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Development of a Multidimensional Scale to Measure Attitudes Toward Workers With a Disability

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DEVELOPMENT OF A MULTIDIMENSIONAL SCALE TO MEASURE
ATTITUDES TOWARD WORKERS WITH A DISABILITY

A Thesis
Presented to
the Faculty of the Department of Psychology
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
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Master of Arts

By
John Kenneth Kegley
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DEVELOPMENT OF A MULTI-DIMENSIONAL SCALE TO MEASURE ATTITUDES TOWARD WORKERS WITH A DISABILITY

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DEVELOPMENT OF A MULTIDIMENSIONAL SCALE TO MEASURE
ATTITUDES TOWARD WORKERS WITH A DISABILITY

John K. Kegley            March 2004            85 pages

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Existing measures of attitudes toward individuals with a disability have
been shown to suffer from several shortcomings in their application in
organizational settings. Indirect measurement has been beyond the scope of most
organizations due to the complex and expensive implementation of these
methods. Direct measures have been shown to be susceptible to threats to internal
validity, such as reactivity and socially desirable responding. Further, existing
direct measures have focused on unidimensional aspects of attitudes toward
individuals with disabilities. Research, however, has demonstrated that attitudes
are multidimensional in nature. There is a need for a multidimensional scale to tap
those underlying factors. This study involves the development of a
multidimensional, paper and pencil measure of attitudes toward individuals with a
disability.
Introduction

Demographic changes within the United States over the past 50 years have drastically impacted and redefined the methods by which businesses recruit, select, develop, and promote employees. Various legal statutes (Title VII of the Civil Rights Act of 1964, Age Discrimination in Employment Act of 1967, Equal Pay Act of 1963, Americans with Disabilities Act of 1991) have provided certain protections to minority groups in attempts to promote fair selection and retention practices among the nation's employers. These legal initiatives have generated positive advancement in minority placement and promotion within the modern American workplace. However, one group of protected minorities has not experienced as profound a change in their employment status as have several other protected groups. According to the 2000 Census Bureau, there are currently 157 million individuals of working age (21 to 64) in the United States. Of these individuals, 22 million workers are classified as having a disability. The employment rate for workers with a disability is only 49%; whereas the employment rate for workers without a disability is 79%.

A 30 percentage point difference between non-disabled and disabled worker employment rates presents human resource practitioners and organizations with a pressing dilemma. Workers with a disability are a protected group under the Americans with Disabilities Act of 1991 (ADA), and the 2000 Census data clearly indicate that workers with a disability are not receiving the equal opportunities they are afforded by the ADA. The inability of more than half of the population of working age individuals with disabilities to secure employment creates many undesirable social outcomes. Personal financial instability, negative impact on self-esteem and mood of individuals
with disabilities, negative out-group stereotyping of workers with disabilities, and increased reliance upon government funded programs for survival are merely a few of the possible undesirable outcomes generated by such elevated rates of unemployment among individuals with a disability.

Discrimination is a key factor in the discrepancy between employment rates for non-disabled workers and workers with a disability. Thornburgh (1991) found that 51% of disabled men and 80% of disabled women were not able to find employment, despite their stated desire to do so. This finding indicates that workers with disabilities are not opting out of the workforce because of the nature of their disabilities, but are instead possibly facing discriminatory obstacles to securing employment. Negative attitudes of employers may be leading to discriminatory hiring practices that deny applicants with disabilities job opportunities.

The unwelcome discrimination against a protected minority group, such as individuals with a disability, is a pertinent issue for organizations to address. Costly law suits, irreparable damage to corporate image, and missed opportunities to hire competent and committed employees with disabilities are only a few of the negative outcomes for firms that result from discriminatory hiring practices. It is essential for organizations to take proactive steps toward reducing possible discrimination and prejudice against persons with disabilities in order to ensure that applicants with disabilities are fairly considered for any and all job openings within a company.

A viable method for predicting future employee behavior lies in the assessment of employee attitudes toward individuals with disabilities. Covert employee attitudes may result in future discriminatory behavior, which would almost certainly be
counterproductive to the goals of the organization. Awareness of employee attitudes is especially important for managerial staff; the restriction of employment offers extended to applicants with a disability has been attributed to negative attitudes toward individuals with a disability by managers making selection decisions (Bordieri & Drehmer, 1986).

Therefore, it is beneficial for employers to obtain some measure of employee attitudes in order to determine which employees may require training or other corrective measures such as counseling, transfer, or termination to address negative attitudes toward individuals with a disability. Attitudinal barriers to employment for individuals with a disability represent subtle, yet powerful cognitive structures that serve to restrict applicants with a disabilities equal opportunity for employment. Thus, it is imperative that organizations possess the means to effectively tap employees’ attitudes toward individuals with a disability in order to comply with the legislative statutes of the ADA.

Currently Available Scales for Measuring Attitudes toward Individuals with a Disability

There are two main types of attitudinal measurement methods currently in use in attitude assessment within research and organizational settings: direct and indirect methods of attitude assessment (Antonak & Livneh, 1988). The key distinction between direct attitude measurement and indirect attitude assessment is that respondents are either aware their attitudes are being evaluated, or are unaware that their attitudes on the construct of interest are being evaluated. Direct measures are typically paper and pencil tests that respondents are asked to complete. Items on direct measurement instruments deal mostly with the respondent’s perception or attitudes toward disability as a construct, or more specifically, with the respondent’s opinions regarding an individual with a specific type of disability (such as a blind person, an amputee, a drug addict, a burn
victim, etc.). Participants completing a direct measurement scale are either informed
directly that their attitudes toward individuals with a disability are being assessed, or the
respondents are able to easily deduce the aim of the measurement procedure due to the
content of the questions or scale items that they are being asked to answer. Direct
methods are the most common type of attitude assessment measures used in both research
and organizational settings (Antonak & Livneh, 2000).

There are several different types of direct measurement methods currently used by
researchers and employers that include the following: surveys, interviews, rankings,
checklists, and rating scales (Antonak & Livneh, 1988). Surveys query respondents about
their personal beliefs, attitudes, perceptions, and emotions toward a single individual with
a disability or multiple individuals with varying levels and types of disabilities. Surveys
are generally targeted toward a large population of respondents through mass mailings or
group administration in a social setting. Survey items are presented in either a structured
or unstructured format (Antonak & Livneh, 1988). Structured surveys require
respondents to select from a list of potential answers the one that best matches their own
sentiments regarding a referent with a disability. Unstructured surveys provide
respondents with the opportunity to generate their own answers to each item, and the
unstructured survey format encourages respondents to elaborate on their reasons for
giving their chosen answer by providing space for open-ended justifications of each
response (Antonak & Livneh, 2000).

Interviews provide an in-depth and exploratory method of attitudinal
measurements for respondents because of the high level of interaction between the
interviewer and the interviewee. Structured interviews involve prompting respondents
with a series of standardized questions that deal with the individual’s opinions regarding a referent with a disability. Based upon the participant’s responses, the interviewer can circumvent questions that are not pertinent to the respondent’s situation. Interviewers may then choose to focus on specific responses by asking follow-up questions to better explore the individual’s attitudes toward an individual with a disability. The proximity and accessibility of the respondent in the interview method provides a greater range of options in assessment of an individual’s attitudes. The opportunity to ask follow-up questions, and elicit real-time clarification of answers from respondents is one advantage of the interview method (Antonak & Livneh, 1988).

The ranking method involves respondents being presented with a hypothetical situation or set of disabilities, and then asked to rank order the responses in some manner as to represent a continuum of most desirable/acceptable to least desirable/acceptable. An individual’s responses are thought to be reflective of the individual’s attitudes regarding the specific disabilities or situations included in the item (Antonak & Livneh, 1988).

Q-methodology, a more sophisticated form of the ranking method, has also been introduced into research settings. The Q-method involves constructing up to 150 cards that each have a certain characteristic or adjective describing a referent with a disability, and then respondents are asked to sort all of the cards into separate piles. Each of the individual piles of cards are ascribed a criterion, such as desirability, acceptability, attractiveness, and unpleasantness. The grouping of the cards into criterion piles is believed to provide an insight into the respondent’s feelings and attitudes toward the referent with a disability. Individuals with negative attitudes are believed to be more likely to sort a greater number of cards into clusters with a negative association, while
respondents with a favorable attitude toward the referent with a disability will be more likely to place a greater number of cards into clusters with a positive association (Antonak & Livneh, 2000).

Checklists are also used to evaluate a respondent’s attitudes toward a referent with a disability. Sociometric scales are one such checklist method in which respondents are given real-world scenarios, such as who would you invite to a dinner party or which of your co-workers would you nominate for promotion. Respondents are then asked to determine which of their cohorts they would include or exclude from the given activity (Antonak & Livneh, 1988). Responses from such items are then examined at the group level to determine which factors most influence the acceptance of an individual with a disability into group activities. Adjective Checklists are another direct method to assess attitudes regarding an individual with a disability. Respondents are provided with a set of adjectives and asked to determine which 10 or 20 adjectives best describe a referent with a disability. The adjectives chosen by the respondent are believed to be representative of the individual’s attitudes toward the referent with the disability, with predominantly negative selections indicating less favorable respondent attitudes (Antonak & Livneh, 2000).

Paired-Comparison scales are also a checklist method of assessing attitudes toward individuals with disabilities that involve respondents selecting the characteristic of a disability or the type of disability they would find more acceptable or desirable. Each of the types of disabilities or characteristics of a disability is included in the scale, and all possible pairs are then evaluated by the respondent to identify the preferable or non-preferable selection in each pairing. Through paired-comparisons, experimenters are able
to form a hierarchy of preference for each type of disability or characteristic of each disability. Thus, paired comparisons are theorized to provide an insight into the respondent’s attitudes regarding each of the disabilities or characteristics of disabilities included on the scale (Antonak & Livneh, 1988).

Rating scales are the final type of direct method for measuring attitudes toward individuals with a disability, and they represent the most widely-incorporated method for measuring attitudes in both academic and business environments. The two most common response formats for rating scales are semantic differential scales and summated rating scales. Semantic differential scales present respondents with a construct, and participants are then asked to specify where their attitudes regarding the construct lie on a continuum between two bipolar adjectives (Crocker & Algina, 1986). Respondent attitudes can be inferred through the individual’s selections on a continuum separating the opposite adjectives. Individuals that rate the type of disability or referent with a disability as being associated with negative adjectives are theoretically more likely to possess greater negative attitudes toward the disability or individual with a disability.

Summated rating scales, often attributed to Likert (1932), require respondents to read a clearly positive or negative statement regarding the construct of interest and then rate whether they agree, disagree, or are neutral toward the statement. Likert-type items typically have five-to-seven possible responses that span the continuum of strongly agree to strongly disagree; responses are assigned a numerical value in order to score an individual’s responses (Crocker & Algina, 1986). Individual responses can be summed to provide an overall index of the respondent’s attitudes toward a referent, or subscales of items can be created to assign specific factor scores to the individual’s responses.
(Antonak & Livneh, 1988). Many of the most commonly used scales measuring attitudes toward individuals with disabilities in academic and organizational settings incorporate the summated rating scale format, such as the Attitudes Toward Disabled Persons Scale (ATDP; Yuker, Block, & Campbell, 1960), Scale of Attitudes Toward Disabled Persons (SADP; Antonak, 1981a, 1982), and Interaction with Disabled Persons Scale (IDP; Gething & Wheeler, 1992).

Internal Threats to Validity for Direct Measures of Attitudes

Regardless of the format chosen for direct measurement of attitudes, several threats to the internal validity of surveys, interviews, rankings, checklists, and rating scales exist (Antonak & Livneh, 2000). The fact that respondents are actively aware of the construct that is being assessed, namely a sensitive subject such as their attitudes toward individuals with a disability, may skew or bias their responses according to the items or materials contained within the measurement instrument. Through exposure to items or questions on the scale, respondents may consciously or subconsciously mold their attitudes to match or refute the material presented in the scale (Antonak & Livneh, 2000). Campbell and Stanley (1963) label this effect reactivity, in which the exposure of the respondent to material presented on a scale may sensitize the individual and negatively impact the interpretability of the results obtained.

Once individuals are aware that their attitudes are being assessed, their responses to items may be artificially influenced in order to manage the impression that test administrators may form about them as a result of answers they provide on the instrument. This awareness may produce unintended responses in test-takers and lead to other threats to the internal validity of the scale that serve to hinder the interpretability of
the yielded data. Antonak and Livneh (2000) have found several such bias effects in their research of respondents’ answers to direct measures of attitudes toward individuals with a disability such as: attempting to provide answers that reinforce a supposed hypothesis of the researcher; providing answers that conform with what a respondent believes to be socially acceptable and morally correct, even if the response does not match the individual’s true sentiments (social desirability effect); respondents may attempt to answer in such a way as to portray themselves as being intelligent, compassionate, and capable (faking good effect); or respondents may attempt to provide consistently false answers in hopes of derailing the study for subjective reasons (faking bad effect).

A separate threat to internal validity of direct measurement methods is the potential response style of the test-taker (Antonak & Livneh, 2000). Individuals who either unconsciously or purposefully choose to answer a majority of items around the median response (central tendency error), or routinely select the most favorable (leniency error) or most unfavorable (severity error) response, are likely to severely bias the future validity and interpretability of the data obtained from the scale. Response bias serves to artificially inflate or reduce obtained scores of respondents. Thus, direct measurement of attitudes toward individuals with disabilities may face several threats to internal validity. The potential for such threats to validity serves to diminish the value of the obtained results by precluding what the true source of an individual’s responses may have been and introduces confounding sources of bias into the obtained data.

