences every day. Thus, educational programming on college campuses might be an important platform for addressing these issues. Student Affairs, residential life staff, and student organizations may be involved in programming and/or interpersonal interventions that assist able-bodied students in encountering peers from different backgrounds than themselves to promote positive relationships.

Campus programming should consider that negative affective arousal is a key mechanism for predicting behavioral avoidance and thus may design interventions that attempt to reduce negative emotion via contact experiences and/or skill building for adaptive emotion regulation.

Research on intergroup interactions (Goff, Steele, & Davies, 2008; Trawalter & Richeson, 2006) support interventions that are focused on learning goals and positive contact through active engagement rather than prevention-focused goals like attempting to avoid appearing prejudiced.

Observations about the vignettes used in the present study point to a potential model for effective educational programming aimed at promoting healthy, close relationships between students with and without disabilities. Recent research in the area of intergroup interactions has suggested that, beyond direct or actual contact experiences, indirect or “vicarious” contact experiences have significant impacts on the development of favorable attitudes towards an outgroup (Paolini, Hewstone, Cairns, & Voci, 2004; Turner et al., 2008; Wright et al., 1997). Extensions in this research area have discovered that even imagined intergroup contact can produce smaller but notable improvements in attitudes (Turner, Crisp, & Lambert, 2007). Further, results from these studies found that the effects of indirect and imagined contact on attitudes were mediated by reduced anxiety.

An educational program design might include opportunities for group discussion of personal contact experiences with peers with disabilities and process questions could tap into how able-bodied students learned to manage negative affect such as anxiety or discomfort within these interactions. Whereas this indirect contact approach would require that some student participants have had some direct contact experiences themselves, an imagined contact approach could be employed without such requirements. Imagined contact could be facilitated through vignettes or role play scenarios where the able-bodied individual would be asked spend time creating a mental image of an encounter with a peer who has a disability. The effect of imagining a social context on subsequent attitudes, emotional responses, and behaviors is thought to be the result of priming effects. Thus, when able-bodied persons imagine contact with a peer with a

disability, they engage in processes parallel to those involved in actual contact experiences. They may think about what they would learn from their peer, how they might feel during the interaction, and how this experience might influence how they perceive persons with disabilities more generally. Such practice may influence attitudes but may have a key role in reducing anxiety about how to handle subsequent direct contact experiences.

It does not go beyond notice that imagined contact, a promising direction for intervention, may have also inadvertently impacted the measurement of attitudinal, affective, and behavioral factors in the present study. While vignettes were used as neutral stimuli, the effects of imagined contact may in fact have influenced participants' responses, potentially producing more favorable attitudes, lower negative affect, and decreased self-reported behavioral avoidance.

Limitations and Future Directions

Several methodological limitations of this study should be mentioned. Most notably, although the model developed in this study provided a good fit for the data, these results do not imply that the model has been proven (Bollen, 1989). Instead, the model had not been rejected in the current study. To provide further support for this model, researchers must take several steps. First the model needs to be cross-validated in another sample of college students to ensure that the results are not specific to this sample. Even if the model survived cross-validation, it is possible that other models could provide equally valid explanations of the associations among these variables. Additionally, the variables included in the chosen model could possibly be influenced by unmeasured variables. Further research should attempt to expand and further clarify this model with regard to individuals who use wheelchairs for mobility and other disability groups. The cross-sectional nature of the data also makes it difficult to capture

processes that involve feedback loops or cycles of behaviors. For instance, each encounter an able-bodied person has with a peer with a disability provides an additional opportunity to regulate or tolerate negative affect enough to develop closer relationships, and these new contact experiences likely influence global disability attitudes.

Another limitation is the self-reported nature of the variables measured in this study. Research on disability attitudes and the prejudicial behaviors like avoidance tend to be plagued by social desirability bias. Methodological considerations such as allowing participants to contribute data anonymously online may have served to reduce such bias but it remains possible that participants may have been influenced by more subtle processes. That is, participants may have responded how they wish they would in actual situations or how they envisioned would be the “right” way to respond. This potential limitation was considered in the light of considerably skewed data for negative affective responses and behavioral intentions to avoid. Another explanation for the skewed data may be that the sample was collected from a campus known for physical accessibility and perhaps able-bodied participants may have had more opportunities than students at other institutions to interact with peers who have disabilities. Further, participants reported a surprisingly high amount of exposure to disability-related information via employment inservices, academic courses, and volunteer experiences. Self-reported negative attitudes, negative affective responses, and behavioral intentions to avoid could have been lower than average as a result in this sample. Although precautions were taken to deal with non-normal data, the findings should be interpreted with caution

During the development of this study, it was noted that scale weaknesses exist in the measurement of key variables such as disability attitudes and cognitive-affective factors that affect interpersonal interactions between persons with and without disabilities. Such weaknesses

should be considered in the interpretation of findings from the study. The ATDP scale, for instance, assumes that negative attitudes are characterized by judgments that persons with disabilities are different than those without disabilities. This approach to measuring disability attitudes is akin to color-blind racial attitudes (Neville, Lilly, Duran, Lee, & Browne, 2000) which ignore the salience of race. This prominent measure of disability attitudes may oversimplify attitude measurement and err in asserting that the recognition of the disability experience (as qualitatively different from the able-bodied experience) reflects negative attitudes. Research on disability attitudes should reconsider this notion and perhaps seek a more nuanced view that allows for the acknowledgement of the disability experience as salient.

Experts in the area of disability attitudes research assert theoretical support for including both cognitive and affective factors in the measurement of attitudes, but no known measure seems to adequately capture these components. Even in the present study, the discomfort subscale of the IDP (global) was included as an indicator of attitudes with the intention of tapping affective aspects of attitudes but the measure did not perform well in the measurement model. This limitation is noted because there may be aspects of disability attitudes that are not captured by the retained model.

Another limitation is the considerable overlap between cognitive and affective factors in the measures selected for the study. As illustrated earlier, it is clear that certain items in the CISST and CAS are worded in ways that suggested an emotional response rather than just a cognitive appraisal of the situation or self. This overlap issue arose in testing the measurement model and reflects the complex interaction between cognitive and affective factors often observed in the extant research. It remains possible that cognitive self-appraisal, if measured more distinctly, could still be a vital factor in this interpersonal process.

Future research directions indicated by the current study include scale development for a measure that would incorporate cognitive *and* affective components of disability attitudes. Further, a revised disability attitudes measure should consider reconceptualizing negative attitudes as de-valuative judgments rather than simply judgments of difference. Further investigation is needed to clarify the potential role of cognitive factors as distinct from affective factors. Perhaps the College Interaction Self-Statement Test could be reworked to reduce the overlap between cognitive self-appraisal and affective factors. Competing models that include cognitive factors should be tested to determine if the retained model in this study holds. Further, examining the role of emotion regulation in this interpersonal process using an experimental design seems a promising direction.

Final Thoughts

While the best-fitting model is only one of several possibilities, these results point to a significant relation between previous contact, global disability attitudes, affective arousal, and behavioral intentions. Further, negative affective arousal seems to play a central role on mediating the effects of negative attitudes on behavioral intentions to avoid. This integrated model presents the first of its kind to attempt to capture this complex interpersonal process and points the importance of interventions that might reduce negative arousal during encounters with peers who use wheelchairs. Such interventions might involve imagined contact experiences or adaptive emotion regulation techniques, but it seems apparent that attention to the internal processes of able-bodied individuals is crucial for improving these intergroup relationships and promoting the social inclusion of students with disabilities on college campuses.

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Appendix A

Tables and Figures

Table A1

Participant Demographics

Demographic	<i>n</i>	%
Sex		
Male	107	29.7
Female	253	70.3
Disability Status ^a		
Self-Identified Disability	14	3.9
No Disability	346	96.1
Race/Ethnicity ^b		
White	255	70.8
African American/Black	41	11.4
Latino/a	23	6.4
Asian American	22	6.1
Native American	1	0.3
Biracial/Multiracial	16	4.4
Year in School		
Freshman	119	33.1
Sophomore	128	35.5
Junior	51	14.2
Senior	58	16.1
Graduate/Professional	4	1.1
Academic Major		
Social Sciences	99	27.5
Undecided	61	16.9
Business	40	11.1
Education	39	10.8
Communications	33	9.3
Art/Design	25	6.9
Math	18	5.0
Physical Sciences	15	4.2
Health	12	3.3
Agriculture	6	1.7
Engineering	6	1.7
No response	6	1.7

^a No students reported a physical disability affecting mobility; 3.9% participants reported having other types of disabilities (e.g., learning disability, hearing impairment, ADHD, mood disorder).

