Research Brief: Evaluation of the *Career*WISE Resilience Training Program

The *Career*WISE program documents key sources of discouragement and support for women in Science, Technology, Engineering, and Math (STEM) doctoral programs and offers internet-delivered personal resilience training toward the goal of increasing women's persistence in these fields despite challenging circumstances. Between November, 2009 and May, 2010, the *Career*WISE internet training resource was formally evaluated using a Randomized Clinical Trial (RCT). This document provides a high level overview of the RCT study and its results. A complete description of the protocol, instruments, and results from this study will be available upon formal publication of the study in a peer-refereed journal.

The purpose of the RCT was to investigate the impact of using the *Career*WISE website on the social-psychological variables assumed to influence persistence toward doctoral degree completion among women in STEM fields. Specifically, the analysis of the RCT data evaluated the impact of the *Career*WISE site on measures of: Self-Assessment of *Career*WISE-Related Competencies, Resilience, Coping with Adversity, Barrier Coping, Confidence, Self-Efficacy, and Confidence to Achieve Landmarks.

Participants for the RCT were recruited nationwide and included 133 participants from 23 well known universities. The participants were recruited from departments which represent those in which women are typically most underrepresented: civil engineering, electrical engineering, material science, mechanical engineering, computer science, applied physics, applied math, physics, astronomy, math, chemistry, and geology.

Methods. Randomized assignment was used to assign participants to either a treatment or wait-list control group. At the onset of the study, all participants completed initial questionnaires to gather demographic information as well as information about their current academic environments and their perceptions about that environment. Following completion of the initial questionnaires, the *Career*WISE website was made available to the participants in the treatment group. The treatment group members were then required to spend five or more hours during a two week period in an unconstrained exploration of *Career*WISE site. Following the site exploration by the treatment group, both groups completed an outcomes assessment survey, which included separate sections to measure each of the variables that the *Career*WISE site is designed to influence (self-assessment of *Career*WISE-related competencies, resilience, coping with adversity, etc). The wait-list control group

then was given access to the site and asked to spend five or more hours during a two week period, after which this group alone repeated the outcomes assessment. The average time on the site among all participants, including both treatment and wait-list control group members, was 5.39 hours.

Upon completion of all participant data collection, the following primary analyses were performed: 1) comparison between the treatment and wait-list control groups using a one-way analysis of variance (ANOVA) based on the means and variances of the first administration of the outcomes assessment; 2) evaluation of the mean difference between the first and second administration of the outcomes assessment for the wait-list control group using a dependent groups t-test. The dependent variables in both analyses were the variables in the outcomes assessment, evaluated separately.

Results from these analyses showed that there were statistically significant differences between the treatment and wait-list control groups for a number of variables. Specifically, comparisons based on the first outcomes assessment administration demonstrated that treatment group members showed an advantage in self-assessed *Career*WISE-related competencies, resilience, and confidence when compared to the wait-list control group members who had not yet had site access. These measures were not only statistically significant but also robust in size, as demonstrated by calculation of effect size. Moreover, comparisons between the first and second administration of the outcomes assessment to the wait-list control group revealed that after being granted site access, wait-list control group members showed a statistical improvement in all measured variables (self-assessment of *Career*WISE-related competencies, resilience, coping with adversity, barrier coping, confidence, self-efficacy, and confidence to achieve landmarks)

Finally, participant predictions of whether they would complete their degree program were found to be strongly related to the scales of the other measured variables. Consequently, the higher the score of the participants on the measures of self-assessment of *Career*WISE-related competencies, resilience, coping with adversity, barrier coping, confidence, self-efficacy, and confidence to achieve landmarks, the higher were their predictions of success.

The results from the RCT represent convincing evidence that even a small amount of *Career*WISE training was successful in influencing the relevant variables.