Indirect Methods of Measuring Attitudes toward Individuals with Disabilities

The limitations imposed upon the validity and interpretability of direct measurement methods have led to the development and use of several indirect methods of
measurement that do not face the same internal validity threats as direct methods (Antonak & Livneh, 1988). Indirect methods of attitude measurement preclude the respondent from discerning the true nature of the study through various techniques. Respondents are sometimes observed through hidden cameras or monitoring devices and are thus completely unaware they are being assessed. Respondents may also be aware that they are being evaluated but are unable to ascertain what the true focus of the experiment may be. In some cases, respondents may be deliberately misled regarding the focus of the experiment in order to prevent sensitization to the construct of interest. Finally, respondents may be aware they are being observed and monitored but are not actively involved in any testing procedure. Respondents in this condition may simply be asked to reply to random questions while viewing a videotape that addresses the construct of concern. Physiological data may be recorded in order to determine how the participant reacts to the subject matter on an involuntary and biological level (Antonak & Livneh, 2000).

Indirect measures are free of many of the internal threats to validity that negatively impact direct methods of attitude measurement. However, indirect methods of measurement—such as projective techniques, behavioral observation, duping procedures, and physiological measurement—are often very costly and require elaborate design and implementation (Antonak & Livneh, 2000). Behavioral observation requires that participants be constantly monitored and recorded through expensive surveillance equipment that captures their behavioral responses without their knowledge. Projective techniques, such as the Rorschach inkblot test, require highly trained clinicians to score each participant's responses; this approach may result in high personnel and time costs.
for organizations that must contract an outside professional to administer and score each employee’s test. Duping procedures also require very intricate experimental designs and highly standardized administration procedures to ensure that respondents are prevented from uncovering the true construct of interest in the study. Finally, physiological measurement of respondents’ biological changes in response to stimuli linked to a referent with a disability involves costly equipment to assess physical responses measurements. Highly trained professionals are also needed to maintain the equipment and interpret the data obtained from participants (Antonak & Livneh, 2000).

Therefore, indirect measures are often not the most practical methods for assessing attitudes in a nonacademic setting in which human resource expenditures for test design and implementation may be restricted. Many small organizations have limited financial resources allotted for testing and training initiatives, which may serve to diminish the likelihood that management would approve the implementation of an indirect method for use within the company. Proposals that include lengthy timeframes for design and administration of the test procedure, as well as necessary funds for trained personnel to distribute and score individual’s responses, are not likely to be met with great acceptance by a management concerned with cost issues.

Thus, if organizations choose to use no form of attitude assessment due to cost constraints, the opportunity to identify employees with negative attitudes toward individuals with disabilities is severely restricted. Identifying employees with negative attitudes toward individuals with disabilities is a critical first step in taking action toward reducing discrimination. Individuals found to possess overly negative attitudes may be required to participate in training sessions or other corrective programs as a means of
improving attitudes and subsequently reducing discrimination towards individuals with disabilities.

Existing Instruments Available to Measure Attitudes toward Individuals with Disabilities

As previously mentioned, the most widely used attitude measurement scales currently employed in academic and organizational settings are the ATDP (Yuker et al., 1960) and the IDP (Gething, 1991). These scales are direct measurement methods that ask respondents their level of agreement or disagreement with statements that assess attitudes toward a disability or a referent with a disability. There has been considerable research regarding the reliability and validity of both of these scales; the strengths and shortcomings of each scale has been well documented in the literature. The current study will aim to incorporate the strengths of existing scales, while refining and minimizing certain drawbacks that have been documented in the research surrounding the ATDP and the IDP.

Attitudes Toward Disabled Persons Scale (ATDP)

The ATDP-Form O was first introduced in 1960 as a 20-item scale to measure global attitudes toward individuals with disabilities (Appendix A). Equivalent scales to the original ATDP-Form O were published in 1962; Form A and Form B of the ATDP contain 10 additional items and, much like ATDP-Form O, are theorized to measure global attitudes regarding individuals with disabilities (Antonak & Livneh, 1988). All three forms of the ATDP assess respondents' attitudes regarding differences they perceive between non-disabled individuals and individuals with a disability. Perceived opportunities that should be afforded individuals with disabilities are also assessed by the scale such as employment practices, educational accessibility, and social assimilation.
(Antonak & Livneh, 1988). All forms of the ATDP are believed to measure attitudes toward individuals with disabilities on a global level. Therefore, scores on the ATDP reflect one's unidimensional attitude toward individuals with disabilities as an entire group; no distinction is made on the scale to separate different attitudes toward specific types of disabilities or varying characteristics of different disabling conditions.

Possible responses on the ATDP are -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*), and +3 (*I agree very much*). With no possible midpoint response, individuals are unable to respond in a neutral manner to any items on the three forms of the ATDP. Items on the ATDP are phrased in either a positive and a negative manner; scoring the instrument entails reversing the sign values of all responses for positive items (-3 to +3, -2 to +2, -1 to +1), summing the numerical values of the responses for each item, and then adding a constant value to the sum in order to ensure there are no negative total scores (Antonak & Livneh, 1988). Scores may range from 0 to 120 on ATDP-Form O, or 0 to 180 on ATDP-Form A and ATDP-Form B, with higher scores indicating more favorable attitudes toward individuals with a disability. All three forms of the ATDP are estimated to require 10 minutes for respondents to fully complete the scale.

The ATDP has been shown to possess adequate reliability, with test-retest coefficients of .66 to .89, and internal consistency reliability coefficients of .75 to .85 for Form O, .73 to .89 for Form A, and .72 to .87 for Form B (Antonak & Livneh, 1988). The validity of the scale has not met with overly positive findings, however. Several researchers (Antonak & Livneh, 1988; Cannon & Szuhay, 1986; Yuker, 1986) have found the ATDP to be susceptible to both positive faking and socially desirable
responding. These findings limit the applicability of obtained scores as respondents have been shown to actively influence the findings associated with the scale. Yuker (1986) stated the ATDP is intended for research purposes only and is not recommended as a selection instrument. Therefore, the ATDP’s applicability to an organizational setting may be severely limited in terms of making training, counseling, or termination decisions based upon respondent’s scores on the scale.

A second issue that precludes the ATDP from widespread use in organizations is the fact that the instrument measures only a global set of attitudes toward individuals with a disability as a group (Antonak & Livneh, 1988; Gething & Wheeler, 1992). The ATDP does not differentiate between attitudes associated with the many different types of disabilities. Research has established that human beings inherently formulate different positive and negative attitudes about specific disability types and characteristics of different disabilities (Antonak & Livneh, 1988; Gething & Wheeler, 1992; Jones & Stone, 1995; Loo, 2001; MacLean & Gannon, 1995; Tait & Purdie, 2000; Thomas, 2000; Thomas, 2001; Thomas, Palmer, Coker-Juneau, & Williams, in press; Tringo, 1970).

The ATDP does not assess the multidimensional nature of respondents’ attitudes toward individuals with varying types and severity of disabilities, thereby this limits the utility of the scale’s use in organizations that may receive applicants with any number of various disabilities. ATDP scores for employees that make selection or promotion decisions would not provide evaluative information for respondent attitudes toward applicants with a disability that is not physically apparent or considered a traditional disability, such as a learning disorder or drug addiction. Therefore, the ATDP would
function more effectively as part of a battery of tests to assess attitudes toward individuals with a disability rather than a stand-alone measure of employees' attitudes.

**Interaction with Disabled Persons Scale (IDP)**

Lindsay Gething (1991) designed the IDP in order to address the shortcomings associated with the ATDP, such as factorial ambiguity of items, response bias, social desirability in responses, potential fakeability of respondents' scores, and a unidimensional measurement of attitudes toward disability in general. The IDP is a 20-item summated rating scale (see Appendix B) theorized to measure "discomfort in social interaction as a central factor underlying negative attitudes ... related to familiarity or level of prior close contact" with individuals with a disability (Gething & Wheeler, 1992, p. 76). Whereas the ATDP assesses a respondent's perceptions of difference between a non-disabled referent and a referent with a disability, the IDP measures the level of discomfort a respondent experiences after being introduced to a theoretical referent with a disability.

The IDP taps attitude structure on a more individualized level than does the ATDP, as it accounts for the level of interaction and experience a respondent may or may not possess in the subsequent formation of attitudes toward individuals with a disability. The ATDP differs from the IDP as it assesses respondents' attitudes toward referents with disabilities at a much broader societal level. Therefore, the IDP represents a more individualistic approach to measuring attitudes toward individuals with disabilities on a more personal level than the ATDP. The IDP queries respondents about their perceived discomfort in interacting with a referent with a disability. Questions on the ATDP ask respondents to rate the differences between nondisabled and disabled [sic] groups as a
whole (Antonak & Livneh, 1988; Thomas et al., in press). The IDP also purports to assess attitudes towards individuals with disabilities that are influenced by several different dimensions. Gething & Wheeler (1992) state that the IDP measures attitudes that derive from six distinct dimensions which are as follows: Discomfort in Social Interaction, Coping/Succumbing Framework, Perceived Level of Information, Vulnerability, Coping, Vulnerability-2, and Coping-2.

The multidimensional nature of the IDP represents an evolution for attitude measurement scales, as the ATDP measures only the unidimensional attitudes of respondents based on ratings of difference/similarity between the non-disabled population and the segment of the population with a disability. However, even though the theoretical background of the IDP is multidimensional in nature, respondents are counter-intuitively assigned total scores on the scale; this scoring method serves to mask the multidimensional nature of the respondents' attitudes (Thomas et al., in press). By providing only a total score, respondents' attitudes that are measured on a multidimensional basis by the IDP are amalgamated into a general attitude toward individuals with a disability. The ADA has greatly expanded the traditional perspectives on what is considered a disability. With the increased number of protected disability types, organizations require the means to assess workers' attitudes toward the various disabilities and characteristics with a multidimensional instrument that provides separate scoring schemes for each dimension measured by the scale. The failure of the IDP to provide such scores for each dimension illustrates the need for a paper and pencil measure that can provide employers with an accurate perception of how the employee
feels toward individuals with a disability across various types of disabilities, as well as the specific characteristics of each disability.

A second issue that would seem to hinder the application of the IDP in organizations is the factor structure of the scale. Much disagreement between researchers has surfaced regarding the actual factor structure of the instrument (Gething & Wheeler, 1992; Loo, 2001; MacLean & Gannon, 1995; Tait & Purdie, 2000; Thomas et al., in press). Gething (1994) stated that the IDP has six definitive factors that measure attitudes toward individuals with a disability. Loo (2001), MacLean and Gannon (1995), Tait and Purdie (2000), and Thomas et al. (in press) have each found different factor structures for the IDP scale in their exploratory factor-analytic studies. The ambiguity about the true number of factors inherent in the IDP scale should warrant caution by organizations seeking to incorporate the IDP into a test battery for assessing employee attitudes. Loo (2001) expressed a need for 8 items of the 20-item scale to be replaced or revised to better ensure factorial stability and improve the internal consistency reliability of the instrument (.67 to .68). Loo (2001) specifically cautioned that the IDP should not be used as a basis for making employee-related decisions of any type until the scale is revised and further validated by research.

The IDP has also been found to be susceptible to socially desirable responding by test takers. Loo (2001) and Thomas et al. (in press) found that total scale scores and factor scores have a significant relationship with respondent scores on the Marlowe-Crowne Social Desirability Scale (MCSD; Crowne & Marlowe, 1960). The MCSD measures individuals' ability to artificially influence test scores through positive faking of answers (Appendix C). The susceptibility of the IDP scale to be influenced by socially
desirable responding is a weakness that may serve to further preclude the use of the scale in organizational settings where workers may exchange information about the testing process and the items on the scale in particular. Respondents’ knowledge of the scale items may further exacerbate the negative impact socially desirable responding may have on the interpretability of the data yielded from the IDP.
The Present Study

For organizations searching for an alternative to indirect methods that may be exceedingly complex and expensive, direct methods of measurement may emerge as a viable means of evaluating employees' attitudes toward individuals with a disability. A paper and pencil measure of attitudes toward individuals with a disability may be much more feasible for a small organization to finance, administer, and score. Existing managerial personnel can be trained to effectively follow scale administration protocols and adhere to established standards when scoring an individual's responses on the scale. Managerial personnel are also more likely to be accustomed to administering and scoring paper and pencil measures for other aspects of organizational functioning, such as selection tests, performance appraisal forms, and safety certification. Therefore, a valid direct measure, free from previously described complaints, would provide organizations with a practical and affordable method for effectively assessing employees' attitudes toward individuals with a disability.

In the case of the current study, a paper and pencil direct measurement scale will be developed for administration in organizations for the purpose of assessing employee attitudes toward individuals with a disability. It is the aim of this study to build upon the research and theory regarding existing direct measurement scales in order to more effectively tap the multidimensional nature of disability as a construct. The current study will also strive to minimize the negative impact of the threats to internal validity that existing direct measures have traditionally suffered. Socially desirable responding will be accounted for by including the MCSD in developmental administrations of the target scale. Reactivity will be addressed by stressing to participants that their responses will
remain completely anonymous, and that no administrative decisions of any type will be made using obtained responses as a basis for change.

The Multidimensional Nature of the Current Study

As previously noted, the existing direct measures of employee attitudes toward individuals with a disability possess several methodological and content related shortcomings that limit their applicability to an organizational setting. There is a need for a multidimensional paper and pencil scale tailored for organizational use that adequately assesses employee attitudes toward individuals with a disability. The current study will attempt to address the psychometric drawbacks of existing scales, while assuming a multidimensional approach to measuring respondents’ attitudes. This study will incorporate the findings of previous research that have supported a multidimensional framework of attitude formation toward individuals with a disability (Bordieri & Drehmer, 1986; Gething, 1994; Jones & Stone, 1995; Thomas, 2001; Tringo, 1970). Established factors found to be significantly related to attitude formation toward individuals with disabilities will form the basis for the item generation stage of this study.

The developed scale will be constructed according to the three-factor structure of attitudes toward individuals with disabilities proposed by Thomas (2001). The three factors are Overtness, Response, and Risk. These factors were chosen for inclusion in the developed scale as they represent empirically derived dimensions from actual respondents’ concerns surrounding individuals with physical and mental disabilities, as well as communicable diseases. Work relationship of a referent with a disability to the respondent was also manipulated, as participants rated referents that were a superior, a subordinate, and a co-worker (Thomas, 2001). Therefore, the factors used in this study
are indicative of respondents' concerns associated with interacting with an individual with a disability across type of disability and work relationship conditions.