^b Two participants did not report race/ethnicity.

Table A2

Exposure to Disability Information

Variable	<i>n</i>	%
Source of Disability Information		
Employment Inservice		
Extensive	210	58.3
Moderate	93	25.8
Little	39	10.8
None	15	4.2
Academic Classes		
Extensive	86	23.9
Moderate	141	39.2
Little	107	29.7
None	23	6.4
Volunteer Work		
Extensive	89	24.7
Moderate	109	30.3
Little	110	30.6
None	49	13.6
Type of Disability Information		
Types of Disabilities	74	20.6
Psychological/Social Issues	62	17.2
Educational Accommodations	60	16.7
Medical Issue	46	12.8
Vocational/Job Accommodations	45	12.5
Media/Cultural Portrayals of Disability	45	12.5

Note. Three participants did not complete this section. Participants could endorse multiple categories for types of disability information.

Table A3

Contact With Disability

Variable	<i>N</i>	%
Spouse/Partner/Significant Other	6	1.7
Family Member	55	15.2
Close Friend	47	13.1

Note. Most commonly identified disabilities present for intimate partners, family members, and close friends were mobility impairments, learning disabilities, visual and hearing impairments, autism-spectrum disorders, mental retardation, and mood disorders.

Table A4

Reliabilities, Means, and Standard Deviations of Observed Variables

Latent construct/indicator	α	M	SD	Range
CONTACT				
Contact with Disabled Persons Scale (CDP)				
Frequency of Close Contact (CDPf)	0.90	19.30	7.83	9-45
Positive Experiences (CDPp)	0.89	12.45	4.05	4-20
Negative Experiences (CDPn)	0.77	5.56	2.13	3-12
GLOBAL ATTITUDES				
Attitudes Toward Disabled Persons Scale (ATDP)				
Parcel 1	0.75	24.43	6.79	10-42
Parcel 2	0.70	27.17	6.27	13-53
Interactions with Disabled Persons Scale – Global (IDPG)				
Discomfort Subscale	0.88	11.83	5.42	5-30
NEGATIVE SELF-APPRAISAL				
College Interaction Self-Statement Test (CISST)				
Negative Self Statement Subscale - Parcel 1	0.93	14.99	5.40	5-29
Negative Self Statement Subscale - Parcel 2	0.91	16.63	5.30	5-29
Cognitive Appraisal Scale (CAS)				
Threat Appraisal Subscale	0.95	23.23	9.39	10-51
NEGATIVE AFFECT				
Affective Response Scale (ARS)	0.92	13.02	5.17	6-28
Positive and Negative Affect Schedule (PANAS)				
Negative Affect Subscale	0.94	15.02	6.12	10-55
Interactions with Disabled Persons Scale – Context-Specific (IDPC)				
Discomfort Subscale	0.91	11.39	4.72	5-30
BEHAVIORAL INTENTIONS				
Behavioral Intentions Scale (BIS)				
Positive Avoidance Subscale – Parcel 1	0.95	10.96	4.83	6-32
Positive Avoidance Subscale – Parcel 2	0.93	10.90	4.57	6-32
EMOTION REGULATION				
Emotional Regulation Questionnaire (ERQ)				
Reappraisal Subscale	0.89	23.71	5.89	6-36
Suppression Subscale	0.81	11.18	4.07	4-24
COPE Scale (COPE)				
Reinterpretation Subscale	0.80	12.17	2.55	4-16

Note. $N = 360$

Table A5

Univariate Normality of Variables

Variable	<i>Skewness</i>	<i>S.E.</i>	<i>Kurtosis</i>	<i>S.E.</i>
Contact with Disabled Persons Scale (CDP)				
Frequency of Close Contact	0.91	0.13	0.36	0.26
Positive Experiences	-0.11	0.13	-0.66	0.26
Negative Experiences	0.70	0.13	0.06	0.26
Attitudes Toward Disabled Persons Scale (ATDP)	0.21	0.13	-0.23	0.26
Interactions with Disabled Persons Scale – Global (IDPG)				
Discomfort	0.47	0.13	-0.43	0.26
College Interaction Self-Statement Test (CISST)				
Negative Self-Statement	-0.27	0.13	-0.61	0.26
Cognitive Appraisal Scale (CAS)				
Threat Appraisal	0.61	0.13	-0.28	0.26
Affective Response Scale (ARS)	0.53	0.13	-0.046	0.26
Positive and Negative Affect Schedule (PANAS)				
Negative Affect	0.49	0.13	-0.75	0.26
Interactions with Disabled Persons Scale – Context-Specific (IDPC)				
Discomfort	0.70	0.13	0.24	0.26
Behavioral Intentions Scale (BIS)				
Negative Avoidance	0.49	0.13	-0.07	0.26
Emotion Regulation Questionnaire (ERQ)				
Reappraisal	-0.63	0.13	0.62	0.26
Suppression	0.03	0.13	-0.60	0.26
COPE Scale (COPE)				
Reinterpretation	-0.31	0.13	-0.32	0.26

Note. Logarithmic (Lg10) transformation was used for the negative avoidance subscale of the BIS. Inverse transformation was used for the negative affect subscale of the PANAS.

Table A6

Bivariate Correlations of Indicators

Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 CDPfreq	1.00														
2 CDPpos	.68	1.00													
3 CDPneg	.42	.32	1.00												
4 ATDP	-.13	-.26	.22	1.00											
5 IDPG	-.24	-.22	.08	.48	1.00										
6 CISST	-.18	-.15	.03	.42	.67	1.00									
7 CAS	-.15	-.16	.13	.41	.65	.75	1.00								
8 IDPC	-.17	-.19	.10	.47	.81	.79	.84	1.00							
9 ARS	-.14	-.17	.09	.45	.73	.75	.82	.91	1.00						
10 PANAS	-.10	-.18	.10	.42	.69	.67	.75	.81	.79	1.00					
11 BISav	-.16	-.24	.16	.52	.67	.64	.72	.83	.80	.71	1.00				
12 BISap	.26	.34	-.02	-.27	-.24	-.11	-.22	-.31	-.30	-.25	-.47	1.00			
13 ERQs	-.18	-.23	.04	.32	.40	.36	.42	.43	.40	.32	.43	-.29	1.00		
14 ERQr	.05	.11	-.02	-.04	.02	.08	-.05	-.03	-.05	-.05	-.10	.30	.10	1.00	
15 COPE	.22	.25	-.10	-.20	-.22	-.22	-.25	-.25	-.23	-.26	-.29	.26	-.16	.35	1.00

Note. Bold numbers indicate statistical significance ($p < .05$). CDPf = Contact with Disabled Persons scale, frequency of close contact subscale; CDPp = Contact with Disabled Persons scale, positive experiences subscale; CDPn = Contact with Disabled Persons scale, negative experiences subscale; ATDP = Attitudes Toward Disabled Persons scale; IDPG = Interactions with Disabled Persons scale – Global, discomfort subscale; CISST = College Interaction Self-Statement Test, negative self-appraisal subscale; CAS = Cognitive Appraisal Scale, threat appraisal subscale; IDPC = Interactions with Disabled Persons scale – Context-Specific, discomfort subscale; ARS = Affective Response Scale; PANAS = Positive and Negative Affect Schedule, negative affect subscale; BISav = Behavioral Intentions Scale, negative avoidance subscale; BISap = Behavioral Intentions Scale, positive approach subscale; ERQs = Emotion Regulation Questionnaire, suppression subscale; ERQr = Emotion Regulation Questionnaire, reappraisal subscale; COPE = COPE scale, reinterpretation subscale.

