The Effect of *Career Cruising* on the Self-efficacy of Students Deciding on Majors

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We analyzed the impact of a self-assessment instrument on the self-efficacy of those deciding on majors in a university setting. Using a pre- and post-test methodology, we employed Career Cruising *to measure career decision-making self-efficacy. Participants completed* the Career Decision Self-Efficacy–Short Form (CDSE-SF) *with dependent variables of academic advising and the levels of self-efficacy among the CDSE-SF five subscales: Accurate Self-Appraisal, Gathering Occupational Information, Goal Selection, Planning for the Future, and Problem Solving. The data were subjected to paired and independent* t *tests to measure any differences in mean scores. The results indicated a slight increase in career self-efficacy for students who participated in both* Career Cruising *and academic advising*.

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As of 2012, over 20.4 million undergraduates were attending college in the United States (U.S. Census Bureau, 2014). Of those matriculants, 50 to 75% will change their major or career goals at least once prior to graduation (Foote, 1980; Gordon, 1984, 2007; Kramer, Higley, & Olsen, 1994; Noel, 1985; Steele, 1994, 2003; Titley & Titley, 1980). According to Kramer et al. (1994), most of these students lack the knowledge and decision-making skills needed to make prudent career decisions. In an attempt to arm students with the necessary skills required for career exploration, many academic advisors rely on career self-assessment instruments; yet, little is known about the effectiveness of these tools. Do students develop the necessary skills as a result of using and learning the outcomes obtained from these instruments? The desire to gain a better and more comprehensive understanding of whether and how career self-assessment instruments can assist students with the selection of a major remains paramount for most academic advisors. Because they spend much of their time assisting students with the selection of an appropriate major or vocational path, academic advisors must fully understand the impact of such instruments and the best ways to employ them.

The relationship between self-assessment instruments and career decision-making self-efficacy was first researched by Luzzo and Day in 1999; the study consisted of 99 participants (64 women and 35 men) who took the *Strong Interest Inventory* (SII) (CPP, n.d.). Luzzo and Day investigated the effect on career decision-making self-efficacy using three groups: students who completed the SII and received feedback, those who completed the SII and received no feedback, and a control group of 25 students enrolled in an orientation course. They based their study on Bandura's (1977) self-efficacy performance and verbal persuasion theory. The results, evaluated with the Tukey post hoc test, revealed no significant differences between those in the SII with feedback and the control groups; however, the analysis uncovered a significant difference between the SII with feedback and SII groups. The importance of career intervention in treatment emerged as did data confirming students' high satisfaction levels with the SII (Luzzo & Day, 1999).

Unfortunately, the parties that offer instruments such as the *Myers-Briggs Type Inventory* (MBTI) (The Myers-Briggs Foundation, n.d.), Discover (American College Testing, 2014), SII (CPP, 2009), and *Career Cruising* (Career Cruising, n.d.) concentrate only on refining their tool options and career bank, resulting in an absence of research on the effect of their products on consumers. This lack of research on career self-assessment, in particular with *Career Cruising*, has resulted in little understanding of its influence on students.

Career Cruising (Career Cruising, n.d.) was developed in 1969 by a small group of career advisors in England. It features over 14,000 vocational and professional traits, related to Holland codes, that are used to provide career guidance. The self-assessment offers items measuring vocational likes and dislikes, skills, levels of education, and career opportunities. Offered as an Internet-based career exploration and planning tool, *Career Cruising* allows a person to view

occupations that relate to his or her preferences and includes job descriptions, testimonials, professional advice, employment outlooks, salary ranges, and information on educational pathways. Participants rate their preferences on 116 questions on the instrument, but Career Cruising does not collect data regarding the impact of the instrument on college students, but nonetheless, it agreed to support our study. Specifically, Career Cruising reviewed our proposal and subsequently granted verbal and written permission to conduct our research, provided a commissioned report conducted by the University of Utah on the reliability and validity of the instrument, and gave us access to anonymous data from completed *Career Cruising* surveys.

Academic advisors typically use the *Career Cruising* (Career Cruising, n.d.) self-assessment tool as a starting point for career exploration and not as a definitive occupational analysis. Over the past 10 years, limited information about *Career Cruising* as an effective advising tool has emerged: A comprehensive midwestern university utilized and provided anecdotal evidence concerning its effectiveness for those deciding on initial or changed majors. Because of the widespread use of *Career Cruising* by academic advisors on our campus, we conducted this study in 2012 to fill a gap in the research about the impact of the assessment tool on students' level of career self-efficacy and decision making. Specifically, we addressed two general questions: What is the impact of *Career Cruising* on deciding students' level of self-efficacy? Does the level of perceived self-efficacy increase after students deciding on majors complete *Career Cruising*?