Thomas (2001) performed a content analysis (Q-sort methodology) using this framework for questioning respondents about their concerns regarding referents with various disabilities in different social situations. A set of 16 variables, believed to be representative of respondents' varying attitudes toward individuals with disabilities, were empirically derived via the results of participant and researcher Q-sorts of respondent concerns into highly consistent categorizing frameworks.

By incorporating a modified policy capture method that asked respondents to make decisions about referents with various disabilities, Thomas was able to link individuals' decisions (dependent variable) about referents with various disabilities using respondents' associations with 16 dimensions identified in attitude formation toward specific disabilities (independent variable). Decisions made by respondents, such as hiring decisions, promotability, willingness to work with, and trainability, were revealed by factor analysis to be influenced by three main dimensions (overtness, risk, and response) after a factor analysis was performed. Without the prestructuring effect of using an existing scale in Thomas' study, the three factors that emerged theoretically represent a robust and comprehensive framework for measuring respondent attitudes toward individuals with a disability that is not limited by theory or factor prestructuring.

Overtness is associated with the visible nature of the disability and how the clear presence of the disability may impact future interactions with co-workers and peers in the organization. The overtness factor is linked with the Social Discomfort factor that Gething et al. (1992) proposed was measured by the IDP. Risk, the second dimension
proposed by Thomas (2001), is thought to reflect the level of contagiousness and potential threat to the safety of others created by the disability of the referent. Individuals that perceive a referent’s disability to be highly contagious and risky are more likely to develop less favorable attitudes toward the referent with such a condition. The third factor Thomas (2001) proposed was labeled the Response factor. This dimension represents the manner in which respondents perceive the referent with a disability will interact with the work environment. Referents who are perceived as demanding or displaying a “sense of entitlement” for accommodations are perceived less favorably than referents with a disability who are patient and willing to work within the existing norms of the organization when requesting and receiving accommodations.

Hypotheses for Current Study

The current study will investigate the assertion that a multidimensional paper and pencil measure will better assess core attitudes toward individuals with a disability than currently existing unidimensional measures. As previously mentioned, widely available paper and pencil scales such as the ATDP and the IDP have been found to have several limitations in assessing attitudes toward the varied and multidimensional aspects associated with disabilities in the modern organizational climate. An explicit multidimensional scale based on existing attitude research and test development theory will facilitate a more reliable and valid measurement of attitudes toward individuals with a disability.

Reliability of measurement is essential for drawing valid conclusions from obtained data in order to determine the proportion of true variance to observed variance in respondent scores. Thus, adequate internal consistency estimates of reliability for each
subscale are predicted to meet or exceed acceptable limits for consistency (Cronbach alpha of .60 or greater).

Hypothesis 1: The factors derived herein will be found to have adequate reliability, and the total scale score will be found to have adequate reliability.

A second quality of a solid scale of measurement is that the factors derived from that scale are consistent with theory. Additionally, these factors should be related to each other in expected directions; that is, subscales that tap related constructs are expected to be positively correlated.

Hypothesis 2: The factors derived herein will have low to moderate correlations with each other and moderate to high correlations with the total scale score.

A third quality of a solid scale is that it should be highly correlated to other measures of the same construct in order to demonstrate convergent validity (Campbell & Stanley, 1963; Crocker & Algina, 1986). As previously mentioned, the most often used measures of attitudes toward individuals with a disability are the ATDP and the IDP.

Hypothesis 3: The scale and subscales developed herein will demonstrate high correlations with both the ATDP and the IDP.

However, there will be some variation in correlations between the subscales and the ATDP and the IDP. For example, a factor based on contagiousness might be expected to be more highly related to the ATDP than the IDP given the ATDP measures general affect. Alternatively, a factor based on overtness might be expected to be more highly related to the IDP than the ATDP given the IDP measures a very similar construct.

A fourth quality of a solid scale is the demonstration of discriminant validity of the instrument. Thus, scores on the developed instrument should not be related to
respondent scores on the Marlowe-Crowne Social Desirability scale, as socially desirable responses have been shown to be a significant threat to the internal validity of existing direct attitude measures.

Hypothesis 4: The scale and subscales developed herein will not demonstrate strong correlations with scores on the Marlowe-Crowne Social Desirability Scale.

Finally, scores on the instrument should be related to the gender of the participant, as females have been found in research to have overall more positive attitudes toward individuals with a disability (Antonak & Livneh, 1988; Harasymiw, Horne, & Lewis, 1978; Olkin & Howson, 1994).

Hypothesis 5: The scale and subscales developed herein will demonstrate moderate correlations with the gender of the respondent.
Method

Participants

A total of 297 undergraduate and graduate students enrolled at Western Kentucky University participated in the study. Most of the students were currently enrolled in the psychology or education program at the university. Volunteers were awarded extra-credit for their participation in this study and were treated in accordance with the “Ethical Principles of Psychologists and Code of Conduct” (APA, 1992a).

Design and Procedure

The present study was conducted in three phases. In the first phase, items for our new measure of attitudes toward individuals with disabilities were written and given to a small pilot sample of participants. The pilot study provided informative data on the effectiveness of the developed instrument. Item construction, word usage, item format, and respondent reactions to the instrument were evaluated using pilot sample data. Based on response data and participant reaction to the pilot scale, alterations and refinements were made to the instrument.

In the second phase, the alpha version of the test and the Marlowe-Crowne Social Desirability Scale was administered to 204 participants. Data from this administration of the test were used for item analysis through the use of factor analysis, item-factor correlations, empirical keying, and internal consistency analysis. Items found to highly correlate with MCSD scores were removed from the item pool in order to minimize the influence of socially desirable responding upon the developed scale. Additionally, items that failed to load onto a factor were deleted.
The third phase of the study commenced with the administration of the beta form (i.e., the final version) of the test as well as a battery of other measures including a demographic form, the ATDP, the IDP, and the Marlowe-Crowne Social Desirability Scale. In this third phase of data collection, convergent and discriminant validity evidence were gathered. A total of 93 students participated in this third phase. The convergent validity of the developed scale was assessed by examining the correlations between it and the ATDP and IDP. The discriminant validity as well as the susceptibility of the scale to socially desirable responding was investigated via correlations of developed scale with the Marlowe-Crowne Social Desirability Scale.

Measures

Participants were asked to complete a test battery that includes four individual scales and a demographic data form. The demographic data form included a short set of items that ask the respondent to record his or her race, gender, age, and level of education (Appendix D). Three items that are consistently included in attitudinal research toward individuals with a disability are also included in the demographic data form. These questions assess the level of experience, level of closeness, and the amount of one-to-one contact that respondents have had with individuals with a disability. The sensitive nature of the construct of interest in this study, attitudes toward individuals with disabilities, has lead to socially desirable responding in previous studies assessing the same construct (Antonak & Livneh, 1988; Cannon & Szuhay, 1986; Yuker, 1986). Therefore, respondents were not required to record any personally identifying information on the demographic data form. Anonymity of all respondents involved in this study was maintained through assignment of random identification numbers to each participant.
Respondents were encouraged to answer as truthfully as they possibly could to all items in the test battery and were informed that no answers provided for this study would be (nor could be) linked to the participants.

There were three instruments administered to participants that measure attitudes toward individuals with disabilities. The first instrument was a multidimensional paper and pencil measure that was constructed for the current study. The alpha version of the developed test is a 90-item summated rating scale that asked respondents to record their level of agreement or disagreement with statements regarding individuals with disabilities on a six-point continuum of "I agree very much" to "I disagree very much" (Appendix E). Total scores on the developed instrument are computed by summing the item responses. Roughly half the items are reverse scored so that a negative response on these items would then be scored as a positive response, and a positive response on these items would be scored as a negative response (see Appendix F for a complete list of all reverse scored alpha scale items). The range of all possible scores on the alpha test lies within the continuum of -270 to +270, with higher scores being associated with more positive attitudes toward individuals with disabilities.

The Beta version of the developed test consists of only those items that survived the item analysis. The only difference between the two versions of the test is test length. The same response format is present in the Beta test, with possible responses ranging from "I agree very much" to "I disagree very much" (Appendix G). As with the alpha version, higher scores denote more positive attitudes toward individuals with disabilities.
Attitudes toward Individuals with Disabilities

The second instrument administered was the ATDP Form-O (Yuker et al., 1960). The ATDP Form-O is a 20-item summated rating scale that asks respondents to indicate their level of agreement or disagreement with statements regarding individuals with a disability that range on a six-point continuum of “I disagree very much” to “I agree very much.” Total scores on the ATDP are calculated through summing of item responses, with nearly half of the 20 items being reverse scored. Scores can range from 0 to 120, with higher scores indicating more favorable attitudes toward individuals with disabilities. Test-retest reliability coefficients for ATDP Form-O range from .66 to .89, while internal consistency reliability for the ATDP Form-O has been found to range from .75 to .85 (Antonak & Livneh, 1988).

The third instrument administered in the current study was the IDP (Gething, 1991). The IDP is a 20-item scale that assesses level of discomfort respondents would feel after interacting with a referent with a disability; potential responses fall on a six-point continuum ranging from “I disagree very much” to “I agree very much.” In order to generate a total score for the IDP, items 10, 14, and 15 are reverse scored, and the remaining items (item 19 is not included in calculations as it has repeatedly been found to not load on the factors proposed by Gething) are summed. As the IDP measures respondents’ social discomfort towards a referent with a disability, higher scores indicate a less favorable attitude toward individuals with a disability. The IDP consistently has been found to be significantly negatively correlated with the ATDP.
Social Desirability

The final instrument included in the test battery, the MCSD, was used as a measure of socially desirable responding (or faking good) in participants' responses to all three included instruments. The Strahan and Gerbasi (1972) short-form of the MCSD was used in the current study. This modified version of the MCSD has been shown to be psychometrically valid, and according to Fischer and Fick (1993), the Strahan and Gerbasi modified scale may be more appropriate than the long-form of the MCSD; correlations between the subsuming MCSD scale and the short-form of the scale have been demonstrated to be above .80 (Strahan & Gerbasi, 1972). The short-form of the MCSD is a 10-item scale; half of the items are reverse scored, and total scores are summed according to participant response. The total score represents the number of items to which the participant responded in a socially desirable direction (Thomas, 2001).

Analyses

Item Tryout. The pilot sample review was performed as a means to ensure that test content was appropriate for a college undergraduate population. The questionnaire was administered to five subject matter experts (SMEs; in this case, Industrial/Organizational psychologists and graduate students) to determine if items of the developed scale were appropriately worded and test format is acceptable. SMEs evaluated the experience of actually completing the test and reported any items or responses that may be confusing to future participants. Pilot sample data were used to refine the test for subsequent administrations and to estimate completion time for the alpha materials.

Item Analyses. In order to determine which items were effective (Hypothesis 1), as well as which items were free from social desirability (Hypothesis 2), the alpha test of
the developed scale was administered to 204 participants and yielded data necessary for further scale revision. Item factor correlations were calculated using alpha sample data.

The first part of the item analysis consisted of the computation of correlation coefficients to determine the relationship between responses on test items and socially desirable responding assessed by the MCSD. Items that were found to significantly correlate with MCSD scale scores were removed from the scale. The remaining items were subjected to a factor analysis (common factor model) and an internal consistency analysis in order to determine which items corresponded to which factor. Items that failed to load onto a factor were deleted. The factor analysis used principal axis factor extraction followed by an oblique (Harris-Kaiser) rotation.

*Construct Validation.* The final administration of the scale, consisting only of the items that survived the item analyses, was done in order to gather data to determine the convergent and discriminant validity of the scale. The correlations between respondents’ scores on the developed scale and the ATDP scale and the IDP scale established the convergent validity of the constructs measured by the developed scale with the constructs measured by the ATDP and the IDP (Hypothesis 3). Scores on the beta test were correlated with scores on the MCSD scale in order to establish the discriminant validity of the instrument (Hypothesis 4). Socially desirable responding is a construct not relevant to the construct of interest for this study (attitudes toward individuals with disabilities); as such, scores on the developed scale should not strongly correlate with MCSD scores.

Previous research (Antonak & Livneh, 1988; Harasymiw, Horne, & Lewis, 1978; Olkin & Howson, 1994) has shown that gender has been found to demonstrate a strong relationship with attitudes toward individuals with disabilities. Correlation coefficients
were computed to assess the relationship between gender and scores on the developed scale as a means of addressing Hypothesis 5.
Results

Item Analysis

The alpha version of the 90-item scale was administered to 204 participants. The alpha sample was comprised of 72 males (35.3% of sample) and 132 females (64.7% of sample). The racial composition of the sample consisted of 174 Caucasian participants (85.3% of sample), 13 African American participants (6.4% of sample), 4 Hispanic/Latino participants (2% of sample), 5 Asian participants (2.5% of sample), 5 Other designation (2.5% of sample), and 3 participants who did not specify their race (1.5% of sample). All participants in this study were college level students; the academic classification of alpha sample participants is as follows: Freshman (n = 102, 50% of sample), Sophomore (n = 51, 25% of sample), Junior (n = 14, 6.9% of sample), Senior (n = 25, 12.3% of sample), Graduate Student (n = 11, 5.4% of sample), and No Designation (n = 1, .5% of sample).

A central criterion of item selection was the relationship between item responses and respondent scores on the MCSD. Susceptibility to socially desirable responding has been a major shortcoming raised by critics of existing scales that assess attitudes toward individuals with disabilities. Thus, items that demonstrated a significant correlation with MCSD scores were removed from the item pool in order to reduce the potential for social desirability to exert a substantial influence upon participant responses on the beta version of the test form. A total of 29 items, located in Appendix H, were removed from the final version of the developed instrument because of their significant correlation with MCSD scores.
Once these items were removed, an exploratory factor analysis (common factor model with principal axis extraction) was performed to determine the factor structure of the alpha test form. Interpretation of the resulting scree test indicated that a four-factor model was the most appropriate interpretation of the obtained data. Inspection of the rotated factor loadings (Harris-Kaiser rotation, HK power = .5) resulted in the deletion of three items (see Appendix H) that had loadings less than the .20 level on all factors. The four resulting factors were labeled as follows: *Accommodation/Performance* (Factor 1), *Nature of Disability* (Factor 2), *Response to Environment* (Factor 3), and *Medical Condition* (Factor 4). Items that loaded on multiple factors were assigned to the factor in which the particular item demonstrated the strongest relationship.