Table A7

Fit Indices for Measurement and Structural Models

Model	χ^2	<i>df</i>	χ^2 / df	<i>p</i>	GFI	CFI	NFI	SRMR	RMSEA	95% CI for RMSEA
Criteria for Fit Indices			1-5	> .05	> .95	> .95	>.95	< .08	< .06	
Proposed Measurement Model (14 indicators, 5 latent variables)	545.480	67	8.142	.000	.825	.901	.889	.092	.141	(.130, .152)
Modified Measurement Model 1 (CDPn and IDPG dropped - 12 indicators, 5 latent variables)	219.434	44	4.987	.000	.913	.959	.949	.051	.105	(.092, .119)
Modified Measurement Model 2 (combined Cognitive-Affective Response - 12 indicators, 4 latent variables)	347.863	48	7.247	.000	.879	.930	.920	.041	.132	(.119, .145)
Modified Measurement Model 3 (Cognitive Self-Appraisal dropped – 9 indicators, 4 latent variables)	27.957	21	1.331	.141	.983	.998	.990	.020	.030	(.000, .057)
Structural Model 1 (Direct and indirect effects of Attitudes)	31.639	23	1.376	.108	.981	.997	.989	.032	.032	(.000, .058)
Structural Model 2 (Negative Affect as mediator, no direct effects of Attitudes)	54.940	24	2.289	.000	.968	.989	.981	.048	.060	(.039, .081)

Note. χ^2 = Normal Theory Weighted Least Squares Chi-Square; GFI = goodness of fit index; CFI = comparative fit index; NFI = normed fit index; SRMR = standardized root mean square residual; RMSEA = root mean square measure error of approximation. Bolded statistics indicate “good fit.” Criteria for fit indices based on guidelines published in the literature (Gerbing & Anderson, 1993; Hu & Bentler, 1995, 1999)

Table A8

Bootstrap Analysis for Retained Model (Structural Model 1)

Effect	Standard Estimate	SE	95% Confidence Interval / Bootstrap Percentile
Direct effects			
Contact → Attitudes	-0.27	0.06	(-0.39, -0.14)
Attitudes → Negative Affect	0.52	0.05	(0.41, 0.60)
Negative Affect → Behavioral Intentions	0.77	0.03	(0.72, 0.83)
Attitudes → Behavioral Intentions	0.18	0.04	(0.10, 0.25)
Indirect effects			
Contact → Negative Affect	-0.14	0.04	(-0.23, -0.07)
Contact → Behavioral Intentions	-0.11	0.04	(-0.25, -0.80)
Attitudes → Behavioral Intentions	0.40	0.04	(0.32, 0.47)

Table A9

Multiple Regression Analyses for Predictors of Behavioral Intentions to Avoid: Reappraisal and Suppression as Moderators

Variable	R^2	ΔR^2	F Change (Sig.)	B	$SE B$	β	t (Sig.)
REAPPRAISAL							
Step 1	.711						
Global Attitudes (ATDP1)				.163	.032	.163	5.047 (.000)
Negative Affect (IDPC)				.749	.032	.749	23.233 (.000)
Reappraisal (ERQr)				-.071	.028	-.071	-2.507 (.013)
Step 2	.715	.004	4.509 (.034)				
Global Attitudes (ATDP1)				.168	.032	.168	5.209 (.000)
Negative Affect (IDPC)				.751	.032	.751	23.389 (.000)
Reappraisal (ERQr)				-.088	.029	-.088	-2.983 (.003)
Interaction Term (ERQr \times IDPC)				-.058	.028	-.063	-2.123 (.034)
SUPPRESSION							
Step 1	.711						
Global Attitudes (ATDP1)				.154	.033	.154	4.725 (.000)
Negative Affect (IDPC)				.723	.034	.723	21.096 (.000)
Suppression (ERQs)				.075	.032	.075	2.339 (.020)
Step 2	.712	.001	1.788 (.182)				
Global Attitudes (ATDP1)				.153	.033	.153	4.703 (.000)
Negative Affect (IDPC)				.714	.035	.714	20.375 (.000)
Suppression (ERQs)				.081	.032	.081	2.517 (.012)
Interaction Term (ERQs \times IDPC)				.035	.026	.039	1.337 (.182)

Note. Values in bold are significant at the $p < .05$ level.