Results from student-completed *Career Cruising* (Career Cruising, n.d.) self-assessments as interpreted during an academic advising session, conducted with developmental and appreciative advising approaches with regard to *Career Cruising*, constituted the independent variable. The dependent variables were levels of increase in self-efficacy scores, if any, on the following *Career Decision Self-Efficacy–Short Form* (CDSE-SF) (Betz, Klein, & Taylor, 1996) subscales: Accurate Self-Appraisal, Gathering Occupational Information, Goal Selection, Planning for the Future, and Problem Solving. Also, data on perceived self-efficacy after students completed the *Career Cruising* instrument made up a dependent variable. We hypothesized that those who completed the *Career Cruising* self-assessment along with appropriate academic advising would report a higher level of career self-efficacy across all subscales than those who did not complete the self-assessment.

Method

Sample

This quasi-experimental study contained a sample of 250 first-year full-time students deciding upon majors and assigned to the Office of Academic Advising in the Spring 2012 semester. Using a random Excel function multiplier, we placed students into two groups: an experimental group, whose members were exposed to the independent variable, and a control group. Each group consisted of 125 participants; however, during the course of the study, 25 students changed their program of study, leaving 115 in the experimental group and 110 in the control group. Of the 225 contacted to take part in the study, 73 participated. The final sample represented the following groups: Caucasian ($n = 68$), African American ($n = 1$), Hispanic ($n = 2$), Asian ($n = 1$), and Pacific Islander ($n = 1$). This racial distribution is representative of the racial–ethnic categorization at the university where the study was conducted. The sample consisted of 50 females and 23 males, with a mean age of 20 years. The sample population consisted mostly of freshmen; however, 22% of the participants had earned 30 or more credits prior to entering the university and therefore held sophomore standing.

Instrument

We used two instruments to assess career self-efficacy and career decision making: the CDSE-SF (Betz et al., 1996) and *Career Cruising* (Career Cruising, n.d.). During the course of our study, Career Cruising added additional tools to its product line such that the self-assessment fell within the *Matchmaker* tool.

The CDSE-SF (Betz et al., 1996) is a 25-item psychometric scale designed to measure an individual's belief about her or his own ability to successfully complete tasks necessary to make significant career decisions. The items comprise five subscales: Accurate Self-Appraisal, Gathering Occupational Information, Goal Selection, Planning for the Future, and Problem Solving (see Crites, 1978, for the original career subscales used to inform the generation of the Betz et al. psychometric scale). The CDSE-SF contains a five-level confidence continuum (1 = *no confidence* to 5 = *complete confidence*). The CDSE-SF

has demonstrated strong reliability and validity (Betz, Hammond, & Multon, 2005).

Analytic evidence in studies of the five subscales has demonstrated a general career decision self-efficacy dimension (Betz & Klein, 1996; Taylor & Popma, 1990). The Cronbach's α values for internal consistency for the CDSE-SF ranged from .93 to .95 (Betz & Luzzo, 1996). Luzzo's (1996) research confirmed stability in a 6-week test–retest study with an α coefficient of .83. Comparing the original 50-item (nonshort) *Career Decision Self-Efficacy* scale with a 10-level confidence continuum with consistent internal reliability, the α values ranged from .86 to .89 for the subscales and .97 for the total score (Taylor & Betz, 1983). In the original 50-item form with a 10-level confidence continuum, the following subscale coefficients were calculated: Accurate Self-Appraisal, .73; Gathering Occupational Information, .78; Goal Selection, .83; Planning for the Future, .81; Problem Solving, .75. The total α for the original short form was .94 (Betz et al., 2005). Paulsen (2001) and Smith (2001) conducted studies with 603 and 423 participants, respectively, on the five-level continuum that resulted in the following α values: Accurate Self-Appraisal (.81 and .81); Gathering Occupational Information (.82 and .82); Goal Selection (.84 and .87); Planning for the Future (.84 and .82); and Problem Solving (.80 and .81) (Betz et al., 2005).

Comprehensive research supports the validity data for the subscales (Betz & Luzzo, 1996), including the independent characteristics of career maturity, career exploration, career indecisions, and occupational commitment. Taylor and Popma (1990) stated that the "CDSE can be best characterized as a generalized career self-efficacy measure" (p. 28). In 2006, one item on the CDSE-SF was revised. The statement "Find information in the library about occupations you are interested in" was updated to "Use the Internet to find information about occupations that interest you'' (Betz et al., 2005). A subsequent study of item correlation showed little change between versions with α values of .54 and .50; Cronbach's α for the new item on the CDSE-SF was .96.

Career Cruising Matchmaker (Career Cruising, n.d.) is a self-assessment instrument that suggests careers that match self-reported answers to 39 psychometric questions. Career Educational Consulting Services (CECS) (2012) at the University of Utah performed a reliability and validity analysis for *Career Cruising Matchmaker* using four data sets labeled as follows: high school 7–21 days, high school 90–120 days, college 7–21 days, and college 90–120 days. Examining the test–retest reliability of the 39 core *Matchmaker* items when organized according to a RIASEC Holland structure yielded Pearson product-moment correlation coefficient values (r) for internal consistency that ranged between .56 and .79. These findings are consistent with results from Zarella and Schuerger (1990) who found an r value of .67 for seven different instruments across 83 different samples. The expanded 116 items test-retest resulted in a smaller average correlation coefficient range: .30 to .56. Therefore, expanded items may limit temporal stability (CECS, 2012).

