



# College Students' Career Decision-making and Career Decision-making Self-efficacy: a Case Study in Formative Assessment and Course Design

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## Abstract

College career courses are increasingly offered at colleges and universities due to economic changes as a result of performance-based funding initiatives nationwide, and in an attempt to ensure more job placements of students graduating with baccalaureate degrees (Devlin *The Journal of College Placement*, 34(4), 62–68, 1974; Studley 2004; Fouad et al. *Journal of Career Assessment*, 17(3), 338–347, 2009; Hansen and Pedersen *Journal of the First Year Experience & Students in Transition*, 24(2), 33–61, 2012). This case study expands on the seminal work of Gallo (2017) and assessed the effectiveness of a new interdisciplinary career exploration course at a comprehensive university that is open to all students, not just students who were undecided in their college major. The course design followed a constructivism curriculum, with opportunities for formative assessment, which resulted in a culminating final course project. Students' career decision-making and career decision-making self-efficacy were measured utilizing a pre-test/post-test model, the Career Decision Scale (CDS), and the Career Decision Self-Efficacy Scale Short Form (CDSE-SF). The results indicated that the interdisciplinary career course curriculum had a positive effect on students' level of career decision-making and career decision-making self-efficacy.

**Keywords** Formative assignments · Constructivist curriculum · Career decision-making · Career courses

## Introduction

Many believe that the most important role for colleges and universities is to prepare undergraduates for a career (Selingo 2003). Career exploration courses at the university level have existed for some time. Most of these courses are tailored towards certain types of students, for example freshman students or students within a specific major. A common trend is to offer career exploration courses for undecided students (Bollman 2009; Reese and Miller 2006). This case study assessed the effectiveness of a new career exploration course at a comprehensive university that is open to all students, not

just students who were undecided in their college major. The course consisted of a series of formative assignments leading up to a final vision board which was the culmination of all the assignments.

The first university-level career exploration course was offered at the University of Minnesota in 1932 (Borow 1960). During examination of the literature, it was found that many career courses assessed the self-efficacy of students in making a career decision upon completion of the career course (Wiseman 1988; Oreshnick 1991; Reese and Miller 2006; Grier-Reed and Conkel-Ziebell 2009). Although previous research had been conducted on the effectiveness of career courses, it focused on students who were undecided in their college major. Now more than ever a career should attempt to provide meaning and significance in one's life (Wuthnow 2003). Furthermore, the rapid changes which have occurred in the world of work have increased the number of career transitions individuals make throughout their lifetime (Gordon 2007; Gati et al. 1996). The course followed a constructivism curriculum, with opportunities for formative assessment, which resulted in a culminating final project. While there has been research on the effectiveness of career courses on college student career decision-making, there has

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not been studies which examine the interdisciplinary nature of career decision-making course curriculum when teaching a group of students from all disciplines, and years of study. In the literature review which follows, curriculum theory, career development, and career self-efficacy will be discussed as it relates to a newly offered interdisciplinary career exploration course.

## Literature Review

Career development takes place over a person's entire life span, but there are specific developmental stages where people need more targeted interventions (Super 1953, 1980). College is one of the times when individuals are at a significant developmental stage: where they are required to decide what they want to major in; however, many students enter college undecided in their college major (Gordon 2007). To help these undecided students, a career intervention is needed. A career intervention can be defined as any effort or treatment proposed to improve an individual's career development or to enable a person to make better career-related decisions (Spokane and Oliver 1983).

One intervention is the use of a career development course that students take for college credit. College administrators have realized that many incoming students have difficulties making career decisions, and if the career decision-making difficulty is not addressed, the students may make poor career and academic choices during their time in college (Fouad et al. 2009). A targeted, developmentally appropriate intervention is suggested for students who are starting to explore possible career interests (Super 1953, 1980). Exploring one's potential career and major path is a beneficial activity for all incoming college students. Career development is an individual experience for each person. With a job market that is rapidly changing, educators should be giving students the skills needed to take ownership in a student's career search process (Aoun 2017). One such skill is figuring out one's strengths and interests as it relates to making a career decision and deciding on a field of interest to study.