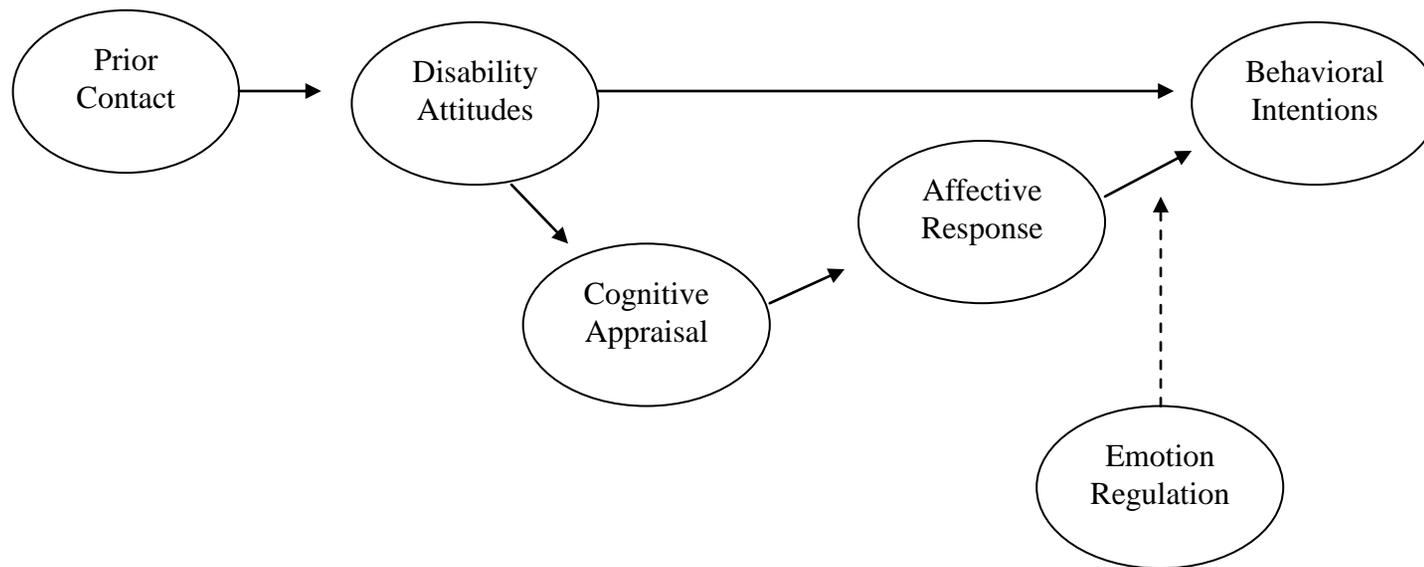


Figure A1. Proposed basic model

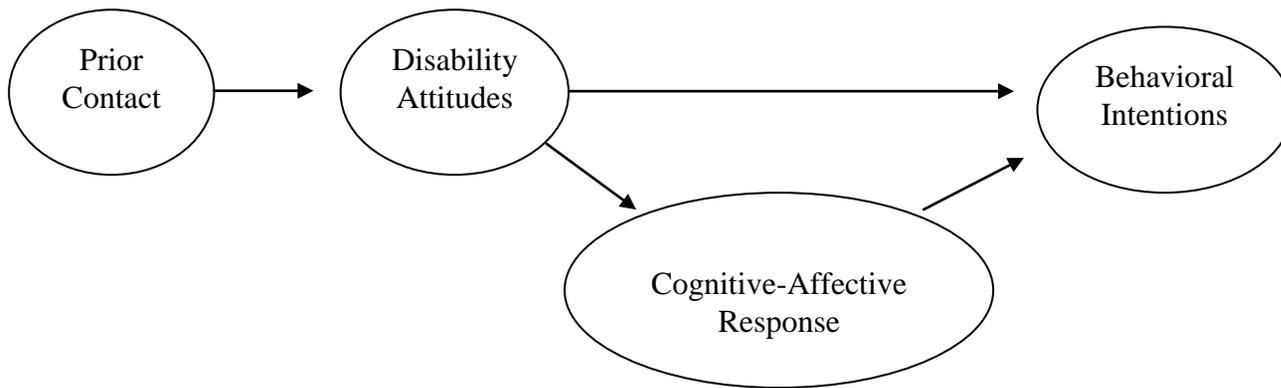


Figure A2. Alternate path model: Cognitive-affective response as latent variable

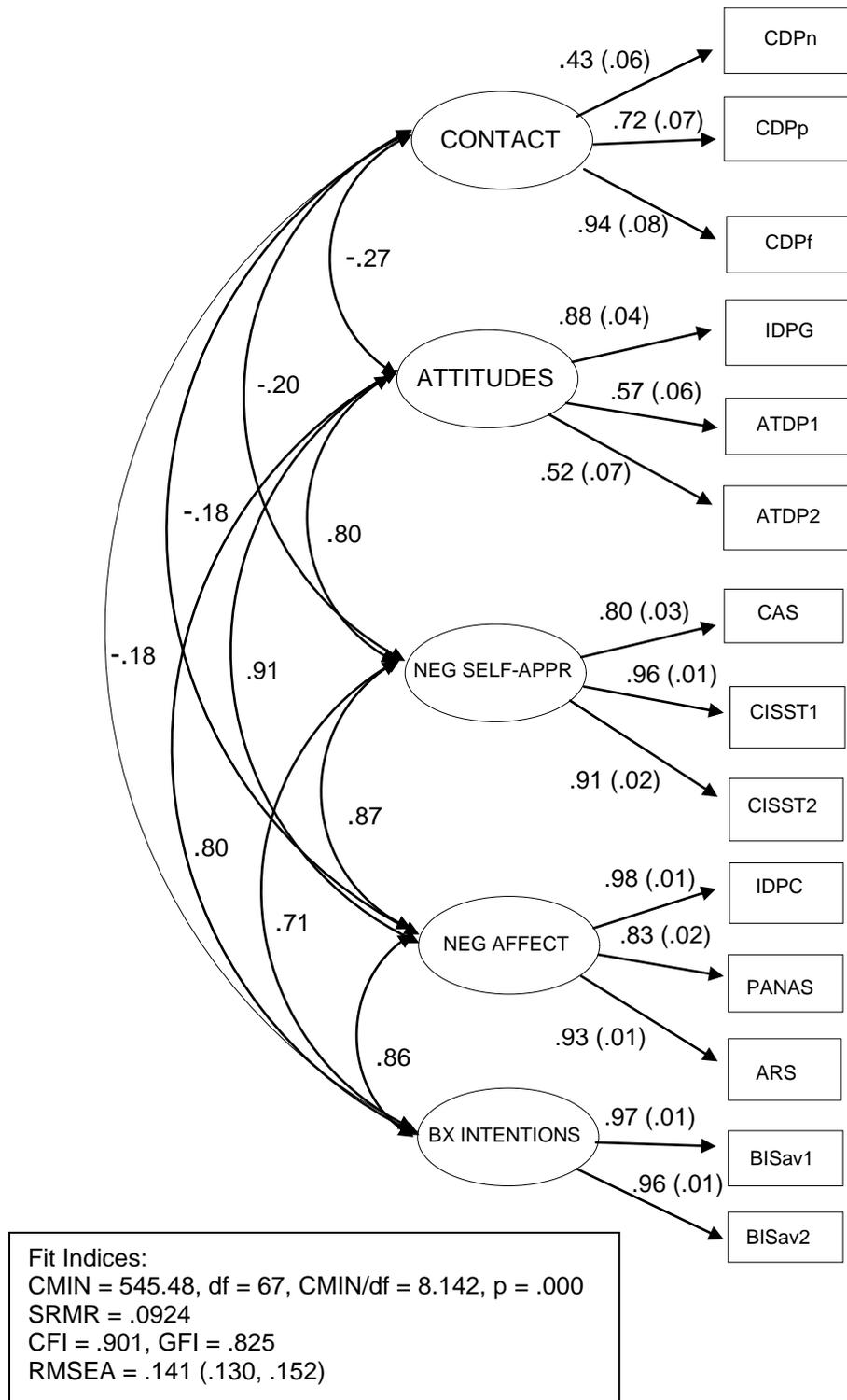


Figure A3. Proposed measurement model

Figure A3 (continued)

Note. CDPn = Contact with Disabled Persons scale, negative experiences subscale; CDPp = Contact with Disabled Persons scale, positive experiences subscale; CDPf = Contact with Disabled Persons scale, frequency of close contact subscale (Yuker & Hurley, 1987); IDPG = Interactions with Disabled Persons scale – Global, discomfort subscale (Gething, 1994); ATDP1 = Attitudes Toward Disabled Persons scale, parcel 1; ATDP2 = Attitudes Toward Disabled Persons scale, parcel 2 (Yuker, Block, & Campbell, 1960); CAS = Cognitive Appraisal Scale, threat appraisal subscale (Skinner & Brewer, 2002); CISST1 = College Interaction Self-Statement Test, negative self-appraisal subscale, parcel 1; CISST2 = College Interaction Self-Statement Test, negative self-appraisal subscale, parcel 2 (Fichten & Amsel, 1988); IDPC = Interactions with Disabled Persons scale – Context-Specific, discomfort subscale (Gething, 1994); PANAS = Positive and Negative Affect Schedule, negative affect subscale (Watson, Clark, & Tellegen, 1988); ARS = Affective Response Scale (McCaughy & Hannum, 2006); BISav1 = Behavioral Intentions Scale, negative avoidance subscale, parcel 1; BISav2 = Behavioral Intentions Scale, negative avoidance subscale, parcel 2 (Knobloch, 2005).

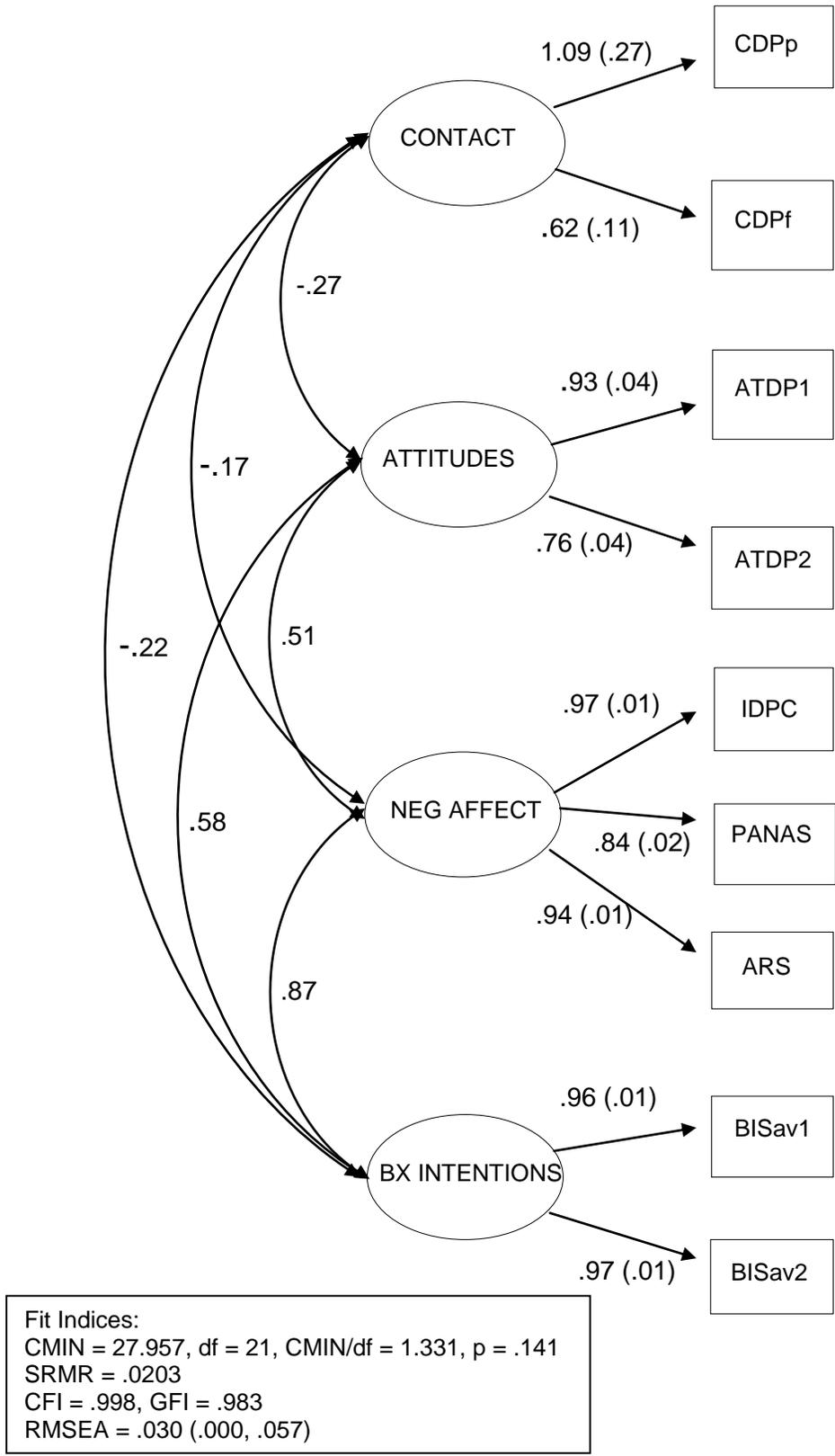


Figure A4. Adapted measurement model

Figure A4 (continued)