CECS constructed a validity analysis using the *Career Cruising Matchmaker* (Career Cruising, n.d.) core items and a full item set from the *O*NET Interest Profiler* (O*Net Resource Center, n.d.). Participants from the CECS online survey were solicited through the University of Utah Educational Psychology research participant pool and high school student database ($N = 523$). The Pearson correlation analysis showed moderate to strong correlations (e.g., R^2 values from .39 to .68) in the like-scales (RIASEC Holland scales). These may be compared to previous studies of like-scales conducted on the SII and *Campbell Interest and Skills Survey* that had R^2 values that ranged between .45 and .75 (as reported by Sullivan & Hansen, 2004); preliminary evidence of this study indicates adequate to strong temporal stability (test–retest reliability) and construct validity.

Procedure

The Office of Academic Advising generated a list of e-mail addresses of potential participants, who received an e-mail informing them about the study and directing them to a web link where the survey was administered. The survey was run through SurveyMonkey (www.surveymonkey.com), a web site that enables researchers to create and administer online surveys. We sent three e-mail reminders over a 3-week period. All participants received an identical post-test survey one month after the CDSE-SF pre-test was administered to the experimental group to give those in both samples time to meet with their academic advisor.

Participants in the experimental group took the CDSE-SF (Betz et al., 1996) pre-test and the

Career Cruising (Career Cruising, n.d.) self-assessment, met with their academic advisor, and completed the post-test CDSE-SF. Members of the control group also took the CDSE-SF pre-test, met with their academic advisor, and completed the CDSE-SF post-test, but they did not use the *Career Cruising* self-assessment.

The advising sessions for the experimental and control groups were conducted using developmental and appreciative advising approaches. According to Crookston (1972/1994/2009), developmental academic advising "is concerned not only with specific personal or vocational decision but also with facilitating the student's rational processes, environmental and interpersonal interactions, behavioral awareness and problem-solving, decision-making and evaluation skills" (1972, p. 5). Comparably, appreciative advising provides a framework for optimizing advisor–student interactions through the use of systematically applied open-ended inquiries (Bloom, Hutson, & He, 2008).

Each advising session for both groups lasted approximately 60 minutes and featured in-depth discussions regarding the participants' ongoing needs; curricular, vocational, and academic interests; degree plans; and short- and long-term goals. The advisees in the experimental group received information about the results of *Career Cruising Matchmaker* (Career Cruising, n.d.). Specifically, they were asked to interpret the results and provide a brief verbal reflection prompted by advisor questions such as "What new insights did you gain?" "What questions did the results raise for you?" "How do the results help you better understand yourself?" Through this discussion, students in the experimental group identified vocational interests and aligned them with an academic program of study.

Of the 41 students who completed the pre-test in the control group, 27 completed the CDSE-SF post-test, resulting in a 66% response rate. Of the 64 participants who completed the pre-test in the experimental group, 46 students completed the post-test, for a 72% completion rate. In sum, a total of 73 students completed both the pre- and post-tests, yielding a mean return rate of 70%.

Results

We sought to determine whether completing *Career Cruising* (Career Cruising, n.d.) and participating in a subsequent results-focused advising session exerted an impact on the level of self-efficacy of students deciding upon majors. Our study consisted of six major research questions regarding self-efficacy scores on the CDSE-SF (Betz et al., 1996) subscales: Do results reveal an increase in self-efficacy scores on the (a) Accurate Self-Appraisal, (b) Gathering Occupational Information, (c) Goal Selection, (d) Planning for the Future, (e) Problem Solving subscales? and (f) does perceived self-efficacy increase after students deciding on majors complete *Career Cruising*? We used a paired *t* test to calculate the mean difference of the pre- and post-tests for the experimental and control groups. We also calculated an independent *t* test to look for differences between the mean scores of both groups.

Paired *t* Test

We conducted a paired *t* test to measure any change in the pre- and post-test comparable subscales (Huck, 2008). This analysis comports with studies using the CDSE-SF for other pre- and post-tests (Betz et al., 1996; Betz & Schifano, 2000; Reese & Miller, 2006). We found a significant mean difference for the experimental group on the pre- and post-test comparison on four of the CDSE-SF statements. The mean score on the pre-test for Statement 4, "determine the steps to take if you are having academic trouble with an aspect of your chosen major," was 3.33 ($SD = .73$); the post-test mean was 3.80 ($SD = .69$). For this statement, the difference in the pre- and the post-test was significant: $t(45) = -3.55$, $p < .05$. The mean on the pre-test for Statement 9, "determine what your ideal job would be," was 3.22 ($SD = 1.01$); the post-test mean was 3.57 ($SD = 1.11$). We found a significant difference between the pre- and post-test results: $t(45) = -2.036$, $p < .05$. The mean on the pre-test for Statement 12, "prepare a good resume," was 2.96 ($SD = .82$); the post-test mean was 3.33 ($SD = .80$). A significant difference from the pre- to the post-test results was found: $t(44) = -2.95$, $p < .05$. The mean for the pre-test Statement 16, "make a career decision and then not worry about whether it was right or wrong," was 2.89 ($SD = .80$); the post-test mean was 3.24 ($SD = .93$). A significant difference from the pre- to the post-test results emerged: $t(44) = -2.63$, $p < .05$. The mean of the pre-test Statement 2, "select one major from a list of potential majors you are considering," was 3.50 ($SD = .86$); the post-test mean was 3.74 ($SD = 1.04$). A difference from the pre- to the post-test results was revealed: $t(45) = -1.76$, $p < .10$. (See Table 1 and Figure 1.)