### Self-efficacy

An increase in self-efficacy is an outcome from career development courses (Reese and Miller 2006). By giving students knowledge and more opportunity to reflect on themselves, in turn, the hope is the students will increase their self-efficacy, or belief one has in their abilities (Bandura 1982). Self-efficacy can be applied to career decision-making is referred to as career self-efficacy. Career self-efficacy can be defined as the beliefs one has about their ability to be successful within a chosen career (Bandura 1982; Betz and Hackett 1986). One's self-efficacy is influenced by a myriad of factors such as

family, mentor figures, culture, and pre-conceived beliefs (Greenhaus and Callanan 2006). Betz and Hackett (1981) found college students' beliefs about occupational and educational abilities were significantly related to the range of career options they considered. Lent et al. (1984, 1986) found that college students' beliefs about their ability to complete the requirements for science and engineering majors were predictive of later academic performance. Cunningham and Smothers (2010) indicated college students who changed their college majors three or more times during their undergraduate college career reported lower levels of self-efficacy relative to undergraduate students who were considered stable in their college major choice.

The display of self-efficacy involves career decision-making self-efficacy, which is an extension of social learning theory (Hansen and Pedersen 2012). Taylor and Betz (1983) used the concept of career decision-making self-efficacy to create their career decision self-efficacy scale which is widely used to assess students' self-efficacy after receiving a career intervention, such as a career exploration course (Hansen and Pedersen 2012). The Career Decision-Making Self-Efficacy Scale (CDSE-SF) consists of five subscales which measure a respondent's self-appraisal, gathering of occupational information, goal selection, making plans for the future, and problem solving (Betz and Hackett 1981; Greenhaus and Callanan 2006; Hansen and Pedersen 2012). The assessment is modeled off Crites's (1978) five essential ingredients for career decision-making: accurate self-appraisal, gathering occupational information, goal selection, making future plans, and problem solving (Reese and Miller 2006). Career decision-making self-efficacy has been shown to relate to academic performance (Peterson 1993), career-choice commitment (Betz and Serling 1993), and career exploration behaviors (Blustein 1989).

### Social Cognitive Philosophy

When developing the curriculum for this course, a social cognitive philosophy was used to inform the activities, assignments, and teaching style of the course. Social cognitive theory developed by Bandura (1978) states there is triadic interaction between a person, their environment, and their behavior. In social cognitive theory, there is a clear emphasis on interventions and outcomes (Osipow and Fitzgerald 1996). Social cognitive theory views human behavior as being goal directed and predictive (Bandura 2001). In the social cognitive view, the environment, behavior, and other cognitive and social factors work together to determine and predict one another (Bandura 2001). Social cognitive theory originated from Bandura's theory on social learning, which he later re-named social cognitive theory (Bandura 1986). Social cognitive theory revolves around the combinations of inherited attributes, the environment, learning history, and individual task

approach skills. In social cognitive theory, inherited attributes are an individual's genetic characteristics such as physical appearance, race, gender, and intellectual abilities. The environment is defined as the events and settings in an individual's world, which affect career decisions such as job climate, policies, and social and climatic events.

Social cognitive theory allows for the exploration of educational opportunities and perceptions. Modeling is a large piece of the theory, and whenever possible, students should be exposed to someone who is practicing within their potential field of interest. Social modeling is a large factor in the decisions an individual makes (Bandura 1969).

## Method

The curriculum of the career-exploration course consisted of a formative process, with a culminating summative final assignment. During the first few weeks of the course, students completed self-assessments on their personality, interests, values, and skills. Students were asked to save their results, as future assignments utilized the results. Students were asked to write reflective journaling pieces related to the results, research a potential major and career of interest, and create a vision board of where they saw themselves in 5 years. Students received feedback on each of these pieces, leading up to a final portfolio which consisted of all of the above assignments.

For this case study, a convenience sample was used. A convenience sample consists of participants who are willing and able to serve (Creswell 2012). The student sample was administered during three semesters (fall 2014, spring 2015, fall 2015) of an interdisciplinary career exploration course taught at a comprehensive university in the USA. The participants were traditional-aged college students from all college majors and academic years of study. Participants were selected based on their enrollment in a one-credit interdisciplinary career exploration course at a comprehensive university. Students self-selected to enroll in the course.

The sample size was 64 undergraduate students ranging from freshman credit hour achievement to senior credit hour achievement in all fields of study (Table 1). The overall population of students was 83; however, 19 surveys were removed due to student class withdrawal.

