Background and Significance

According to the 2008 Community Health Survey, an estimated 25.2 million adults in the United States reported that they were blind or had experienced difficulty seeing, even with glasses or contact lenses. Of these, approximately 1.3 million Americans are classified as "legally blind". The prevalence of acquired vision loss is projected to increase dramatically in the coming decades, especially as the population ages (American Foundation for the Blind, 2010).

Upon experiencing vision loss, people must undergo a process of psychological and behavioral adjustment, in which they come to accept their visual impairment, learn and master necessary compensatory skills, and ultimately return to their former professional and personal life activities (Allan, 1989; Dodds, 1989; Tuttle & Tuttle, 2004). In recent decades, training in compensatory skills such as Braille, use of the long white cane or guide dog for independent mobility, and accessible computer technology has become more widely available to the newly blind, enabling them to regain access to employment in most professional fields (Ferguson, 2001; Omvig, 2002). Unfortunately, despite these improvements in the availability of rehabilitation services and increases in job opportunities, many blind and visually impaired individuals remain economically disadvantaged. In fact, by some estimates, as many as 70% of legally blind Americans are unemployed, and about one-sixth receive social security benefits (American Foundation for the Blind, 2010). [This project explores social psychological processes that shape adjustment to vision loss, with a focus on values-affirmation as an intervention strategy.]

Models of Adjustment to Sight Loss

Traditionally, the process of adjustment to acquired sight loss has been conceptualized as a sequential progression of stages, similar to a grief process (Carroll, 1961; Tuttle & Tuttle, 2004). According to these "loss models" of adjustment, people initially react to vision loss with denial and shock, followed by depression, anger, or other negative affective responses. Eventually, if adjustment is successful, the individual gradually progresses toward emotional acceptance and rebuilding, and the individual is emotionally "ready" to participate in rehabilitation (Carroll, 1961; Tuttle & Tuttle, 2004). These loss models have been criticized on a number of empirical and theoretical grounds, most notably that they cannot explain why some people do not experience depression or other key emotions associated with the stages (Dodds et al. 1991, 1994). More recent adjustment models (Dodds, 1991, 1994) posit that negative emotional responses to sight loss are not fixed, but depend on perceived or actual incompetence and dependence on others, which can emerge before compensatory skills are acquired. Depression and perceived incompetence can be mutually reinforcing, as perceptions of incompetence and helplessness lead to lowered self-efficacy and reduced motivation to learn the necessary compensatory skills (Dodds & Ferguson, 1994). According to this model, early and effective rehabilitation training can prevent the initiation of this recursive cycle by enabling the newly blind individual to develop true self-sufficiency and competence. Several scholars have emphasized the crucial role of the social environment and attitudes of significant others in supporting the newly blind individual's adjustment (for reviews see Hudson, 1994; Bell and Silverman, 2011). Significant others can greatly aid the adjustment process by actively conveying a belief in the newly blind individual's capacity to learn compensatory skills and by allowing him or her to fulfill valued social roles and obligations (Lukoff, 1972; Versluys, 1980; Allen, 1989; Tuttle & Tuttle, 2004). In sum, these more recent models suggest that adjustment to vision loss is a highly dynamic process. Successful adjustment is promoted when the newly blind individual perceives him or herself as competent and effective, and that perception can be bolstered or deflated by feedback and actions from significant others.

Self-Affirmation as a Tool for Coping with Disability
The model proposed in this project will integrate this dynamic understanding of adjustment with theoretical constructs from self-affirmation theory (Steele, 1988) to inform the design of specific interventions. A central tenet of self-affirmation theory is that people are fundamentally motivated to view themselves as globally whole, effective, competent, and morally adequate, a construct labeled self-integrity. Self-integrity acts as a psychological resource that can aid coping with stress (Creswell et al., 2005; Sherman et al., 2009) or threats to the self-concept, such as failure feedback or receiving information about health risks (Sherman & Cohen, 2006; Sherman & Hartson, 2011). Self-integrity can be boosted by reflecting upon one’s important personal values, such as commitment to one’s family, religion, or friends. Across many studies, after completing these "self-affirmation" exercises, participants show less defensiveness and respond more adaptively in a variety of threatening situations (for reviews, see Sherman and Cohen, 2006). In a series of field studies, Cohen and colleagues (Cohen et al. 2006, 2009) found that a structured self-affirmation exercise in the classroom benefited the grades of middle-school students from negatively stereotyped ethnic groups, such as African Americans, with benefits persisting for up to two years after the intervention (Cohen et al., 2009). By reminding students of their commitments to core values, the affirmation serves to boost their self-integrity and, thus, their psychological buffer against the chronic evaluative stress that minority students often experience. Over time, as these students are better able to cope with initial academic struggles, their academic performance is less susceptible to concerns about confirming negative group stereotypes (Cohen et al. 2009).