We found a statistically significant mean difference for the control group on two pre- and

Table 1. Paired *t* test on experimental group pre- and post-tests of the *Career Decision-Making Self-Efficacy–Short Form*

Statement			Pre-test		Post-test				
No.	**Topic**	***n***	***M***	***SD***	***M***	***SD***	***t value***	***df***	***p***
1	Internet info	46	4.00	.76	3.83	.80	1.942	45	.058
2	One major	46	3.50	.86	3.74	1.04	–1.756	45	.086
3	Plan goals	46	3.26	.93	3.46	.94	–1.459	45	.152
4	Determine steps	46	3.33	.73	3.80	.69	–3.554	45	.001*
5	Assess abilities	46	3.65	.77	3.76	.79	–.927	45	.359
6	One occupation	46	3.39	.95	3.63	.90	–1.712	45	.094
7	Steps major	46	3.65	.82	3.76	.87	–.842	45	.404
8	Work goal	46	4.07	.74	4.02	.80	.286	45	.776
9	Ideal job	46	3.22	1.01	3.57	1.11	–2.036	45	.048*
10	Ten years	44	3.16	.81	3.30	.88	–1.000	43	.323
11	Lifestyle career	46	3.57	.98	3.54	1.05	.147	45	.883
12	Resume prep	45	2.96	.82	3.33	.80	–2.945	44	.005*
13	Change majors	46	3.50	.81	3.61	1.00	–.726	45	.472
14	Decide value	46	3.67	.76	3.67	.90	.000	45	1.000
15	Earnings yearly	45	3.78	.88	3.82	.81	–.340	44	.736
16	Career decision	45	2.89	.80	3.24	.93	–2.626	44	.012*
17	Change occupations	46	3.20	.81	3.41	.81	–1.430	45	.160
18	Determine sacrifices	46	3.37	.68	3.50	.78	–1.030	45	.309
19	Talk w/professional	46	3.83	.85	3.83	.85	.000	45	1.000
20	Choose a major	46	3.70	.99	3.76	.90	–.503	45	.617
21	Identify employ	46	3.41	.81	3.57	.81	–1.155	45	.254
22	Define lifestyle	46	4.00	.84	3.78	.96	1.430	45	.160
23	Grad schools	45	3.44	.87	3.53	.89	–.662	45	.511
24	Interview process	46	3.33	.99	3.37	.83	–.265	45	.793
25	Identify second	46	3.48	.84	3.43	.78	.321	45	.749

Note. The Career Decision-Making Self-Efficacy scale (Betz et al., 1996): *no confidence* = 1, *very little confidence* = 2, *moderate confidence* = 3, *much confidence* = 4, *complete confidence* = 5. *$p < .05$.