Further analyses included internal consistency analyses executed separately by factor. Of the items that survived the initial factor analysis only Item 58 ("It is sometimes hard to know what to say around someone with an obvious disability") was eliminated from the final version of the scale as a result of its low item-total correlation. The 55 remaining items and their factor identities are listed in Appendix I.

Internal consistency reliability was estimated using Cronbach's coefficient alpha for both the total score of the test and the four subscale scores. Total score reliability across the 55 items was estimated at .90. Internal consistency reliability for Factor 1 (*Accommodation/Performance*, 16 items) scores is .84. Factor 2 (*Nature of Disability*, 12 items) was estimated at .79. Factor 3 (*Response to Environment*, 15 items) coefficient alpha was estimated to be .82. Finally, Factor 4 (*Medical Condition*, 12 items) coefficient alpha was estimated to be .70.
Correlation coefficients were computed to determine the interrelationship between factor subscales, as well as the relationship between factor scale scores and the total score of the final version of the test. All factors were significantly correlated with one another in a positive direction. All factors were also significantly correlated with the total scale score in a positive direction. Table 1 contains the factor and total score correlation coefficients.

The factor scale scores and the total score of the revised version of the alpha test form were also correlated with MCSD scores in order to ascertain the relationship between socially desirable responding and the 55-item scale. The total score of the 55-item scale did not demonstrate a significant relationship with MCSD scores ($r = .11, p > .05$). The factor scale scores failed to demonstrate a significant relationship with the MCSD as well. The correlation coefficients between the factor scale scores and MCSD scores are as follows ($p > .05$ for all): Factor 1 – MCSD ($r = .10$); Factor 2 – MCSD ($r = .11$); Factor 3 – MCSD ($r = .06$); Factor 4 – MCSD ($r = .09$).

As faking of responses has been raised as a potential problem with existing measures of attitudes toward individuals with disabilities, two sets of identical items were included in the alpha test in order to assess whether participants were merely answering randomly or not. Items 61 and 89 were identical, as were items 7 and 90. A correlation coefficient was computed to determine the relationship between each set of identical items. The correlation for the responses on items 61 and 89 was significant ($r = .56, p < .05$). The correlation for the responses on items 7 and 90 was also significant ($r = .47, p < .05$). The significant correlation between the two sets of identical items demonstrates that respondents were likely not answering items randomly, even though the magnitude of the
correlations was not as high as was expected for identical pairs of items. Items 89 and 90 were thus removed from the final 55 item version of the beta test form.

Table 1

*Intercorrelations between Factor Scale Scores and Total Scale Score for the Developed Instrument*

<table>
<thead>
<tr>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 2</td>
<td>.544</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 3</td>
<td>.466</td>
<td>.400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 4</td>
<td>.466</td>
<td>.338</td>
<td>.447</td>
<td></td>
</tr>
<tr>
<td>Total Score</td>
<td>.834</td>
<td>.752</td>
<td>.774</td>
<td>.681</td>
</tr>
</tbody>
</table>

*Note.* All correlations significant at the .01 level (2-tailed).

Since a goal of this study was to create a scale that could be easily and rapidly administered within organizations, a short-form version of the 55-item scale was developed. The short-form scale is comprised of 26 items that possessed the highest loadings on each of the four factors. The items for short-form factors 1 through 3 were selected using a .40 factor loading criterion. The items for short form factor 4 were selected if they exceeded .33 for their factor loading. The relaxation of the factor loading criterion to .33 from .40 for Factor 4 item inclusion was done to ensure there would be at least five items within the factor, as only two items demonstrated Factor 4 loadings of .40
or better. Appendix J contains all Short Form Factor items and the factor loadings for each item.

Correlation coefficients were computed to determine the relationship between long form factor scores, long form total scores, short form factor scores, and short form total scores. All short form factors significantly correlate with all long form factors. Table 2 contains the correlation coefficients computed for the inter-relation of short form factor scores and long form factor scores. The short form total score significantly correlated with the total score for the long form \((r = .95, p < .05)\).

The reliability coefficients for each short form subscale and total score were computed using a coefficient alpha analysis. Reliability for the entire 26-item short form version of the final scale is .83. The coefficient alpha for Short Form Factor 1 was estimated to be .75. The coefficient alpha for Short Form Factor 2 was estimated to be .74. The coefficient alpha for Short Form Factor 3 was estimated to be .78. Finally, the coefficient alpha for Short Form Factor 4 was estimated to be .56.

The sub-par reliabilities for the short form subscales limit the widespread administration of the abbreviated 26-item instrument in situations where a measure of a measure of multidimensional attitudes is required; such a setting may be an organization seeking a comprehensive multidimensional approach to assessing employee attitudes towards individuals with disabilities. However, in a setting where a relatively rapid overall test of general attitudes toward individuals with disabilities may be implemented, the short form total score would represent a suitable alternative measure to the long form of the developed scale.
Table 2

*Intercorrelations between Short Form Factor Scores and Long Form Factor Scores*

<table>
<thead>
<tr>
<th>Short Form Factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Form Factor 1</td>
<td>.913</td>
<td>.479</td>
<td>.379</td>
<td>.385</td>
</tr>
<tr>
<td>Long Form Factor 2</td>
<td>.442</td>
<td>.897</td>
<td>.321</td>
<td>.302</td>
</tr>
<tr>
<td>Long Form Factor 3</td>
<td>.394</td>
<td>.290</td>
<td>.932</td>
<td>.380</td>
</tr>
<tr>
<td>Long Form Factor 4</td>
<td>.374</td>
<td>.279</td>
<td>.369</td>
<td>.872</td>
</tr>
</tbody>
</table>

*Note.* All Correlations significant at the .01 level (2-tailed).

*Beta Test Results*

The final version of the 55-item scale was administered to 93 participants. Appendix K contains all 29 reverse scored items of the beta scale. The *beta* sample was comprised of 29 males (31.2% of sample), 61 females (65.6% of sample), and 3 participants (3.2% of sample) who failed to specify their gender on the demographic data form. The racial composition of the sample consisted of 81 Caucasian participants (87% of sample), 9 African American participants (9.7% of sample), 1 Other designation (1% of sample), and 2 participants who did not specify their race (2.2% of sample). All participants in this study were undergraduate college students; the academic classification of participants is as follows: Freshman (n = 24, 25.8% of sample), Sophomore (n = 10, 10.8% of sample), Junior (n = 28, 30.1% of sample), Senior (n = 30, 32.3% of sample), and No Designation (n = 1, 1.1% of sample).

Internal consistency reliability was estimated using Cronbach’s coefficient alpha for both the total score of the test and the four subscale scores. Total score reliability
across the 55 items was estimated at .91 for the beta sample. The coefficient alpha for the first long form factor (Accommodation/Performance, with the inclusion of 16 items) was estimated to be .82. The coefficient alpha for the second factor (Nature of Disability, with the inclusion of 12 items) was estimated to be .72. The coefficient alpha for the third factor (Response to Environment, with the inclusion of 15 items) was estimated to be .79. The coefficient alpha for the fourth factor (Medical Condition, with the inclusion of 12 items) was estimated to be .61. The Cronbach’s coefficient alpha for the 26-item short form of the scale was estimated to be .83.

Construct Validation

As a means of demonstrating the convergent validity of the developed scale, scores on the instrument were correlated with existing measures of the same construct (ATDP and IDP scales). Test scores were correlated with a measure of socially desirable responding (MCSD) to demonstrate the discriminant validity of the developed instrument. Social desirability is a construct that is not inherent in attitudes toward individuals with disabilities. Table 3 contains correlation coefficients that describe the relationship between total scale scores, long form subscale scores, scores on the ATDP, scores on the IDP, and scores on the MCSD. Table 4 contains the correlations between short form total scores, scores on the ATDP, scores on the IDP, and scores on the MCSD.

The long form of the developed scale demonstrated high convergent validity with both existing measures of attitudes toward individuals with disabilities; the long form significantly correlated with the ATDP ($r = .69, p < .05$) and the IDP ($r = -.38, p < .05$). The short form of the developed scale also demonstrated high convergent validity with significant correlations to the ATDP ($r = .70, p < .05$) and the IDP ($r = -.40, p < .05$). The
Table 3

*Intercorrelations between Total Scale Scores, Long Form Factor Scale Scores, ATDP, IDP, and MCSD*

<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATDP</td>
<td>.614**</td>
<td>.602**</td>
<td>.657**</td>
<td>.421**</td>
<td>.728**</td>
</tr>
<tr>
<td>IDP</td>
<td>-.323**</td>
<td>-.391**</td>
<td>-.275*</td>
<td>-.276**</td>
<td>-.384**</td>
</tr>
<tr>
<td>MCSD</td>
<td>.294**</td>
<td>.195</td>
<td>.182</td>
<td>.340**</td>
<td>.290**</td>
</tr>
</tbody>
</table>

*Note.* Correlations denoted with ** are significant at the .01 level (2-tailed). Correlations denoted with * are significant at the .05 level (2-tailed).

Table 4

*Intercorrelations between Short Form Total Scores, ATDP scores, IDP scores, and MCSD scores*

<table>
<thead>
<tr>
<th>Short Form Total</th>
<th>ATDP</th>
<th>IDP</th>
<th>MCSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATDP</td>
<td>.659**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDP</td>
<td>-.403**</td>
<td>-.354**</td>
<td></td>
</tr>
<tr>
<td>MCSD</td>
<td>.263*</td>
<td>.057</td>
<td>-.408**</td>
</tr>
</tbody>
</table>

*Note.* Correlations denoted with ** are significant at the .01 level (2-tailed). Correlations denoted with * are significant at the .05 level (2-tailed).
correlation between the developed scale and the IDP is negative in direction because lower scores signify more positive attitudes on the IDP, whereas higher scores on the developed scale denote more positive attitudes. Higher scores on the ATDP denote more favorable attitudes toward individuals with disabilities.

The long form of the developed scale was found to be susceptible to socially desirable responding by participants through a significant correlation between beta scale scores and MCSD scores ($r = .29, p < .05$). The beta version of the short form scale also demonstrated a significant relationship to MCSD scores ($r = .26, p < .05$). Thus, the long form test and short form test both failed to demonstrate strong discriminant validity with the MCSD.

The interrelationship of the three existing measures included in this study is as follows: the ATDP significantly correlated with the IDP ($r = -.37, p < .05$), the ATDP did not significantly correlate with the MCSD ($r = .09$), and the IDP significantly correlated with the MCSD ($r = -.41, p < .05$) and the ATDP ($r = -.37, p < .05$).

Intercorrelations between long form subscale scores, short form total scores, and total scale scores are listed in Table 5. The short form total score significantly correlated with the long form total score ($r = .95, p < .05$).

Correlation coefficients were computed to demonstrate the relationship between gender of participant and test scores, in order to address Hypothesis 5 of this study. Gender was not found to strongly correlate with the total scale score ($r = .06$), Factor 1 score ($r = .15$), Factor 2 score ($r = .07$), Factor 3 score ($r = .03$), Factor 4 ($r = -.00$), or total Short Form score ($r = .07$).
Table 2

Intercorrelations between Long Form Factor Scores, Short Form Total Scores, and Long Form Total Scores

<table>
<thead>
<tr>
<th></th>
<th>Long Form Factor 1</th>
<th>Long Form Factor 2</th>
<th>Long Form Factor 3</th>
<th>Long Form Factor 4</th>
<th>Long Form Total Score</th>
<th>Short Form Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Form Factor 1</td>
<td>1.00</td>
<td>0.703</td>
<td>0.696</td>
<td>0.385</td>
<td>0.890</td>
<td>0.859</td>
</tr>
<tr>
<td>Long Form Factor 2</td>
<td></td>
<td>1.00</td>
<td>0.549</td>
<td>0.307</td>
<td>0.799</td>
<td>0.782</td>
</tr>
<tr>
<td>Long Form Factor 3</td>
<td></td>
<td></td>
<td>1.00</td>
<td>0.570</td>
<td>0.879</td>
<td>0.844</td>
</tr>
<tr>
<td>Long Form Factor 4</td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
<td>0.662</td>
<td>0.567</td>
</tr>
</tbody>
</table>

Note. All Correlations significant at the .01 level (2-tailed).
Discussion

The availability of a direct measure of attitudes toward individuals with disabilities can provide organizations with a rapid, inexpensive, and effective method for assessing employee attitudes. Once potentially negative employee attitudes are identified, the organization can take steps to train or transfer employees in order to reduce the risk that future discrimination against individuals with disabilities will occur. Currently, the existing scales used for measuring attitudes toward individuals with disabilities have been shown to possess several psychometric and theoretical shortcomings. The investigator in the current study attempted to construct and validate a multidimensional measure of attitudes toward individuals with disabilities that could be administered in a work environment with minimal time and financial cost to employers. Overall, the findings of this study suggest that the developed instrument does indeed tap multidimensional aspects of human attitudes toward individuals with disabilities.

The basic psychometric component that all effective measurement scales must possess is adequate reliability in participant responses. The interpretability of a scale is directly related to the researchers’ ability to confidently assume that respondent answers to test items are being reliably measured; if test items evoke random responses from participants, there is obviously very little informative data that can be drawn from the results of that instrument. Thus, the first hypothesis of this study states that the total score and the factor scores derived from the developed instrument will be found to have adequate reliability. The reliability for the final 55-item version of the developed scale demonstrated a very strong Cronbach’s alpha internal reliability coefficient of .90. Three
of the four subscales of the developed instrument also demonstrated moderate to strong internal consistency reliability: Factor 1 (.82), Factor 2 (.72), Factor 3 (.79), and Factor 4 (.61). The total score of the short form version of the developed scale, a 26-item overall measure of attitudes toward individuals with disabilities, was also found to have adequate reliability (.83). Thus, all factor scores (long form) and total scores (long form and short form) demonstrated adequate reliability within the generally accepted range of .6 or greater (Aron & Aron, 2002), in support of Hypothesis 1 of this study.