If self-integrity acts as an internal buffer against chronic threats and stressors, it is reasonable to predict that high self-integrity should be linked to positive rehabilitation outcomes. Vision loss carries a broad array of acute and chronic stressors which can interfere with successful rehabilitation (Tuttle & Tuttle, 2004). The process of learning compensatory skills can bear not only the frustration of trying to master an unfamiliar set of skills, but also the identity threat associated with publicly self-presenting as a blind person and being judged through the lens of negative stereotypes about blind people (Lukoff, 1972; Dodds & Ferguson, 1994; Omvig, 2002). For example, when traveling in public with a white cane for the first time, a newly blind individual must not only cope with the stress of learning to navigate without visual information, but must also contend with the knowledge that he or she may be viewed by others as clumsy or disoriented because these characteristics are stereotypically associated with people who are blind (Ferguson, 2001). Without an adequate mental buffer against these threats, one may be disinclined to travel alone in public or to apply the skills learned through formal cane instruction. However, when reminded of one’s commitment to core values or one’s efficacy in alternative skill areas, one is likely to find these concerns less burdensome and, thus, to show greater willingness and motivation to practice cane travel. [This, in turn, should lead to increased competence in traveling with a cane and reduced fear of being viewed as clumsy or disoriented, in a potentially recursive positive cycle.]

**Can Values-Affirmation be Delivered Socially?**

Can significant others aid coping with vision loss by offering affirming feedback? A central assumption of the proposed model, and of other dynamic models of adjustment to sight loss described above, is that the self-concept of the newly blind individual depends upon the perceptions of significant others about his or her abilities (Hudson, 1994; Tuttle & Tuttle, 2004). Thus, it is conceivable that feedback from others affirming one’s commitment to, or efficacy in, valued life domains should, like self-affirmation, serve to boost self-integrity. If values-affirmations can be delivered interpersonally, this would constitute a useful tool that family, friends, and rehabilitation professionals can utilize to improve the adjustment and integration of the newly blind.

**Research Approach**

**Overview**

In the present research, the effects of a self-affirmation intervention (specific aim 1) and a social affirmation intervention (specific aim 2) will be evaluated using a randomized, controlled
experimental design. Study 1 will examine the impact of self-generated affirmations on adjustment and performance in a comprehensive blindness skills training program, while Study 2 will assess the impact of an interpersonally delivered values-affirmation on these same outcomes. It is predicted that both interventions will facilitate (a) improvements in subjective quality of life, (b) willingness and motivation to develop competence in the use of compensatory blindness skills, and (c) better long-term skill acquisition throughout the blindness skills training program. In addition to testing these primary hypotheses, the correlational links between perceptions of significant others’ attitudes toward blindness and adjustment outcomes will be explored in both studies.

**Preliminary Studies**

The applicant conducted a double-blind, randomized pilot study examining the impact of a self-affirmation intervention with a small group of students at the Colorado Center for the Blind (CCB), [one of the rehabilitation centers that will be involved in Studies 1 and 2.] Students randomly assigned to complete a self-affirmation exercise in the pilot sample [showed more improvement in their attitudes toward blindness during the month after the intervention, as rated by their instructors, than did control students, t(1,30)=2.09, p<.05. They also reported stronger intentions to engage in independent cane travel during the week following the writing exercise, t(1,23)=2.1, p<.05.] Study 1 will extend these research questions to a larger cohort of students and a broader set of dependent measures. During this pilot study, the applicant also built a positive, collaborative relationship with the director and staff of the CCB, [and established formal contacts with the two other rehabilitation centers that will also be participating.]

The applicant is conducting a pilot study, jointly supervised by the sponsor (van Boven) and the co-sponsor (Cohen), to investigate the effectiveness of an interpersonal affirmation, as compared with an equivalent self-affirmation, on college students’ performance on a threatening test. Undergraduate participants complete a film-interpretation task, and participants in the social affirmation condition are told that their film interpretation reflects their commitment to commonly affirmed social values, such as empathy and compassion. Participants in the self-affirmation condition, by contrast, are asked to reflect upon how these same social values were manifest in the task and why these values are important to them. The students’ performance on a challenging math test will be assessed to determine whether the social affirmation facilitates improved responses to challenge.