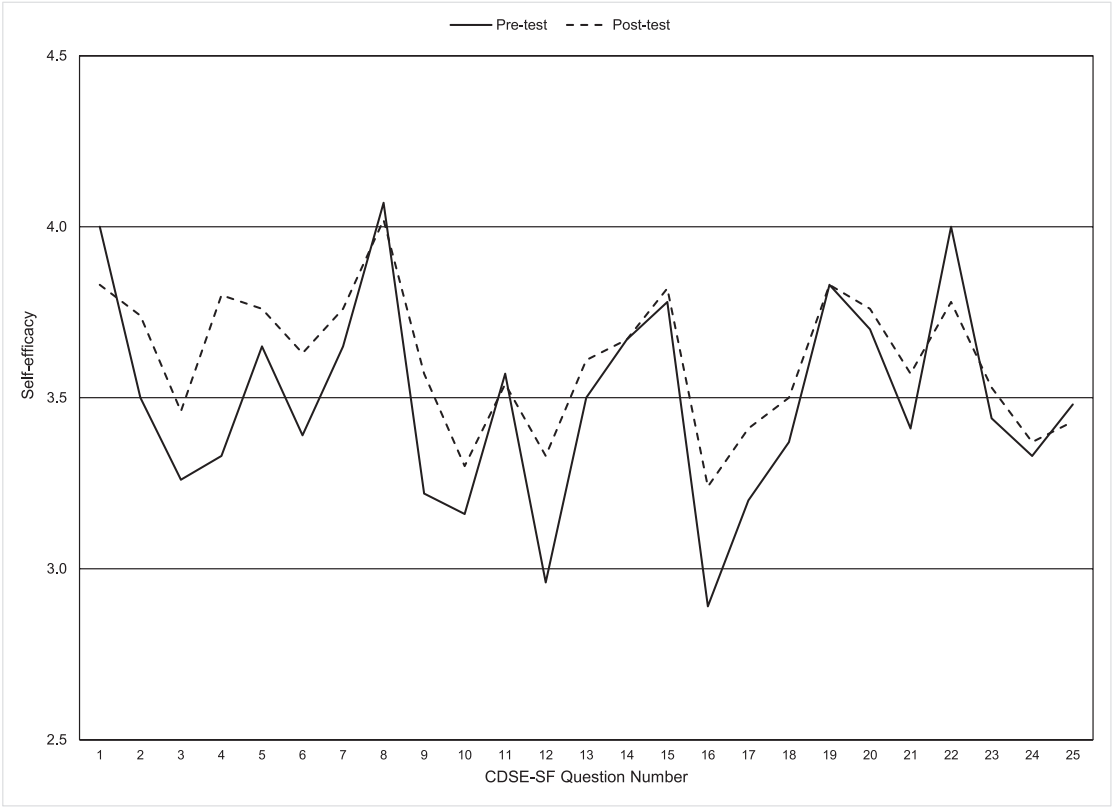
post-test statements. The mean for Statement 2, "select one major from a list of potential majors you are considering," on the pre-test was 3.19 ($SD = .92$); for the post-test the mean was 3.56 ($SD = .97$). We found a significant difference from the pre- to the post-test results: $t(26) = -2.08$, $p < .05$. For Statement 25, "identify some reasonable major or career alternatives if you are unable to get your first choice," we found a mean score of 3.37 ($SD = .93$); the post-test mean was 3.70 ($SD = .95$). A significant difference between the pre- and the post-test results was found: $t(26) = -2.08$, $p < .05$. (See Table 2.)

A paired *t* test comparison of the mean scores of the experimental groups pre- and post-test revealed a significant difference between the means of the pre- and post-test in the Goal Selection subscale: $t(45) = -2.24$, $p < .05$. The mean of the post-test score in the Goal Selection subscale was significantly higher ($M = 3.58$, $SD = .85$) than the pre-test mean score ($M = 3.35$, $SD = .74$). Additionally, the paired *t* test comparison of pre- and post-test results of the Planning for the Future subscale showed a difference between the means: $t(45) = -1.94$, $p < .10$. The mean of the post-test score in the Planning for the Future was higher ($M = 3.50$, $SD = .61$) than the pre-test mean ($M = 3.32$, $SD = .62$). Table 3 outlines the self-efficacy results for all the CDSE-SF subscales pre- to post-test.

Independent *t* Test

We used an independent *t* test with the experimental and control group for the post-test mean scores with the CDSE-SF survey (Betz et al., 1996). The data from those who received *Career Cruising* (Career Cruising, n.d.) ($M = 3.80$, $SD = .69$) showed a significant increase in self-efficacy with respect to Statement 7, "determining the steps to take if having academic trouble with an aspect of their chosen major," compared to those

Figure 1. Experimental group results of pre- and post-test from the *Career Decision-Making Self-Efficacy–Short Form*



Note. The Career Decision-Making Self-Efficacy scale (Betz et al., 1996): *no confidence* = 1, *very little confidence* = 2, *moderate confidence* = 3, *much confidence* = 4, *complete confidence* = 5. *$p < .05$.

who did not receive *Career Cruising* ($M = 3.41$, $SD = .84$); $t(71) = 2.19$, $p < .05$, $d = .52$.

The independent *t* test comparing the experimental and control group mean scores revealed only slight increases for 10 out of the 25 CDSE-SF statements. The independent *t* test used to compare differences between mean scores for both groups also showed inconsiderable increases for 16 out of the 25 CDSE-SF statements. Nonetheless, students who took the *Career Cruising* (Career Cruising, n.d.) self-assessment (experimental group) followed by appropriate advising showed a higher level of perceived self-efficacy than those who did not (control group).

We calculated Cronbach's alpha for internal reliability of index items (from the CDSE-SF subscales): Accurate Self-Appraisal, .93; Gathering Occupational Information, .87; Goal Selection, .92; Planning for the Future, .79; and Problem Solving, .86. These Cronbach alpha levels show a high level of internal consistency comparable to those from previous studies. No statistically significant differences emerged between the two groups in terms of gender, age, race, or classification (freshman, sophomore, etc.) for this sample population.