Note. CDPp = Contact with Disabled Persons scale, positive experiences subscale; CDPf = Contact with Disabled Persons scale, frequency of close contact subscale (Yuker & Hurley, 1987); ATDP1 = Attitudes Toward Disabled Persons scale, parcel 1; ATDP2 = Attitudes Toward Disabled Persons scale, parcel 2 (Yuker, Block, & Campbell, 1960); IDPC = Interactions with Disabled Persons scale – Context-Specific, discomfort subscale (Gething, 1994); PANAS = Positive and Negative Affect Schedule, negative affect subscale (Watson, Clark, & Tellegen, 1988); ARS = Affective Response Scale (McCaughey & Hannum, 2006); BISav1 = Behavioral Intentions Scale, negative avoidance subscale, parcel 1; BISav2 = Behavioral Intentions Scale, negative avoidance subscale, parcel 2 (Knobloch, 2005).

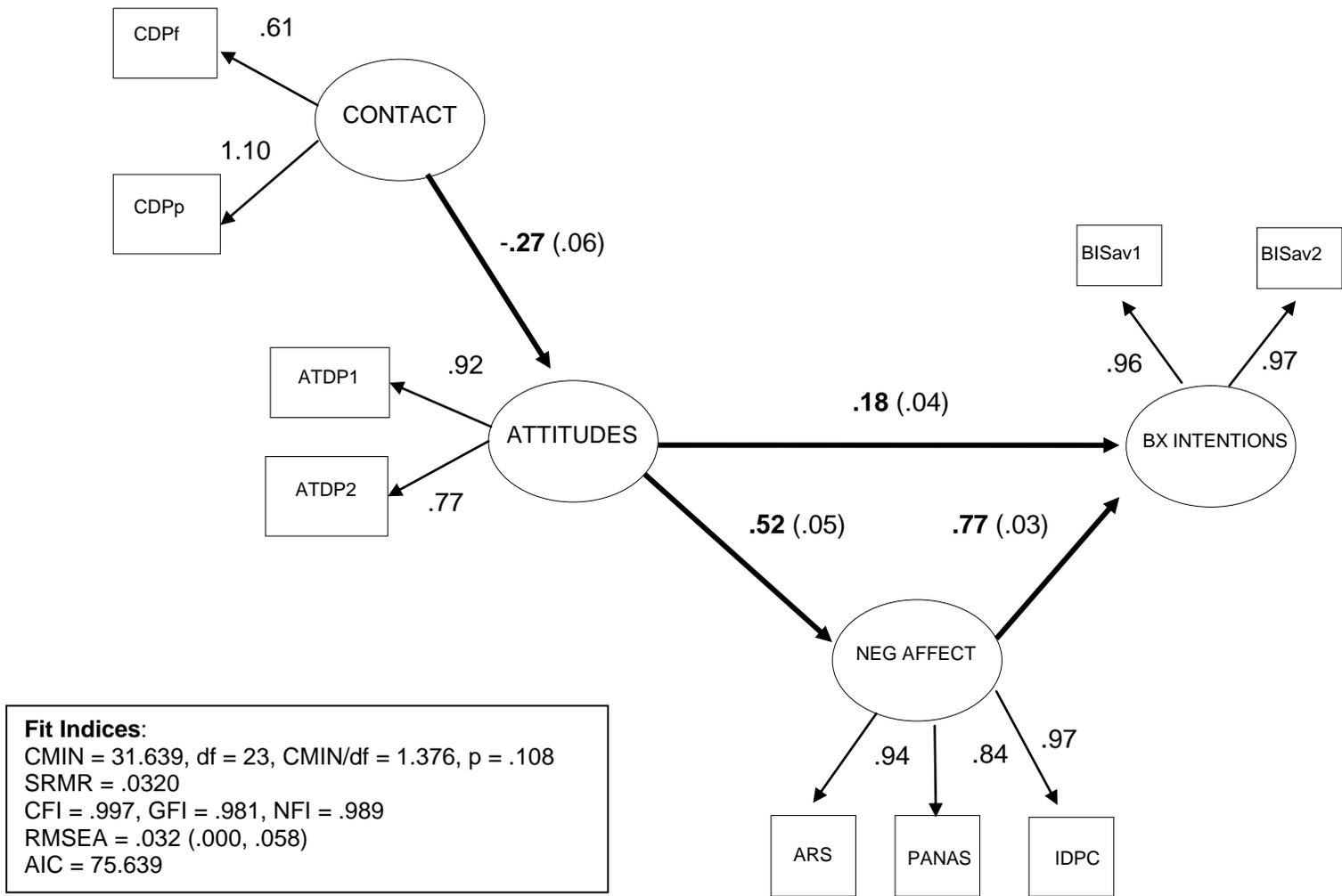
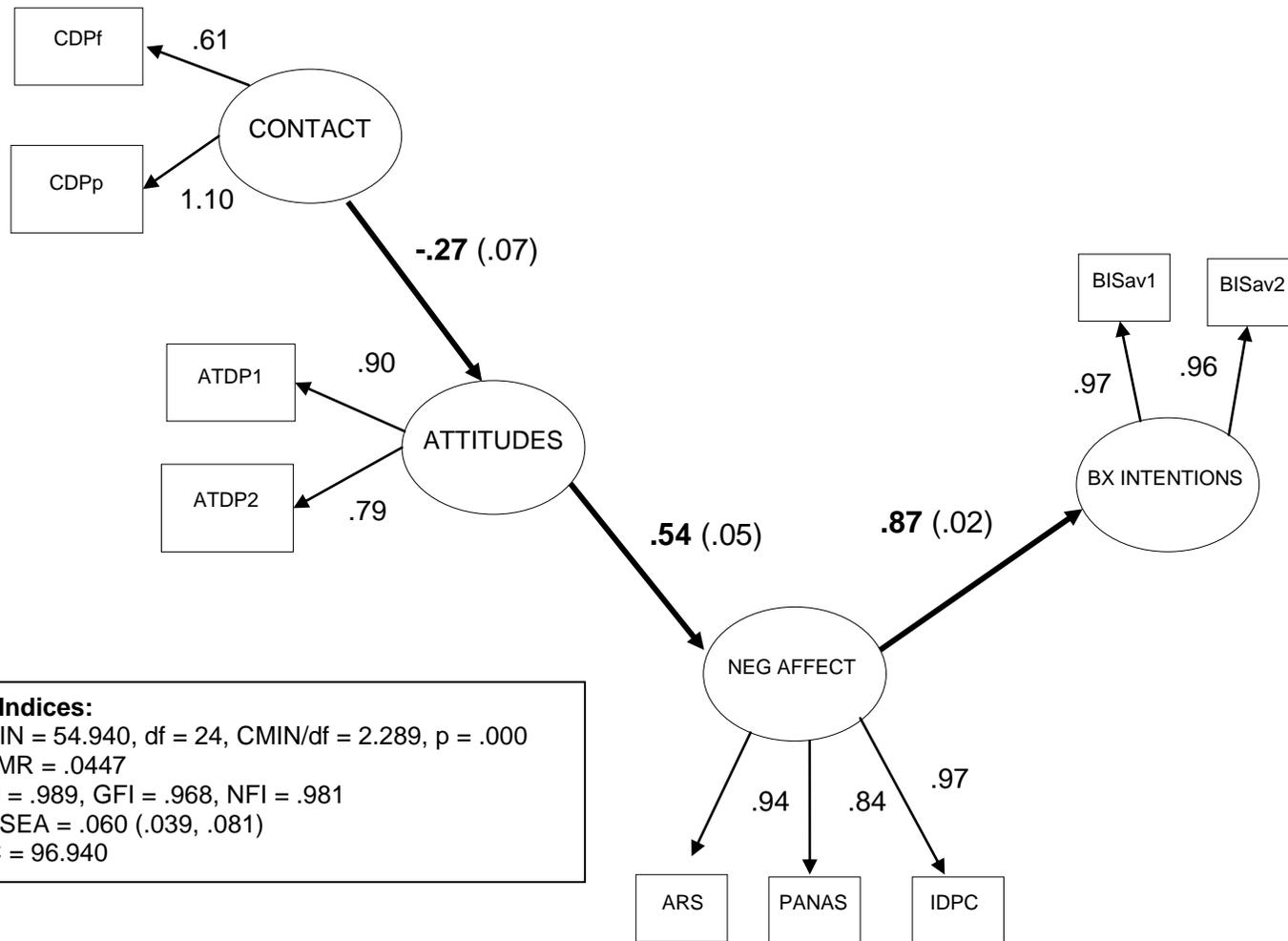