**Study 1**

*Design.* One hundred adult students (fifty males, fifty females) attending [either the Colorado Center for the Blind (CCB; Littleton, CO), the Louisiana Center for the Blind (LCB; Ruston, LA), or Blindness: Learning in New Dimensions (BLIND, Inc.; Minneapolis, MN)] will be recruited to participate in the study. [These three rehabilitation centers for the blind are affiliated with a national blindness consumer group, the National Federation of the Blind (NFB), and all follow an identical training model that is uniquely well-suited to the project for several reasons.] Because the programs are comprehensive and residential, students are fully immersed in skill training, and their identities as people who are blind are continually made salient. This is further augmented by the fact that students are required to use blindfolds throughout training to avoid reliance on any residual vision they have. Finally, because completion of many aspects of the training program is self-paced, successful performance in the training courses is highly dependent upon students’ motivation to complete the assigned tasks. [The applicant has had extensive contact with the directors of all three centers regarding the project, and in her pilot study at the CCB, the response rate was excellent, with approximately 85% of enrolled students completing the study. The applicant anticipates that with the additional participation of LCB and BLIND, Inc., she will be able to enroll 100 students in the study within one year. The applicant will have access to additional funding to travel to the LCB and BLIND, Inc. to administer the study.]

In published field experiments (i.e. Cohen et al. 2009), the effect of self-affirmation on long-term achievement is small to moderate in magnitude (Cohen’s d=.30–.40). Assuming this effect size, a total sample size of 100 participants will allow at least an 80% probability of finding the effect
analyses.

The primary research hypotheses will be tested with a series of analyses of covariance.

Students will be interviewed by telephone about educational or employment opportunities they program.

All instructors will be unaware of students’ experimental condition throughout the evaluations of their students’ performance in the training courses throughout the duration of the study.

Finally, participants’ instructors will confidentially provide monthly evaluations of their students’ performance in the training courses throughout the duration of the study.

Instructor evaluations.

Participants will be randomly assigned to complete either a self-affirmation or a control writing exercise, as in previous research (Sherman and Cohen, 2006). The structured writing exercise will be presented as a routine class assignment to avoid Hawthorne effects (i.e. expectancy effects arising from the research context.) Participants in the self-affirmation condition will be asked to select their two most important personal values from a list (see appendix) and to write a short paragraph describing why these values are important to them. Participants in the control condition, by contrast, will identify their two least important values from the list, and will write about why these values would be important to another person. Participants will be given the option of writing their essays by hand or on the computer, depending upon their assistive technology skill level.

Measures. The following constructs will be measured in a questionnaire both at the beginning and at the end of the study (see appendix): (1) demographics, including the recency and severity of vision loss; (2) psychological adjustment to blindness. [An abbreviated version of the Nottingham Adjustment Scale (NAS; Dodds et al. 1991) will be used to assess acceptance of vision loss. The NAS has been extensively validated with various samples of newly blind adults. Relevant items include “I am satisfied with my abilities and my eye problem doesn’t bother me too much” and “Blind people are used to failing at most things they do” (reverse-scored). The survey will also include the five-item Satisfaction with Life Scale (Diener et al. 1985) and the ten-item Perceived Stress Scale (Cohen, 1994) to assess subjective well-being.] (3) self-integrity and self-efficacy. Perceptions of moral and adaptive adequacy will be assessed using the Self-Integrity Scale (Sherman et al. 2009) with items such as “I am a good person”. Self-efficacy will be assessed with the Sherer General Self-Efficacy Scale (Sherrer, 1982), with items such as “Failure just makes me try harder”. Immediately after the self-affirmation, self-integrity will be assessed as a possible mediator of the self-affirmation’s impact. (4) Perceived attitudes of significant others will be assessed with items such as “My family and friends generally think that blind people are incompetent”, “I feel accepted by my sighted family and friends”, and “In public places, I worry that people will expect less of me because I am blind”. (5) compensatory skill development behaviors. Participants will indicate how frequently they engaged in a series of challenging skill practice behaviors outside of formal training, such as navigating an unfamiliar place independently with a cane, reading a book in Braille, or learning to cook a new dish without sight. Intentions to engage in these challenge-seeking behaviors will also be assessed immediately after the affirmation, with items such as “How much do you intend to practice Braille every day this week?” (6) Instructor evaluations. Finally, participants’ instructors will confidentially provide monthly evaluations of their students’ performance in the training courses throughout the duration of the program. [All instructors will be unaware of students’ experimental condition throughout the study.] (7) Follow-up measures. Approximately one year after graduation from the program, participating students will be interviewed by telephone about educational or employment opportunities they have attained since graduation, and their satisfaction with life.