As a main goal of this study was to develop a multidimensional measure of attitudes toward individuals with disabilities, it was essential to perform a factor analysis to determine whether the scale actually assesses underlying dimensions that contribute to individuals’ responses regarding attitudes toward individuals with disabilities. The derived factors of a scale should ideally provide additive insight into the nature of why respondents answer in a given way toward a dynamic construct as a whole. Thus, Hypothesis 2 of this study states that factors derived from the developed scale will have low to moderate correlations with each other and moderate to high correlations with the total scale score.

Four factors were derived from the alpha test data using a common factor model analysis with principal axis extraction. Factor 1 was labeled Accommodation/Performance, as the majority of the items that loaded on this factor dealt with attitudes toward individuals with disabilities’ capacity to perform work-related tasks, such as the degree to which individuals with disabilities should receive accommodations that assist them in their work performance. Factor 2 was labeled Nature of Disability; items that loaded heavily on this factor dealt mainly with respondent
attitudes regarding whether a theoretical referent’s disability was overt (physical) or covert (mental disability/contagious disease). Factor 3 was labeled Response to Environment, items associated with this factor dealt with attitudes regarding how an individual with a disability would behave in certain high stress and work-related situations. Factor 4 was labeled Medical Condition, due to a majority of items addressing how attitudes may differ depending upon medical status (severe, life-threatening disability or one that is easily managed through medication) of the theoretical referent with a disability.

The interrelatedness of the factors was demonstrated through the computation of correlation coefficients. The four factors were found to significantly correlate with each other (see Table 1 in the Analysis section for alpha test intercorrelations between long form factors; see Table 5 for beta test intercorrelations between long form factors). The four factors were also found to significantly correlate with the total scale score (see Table 1 and Table 5 for the intercorrelations between long form factors and total scale score for both test versions).

On a related note, the short form version of the developed scale also significantly correlated with the long form scale score, \( r = .95, p < .05 \). Hypothesis 2 was therefore supported through the strong interrelatedness of the four subscales, as well as the factors’ significant relationship with the total scale score. The factors derived from the developed scale are therefore related to each other, as they assess dimensions that jointly influence the overall construct of attitudes toward individuals with disabilities. Scale factors were also strongly related to the total score of the instrument, as each factor exerts a unique contribution to one’s general attitude toward individuals with disabilities.
The convergent validity of the developed scale (Hypothesis 3) was examined by computation of correlations between responses on the developed scale with those of established measurement instruments that assess the same construct (Crocker & Algina, 1986). Thus, Hypothesis 3 states that the developed total scale and factor subscales will demonstrate high correlations with the ATDP scale and the IDP scale.

The total score for the developed instrument was shown to significantly correlate in the expected direction with both the ATDP \( r = .69, p < .05 \) and the IDP \( r = -.38, p < .05 \). The total score of the short form was also found to significantly correlate with the ATDP \( r = .66, p < .05 \) and the IDP \( r = -.40, p < .05 \). The intercorrelations between factor scale scores and ATDP/IDP total scores can be found in Table 3; all correlations between factor scores and the ATDP and IDP are significant in the expected direction.

The strong correlations between the developed scale and the existing measures of attitudes toward individuals with disabilities are supportive of Hypothesis 3 of this study. Therefore, the developed scale does seem to be assessing the overall construct of attitudes toward individuals with disabilities, while also contributing unique measurement of dimensions that influence attitudes beyond those tapped by the ATDP and IDP. In particular, Factor 4 (Medical Condition), which deals with respondent attitudes toward a referent with a disability’s health status (whether potentially life-threatening or easily managed with medication), seems to be assessing a dimension of attitudes that is not represented within either the ATDP or the IDP. Factor 3 (Response to Environment) demonstrates the weakest relationship with the IDP \( r = -.27, p < .05 \), which may be due to the fact that the IDP does not assess attitudes regarding how a referent with a disability...
interacts with his/her environment, rather it assesses how the respondent would interact with the theoretical referent. Thus, the total score and the factor scale scores of the developed scale share a significant relationship with the ATDP and the IDP, while also assessing distinctive dimensions of attitudes toward individuals with disabilities that the other existing measures do not.

Evaluating the discriminant validity of a test is also necessary to assess the construct validity of the instrument. Discriminant validity coefficients are correlations that are computed between measures of different constructs that use the same method of measurement (Crocker & Algina, 1986). In the current study, the MCSD scale was administered to participants in order to address Hypothesis 4, which states that the scale and factor scales will not demonstrate strong correlations with scores on the MCSD. Thus, the construct of social desirability should be largely unrelated to the construct of attitudes toward individuals with disabilities (as measured by the developed instrument) in order to demonstrate the discriminant validity of the developed scale.

Hypothesis 4 was not supported by the findings in this study. The developed scale demonstrated significant correlations with the MCSD in the beta sample data. The total score, Factor 1 scores, and Factor 4 scores each exhibited positive and significant correlations with the MCSD (see Table 3 for all intercorrelations between the total score and subscales of the developed instrument with the MCSD). The short form of the developed scale also demonstrated a significant relationship with the MCSD ($r = .26, p < .05$). Thus, the discriminant validity of the developed instrument is not fully supported by current research findings.
The presence of a significant relationship between the MCSD and scores on the developed instrument presents somewhat of a conundrum, as alpha sample items that were found to significantly correlate with the MCSD were directly removed from the final version of the scale specifically to diminish the potential impact of socially desirable responding. Also, the analysis of the alpha data in regards to the relationship between the MCSD and scores on the 55-item scale failed to demonstrate a significant relationship. Regardless, the beta sample scale scores did exhibit a significant relationship with MCSD scores with a moderate correlation of .29. Thus, the susceptibility of the scale to socially desirable responding serves to hinder the overall validity and utility of the developed instrument, and Hypothesis 4 of this study can not be supported.

It should be noted, however, that the relationship between MCSD scores and test scores is substantially lower than the magnitude of the relationship between the developed test and existing measures of the same construct (convergent validity coefficients). The correlation between MCSD scores and the developed scale also fails to approach the strength of internal reliability coefficients of the instrument. Thus, although one cannot overlook the significant relationship between MCSD scores and developed test scores, the instrument’s construct validity is not entirely tarnished due to the much stronger relationship the scale demonstrates with existing measures of the same construct.

Hypothesis 5 states that the developed scale and subscales will demonstrate moderate correlations with the gender of the participant. This hypothesis was proposed in response to research that has shown females generally possess more favorable attitudes toward individuals with disabilities than do males (Antonak & Livneh, 1988; Harasymiw, Horne, & Lewis, 1978; Olkin & Howson, 1994). Correlation coefficients were computed
to determine the relationship between gender, total scale scores, and subscale scores. The results of the correlation analysis failed to support Hypothesis 5; gender was not found to strongly correlate with either the Long Form total score ($r = .06$), Factor 1 ($r = .15$), Factor 2 ($r = .07$), Factor 3 ($r = .03$), Factor 4 ($r = -.00$), or Short Form total score ($r = .07$).

The failure to support Hypothesis 5 suggests that the developed scale is not consistent with theory in one aspect of participant responding. However, it should be noted that gender failed to significantly correlate with ATDP scores ($r = .11$) or IDP scores ($r = .10$) in the beta sample. Thus, external variables not inherent in the developed instrument, such as sampling error or low sample size, may be the reason that Hypothesis 5 was not supported in this study. It may also be the case that the developed scale assesses constructs that do not share as strong a relationship with gender as those measured by currently existing scales. The gender of participants may therefore not exert as great an influence on the individual factors inherent in the developed instrument. This alternative focus of the developed scale compared to traditional attitude scales may explain why total scores (an overall measure of attitudes toward individuals with disabilities) are not significantly related with an individual’s gender, which has been the case in previous research associated with global measures of attitudes toward individuals with disabilities.

**Implications**

The results of this study suggest that the developed scale contributes to the measurement of key constructs inherent in attitudes toward individuals with disabilities. The developed scale appears to tap dimensions of attitudes that currently available direct
attitude measurement scales, such as the ATDP and IDP, do not address. Thus, the findings of the current study demonstrate that the developed scale is highly reliable, and exhibits high convergent validity with existing measures of attitudes toward individuals with disabilities.

The second goal of this study was the development of an effective multidimensional measure of attitudes toward individuals with disabilities that could be administered with little financial and time expense to work organizations. The scale requires very little time, roughly 25 minutes in both the alpha and beta research samples, for respondents to complete and does not require intensive instruction or supervision be given by test-administrators to test participants. Training for test-administrators in test protocols could be performed in a very short period of time as well. Test-administration and scoring could be performed within the organization, which would serve to lower the overall cost associated with use of the developed scale. Thus, research findings demonstrate that the developed scale, although not validated in a work-setting, could certainly serve as an inexpensive and effective measurement tool for assessing attitudes toward individuals with disabilities.

Nevertheless, there are key aspects of the developed scale, such as a significant relationship with MCSD scores and the validation study’s use of a small, somewhat homogenous sample, that require future research to fully determine the influence these variables have upon test scores in more diverse samples. However, the scale seems to assess unique dimensions of the construct of attitudes toward individuals with disabilities and may thusly provide further insight and understanding into how attitudes ultimately influence behavior toward individuals with disabilities in various settings.
Limitations

The limitations of the current study relate to the restricted sample of participants and to the relatedness of the scale to MCSD scores. The most critical limitation of this study was performing the validation study using a smaller than ideal sample. In test validation studies, where factor analysis is a planned analysis within the study, a general rule of thumb is that you should ideally enlist at least 10 subjects per test item. Therefore, in the alpha sample of this study, at least 900 participants would have been required to thoroughly satisfy psychometric standards.

Unfortunately, the researcher found it challenging to obtain even 300 participants for the two sample study (alpha and beta samples). Thus, the less than ideal sample size of the study is certainly a limitation in terms of the potential for polar relationships (either unnaturally high or low correlation coefficients) between constructs assessed by the developed scale. Therefore, future research incorporating much larger and diverse samples may serve to further clarify the relationship between constructs with greater psychometric precision.

A second limitation of this study is the significant relationship between social desirability scores and scores on the developed scale. Social desirability has been a continuing concern for researchers attempting to further the understanding of the construct of attitudes toward individuals with disabilities; both the ATDP (Antonak & Livneh, 1988; Cannon & Szuhay, 1986; Yuker, 1986) and the IDP (Loo, 2001; Thomas et al., in press) have been shown to have a significant relationship with MCSD scores. Thus, it was a goal of this study to develop a measurement scale that did not demonstrate a
significant relationship with MCSD scores. The results obtained from the alpha sample suggest that neither the total scale nor the subscale scores shared a significant relationship with MCSD scores. However, the results of the beta sample indicated that the total scale and the subscales did indeed share a significant relationship with socially desirable responding. It is interesting to note that in this sample, the IDP was found to significantly correlate with the MCSD \((r = -0.41, p < 0.05)\), while the ATDP did not demonstrate a significant relationship with the MCSD \((r = 0.06)\).

The strong relationship of the beta scale with MCSD scores therefore hinders the validity and utility of the developed instrument. If participants are able to intentionally alter responses in order to obtain a more favorable score, the precision of the test is therefore reduced; if test scores can come to represent the ability to fake answers in a positive direction, the recommendations that are made using test scores as a basis will have low utility in reducing negative attitudes toward individuals with disability. Thus, the significant relationship between test scores and MCSD scores is a critical issue that must be further investigated with future research before the developed scale would be suitable for widespread use in organizations.

**Directions for Future Research**

Future research may provide much needed insight into how a larger sample of more diverse participants may influence the impact of social desirability on total and subscale scores of the developed instrument. A larger sample of participants may also serve to further establish the stability of the factor structure derived from the alpha sample data of the current study. Administration of the scale in a work environment to actual employees would also generate data useful in the continued validation of the
developed scale; psychometric comparisons between participant responses in academic settings with participants in work settings may provide further test norm information and aid in the further validation of the test in various populations.

Future research should also focus on investigating the relationship between test scores on the developed scale and real world behavioral outcomes. Potential research may wish to focus on criterion-related validity studies in which participant scores on the developed scale are correlated with actual behaviors that directly affect individuals with disabilities. For instance, participant scores on the developed scale may be correlated with such behavioral variables as ratings of a referent with a disability or the results of a mock interview with an individual with a disability. Criterion-related validity studies using the developed scale as a predictor of future behavior would demonstrate the utility of the scale to organizations seeking to prevent discrimination or harassment toward individuals with disabilities by current or prospective employees.
References


Appendix A

Attitudes Toward Disabled Persons Scale Form-O

Directions:

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write +1, +2, +3; or -1, -2, -3; depending on how you feel in each case.

KEY

+3: I agree very much
+2: I agree pretty much
+1: I agree a little

-1: I disagree a little
-2: I disagree pretty much
-3: I disagree very much

___ 1 Parents of disabled children should be less strict than other parents.

___ 2 Physically disabled persons are just as intelligent as non-disabled ones.

___ 3 Disabled people are usually easier to get along with than other people.

___ 4 Most disabled people feel sorry for themselves.

___ 5 Disabled people are the same as anyone else.

___ 6 There shouldn’t be special schools for disabled children.

___ 7 It would be best for disabled persons to live and work in special communities.

___ 8 It is up to the government to take care of disabled persons.

___ 9 Most disabled people worry a great deal.

___ 10 Disabled people should not be expected to meet the same standards as non-disabled people.

___ 11 Disabled people are as happy as non-disabled ones.

___ 12 Severely disabled people are no harder to get along with than those with minor disabilities.
13 It is almost impossible for a disabled person to lead a normal life.