Discussion

In this study we sought to determine whether completing *Career Cruising* (Career Cruising, n.d.) and participating in a subsequent results-focused advising session affected the level of self-efficacy of students deciding upon majors. The findings indicate an increase in perceived self-efficacy for the experimental group for 18 of the 25 statements, as shown in Table 1 and Figure 1. The paired *t* test showed a statistically significant increase in perceived self-efficacy with *Career Cruising* followed by appropriate advising on four of the

Table 2. Paired *t* test on control group pre- and post-tests of the *Career Decision-Making Self-Efficacy–Short Form*

Statement			Pre-test		Post-test				
No.	**Topic**	***n***	***M***	***SD***	***M***	***SD***	***t value***	***df***	***p***
1	Internet info	27	4.00	.78	3.67	.88	1.975	26	.059
2	One major	27	3.19	.92	3.56	.97	–2.078	26	.048*
3	Plan goals	27	3.22	.93	3.41	.84	–.895	26	.379
4	Determine steps	27	3.48	.75	3.41	.84	.465	26	.646
5	Assess abilities	27	3.89	.75	3.81	.88	.465	26	.646
6	One occupation	27	3.37	.88	3.44	.80	–.527	26	.602
7	Steps major	27	3.81	.92	3.78	.93	.205	26	.839
8	Work goal	27	3.78	1.09	4.07	.78	–1.442	26	.161
9	Ideal job	27	3.56	1.05	3.63	1.08	–.328	26	.746
10	Ten years	27	3.04	1.13	3.41	1.15	–1.586	26	.125
11	Lifestyle career	27	3.74	.94	3.81	.92	–.420	26	.678
12	Resume prep	27	2.85	.99	3.15	1.06	–1.494	26	.147
13	Change majors	27	3.59	.80	3.85	.99	–1.568	26	.129
14	Decide value	27	3.93	.73	3.93	.87	.000	26	1.000
15	Earnings yearly	27	3.85	.77	3.67	.88	1.308	26	.202
16	Career decision	27	2.85	.91	3.26	.86	–1.893	26	.070
17	Change occupations	27	3.41	.93	3.59	.97	–.926	26	.363
18	Determine sacrifices	27	3.48	.75	3.56	.97	–.440	26	.663
19	Talk w/professional	27	3.67	.88	3.81	.96	–.779	26	.443
20	Choose a major	27	3.89	.85	3.89	.93	.000	26	1.000
21	Identify employ	27	3.33	.88	3.56	.85	–1.140	26	.265
22	Define lifestyle	27	4.33	.68	4.04	.76	2.126	26	.043*
23	Grad schools	27	3.44	.89	3.44	1.09	.000	26	1.000
24	Interview process	27	3.48	.85	3.41	1.05	.465	26	.646
25	Identify second	27	3.37	.93	3.70	.95	–2.082	26	.047*

Note. The Career Decision-Making Self-Efficacy scale (Betz et al., 1996): *no confidence* = 1, *very little confidence* = 2, *moderate confidence* = 3, *much confidence* = 4, *complete confidence* = 5. *$p < .05$.

CDSE-SF (Betz et al. 1996) statements and one subscale, Goal Selection.

The results of the independent *t* test used to compare the post-test mean scores of the experimental and control groups suggest that utilization of *Career Cruising* (Career Cruising, n.d.) followed by appropriate advising with students deciding upon majors exerts a significant impact, thus supporting the hypothesis that perceived self-efficacy increases after students complete *Career Cruising* and participate in appropriate advising. This finding demonstrates that students deciding upon majors who have not taken the *Career Cruising* self-assessment before advising may experience more self-doubt about

Table 3. Experimental group paired *t*-test results associated with *The Career Decision-Making Self-Efficacy–Short Form* subscales

		Pre-test		Post-test				
Index	***n***	***M***	***SD***	***M***	***SD***	***t value***	***df***	***p***
Accurate Self-Appraisal	46	3.58	.60	3.66	.81	–.692	45	.493
Gathering Occupational Information	46	3.64	.60	3.67	.68	–.327	45	.746
Goal Selection	46	3.35	.74	3.58	.85	–2.244	45	.030*
Planning for the Future	46	3.32	.62	3.50	.61	–1.939	45	.059
Problem Solving	46	3.51	.50	3.66	.65	–1.441	45	.157

Note. The Career Decision-Making Self-Efficacy scale (Betz et al., 1996): *no confidence* = 1, *very little confidence* = 2, *moderate confidence* = 3, *much confidence* = 4, *complete confidence* = 5. *$p < .05$.

academic and vocational decisions than students who completed the self-assessment. A lower level of self-efficacy may create more anxiety about making long-term career decisions, especially for decisions perceived as permanent (Bertram, 1996).

For this study, we predicted that students who took the *Career Cruising* (Career Cruising, n.d.) self-assessment followed by appropriate advising would show higher scores on the CDSE-SF (Betz et al., 1996) post-test. Studies on self-efficacy expectations and career indecision reveal a moderately strong relationship between career decision making, self-efficacy, and career indecision. More students with low-levels of self-efficacy (confidence) in their ability to complete the tasks and behaviors required for effective decision making are likely to report being vocationally undecided (Betz & Hackett, 1981; Taylor & Betz, 1983). Conversely, more vocationally decided students exhibit high levels of self-efficacy thus showing confidence in their ability to complete the necessary tasks related to career decision making. The findings of this study support the assertion that career self-assessments, such as *Career Cruising*, influence students' career self-efficacy.