Figure A5. Structural model 1



Fit Indices:
 CMIN = 54.940, df = 24, CMIN/df = 2.289, p = .000
 SRMR = .0447
 CFI = .989, GFI = .968, NFI = .981
 RMSEA = .060 (.039, .081)
 AIC = 96.940

Figure A6. Structural model 2

Appendix B

Focus Group Materials

Focus Group Recruitment Flyer

How does your disability status impact interactions with able-bodied peers on campus?

Research Participants Needed for Focus Group

Tiffany McCaughey, a graduate student at the University of Illinois at Urbana-Champaign, is working on a dissertation project on the factors that impact able-bodied students' reactions toward peers with mobility impairments.

McCaughey will conduct **focus groups** to collect data from students 18 or older who use wheelchairs for mobility, to better understand typical situations that occur on campus between students with and without disabilities during early friendship interactions. Contributions from the focus groups will enrich vignettes that will be used to collect data from able-bodied students, which may help identify interventions to promote healthier interpersonal functioning.

Focus groups will last about 90 minutes and information given will be kept strictly confidential. Participants will receive \$10 for their time. These focus groups will be scheduled in March on campus. Date/time and location will be decided once potential participants are identified so that individual schedules may be considered.

If you are interested in participating in this focus group or would like additional information, please directly contact Tiffany McCaughey at tjenkin@uiuc.edu or call (217) 493-7699 **by Friday, February 16th**. This research is sponsored by Dr. James Hannum, Department of Educational Psychology – Counseling Psychology Division.

Focus Group Procedure

Introductions of Facilitator and Process Observer (explanation of roles)

Informed Consent [*distribute IC form*]

Ground rules and expectations

- Respect each other in your language (especially if you disagree on a point)
- One person speaks at a time
- Responsibility to protect the privacy of others in the group. Keep matters discussed strictly confidential.

Icebreaker: Participant introductions - Tell us about yourself (what your studying on campus, nature of your disability, something unique you'd like us to know)

Question 1: Invitation to share experiences of positive early interactions with an able-bodied student on campus that may have developed into a friendship or close relationship.

Question 2: Invitation to share experiences of any uncomfortable or awkward early interactions with an able-bodied peer on campus.

[*distribute vignettes*]

Vignette Evaluation

Vignettes used in research that are rather rudimentary in nature. Try to capture common situations that might occur on college campuses between an able-bodied student and a peer who uses a wheelchair. They are written for an able-bodied student perspective. I want to know if they come across as reasonable and ecologically valid to you.

Please consider...How realistic is this scenario? How might this vignette be adapted to make it more naturalistic?

We will consider each separately. I'll read them aloud. Feel free to write notes as you read and think about each.

Final Discussion:

A central thesis in my research is that some able-bodied students experience discomfort during early interactions with peers who use wheelchairs and they often do not know how to cope with that discomfort. Some may even behavior in avoidant ways to reduce discomfort. This may be something you have observed.

In your opinion, what might make a difference during these interactions that would help reduce discomfort in a functional way? What would help improve the contact and make forming a friendship possible?

What aspect(s) of living with a disability that you wish able-bodied students better understood?

[distribute envelopes]

Thanks and Debrief

We sincerely thank you for participating in this focus group and value your contributions, which truly enrich this research project.

We understand that some of the personal experiences discussed during this focus group may have caused discomfort for you or elicited other negative emotions. If you are interested in speaking further with a professional about these issues, we encourage you to contact the Counseling Center at (217) 333-3704.

If you have additional questions or would like information in the future about the outcomes of this ongoing study, please feel free to contact me or my research advisor (contact information on consent form).

Focus Group Consent Form

**UNIVERSITY OF ILLINOIS AT URBANA CHAMPAIGN
INFORMED CONSENT TO PARTICIPATE IN A RESEARCH PROJECT**

TITLE OF PROJECT: Factors that Impact Able-Bodied Students' Reactions Toward Peers With Mobility Impairments

CONTACT NAME AND PHONE NUMBER FOR QUESTIONS/PROBLEMS:

Tiffany McCaughey, M.H.S

Primary Researcher

Ph# 217-244-3360

Email tjenkin@uiuc.edu

James Hannum, Ph.D.

Principal Investigator

Ph# 217-244-0574

Email jwhannum@uiuc.edu

PURPOSE OF THE RESEARCH: A focus group will be conducted with students who use wheelchairs for mobility to identify typical interactions between students with and without disabilities. This information will shape vignettes that will be used to gather information about the thoughts, feelings, and behaviors of able-bodied students during interactions with peers with mobility impairments in early friendship situations. In the long run, we hope that information gathered in this study will help identify interventions that will promote healthy interpersonal functioning and reduce social barriers for persons with diverse abilities.

PROCEDURES/METHODS TO BE USED: Focus group interviews will be conducted to talk with students who use wheelchairs about their experiences interacting with able-bodied peers on campus. The meeting should last approximately 90 minutes. You will be asked to fill out a confidential sociodemographic questionnaire. In addition, the facilitator will ask you, along with other participants, to answer a series of questions on the topic and may take written notes on some of the responses. The focus group will be audiotaped to ensure that none of the information given by you or another participant is lost. However, only your first name will be used in the focus group, and your name will not be included on any written materials. The tape recordings will be destroyed when the study is completed, and the notes and transcriptions will be kept for 5 years. To compensate you for your time and participation, you will receive one payment of \$10.00. Payment will not be affected by your comments during the focus group; deciding not to answer a question or to stop participation will not decrease your payment.

RISKS INHERENT IN THE PROCEDURES: There are risks associated with focus group discussions. Other group members will be able to hear your comments and in that way your comments cannot be guaranteed to be confidential. Some of the questions are of a personal nature and may make you feel uncomfortable. You have the right to refuse to answer a question or to discontinue participation at any time without any penalty or loss of benefits to which you are otherwise entitled. In addition, at the end of the focus group, a debriefing document will include information about campus and community counseling services should you wish to talk to someone about any uncomfortable feelings you might have had. Discontinuing participation or choosing not to answer a question will have no impact on any aspect of your future relations with the University of Illinois or any other organization through which you were contacted. Although

it is not possible to identify all potential risks in research procedures, the researchers have taken reasonable safeguards to minimize any known risks.

BENEFITS: The possible benefits inherent in this study include an improved understanding of the complex interpersonal process occurring between individuals with and without disabilities in early friendship settings. It is presumed that early interactions set the stage for further relationship development, including increased closeness and opportunities for meaningful friendships and/or romantic relationships. Based on information learned in this study, appropriate interventions may be identified that target able-bodied persons' cognitive and emotional reactions to disability, and help promote healthier interpersonal functioning. A possible benefit of this study to you as a participant may be to provide an opportunity to share your perspective about this interpersonal process, thereby giving voice to a social issue that can have important implications for both persons with and without disabilities.