Analyses. The primary research hypotheses will be tested with a series of analyses of covariance.
(ANCOVA's) comparing the self-affirmation and control conditions. Specifically, controlling for baseline covariates, experimental condition will be used to predict (a) levels of general life satisfaction and stress, (b) self-reported challenge-seeking behaviors at the one-month follow-up, (c) formal grades in the training courses as reported by students’ instructors, [and (d) the percentage of students in each condition who are employed or enrolled in college after completing training. Additionally, mediational analyses will be conducted to determine whether changes in psychological factors, such as self-integrity, perceived stress, and adjustment to blindness, mediate the effects of the affirmation on challenge-seeking and performance outcomes. Finally, a series of exploratory regression analyses will be conducted to determine whether challenge-seeking and training performance correlates with participants’ perceptions of significant others’ attitudes at baseline (i.e. if participants who report more concern about being negatively stereotyped challenge themselves less).]

Potential Difficulties and Limitations. It is possible that students may not accurately report their challenge-seeking behaviors. Confidentiality of all data, including the instructor evaluations, will be emphasized throughout the study to allay concerns about desirability of responses. [It is also possible that follow-up data collection may be difficult due to participant attrition. The researchers will offer the follow-up questionnaire in multiple formats (in person, by telephone, and electronic) and will offer additional incentives for participation in the follow-up, if needed.]

Study 2

Study 2 will extend the findings from Study 1 by investigating whether an interpersonally delivered affirmation can catalyze increases in self-integrity and thus benefit adjustment and rehabilitation success. In Study 2, the psychological adjustment, challenge-seeking, and training performance of rehabilitation students will be assessed as in Study 1. However, rather than engaging in a self-affirmation, participants will be assigned to receive interpersonal feedback from [their instructors], which either recognizes their commitment to cherished values (values-affirmation) or is relatively nondescript (control). It is predicted that values-affirming feedback will initiate a pattern of results similar to that found for self-affirmation in Study 1.

Design and Procedure. One hundred students at the [rehabilitation centers described above] ([fifty males, fifty females]) will be recruited to participate in the study upon enrollment in the training program, as in Study 1. Participants will be compensated as in Study 1.

[The study will consist of three phases.] Upon enrollment, in the first session of the study, they will complete the same measures as in Study 1. [Approximately one month later, after they have had some meaningful interaction with their instructors, participants will be randomly assigned to receive a letter from the center director that is either affirming or neutral (see below)] and will complete post-affirmation measures of self-integrity. Finally, in the third session approximately one month later, participants will again complete the same measures as in Session 1. Additionally, as in Study 1, participants’ instructors will provide confidential evaluations of their students’ performance throughout training, and participants will be invited to complete follow-up measures one year after graduation. [Again, instructors will be unaware of their students’ condition assignments.]

[Social Affirmation Intervention.] Participants will indicate their most important value during the Time 1 survey, using the same list of values as in Study 1. [During the month following Session 1, the directors of the centers will be asked to write an “affirmation letter” to each student, which will be co-signed by the director and all the student’s instructors. The center directors will be given a standardized template to follow for all the letters, but the template will include blank spaces to be tailored to individual students, as follows:

Each student’s affirmation letter will begin by acknowledging two accomplishments the student has made in training during their first month. The letter will then acknowledge the personal value that the student ranked as most important, and will provide two examples of behaviors the student has done to uphold their commitment to that value. For example, if a student ranked personal relationships as their most important value, that student’s letter would read, “It is clear that your personal relationships are very important to you. You often go out of your way to
help others, and you are very loyal to your friends.”
These affirmation letters will be written for all students prior to randomization, but only students in the affirmation condition will receive their letters at Session 2. Control students will instead receive a form letter enumerating program content and requirements they have completed (these letters will be co-signed by the center director and instructors, and written for all students in advance of randomization). Control students will receive their affirmation letters after the conclusion of the study.
Analyses. Analyses will be identical to those used in Study 1.
Potential Difficulties and Limitations. [In addition to those identified for Study 1, it may be initially difficult to achieve the desired balance between impactfulness and experimental control in the affirmation letters. While center directors will draft the letters, they will be asked to follow the same template for all students to maximize control. The applicant, who is very familiar with the types of interactions between students and instructors at these centers, will work closely with the center directors (through in-person and telephone meetings) to assist them in drafting letters that point to students’ specific behaviors showing fidelity to their values. At these centers, students and instructors interact frequently, in both formal classroom settings and more informal social ones. It is anticipated that center staff will be able to readily observe instances in which students show commitment to their important values, and will write letters that students find personally impactful. Sample affirmation letters will be pilot-tested with center graduates to confirm their plausibility (the applicant has ready access to a diverse pool of graduates from all three centers). Furthermore, as the letters will reflect students’ real accomplishments and behaviors, no deception will occur.]