14 You should not expect too much from disabled people.

15 Disabled people tend to keep to themselves much of the time.

16 Disabled people are more easily upset than non-disabled people.

17 Disabled persons cannot have a normal social life.

18 Most disabled people feel that they are not as good as other people.

19 You have to be careful what you say when you are with disabled people.

20 Disabled people are often grouchy.
Appendix B

Interaction with Disabled Persons Scale

Here is a list of statements that some people have said describe how they feel when they have contact with a person with a disability. Of course, how we respond to people depends on how well we know them as individuals. However we would like to know how you feel in general when you meet a person with a disability. Please read each statement carefully and decide how much it describes how you feel.

Please record the response for each question that describes how you usually feel

Response Key

<table>
<thead>
<tr>
<th>+3: I agree very much</th>
<th>-3: I disagree very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>+2: I agree somewhat</td>
<td>-2: I disagree somewhat</td>
</tr>
<tr>
<td>+1: I agree a little</td>
<td>-1: I disagree a little</td>
</tr>
</tbody>
</table>

1. It is rewarding when I am able to help.
2. It hurts me when they want to do something and can’t.
3. I feel frustrated because I don’t know how to help.
4. Contact with a person with a disability reminds me of my own vulnerability.
5. I wonder how I would feel if I had this disability.
6. I feel ignorant about people with disabilities.
7. I am grateful that I do not have such a burden.
8. I try to act normally and ignore the disability.
9. I feel uncomfortable and find it hard to relax.
10. I am aware of the problems that people with disabilities face.
11. I can’t help staring at them.
12. I feel unsure because I don’t know how to behave.
13. I admire their ability to cope.
14. I don’t pity them.
15. After frequent contact, I find I just notice the person not the disability.
16. I feel overwhelmed with discomfort about my lack of disability.
17. I am afraid to look at the person straight in the face.
18. I tend to make contacts only brief and finish them as quickly as possible.
19. I feel better with people with disabilities after I have discussed their disability with them.
20. I dread the thought that I could eventually end up like them.
Appendix C

Marlowe-Crowne Social Desirability Scale (Short Form)

Directions:

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

1. I’m always willing to admit when I make a mistake.
   True  False
2. I always try to practice what I preach.
   True  False
3. I never resent being asked to return a favor.
   True  False
4. I have never been irked when people expressed ideas very different from my own.
   True  False
5. I have never deliberately said something that hurt someone’s feelings.
   True  False
6. I like to gossip at times.
   True  False
7. There have been occasions when I took advantage of someone.
   True  False
8. I sometimes try to get even rather than forgive and forget.
   True  False
9. At times I have really insisted on having things my own way.
   True  False
10. There have been occasions when I felt like smashing things.
    True  False
Appendix D

Demographic Data Form

Please complete this demographic form. All responses made to testing materials will be assigned a random identification number, and will be stored separately from any personally identifying information in order to ensure your anonymity is maintained. No personally identifying information will be included in any analyses of data obtained from this study, or in the written report detailing the results of this study.

Race: Caucasian
African American
Hispanic/Latino
Native American
Asian
other

Age: ___________ years

Gender: Male
Female

Current Education Level:
High School
Freshman in College
Sophomore in College
Junior in College
Senior in College
Graduate Student in College

Please indicate the extent of your experience with individuals with disabilities.
No Experience Average Experience Extensive Experience
1 2 3 4 5

Indicate the level of closeness that you have experienced in a relationship with a individual with a disability.
Not close at all Extremely Close
1 2 3 4 5

Please indicate the amount of one-on-one contact that you have had with a person with a disability.
Hourly
Daily
Weekly
Once a month
Once every three months
Less often
Appendix E

Developed Instrument – Alpha Version

Directions:

Having positive and negative attitudes about different things is a natural part of the human experience. Each person holds opinions or beliefs about certain things that are unique to them, and these values and attitudes shape our personalities and our behavior. It is human nature to have certain preferences, neutral feelings, and dislikes toward things in our environment. Each of us react differently to specific aspects of the world around us, including how we react to other people. These differences in how individuals react to other people provide a beneficial perspective into complex human behavior.

This study seeks to better understand certain human reactions and attitudes toward individuals with a disability. It is perfectly natural to experience both positive and negative feelings toward individuals with a disability, just as we experience both positive and negative feelings toward all aspects of our environment. Please read each statement carefully and indicate your level of agreement or disagreement with each item. Please answer as honestly as you possibly can. The outcome of this study is dependent upon the truthfulness of your responses. No information that you provide in this study will be personally linked with you in any way. All answers on this questionnaire will remain completely confidential. Your honest responses, both positive and negative, assist us to better understand individuals with a disability and, in turn, develop techniques to better assist them. Please do not write your name or any other personally identifying information on this questionnaire. Please read each item carefully, and record which selection best describes how you feel in the blank to the left of each item.

Response Key

+3: I agree very much
+2: I agree somewhat
+1: I agree a little

-3: I disagree very much
-2: I disagree somewhat
-1: I disagree a little

___ 1. People seeking help with their disability deserve equal treatment as that given to non-disabled persons.
___ 2. Persons with disabilities that require a lot of medical treatment are often good employees.
___ 3. Persons with a disability sometimes get out of doing things everyone else has to do.
___ 4. I feel that people responsible for their disability should receive government assistance.
___ 5. I would rather work with a person with a physical disability rather than one with a mental disability or a disease.
___ 6. I would feel awkward when dealing with a person who has a potentially fatal disability.
7. I would make an attempt to find out about someone’s condition before making any judgments about that person.
8. I think persons with a disability are entitled to be sensitive about their disability.
9. Persons with disabilities tend to take longer to complete tasks in a stressful situation.
10. I feel that there are many everyday activities that persons with a disability are just not able to do.
11. People with severe disabilities are probably not able to do routine things that non-disabled individuals do.
12. Persons with a physical disability are attractive.
13. Persons with physical disabilities seem to be more motivated than persons with mental disabilities.
14. Persons with a disability crave attention.
15. Some persons with disabilities require too many accommodations to get the job done.
16. Persons with a disability are not held to as high a standard as everyone else.
17. Persons with disabilities that experience a lot of ups and downs with their health would probably not be very effective employees.
18. Persons with disabilities may require assistance that may change the work environment.
19. I am at ease around people with disabilities that are curable.
20. The cause of an individual’s disability is unimportant regarding how I feel about them.
21. If a person with a disability would not be able to continue working in the near future, I would rate their performance as being lower than a non-disabled person.
22. Persons that are born with a disability should receive more assistance than persons responsible for their own disability.
23. I would treat a person who was diagnosed with a fatal disability differently than a non-disabled person.
24. The nature of a person’s disability has little impact on how I feel toward that person.
25. Persons with a disability that leave their job for health reasons should not be allowed to return.
26. I try to make contact with disabled persons brief because I don’t want to do something that may draw attention to their disability.
27. Persons with disabilities are able to complete important tasks in the same time frame as non-disabled persons.
28. Persons with a disability are able to do most of the important things that non-disabled individuals do.
29. Persons with a mental disability are attractive.
30. A person that is taking medication to control their disability should be regarded as "normal."
31. Persons with disabilities rarely ask for things they don’t need to get their job done right.
32. Persons with disabilities sometimes ask for too many privileges that non-disabled workers can’t receive.
33. The curability of a disability has no impact on how I feel about a person with that disability.
34. Persons with disabilities that are easily treated would be better employees than someone with a disability that requires a lot of medical attention.
35. People with disabilities make me anxious.
36. If a person with a disability would not be able to keep working in the near future, my ratings of that person would not change in light of their health status.
37. Persons with a disability that need to take a leave of absence for health reasons should not receive lower performance ratings.
38. If a person with a disability would not be able to keep working in the near future, my ratings of that person would not change in light of their health status.
39. When meeting a person with a disability for the first time, I can’t help thinking about what their condition is and what the symptoms are.
40. Persons that require assistance with their work because of a disability would be a distraction.
41. Persons with disabilities often require more assistance when things need to get done in a hurry.
42. I sometimes feel awkward around people with a disability because I am afraid I might do something to emphasize their disability.
43. Persons with a disability are often less able to do everyday things that non-disabled individuals do.
44. Persons with physical disabilities are more motivated than are persons with mental disabilities.
45. I prefer to interact with people with physical disabilities over those with mental disabilities.
46. Persons with disabilities that require medication or therapy for their disability are as motivated as persons with non-treatment physical disabilities.
47. Persons with disabilities should be provided with the necessary assistance to get their work done.
48. I would feel uncomfortable being around an individual with a physical disability.
49. Persons with disabilities often ask for too many accommodations from their supervisor.
50. Persons with a disability can get away with things that very few non-disabled people can.
51. The changing status of a person with a disability’s health would not lead me to question their competence.
52. Persons with a disability that leave their job for health reasons should definitely be allowed to return.
53. I would try to get to know someone with a disability that I am unfamiliar with.
54. The severity of a person’s disability doesn’t impact how I feel about them.
55. Persons with a disability sometimes make too big of a scene when doing normal activities.
56. I feel that under a time deadline, persons with disabilities are just as effective workers as non-disabled individuals.
57. It is sometimes hard to know what to say around someone with an obvious disability.

58. Persons with a disability face many restrictions in what they can do.

59. I would go on a date with an individual with a disability.

60. I would hire someone that uses medication to control a mental disability.

61. Persons with disabilities are just as capable as anyone else if they are given a few minor accommodations.

62. I would go out for drinks with a person with a disability.

63. Persons with a disability work as hard as everyone else.

64. The changing status of a person with a disability’s health would lead me to question their competence.

65. I would prefer to work with an individual with a disability whose condition doesn’t change very much.

66. Persons with disabilities sometimes get more assistance than they need to do their job correctly.

67. I feel anxious around people with disabilities that require a lot of medical care.

68. I would not like to interact with persons that have a disease of any kind.

69. Persons with disabilities are not as effective at getting things done under time constraints.

70. Persons with a disability are often a source of distraction at work.

71. If I think a person with a disability is sensitive about their condition, I feel anxious around them.

72. Persons with a disability are able to perform many, if not all, of the everyday things that non-disabled persons do.

73. Persons with a disability disrupt the normal flow of activities.

74. How sensitive a person with a disability is about their condition does not affect my feelings toward that person.

75. Persons with disabilities work just as well in high stress situations as do non-disabled persons.

76. A person with a disability that I don’t know much about makes me anxious.

77. Persons with a disability who may have to leave their job after a short time for health reasons should receive the same consideration as non-disabled applicants for the job.

78. I would avoid contact with someone who may not have long to live because of their disability.

79. I am concerned that some disabilities may be contagious.

80. I would hire a person that became disabled due to events beyond their control over someone that was responsible for their disability.

81. I would hire someone that does not require any medication or treatment for their disability.

82. I would rather work with someone with a disability that was not obvious rather than a person with visible disabilities.

83. Persons with a disability are rarely shown any favoritism by their boss.

84. Persons with disabilities often require changes to the workplace that would negatively impact non-disabled workers.

85. A disability that results from poor judgment is the person’s own fault.
86. I don’t think about the nature of a person’s disability when meeting them for the first time.
87. Persons with a disability are a distraction in normal situations.
88. Persons with a disability should make it clear whether their condition is contagious or not.
89. Persons with disabilities are just as capable as anyone else if they are given a few minor accommodations.
90. I would make an attempt to find out about someone’s condition before making any judgments about that person.
91. I’m always willing to admit it when I make a mistake.
92. I always try to practice what I preach.
93. I like to gossip at times.
94. There have been occasions when I felt like smashing things.
95. I never resent being asked to return a favor.
96. At times I have really insisted on having things my own way.
97. I have never deliberately said something that hurt someone’s feelings.
98. There have been occasions when I took advantage of someone.
99. I have never been irked when people expressed ideas very different from my own.
100. I sometimes try to get even rather than forgive and forget.
Appendix F

Reverse Scored Items for the Alpha Version Scale

3. Persons with a disability sometimes get out of doing things everyone else has to do.

5. I would rather work with a person with a physical disability rather than one with a mental disability or a disease.

6. I would feel awkward when dealing with a person who has a potentially fatal disability.

9. Persons with disabilities tend to take longer to complete tasks in a stressful situation.

10. I feel that there are many everyday activities that persons with a disability are just not able to do.

11. People with severe disabilities are probably not able to do routine things that non-disabled individuals do.

13. Persons with physical disabilities seem to be more motivated than persons with mental disabilities.

14. Persons with a disability crave attention.

15. Some persons with disabilities require too many accommodations to get the job done.

16. Persons with a disability are not held to as high a standard as everyone else.

17. Persons with disabilities that experience a lot of ups and downs with their health would probably not be very effective employees.

18. Persons with disabilities may require assistance that may change the work environment.

21. If a person with a disability would not be able to continue working in the near future, I would rate their performance as being lower than a non-disabled person.

22. Persons that are born with a disability should receive more assistance than persons responsible for their own disability.

23. I would treat a person who was diagnosed with a fatal disability differently than a non-disabled person.

25. Persons with a disability that leave their job for health reasons should not be allowed to return.

26. I try to make contact with disabled persons brief because I don’t want to do something that may draw attention to their disability.

32. Persons with disabilities sometimes ask for too many privileges that non-disabled workers can’t receive.

34. Persons with disabilities that are easily treated would be better employees than someone with a disability that requires a lot of medical attention.