Implications for Academic Advisors

By understanding the value of career self-assessments, academic advisors can effectively advise students academically, professionally, and personally. The utilization of *Career Cruising* (Career Cruising, n.d.), coupled with effective advising, appears to benefit those deciding upon majors, the academic advising profession, and the university community.

Research has shown that students deciding upon majors and those unable to commit to one area of study (i.e., major-changers) often lack the information regarding vocational opportunities to make career choices skillfully or prudently (Kramer et al., 1994). The results of this study support the hypothesis that *Career Cruising* (Career Cruising, n.d.) and subsequent appropriate academic advising, when combined, provide a framework for the decision-making process. The tool offers valuable information on over 14,000 vocational and professional employment traits, and the student begins the decision-making process by selecting a career. However, students may remain unaware of the step-by-step process without a qualified academic advisor's guidance during the analysis of the *Career Cruising* self-assessment. For example, students may identify a career preference, but need information on the job description, level of education, appropriate major, potential earnings, and resources to ensure competitiveness in the job market (i.e., internships, research, and cooperative education). By completing *Career Cruising* followed by appropriate advising, students making decisions may benefit, not only from increased self-efficacy, but through long-term returns as a result of engagement in the university community, discovery of co- and extra-curricular activities that enhance the collegiate experience, and meaningful career and lifelong skills in decision making.

Integrating *Career Cruising* (Career Cruising, n.d.) into the advising experience can help advisors evaluate students' personal interests and abilities resulting in the creation of realistic academic and professional goals. Academic advisors may use the findings of this study to better understand their students, regardless of their place in the decision-making process, and to influence educational programming. Career self-assessments, such as *Career Cruising,* may lead to greater advising effectiveness and time management. For instance, prior to the initial adoption of *Career Cruising*, advisors in this study typically met with students several times to identify personal and vocational interests. While this exploration process often led to identification of many possible career opportunities that require further research and investigation, it proved to be an arduous process for students. *Career Cruising* facilitates the exploration process by paring down the number of questions an advisor needs to ask to effectively guide students. Instead of asking general questions such as "What areas you are interested in?" and "What kinds of things do you like?" the *Career Cruising* self-assessment reveals the answers to those essential questions, reducing the time spent searching for the answers.

Academic advisors seek to understand their students, but also to find tools that aid in the effectiveness of advising. In addition, they recognize the importance of the college experience and need for further research in advising. This study contributes to the literature in advising, college student development theory, and career decision self-efficacy by filling a gap in the research. To date, it is the only study to explore the potential of *Career Cruising* (Career Cruising, n.d.) when followed by appropriate advising on students deciding upon majors.

The rising cost of tuition and the economic crisis facing the United States have placed colleges and university under tremendous pressure to ensure

that the college experience will lead to viable careers (College Board, 2011). This study may help institutions to recognize the importance of academic and vocational self-discovery while allowing students to find their passion. Perhaps further review of this study will demonstrate the importance of a student's understanding of *self*. Planners of university orientation programs may consider requiring students to complete *Career Cruising* (Career Cruising, n.d.) and participate in a follow-up appointment with an academic advisor before registration to give students a better sense of their vocational tendencies, aptitudes, and interests.

Limitations and Future Research

As in any research, limitations must be acknowledged. In this study, the sample population only includes students deciding on majors, which may restrict the generalizability of the findings. Readers should exercise caution concerning the generalizability of results.

Lack of research on career self-assessment tools has limited academic advisors' ability to recognize the impact of *Career Cruising* (Career Cruising, n.d.) on the career self-efficacy of students deciding on a major. Future researchers seeking to contribute to the findings of this study should consider broadening the sample population beyond those deciding upon majors. Also, they may wish to examine other self-assessment tools. They could consider extending the research to include diverse populations and multi-institutions. Results of a similar study in which a third group of students take *Career Cruising* but do not receive academic advising may expand the understanding of the assessment tool and of advising.

Future investigation that replicates this study via a longitudinal approach would add to the findings in terms of validation. Exploration using a qualitative component (e.g., interviews, focus groups, etc.) may provide additional insight into student and academic advisor perspectives of their experiences with *Career Cruising* (Career Cruising, n.d.).

References

American College Testing. (n.d.). *Discover*. Retrieved from www.act.org/discover/

Bandura, A. W. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215.

Bertram, R. M. (1996). The irrational nature of choice. *NACADA*, *16*(2), 19–24.

Betz, N. E., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology, 28*, 399–410.

Betz, N. E., Hammond, M., & Multon, K. (2005). Reliability and validity of response on continua for the *Career Decision Self-efficacy Scale*. *Journal of Career Assessment, 13*, 131–149.

Betz, N. E., & Klein, K. (1996). Relationships among measures and career self-efficacy, generalized self-efficacy, and global self-esteem. *Journal of Career Assessment*, *4*, 285–298.