CONFIDENTIALITY: Your contact information will be linked to the demographic questionnaire, but will not be linked to the verbal responses you give during the focus group discussion. For the focus group discussions, you will be assigned a number that will not be linked to your demographic questionnaire. Only your first name will be used during the focus group discussion and once the study is finished, the tapes will be destroyed. Your first name will not be used on the transcription; instead, your responses will be tracked by your number. The interviewer will not use your name when discussing or reporting the study findings. We ask that you keep information discussed in the focus group confidential; however, we cannot guarantee that other group members will abide by this request.

The results of this study will be disseminated primarily as a dissertation. In the future, data might be published in the form of a journal article and/or conference presentation.

CONTACT INFORMATION: If at any time you have a question about your participation in this study, you may ask the facilitator during the focus group or you may contact the principal investigator, Dr. James Hannum, at (217) 244-0574. Also, feel free to contact the University of Illinois' Institutional Review Board Office at (217) 333-2670 (irb@uiuc.edu) for more information about the rights of participants in this research.

PARTICIPATION: Your participation in this research is strictly voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled. You are free to decline to respond to any particular questions that make you feel uncomfortable.

Your signature acknowledges that you are at least 18 years old, have read the information stated, and that you voluntarily agree to take part in this project. Your signature also acknowledges that you have been offered, on the date signed, a copy of this document containing two pages.

Your Printed Name

Signature

Date

I consent to audiotaping for the purpose of transcription only. _____(Initial)

Original Vignettes (before focus group input)

Vignette 1: Imagine that you are sitting with some friends in the cafeteria. A student in a wheelchair whom you don't know well comes and joins the group. You are introduced to him/her and shortly thereafter everyone else has to leave for class. You have 15 minutes before class and are left sitting with this new person.

Vignette 2: Imagine you meet student who uses a wheelchair during a meeting for a student organization on campus. She/he asks you where the library is located. You were planning to go to the library after this meeting and you could easily walk across campus with him/her.

Vignette 3: Imagine that you are seated on a campus bus going to school. At a bus stop, the ramp is extended so that a student who uses a wheelchair can get on. This student recognizes you from a class and says hello to you. She/he wheels up near where you are sitting.

Vignette 4: Imagine you arrive to a class and only one seat is still available in the room. A student pushes his/her wheelchair back a little so that you can take the seat next to him/her. There are a few minutes before class begins and other students around you are chatting with each other.

Final Vignettes

Vignette #1: Group Work

Imagine you are in class and the instructor assigns a project requiring you to work closely with another student over the next few weeks. You notice a classmate who uses a wheelchair glancing around him/her, which indicates to you that he/she does not yet have a partner. You do not know this student well but have observed her/him to be reliable and friendly. After class, you have a chance to talk with this student about the possibility of working together.

Vignette #2: Student Organization

Imagine you have been participating in a student organization on campus with other students who share your interests. After one afternoon meeting, you hold the door on the way out for a student in a wheelchair with whom you have interacted a few times before. He/she thanks you and mentions he/she is heading back to the dorm. You live in the same dorm and were planning to go there after the meeting as well. You could easily walk across campus with him/her.

Vignette #3: Bus Stop

Imagine you arrive at a bus stop on campus and notice a student in a wheelchair waiting near you. He/she says hello and you recognize him/her from a class earlier that day where you both sit in the back row. He/she remarks generally that the class you share is particularly difficult. You agree and think to yourself that it would be helpful to know someone better in class with whom to review homework problems. You have several minutes to wait before the bus will arrive.

Vignette #4: Classroom

Imagine you have attended class for about two weeks and notice that a classmate who uses a wheelchair tends to sit next to you. You have spoken during small group discussions before and he/she seems to be an interesting person. During the ten minutes before lecture begins, many other students around you have begun to chat with each other. You have an opportunity to do the same with this classmate.

Appendix C

Online Survey Materials

Recruitment Flyer for Online Study

Research Participation Opportunity

We are inviting individuals to participate in a research study that will examine the typical thoughts and feelings of college students during casual social interactions.

Participation in this study is completely voluntary and anonymous. If you choose to participate, access and complete the online research survey using the following Web address:

<http://www.surveymonkey.com/s.asp?u=290982300448>

Participants will receive 1 hour of research participation credit for completing the online survey. The online survey must be completed in one sitting and will take approximately 30-50 minutes. **Upon completion, a Verification of Participation Certificate will be provided and participants MUST print this form and submit it to their course instructor for research credit.**

Please address any questions to the researchers:

Tiffany McCaughey, MHS
tljenkin@uiuc.edu

James Hannum, PhD
jwhannum@uiuc.edu

University of Illinois at Urbana-Champaign
Department of Educational Psychology
226 Education Building Ph #244-3360

Online Study Consent Form

Informed Consent and Permission Form

Names and Phone Numbers of Investigators

This study is being conducted by Tiffany McCaughey and Dr. James Hannum from the Department of Educational Psychology, University of Illinois at Urbana-Champaign. Dr. Hannum is a faculty member in Educational Psychology and Tiffany McCaughey is a doctoral student in the department. If you have questions about the survey or this consent form, please direct contact the investigators by e-mail or phone:

Tiffany McCaughey, M.H.S
Ph# 217-244-3360
Email tjenkin@uiuc.edu

Jim Hannum, Ph.D.
Ph# 217-244-0574
Email jwhannum@uiuc.edu

Description of Study

This questionnaire explores how people think, feel, and behave in social interactions. You will read a vignette involving two individuals interacting socially and asked to report thoughts and feelings about that situation. You will then be asked to respond to questions that explore your experiences in social relationships in general.

Your Rights as a Participant

The purpose of this form is to remind you that your participation is voluntary and you are free to refuse to participate. There will be no negative consequences if you decide not to participate. Some individuals might relate directly to characters in vignettes and experience minimal discomfort. No serious risks are foreseen. The answers you give will be kept completely anonymous. Data will be kept on a password-protected computer in the Educational Psychology department.

Results from this study may be presented at a conference or published in a professional journal, but you will not be identified as an individual. Instead, results will be reported as a group average. You will receive 1 hour research credit after completing this questionnaire. If you have further questions about your rights as a research participant, you can contact Anne S. Robertson at the Office of School-University Research Relations at 333-3023 or arobrtsn@uiuc.edu.

I have read the above information and understand the nature of this research study. I understand that additional questions regarding this study should be directed to the above listed investigators. I agree with the terms above and acknowledge that I should print a copy of this consent form for my records.

Check here if you have read this informed consent form and would like to take this survey.

Check here if you have decided not to participate in the study. This action will allow you to exit the online survey.

Online Survey Items

Context-Specific Survey Items (participants respond with regard to each vignette)

Cognitive Self-Appraisal (from College Interaction Self-Statement Test)

Response Scale → 1 = *strongly disagree* to 6 = *strongly agree*

1. I'd better be careful how I say things.
2. I don't want him/her to get the wrong idea.
3. I wonder how he/she will react to what I say.
4. I don't want him/her to think I'm rude.
5. I feel uncomfortable.
6. I don't want to offend him/her.
7. How can I say things so he/she won't take it the wrong way?
8. I hope I don't hurt his/her feelings.
9. I don't know what to say to him/her.
10. Will he/she think I feel sorry for him/her?

Cognitive Self-Appraisal (from Cognitive Appraisal Scale)

Response Scale → 1 = *strongly disagree* to 6 = *strongly agree*

11. I worry that I will say or do the wrong things.
12. I worry about the kind of impression I will make.
13. I am worried that others will find fault with me.
14. Sometimes I think that I am too concerned with others think of me.
15. I feel that difficulties are piling up and I cannot overcome them.
16. I lack self-confidence.
17. I worry what other people will think of me even when I know that it doesn't make any difference.
18. I am concerned that others will not approve of me.
19. I worry about what other people may be thinking about me.
20. I feel like a failure.

Affective Response (Affective Response Scale)

Response Scale → 1 = *strongly disagree* to 6 = *strongly agree*

21. I would feel embarrassed.
22. I would feel uncomfortable.
23. I would feel pity.
24. I would feel fearful.
25. I would feel concerned.
26. I would feel surprised.

Affective Response (from Positive and Negative Affect Schedule)

Response Scale → 1 = *very slightly or not at all*, 2 = *a little*, 3 = *moderately*, 4 = *quite a bit*, 5 = *extremely*

27. To what extent would you feel afraid?
28. To what extent would you feel scared?
29. To what extent would you feel nervous?