35. People with disabilities make me anxious.

38. I would be less likely to offer someone with a potentially fatal condition a job.

39. When meeting a person with a disability for the first time, I can’t help thinking about what their condition is and what the symptoms are.
40. Persons that require assistance with their work because of a disability would be a distraction.
41. Persons with disabilities often require more assistance when things need to get done in a hurry.
42. I sometimes feel awkward around people with a disability because I am afraid I might do something to emphasize their disability.
43. Persons with a disability are often less able to do everyday things that non-disabled individuals do.
44. Persons with physical disabilities are more motivated than are persons with mental disabilities.
45. I prefer to interact with people with physical disabilities over those with mental disabilities.
46. I would feel uncomfortable being around an individual with a physical disability.
47. Persons with disabilities often ask for too many accommodations from their supervisor.
48. Persons with a disability can get away with things that very few non-disabled people can.
49. Persons with a disability sometimes make too big of a scene when doing normal activities.
50. It is sometimes hard to know what to say around someone with an obvious disability.
51. Persons with a disability face many restrictions in what they can do.
52. The changing status of a person with a disability’s health would lead me to question their competence.
53. I would prefer to work with an individual with a disability whose condition doesn’t change very much.
54. Persons with disabilities sometimes get more assistance than they need to do their job correctly.
55. I feel anxious around people with disabilities that require a lot of medical care.
56. I would not like to interact with persons that have a disease of any kind.
57. Persons with disabilities are not as effective at getting things done under time constraints.
58. Persons with a disability are often a source of distraction at work.
59. If I think a person with a disability is sensitive about their condition, I feel anxious around them.
60. Persons with a disability disrupt the normal flow of activities.
61. A person with a disability that I don’t know much about makes me anxious.
62. I would avoid contact with someone who may not have long to live because of their disability.
63. I am concerned that some disabilities may be contagious.
64. I would hire a person that became disabled due to events beyond their control over someone that was responsible for their disability.
65. I would rather work with someone with a disability that was not obvious rather than a person with visible disabilities.
84. Persons with disabilities often require changes to the workplace that would negatively impact non-disabled workers.

85. A disability that results from poor judgment is the person’s own fault.

87. Persons with a disability are a distraction in normal situations.

88. Persons with a disability should make it clear whether their condition is contagious or not.
Appendix G

Developed Scale – Final Version

Directions:

Having positive and negative attitudes about different things is a natural part of the human experience. Each person holds opinions or beliefs about certain things that are unique to them, and these values and attitudes shape our personalities and our behavior. It is human nature to have certain preferences, neutral feelings, and dislikes toward things in our environment. Each of us react differently to specific aspects of the world around us, including how we react to other people. These differences in how individuals react to other people provide a beneficial perspective into complex human behavior.

This study seeks to better understand certain human reactions and attitudes toward individuals with a disability. It is perfectly natural to experience both positive and negative feelings toward individuals with a disability, just as we experience both positive and negative feelings toward all aspects of our environment. Please read each statement carefully and indicate your level of agreement or disagreement with each item. Please answer as honestly as you possibly can. The outcome of this study is dependent upon the truthfulness of your responses. No information that you provide in this study will be personally linked with you in any way. All answers on this questionnaire will remain completely confidential. Your honest responses, both positive and negative, assist us to better understand individuals with a disability and, in turn, develop techniques to better assist them. Please do not write your name or any other personally identifying information on this questionnaire. Please read each item carefully, and record which selection best describes how you feel in the blank to the left of each item.

Response Key

+3: I agree very much
+2: I agree somewhat
+1: I agree a little
-1: I disagree a little
-2: I disagree somewhat
-3: I disagree very much

___ 1. Persons with disabilities that require a lot of medical treatment are often good employees.
___ 2. Persons with a disability sometimes get out of doing things everyone else has to do.
___ 3. I would rather work with a person with a physical disability rather than one with a mental disability or a disease.
___ 4. I would make an attempt to find out about someone’s condition before making any judgments about that person.
___ 5. I think persons with a disability are entitled to be sensitive about their disability.
___ 6. Persons with disabilities tend to take longer to complete tasks in a stressful situation.
___ 7. I feel that there are many everyday activities that persons with a disability are just not able to do.
___ 8. Persons with physical disabilities seem to be more motivated than persons with mental disabilities.
Response Key

+3: I agree very much  
+2: I agree somewhat  
+1: I agree a little  
-1: I disagree a little  
-2: I disagree somewhat  
-3: I disagree very much

10. Some persons with disabilities require too many accommodations to get the job done.
11. Persons with a disability are not held to as high a standard as everyone else.
12. Persons with disabilities that experience a lot of ups and downs with their health would probably not be very effective employees.
13. I am at ease around people with disabilities that are curable.
14. The cause of an individual’s disability is unimportant regarding how I feel about them.
15. If a person with a disability would not be able to continue working in the near future, I would rate their performance as being lower than a non-disabled person.
16. Persons with disabilities are able to complete important tasks in the same time frame as non-disabled persons.
17. Persons with a disability are able to do most of the important things that non-disabled individuals do.
18. Persons with a mental disability are attractive.
19. A person that is taking medication to control their disability should be regarded as “normal.”
20. Persons with disabilities rarely ask for things they don’t need to get their job done right.
21. The curability of a disability has no impact on how I feel about a person with that disability.
22. Persons with disabilities that are easily treated would be better employees than someone with a disability that requires a lot of medical attention.
23. If a person with a disability would not be able to keep working in the near future, my ratings of that person would not change in light of their health status.
24. Persons with a disability that need to take a leave of absence for health reasons should not receive lower performance ratings.
25. Persons that require assistance with their work because of a disability would be a distraction.
26. Persons with disabilities often require more assistance when things need to get done in a hurry.
27. Persons with physical disabilities are more motivated than are persons with mental disabilities.
28. I prefer to interact with people with physical disabilities over those with mental disabilities.
29. Persons with disabilities that require medication or therapy for their disability are as motivated as persons with non-treatment physical disabilities.
30. Persons with disabilities should be provided with the necessary assistance to get their work done.
Response Key

+3: I agree very much
+2: I agree somewhat
+1: I agree a little
-1: I disagree a little
-2: I disagree somewhat
-3: I disagree very much

31. I would feel uncomfortable being around an individual with a physical disability.
32. Persons with disabilities often ask for too many accommodations from their supervisor.
33. The changing status of a person with a disability’s health would not lead me to question their competence.
34. Persons with a disability that leave their job for health reasons should definitely be allowed to return.
35. Persons with a disability sometimes make too big of a scene when doing normal activities.
36. I feel that under a time deadline, persons with disabilities are just as effective workers as non-disabled individuals.
37. I would go on a date with an individual with a disability.
38. I would hire someone that uses medication to control a mental disability.
39. Persons with disabilities are just as capable as anyone else if they are given a few minor accommodations.
40. I would go out for drinks with a person with a disability.
41. Persons with a disability work as hard as everyone else.
42. The changing status of a person with a disability’s health would lead me to question their competence.
43. I would prefer to work with an individual with a disability whose condition doesn’t change very much.
44. Persons with disabilities sometimes get more assistance than they need to do their job correctly.
45. I would not like to interact with persons that have a disease of any kind.
46. Persons with disabilities are not as effective at getting things done under time constraints.
47. Persons with a disability are often a source of distraction at work.
48. Persons with disabilities work just as well in high stress situations as do non-disabled persons.
49. Persons with a disability who may have to leave their job after a short time for health reasons should receive the same consideration as non-disabled applicants for the job.
50. I am concerned that some disabilities may be contagious.
51. I would hire a person that became disabled due to events beyond their control over someone that was responsible for their disability.
52. I would hire someone that does not require any medication or treatment for their disability.
53. I would rather work with someone with a disability that was not obvious rather than a person with visible disabilities.
54. Persons with disabilities often require changes to the workplace that would negatively impact non-disabled workers.
Response Key

+3: I agree very much  -3: I disagree very much
+2: I agree somewhat  -2: I disagree somewhat
+1: I agree a little     -1: I disagree a little

___ 55. Persons with a disability should make it clear whether their condition is contagious or not.
___ 56. I'm always willing to admit it when I make a mistake.
___ 57. I always try to practice what I preach.
___ 58. I like to gossip at times.
___ 59. There have been occasions when I felt like smashing things.
___ 60. I never resent being asked to return a favor.
___ 61. At times I have really insisted on having things my own way.
___ 62. I have never deliberately said something that hurt someone's feelings.
___ 63. There have been occasions when I took advantage of someone.
___ 64. I have never been irked when people expressed ideas very different from my own.
___ 65. I sometimes try to get even rather than forgive and forget.
Appendix H

Items Not Included in Final Version of Developed Instrument

*Items Removed Due to Significant Correlation with MCSD Scores*

4. I feel that people responsible for their disability should receive government assistance.
6. I would feel awkward when dealing with a person who has a potentially fatal disability.
11. People with severe disabilities are probably not able to do routine things that non-disabled individuals do.
12. Persons with a physical disability are attractive.
22. Persons that are born with a disability should receive more assistance than persons responsible for their own disability.
23. I would treat a person who was diagnosed with a fatal disability differently than a non-disabled person.
24. The nature of a person’s disability has little impact on how I feel toward that person.
26. I try to make contact with disabled persons brief because I don’t want to do something that may draw attention to their disability.
32. Persons with disabilities sometimes ask for too many privileges that non-disabled workers can’t receive.
35. People with disabilities make me anxious.
38. I would be less likely to offer someone with a potentially fatal condition a job.
39. When meeting a person with a disability for the first time, I can’t help thinking about what their condition is and what the symptoms are.
42. I sometimes feel awkward around people with a disability because I am afraid I might do something to emphasize their disability.
43. Persons with a disability are often less able to do everyday things that non-disabled individuals do.
50. Persons with a disability can get away with things that very few non-disabled people can.
53. I would try to get to know someone with a disability that I am unfamiliar with.
54. The severity of a person’s disability doesn’t impact how I feel about them.
57. It is sometimes hard to know what to say around someone with an obvious disability.
67. I feel anxious around people with disabilities that require a lot of medical care.
71. If I think a person with a disability is sensitive about their condition, I feel a anxious around them.
72. Persons with a disability are able to perform many, if not all, of the everyday things that non-disabled persons do.
73. Persons with a disability disrupt the normal flow of activities.
74. How sensitive a person with a disability is about their condition does not affect my feelings toward that person.
76. A person with a disability that I don’t know much about makes me anxious.
78. I would avoid contact with someone who may not have long to live because of their disability.
83. Persons with a disability are rarely shown any favoritism by their boss.
85. A disability that results from poor judgment is the person’s own fault.
86. I don’t think about the nature of a person’s disability when meeting them for the first time.
87. Persons with a disability are a distraction in normal situations.

*Items Removed Due to Factor Loadings below the .20 Level*

1. People seeking help with their disability deserve equal treatment as that given to non-disabled persons.
18. Persons with disabilities may require assistance that may change the work environment.
25. Persons with a disability that leave their job for health reasons should not be allowed to return.

*Items Removed Due to Low Item-Total Correlation*

58. Persons with a disability face many restrictions in what they can do.

*Items Removed Due to Their Redundant Status (Faking Items)*

89. Persons with disabilities are just as capable as anyone else if they are given a few minor accommodations.
90. I would make an attempt to find out about someone’s condition before making any judgments about that person.
Appendix I

Final Items of Developed Scale and Their Respective Factor Loadings

*Factor 1 (Accommodation/Performance) Items*

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>66. Persons with disabilities sometimes get more assistance than they need to do their job correctly.</td>
<td>.751</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55. Persons with a disability sometimes make too big of a scene when doing normal activities.</td>
<td>.605</td>
<td>.109</td>
<td>.277</td>
<td></td>
</tr>
<tr>
<td>70. Persons with a disability are often a source of distraction at work.</td>
<td>.505</td>
<td></td>
<td>- .227</td>
<td></td>
</tr>
<tr>
<td>49. Persons with disabilities often ask for too many accommodations from their supervisor.</td>
<td>.488</td>
<td>- .138</td>
<td>.237</td>
<td></td>
</tr>
<tr>
<td>84. Persons with disabilities often require changes to the workplace that would negatively impact non-disabled workers.</td>
<td>.467</td>
<td></td>
<td>- .107</td>
<td></td>
</tr>
<tr>
<td>3. Persons with a disability sometimes get out of doing things everyone else has to do.</td>
<td>.438</td>
<td>.102</td>
<td>- .115</td>
<td></td>
</tr>
<tr>
<td>9. Persons with disabilities tend to take longer to complete tasks in a stressful situation.</td>
<td>.405</td>
<td>- .276</td>
<td>- .224</td>
<td></td>
</tr>
<tr>
<td>15. Some persons with disabilities require too many accommodations to get the job done.</td>
<td>.399</td>
<td>- .129</td>
<td>- .144</td>
<td></td>
</tr>
<tr>
<td>14. Persons with a disability crave attention.</td>
<td>.391</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Persons with a disability are not held to as high a standard as everyone else.</td>
<td>.385</td>
<td>- .117</td>
<td>- .119</td>
<td></td>
</tr>
<tr>
<td>47. Persons with disabilities should be provided with the necessary assistance to get their work done.</td>
<td>.368</td>
<td></td>
<td></td>
<td>.351</td>
</tr>
<tr>
<td>64. The changing status of a person with a disability’s health would lead me to question their competence.</td>
<td>.353</td>
<td></td>
<td></td>
<td>.202</td>
</tr>
<tr>
<td>41. Persons with disabilities often require more assistance when things need to get done in a hurry.</td>
<td>.342</td>
<td>- .339</td>
<td>- .333</td>
<td></td>
</tr>
<tr>
<td>79. I am concerned that some disabilities may be contagious.</td>
<td>.327</td>
<td>- .192</td>
<td>.184</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported
**Factor 1 (Accommodation/Performance) Items (continued)**

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>40. Persons that require assistance with their work because of a disability would be a distraction.</td>
<td>.305</td>
<td>-.293</td>
<td>-.136</td>
<td>.105</td>
</tr>
<tr>
<td>88. Persons with a disability should make it clear whether their condition is contagious or not.</td>
<td>.276</td>
<td>-.134</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported.