Betz, N. E., Klein, K., & Taylor, K. (1996). Evaluation of a short form of the *Career Decision-Making Self-Efficacy Scale*. *Journal of Career Assessment, 4*, 47–57.

Betz, N. E., & Luzzo, D. (1996). Career assessment and the *Career Decision-Making Self-Efficacy Scale*. *Journal of Career Assessment, 4,* 313–328.

Betz, N. E., & Schifano, R. (2000). Increasing realistic self-efficacy and interest in college women. *Journal of Vocational Behavior, 56*, 35–52.

Bloom, J. L., Hutson, B. L., & He, Y. (2008). *The appreciative advising revolution*. Champaign, IL: Stipes.

Career Cruising. (n.d.). *Career cruising*. Retrieved from http://public.careercruising.com/us/en

Career Educational Consulting Services (CECS). (2012). *Career Cruising Matchmaker reliability and validity analysis*. Toronto, Ontario, Canada: Paul Gore & Wade Leuwerke.

College Board. (2011). *Trends in college pricing 2011*. Retrieved from http://trends.collegeboard.org/college_pricing/about/index

CPP. (2009). *Strong Interest Inventory.* Retrieved from https://www.cpp.com/products/strong/index.aspx.

Crites, J. O. (1978). *Career Maturity Inventory.* Monterey, CA: McGraw Hill.

Crookston, B. B. (1972). A developmental view of academic advising as teaching. *Journal of College Student Personnel*, *13*, 12–17. (Reprinted from *Journal of College Student Personnel, 13*, 1972, pp. 12–17; *NACADA Journal, 14*[2], 1994, pp. 5–9)

Foote, B. (1980). Determined- and undetermined-major students: How different are they? *Journal of College Student Personnel, 21*(1), 29–34.

Gordon, V. (1984). *The undecided college student: An academic and career advising challenge*. San Francisco, CA: Charles C Thomas.

Gordon, V. (2007). *The undecided college student*. Springfield, IL: Charles C Thomas.

Huck, S. W. (2008). *Reading statistics and research* (5th ed.). Boston, MA: Pearson Education.

Kramer, G. L., Higley, B. H., & Olsen, D. (1994). Changes in academic major among undergraduate students. *Colleges and University*, *69*, 88–98.

Luzzo, D. A. (1996). A psychometric evaluation of the *Career Decision-Making Self-Efficacy Scale*. *Journal of Counseling & Development, 74*, 276–279.

Luzzo, D. A., & Day, M. A. (1999). Effects of *Strong Interest Inventory* on career-decision-making self-efficacy and social cognitive career beliefs. *Journal of Career Assessment*, *7*(1), 1–17.

The Myers-Briggs Foundation. (n.d.). *Myers-Briggs Type Inventory (MBTI)*. Retrieved from http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/

Noel, L. (1985). Increasing student retention: New challenges and potential. In L. Noel & D. Levitz (Eds.), *Increasing student retention* (pp. 1–27). San Francisco, CA: Jossey-Bass.

O*Net Resource Center. (n.d.). *O*Net Interest Profiler*. Retrieved from http://www.onetcenter.org/IP.html

Paulsen, A. (2001). *Construct validity of measures of career-related self-efficacy expectations* (Unpublished doctoral dissertation). Ohio State University, Columbus.

Reese, R. J., & Miller, C. D. (2006). Effects of a university career development course on career decision-making self-efficacy. *Journal of Career Assessment, 14*, 252–266.

Smith, H. (2001). *Efficacy and esteem pathways to depression in college students* (Unpublished doctoral dissertation). Ohio State University, Columbus.

Steele, G. E. (1994). Major Changers: A special type of undecided student. In V. N. Gordon (Ed.), *Issues in advising the undecided college student* (pp. 85–92). Columbia: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.

Steele, G. E. (2003). A research based approach to working with undecided students: A case study illustration. *NACADA Journal, 23*(1&2), 10–19.

Sullivan, B. A., & Hansen, J. C. (2004). Evidence of construct validity of the interest scales on the *Campbell Interest and Skill Survey*. *Journal of Vocational Behavior, 65*, 179–202.

Taylor, K. M., & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior, 22*, 63–81.

Taylor, K. M., & Popma, J. (1990). Construct validity of career decision-making self-efficacy scale and the relationship of CDMSE to vocational indecision. *Journal of Vocational Behavior, 37*, 17–31.

Titley, R. M., & Titley, B. S. (1980). Initial choice of college major and attrition: The "decided" and "undecided" after 6 years. *Journal of College Student Personnel, 26*, 293–298.

U. S. Census Bureau. (2014). *College enrollment summary by sex, race, and Hispanic origin*. No. 283. Retrieved from http://www.census.gov/compendia/statab/cats/education/higher_education_institutions_and_enrollment.html

Zarella, K. L., & Schuerger, J. M. (1990). Temporal stability of occupational interest inventories. *Psychological Reports, 66*, 1067–1074.

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