30. To what extent would you feel jittery?
31. To what extent would you feel irritable?
32. To what extent would you feel hostile?
33. To what extent would you feel guilty?
34. To what extent would you feel ashamed?
35. To what extent would you feel upset?
36. To what extent would you feel distressed?

Affective Response (Interactions with Disabled Persons scale – Context-Specific)

Response Scale → 1 = *I disagree very much*, 6 = *I agree very much*

37. I feel uncomfortable and find it hard to relax.
38. I feel unsure because I don't know how to behave.
39. I feel uncomfortable knowing that I am able to do things this person cannot.
40. I am afraid to look at the person straight in the face.
41. I tend to make contacts only brief and finish them as quickly as possible.

Behavioral Intentions (Behavioral Intentions Scale)

Response Scale → 1 = *very unlikely*, 6 = *very likely*

42. Be open about my thoughts and feelings.
43. Try to get to know this person.
44. Ask this person about themselves.
45. Share information about myself.
46. Discuss my thoughts with this person.
47. Begin a conversation.
48. Be overly warm and affectionate towards this person.
49. Pay more attention to this person than usual.
50. Do special things for this person.
51. Spend more time with this person than usual.
52. Act rude toward this person.
53. Make hurtful comments toward this person.
54. Say unkind things to this person.
55. Be polite but not try to get to know this person.
56. Withdraw from a relationship with this person.
57. Leave interaction as soon as possible.
58. Hide my feelings from this person.
59. Avoid starting a conversation.
60. Get quiet and do not say much to this person.
61. Deny my feelings if confronted by this person.
62. Ignore this person.
63. Avoid future interactions with this person.
64. Excuse self and walk away.
65. Do not intentionally talk to this person.
66. Distance self from this person.

**Context-specific items are re-administered for each of the four vignettes and thus account for items 1 through 264*

Global Survey Items (participants respond with regard to their experiences, beliefs, and emotions in general)

Prior Contact (Contact with Disabled Persons scale)

Response Scale → 1 = *never*, 2 = *once or twice*, 3 = *a few times*, 4 = *often*,
5 = *very often*

265. How often have persons with disabilities tried to help you with your problems?
266. How often have you discussed your life or problems with a person with a disability?
267. How often has a friend with a disability visited you in your home?
268. How often have persons with disabilities discussed their lives or problems with you?
269. How often have you contributed money to organizations that help persons with disabilities?
270. How often have you had a long talk with a person with a disability?
271. How often have you eaten a meal with a person with a disability?
272. How often have you visited persons with disabilities in their homes?
273. How often have you worked with a co-worker with a disability?
274. How often have you met a person with a disability that you admire?
275. How often have you met a person with a disability you like?
276. How often have you had pleasant experiences interacting with a person with a disability?
277. How often have you been pleased by the behavior of a person with a disability?
278. How often have you been annoyed or disturbed by the behavior of a person with a disability?
279. How often have you had unpleasant experiences interacting with persons with disabilities?
280. How often have you met a person with a disability you dislike?

Disability Attitudes (Attitudes Toward Disabled Persons scale)

Response Scale → -3 = *I disagree very much*, -2 = *I disagree pretty much*,
-1 = *I disagree a little*, +1 = *I agree a little*, +2 = *I agree pretty much*,
+3 = *I agree very much*

281. Parents of children with disabilities should be less strict than other parents.
282. Persons with physical disabilities are just as intelligent as those without disabilities.
283. People with disabilities are usually easier to get along with than other people.
284. Most people with disabilities feel sorry for themselves.
285. People with disabilities are the same as everyone else.
286. There should not be special schools for children with disabilities.
287. It would be best for persons with disabilities to live and work in special communities.
288. It is up to government to take care of persons with disabilities.

289. Most people with disabilities worry a great deal.
290. People with disabilities should not be expected to meet the same standards as nondisabled people.
291. People with disabilities are as happy as nondisabled people.
292. People with severe disabilities are not harder to get along with than those with minor disabilities.
293. It is almost impossible for a disabled person to lead a normal life.
294. You should not expect too much from people with disabilities.
295. People with disabilities tend to keep to themselves much of the time.
296. People with disabilities are more easily upset than nondisabled people.
297. People with disabilities cannot have a normal social life.
298. Most people with disabilities feel that they are not as good as other people.
299. You have to be careful what you say when you are with people with disabilities.
300. People with disabilities are often grouchy.

Disability Attitudes (from Interactions with Disabled Persons scale - Global)

Response Scale → 1 = *I disagree very much*, 6 = *I agree very much*

301. I feel uncomfortable and find it hard to relax.
302. I feel unsure because I don't know how to behave.
303. I feel uncomfortable knowing that I am able to do things this person cannot.
304. I am afraid to look at the person straight in the face.
305. I tend to make contacts only brief and finish them as quickly as possible.

Emotional Regulation (ERQ)

Response Scale → 1 = *strongly disagree* to 6 = *strongly agree*

306. I control my emotions by changing the way I think about the situation I am in.
307. When I want to feel less negative emotion, I change the way I am thinking about the situation.
308. When I want to feel more positive emotion, I change the way I am thinking about the situation.
309. When I want to feel more positive emotion (such as joy or amusement), I change what I am thinking about.
310. When I want to feel less negative emotion (such as sadness or anger), I change what I am thinking about.
311. When I am faced with a stressful situation, I make myself think about it in a way that helps me stay calm.
312. I control my emotions by not expressing them.
313. When I am feeling negative emotions, I make sure not to express them.
314. I keep my emotions to myself.
315. When I am feeling positive emotions, I am careful not to express them.

Emotional Regulation (COPE Scales)

Response Scale → 1 = *usually don't do this at all*, 2 = *do this a little bit*,
3 = *do this a medium amount*, 4 = *do this a lot*

- 316. I look for something good in what is happening.
- 317. I try to see it in a different light, to make it seem more positive.
- 318. I learn something from the experience.
- 319. I try to grow as a person as a result of the experience.
- 320. I try to think about something else entirely,
- 321. I avoid thinking about the situation.
- 322. I wish the situation would just go away.
- 323. I distract myself with other things.

Demographic Questionnaire

Age _____

Sex: (select one) Female Male

Do you have a disability? (circle one) Yes No

If Yes, please describe disability _____

Race/Ethnicity: (select one or more)

- African American/Black
- Asian American
- Latino/a
- Native American
- Caucasian/White
- Other
- Biracial/Multiracial

Year in School (circle one): Fres Soph Jr Sr Grad/Prof

College Major _____

Indicate the extent to which you have received exposure to disability information from these sources:

Employment Inservice/Training				
Extensive	Moderate	Little	None	
Academic Course				
Extensive	Moderate	Little	None	
Volunteer Work				
Extensive	Moderate	Little	None	

If you HAVE had an academic course focused on disability issues, please indicate if you have taken any of the following UIUC courses. Check all that apply.

- SPED 117: Culture of Disability
- PSYC/SPED/REHB 322: Introduction to Mental Retardation
- SPED 205: Introduction to Special Needs
- REHB 206/207: Exploring Disability
- REHB/CHLH 330: Disability in American Society
- REHB 401: Introduction to Rehabilitation
- CHLH 245: Disability and Popular Culture
- Other (please specify)

If you have had a disability-focused academic course or training experience, please indicate the type of disability information to which you were exposed. Check all that apply.

- Types of disabilities
- Academic accommodations
- Vocational/job accommodations
- Medical issues
- Psychological and social issues
- Cultural and media portrayals of disability
- Other (please specify)

Do you have (or have you had) a spouse, partner, or significant other with a disability?

Yes No

If *Yes*, please indicate your significant other's type of disability: _____

Do you have an immediate family member with a disability (other than a spouse/partner)?

Yes No

If *Yes*, please indicate this family member's relationship to you and the type of disability.

	Relation	Type of Disability
Person 1:	_____	_____
Person 2:	_____	_____
Person 3:	_____	_____

Do you have a close friend with a disability?

Yes No

If *Yes*, please indicate your friend's type of disability.

	Type of Disability
Person 1:	_____
Person 2:	_____
Person 3:	_____

My responses to this survey were honest reflections of my thoughts, feelings, and experiences.
(circle one)

Strongly Disagree
1

Disagree
2

Agree
3

Strongly Agree
4