**Factor 2 (Nature of Disability) Items**

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>45. I prefer to interact with people with physical disabilities over those with mental disabilities.</td>
<td></td>
<td>-.842</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I would rather work with a person with a physical disability rather than one with a mental disability or a disease.</td>
<td></td>
<td>-.648</td>
<td>.138</td>
<td></td>
</tr>
<tr>
<td>44. Persons with physical disabilities are more motivated than are persons with mental disabilities.</td>
<td></td>
<td>-.534</td>
<td>.159</td>
<td></td>
</tr>
<tr>
<td>82. I would rather work with someone with a disability that was not obvious rather than a person with visible disabilities.</td>
<td></td>
<td>.247</td>
<td>-.510</td>
<td></td>
</tr>
<tr>
<td>10. I feel that there are many everyday activities that persons with a disability are just not able to do.</td>
<td></td>
<td>-.405</td>
<td>-.162</td>
<td></td>
</tr>
<tr>
<td>13. Persons with physical disabilities seem to be more motivated than persons with mental disabilities.</td>
<td></td>
<td>-.396</td>
<td>.160</td>
<td></td>
</tr>
<tr>
<td>29. Persons with a mental disability are attractive.</td>
<td></td>
<td>-.152</td>
<td>-.394</td>
<td>-.289</td>
</tr>
<tr>
<td>34. Persons with disabilities that are easily treated would be better employees than someone with a disability that requires a lot of medical attention.</td>
<td></td>
<td>.109</td>
<td>-.384</td>
<td>-.260</td>
</tr>
<tr>
<td>48. I would feel uncomfortable being around an individual with a physical disability.</td>
<td></td>
<td>.103</td>
<td>-.370</td>
<td></td>
</tr>
<tr>
<td>65. I would prefer to work with an individual with a disability whose condition doesn’t change very much.</td>
<td></td>
<td>.180</td>
<td>-.263</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported.
Factor 2 (Nature of Disability) Items (continued)

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. If a person with a disability would not be able to continue working in the near future, I would rate their performance as being lower than a non-disabled person.</td>
<td>.188</td>
<td>-.228</td>
<td>-.115</td>
<td>.218</td>
</tr>
<tr>
<td>80. I would hire a person that became disabled due to events beyond their control over someone that was responsible for their disability.</td>
<td></td>
<td></td>
<td></td>
<td>-.200</td>
</tr>
</tbody>
</table>

Note. Factor loadings of .1 or lower are not reported

Factor 3 (Response to Environment) Items

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>75. Persons with disabilities work just as well in high stress situations as do non-disabled persons.</td>
<td></td>
<td></td>
<td>-.681</td>
<td></td>
</tr>
<tr>
<td>56. I feel that under a time deadline, persons with disabilities are just as effective workers as non-disabled individuals.</td>
<td></td>
<td></td>
<td></td>
<td>-.675</td>
</tr>
<tr>
<td>27. Persons with disabilities are able to complete important tasks in the same time frame as non-disabled persons.</td>
<td></td>
<td></td>
<td>-.641</td>
<td>-.133</td>
</tr>
<tr>
<td>28. Persons with a disability are able to do most of the important things that non-disabled individuals do.</td>
<td></td>
<td></td>
<td>-.146</td>
<td>-.531</td>
</tr>
<tr>
<td>30. A person that is taking medication to control their disability should be regarded as &quot;normal.&quot;</td>
<td></td>
<td></td>
<td>-.150</td>
<td>-.486</td>
</tr>
<tr>
<td>61. Persons with disabilities are just as capable as anyone else if they are given a few minor accommodations.</td>
<td></td>
<td></td>
<td></td>
<td>-.481</td>
</tr>
<tr>
<td>69. Persons with disabilities are not as effective at getting things done under time constraints.</td>
<td></td>
<td></td>
<td>.342</td>
<td>-.413</td>
</tr>
<tr>
<td>31. Persons with disabilities rarely ask for things they don’t need to get their job done right.</td>
<td></td>
<td></td>
<td>.145</td>
<td>-.405</td>
</tr>
<tr>
<td>17. Persons with disabilities that experience a lot of ups and downs with their health would probably not be very effective employees.</td>
<td></td>
<td></td>
<td>.160</td>
<td>-.231</td>
</tr>
<tr>
<td>59. I would go on a date with an individual with a disability.</td>
<td></td>
<td></td>
<td></td>
<td>.181</td>
</tr>
<tr>
<td>63. Persons with a disability work as hard as everyone else.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Factor loadings of .1 or lower are not reported
### Factor 3 (Response to Environment) Items (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>46. Persons with disabilities that require education or therapy for their disability are as motivated as persons with non-treatment physical disabilities.</td>
<td>.206</td>
<td>.348</td>
<td>.254</td>
<td></td>
</tr>
<tr>
<td>60. I would hire someone that uses medication to control a mental disability.</td>
<td>.166</td>
<td>-.331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>62. I would go out for drinks with a person with a disability.</td>
<td></td>
<td>-.169</td>
<td>.327</td>
<td>.289</td>
</tr>
<tr>
<td>2. Persons with disabilities that require a lot of medical treatment are often good employees.</td>
<td></td>
<td>-.309</td>
<td>.170</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported

### Factor 4 (Medical Condition) Items

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. I am at ease around people with disabilities that are curable.</td>
<td>-.109</td>
<td>-.206</td>
<td>-.111</td>
<td>.557</td>
</tr>
<tr>
<td>37. Persons with a disability that need to take a leave of absence for health reasons should not receive lower performance ratings.</td>
<td>.105</td>
<td></td>
<td></td>
<td>.490</td>
</tr>
<tr>
<td>7. I would make an attempt to find out about someone’s condition before making any judgments about that person.</td>
<td></td>
<td></td>
<td></td>
<td>.387</td>
</tr>
<tr>
<td>8. I think persons with a disability are entitled to be sensitive about their disability.</td>
<td></td>
<td></td>
<td></td>
<td>.351</td>
</tr>
<tr>
<td>33. The curability of a disability has no impact on how I feel about a person with that disability.</td>
<td></td>
<td></td>
<td></td>
<td>.342</td>
</tr>
<tr>
<td>77. Persons with a disability who may have to leave their job after a short time for health reasons should receive the same consideration as non-disabled applicants for the job.</td>
<td>.245</td>
<td>-.240</td>
<td>.338</td>
<td></td>
</tr>
<tr>
<td>20. The cause of an individual’s disability is unimportant regarding how I feel about them.</td>
<td></td>
<td>-.115</td>
<td></td>
<td>.327</td>
</tr>
<tr>
<td>68. I would not like to interact with persons that have a disease of any kind.</td>
<td>.279</td>
<td>-.295</td>
<td></td>
<td>.310</td>
</tr>
<tr>
<td>52. Persons with a disability that leave their job for health reasons should definitely be allowed to return.</td>
<td></td>
<td>-.144</td>
<td></td>
<td>.301</td>
</tr>
<tr>
<td>81. I would hire someone that does not require any medication or treatment for their disability.</td>
<td>.146</td>
<td>.191</td>
<td></td>
<td>.290</td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported
Factor 4 (Medical Condition) Items (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>51.</td>
<td>The changing status of a person with a disability’s health would not lead me to question their competence.</td>
<td>.220  .283</td>
</tr>
<tr>
<td>36.</td>
<td>If a person with a disability would not be able to keep working in the near future, my ratings of that person would not change in light of their health status.</td>
<td>.111  -.129 .254</td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported.
Appendix J

Final Items of Short Form Scale and Their Respective Factor Loadings

**Factor 1 (Accommodation/Performance) Short Form Items**

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>66. Persons with disabilities sometimes get more assistance than they need to do their job correctly.</td>
<td>.751</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55. Persons with a disability sometimes make too big of a scene when doing normal activities.</td>
<td>.605</td>
<td>.109</td>
<td>.277</td>
<td></td>
</tr>
<tr>
<td>70. Persons with a disability are often a source of distraction at work.</td>
<td>.505</td>
<td>-.227</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. Persons with disabilities often ask for too many accommodations from their supervisor.</td>
<td>.488</td>
<td>-.138</td>
<td>.237</td>
<td></td>
</tr>
<tr>
<td>84. Persons with disabilities often require changes to the workplace that would negatively impact non-disabled workers.</td>
<td>.467</td>
<td>-1.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Persons with a disability sometimes get out of doing things everyone else has to do.</td>
<td>.438</td>
<td>.102</td>
<td>-.115</td>
<td></td>
</tr>
<tr>
<td>9. Persons with disabilities tend to take longer to complete tasks in a stressful situation.</td>
<td>.405</td>
<td>-.276</td>
<td>-.224</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported

**Factor 2 (Nature of Disability) Short Form Items**

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>45. I prefer to interact with people with physical disabilities over those with mental disabilities.</td>
<td>-1.842</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I would rather work with a person with a physical disability rather than one with a mental disability or a disease.</td>
<td>-1.648</td>
<td>.138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. Persons with physical disabilities are more motivated than are persons with mental disabilities.</td>
<td>-.534</td>
<td>.159</td>
<td></td>
<td></td>
</tr>
<tr>
<td>82. I would rather work with someone with a disability that was not obvious rather than a person with visible disabilities.</td>
<td>.247</td>
<td>-.510</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I feel that there are many everyday activities that persons with a disability are just not able to do.</td>
<td>-.405</td>
<td>-.162</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported
### Factor 3 (Response to Environment) Short Form Items

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>75. Persons with disabilities work just as well in high stress situations as do non-disabled persons.</td>
<td></td>
<td></td>
<td>-.681</td>
<td></td>
</tr>
<tr>
<td>56. I feel that under a time deadline, persons with disabilities are just as effective workers as non-disabled individuals.</td>
<td></td>
<td></td>
<td>-.675</td>
<td></td>
</tr>
<tr>
<td>27. Persons with disabilities are able to complete important tasks in the same time frame as non-disabled persons.</td>
<td></td>
<td></td>
<td>-.641</td>
<td>-.133</td>
</tr>
<tr>
<td>28. Persons with a disability are able to do most of the important things that non-disabled individuals do.</td>
<td>-.146</td>
<td>-.531</td>
<td>-.121</td>
<td></td>
</tr>
<tr>
<td>30. A person that is taking medication to control their disability should be regarded as “normal.”</td>
<td>-.150</td>
<td></td>
<td>-.486</td>
<td></td>
</tr>
<tr>
<td>61. Persons with disabilities are just as capable as anyone else if they are given a few minor accommodations.</td>
<td></td>
<td></td>
<td>-.481</td>
<td>.420</td>
</tr>
<tr>
<td>69. Persons with disabilities are not as effective at getting things done under time constraints.</td>
<td>.342</td>
<td>-.413</td>
<td>-.183</td>
<td></td>
</tr>
<tr>
<td>31. Persons with disabilities rarely ask for things they don’t need to get their job done right.</td>
<td>.145</td>
<td>-.405</td>
<td>.109</td>
<td></td>
</tr>
<tr>
<td>17. Persons with disabilities that experience a lot of ups and downs with their health would probably not be very effective employees.</td>
<td>.160</td>
<td>-.231</td>
<td>.392</td>
<td>-.209</td>
</tr>
</tbody>
</table>

*Note.* Factor loadings of .1 or lower are not reported.
### Factor 4 (Medical Condition) Short Form Items

<table>
<thead>
<tr>
<th>Item Number (Alpha Scale Numbering) and Content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. I am at ease around people with disabilities that are curable.</td>
<td>-.109</td>
<td>-.206</td>
<td>-.111</td>
<td>.557</td>
</tr>
<tr>
<td>37. Persons with a disability that need to take a leave of absence for health reasons should not receive lower performance ratings.</td>
<td>.105</td>
<td></td>
<td></td>
<td>.490</td>
</tr>
<tr>
<td>7. I would make an attempt to find out about someone’s condition before making any judgments about that person.</td>
<td></td>
<td></td>
<td></td>
<td>.387</td>
</tr>
<tr>
<td>8. I think persons with a disability are entitled to be sensitive about their disability</td>
<td></td>
<td></td>
<td></td>
<td>.351</td>
</tr>
<tr>
<td>33. The curability of a disability has no impact on how I feel about a person with that disability.</td>
<td></td>
<td></td>
<td></td>
<td>.342</td>
</tr>
<tr>
<td>77. Persons with a disability who may have to leave their job after a short time for health reasons should receive the same consideration as non-disabled applicants for the job.</td>
<td>.245</td>
<td>-.240</td>
<td></td>
<td>.338</td>
</tr>
</tbody>
</table>

*Note. Factor loadings of .1 or lower are not reported*
Appendix K

Reverse Scored Items for the Beta Version Scale

2. Persons with a disability sometimes get out of doing things everyone else has to do.
3. I would rather work with a person with a physical disability rather than one with a mental disability or a disease.
6. Persons with disabilities tend to take longer to complete tasks in a stressful situation.
7. I feel that there are many everyday activities that persons with a disability are just not able to do.
8. Persons with physical disabilities seem to be more motivated than persons with mental disabilities.
10. Some persons with disabilities require too many accommodations to get the job done.
11. Persons with a disability are not held to as high a standard as everyone else.
12. Persons with disabilities that experience a lot of ups and downs with their health would probably not be very effective employees.
15. If a person with a disability would not be able to continue working in the near future, I would rate their performance as being lower than a non-disabled person.
22. Persons with disabilities that are easily treated would be better employees than someone with a disability that requires a lot of medical attention.
25. Persons that require assistance with their work because of a disability would be a distraction.
26. Persons with disabilities often require more assistance when things need to get done in a hurry.
27. Persons with physical disabilities are more motivated than are persons with mental disabilities.
28. I prefer to interact with people with physical disabilities over those with mental disabilities.
31. I would feel uncomfortable being around an individual with a physical disability.
32. Persons with disabilities often ask for too many accommodations from their supervisor.
35. Persons with a disability sometimes make too big of a scene when doing normal activities.
42. The changing status of a person with a disability’s health would lead me to question their competence.
43. I would prefer to work with an individual with a disability whose condition doesn’t change very much.
44. Persons with disabilities sometimes get more assistance than they need to do their job correctly.
45. I would not like to interact with persons that have a disease of any kind.
46. Persons with disabilities are not as effective at getting things done under time constraints.
47. Persons with a disability are often a source of distraction at work.
50. I am concerned that some disabilities may be contagious.
51. I would hire a person that became disabled due to events beyond their control over someone that was responsible for their disability.
53. I would rather work with someone with a disability that was not obvious rather than a person with visible disabilities.
54. Persons with disabilities often require changes to the workplace that would negatively impact non-disabled workers.
55. Persons with a disability should make it clear whether their condition is contagious or not.