Students were encouraged to register for this interdisciplinary career exploration course by academic advisors and through campus marketing such as flyers and posters. Data

**Table 1** Participant demographics

	Freshman	Sophomore	Junior	Senior	Total
Males	8	12	3	2	25
Females	13	15	8	3	39

collection was kept anonymous. The only information collected on the surveys was college major, gender, and anticipated class year.

## Research Design and Hypothesis

A pre-test/post-test model was used for this case study. A pre-test provides the measurement of some attribute prior to the introduction of a treatment. A post-test is conducted after the "treatment" which consisted of attending the course. Both pre-test and post-test measured the same attribute, in this case career decision-making and career decision-making self-efficacy. Following collection of pre-test and post-test data from the fall 2014–fall 2015 semesters, a one-way repeated measures analysis of variance (ANOVA) was used. Combined test scores for all three semesters were used.

## Research Questions

1. Does a one-credit interdisciplinary career exploration course affect students' level of career decision self-efficacy as measured by the Career Decision-Making Self-Efficacy Short Scale (*CDSE-SF*)?
2. Does a one-credit interdisciplinary career exploration course affect students' levels of career decision-making as measured by the Career Decision Scale (*CDS*)?
3. Will students who complete a one-credit interdisciplinary career exploration course show lower levels of indecision in their ability to choose a college major as measured by the Career Decision Scale (*CDS*)?

## Data Collection Instruments

### Career Decision Scale

The *CDS*, developed by Samuel Osipow (1987) and distributed by Psychological Assessment Resources (PAR), is composed of 19 items; the first 18 items are based off of a Likert type and ranging from one to four. Question 19 is an open-ended item which provides respondents the opportunity to clarify their earlier responses (Osipow 1987). For the purposes of this study, the open-ended responses were not used due to a low response rate. For future research, it would be beneficial to have a larger sample size and response rate for this question, so responses could be used to inform teaching practices throughout the semester. Respondents have the choice of rating themselves on a Likert scale, from 1 to 4 with a rating of 1 indicating low similarity to the respondent with a response of "not at all like me" and 4 representing a high similarity with a

response of “exactly like me” (Osipow 1987). Test items 1 and 2 make up the Certainty Scale, which consists of a measure to the degree of certainty the respondent has in having made a career or college major choice decision. Scores range from 2 to 8 on the Certainty Scale, with a score of 8 indicating a high level of certainty. Items 3–18 make up the Indecision Scale, which consists of a measure to the degree of uncertainty or indecision the respondent has in making a career or college major choice decision (Osipow 1987). Indecision Scale scores range from 16 to 64, with 64 indicating a high level of indecision. The Career Decision Scale (CDS) was originally developed as a tool to promote self-counseling about career indecision (Osipow et al. 1976). The CDS is appropriate for use with college students (Westbrook et al. 1980). The CDS can be used as a measurement in a variety of situations since the instrument is not associated with any particular theory (Osipow and Winer 1996).

### Career Decision Self-Efficacy Scale Short Form

The Career Decision Self-Efficacy Scale Short Form (CDSE-SF) was developed by Karen Taylor and Nancy Betz (1983). Modeled on the 50-item Career Decision Self Efficacy Scale (CDSE), the CDSE-SF consists of 25 questions. The CDSE-SF was developed as a shorter version, which could be used in counseling appointments and as a pre-post measure for the assessment of different career interventions (Betz and Taylor 2012). The CDSE and the CDSE-SF are based on Alfred Bandura’s (1986) concept of self-efficacy. The current version of both assessments uses a five-level continuum ranging from no confidence at all (1), to complete confidence (5). The CDSE-SF was developed by elimination of five of the 10 items from each of the subscales, while still proving to show reliability and validity.

For the purposes of this case study, participants were asked to rate themselves using the 5-point continuum of the CDSE-SF. For each of the 25 questions, participants were asked to rate their level of confidence. A 1 on the continuum signifies “no confidence,” a 2 signifies “very little confidence,” a 3 signifies “moderate confidence,” a 4 signifies “much confidence,” and a 5 signifies “complete confidence.” These scores are then added and divided by 25 to get an overall score.

### Results

For each research question, a repeated measures ANOVA was used to compare overall pre-test and post-test scores. A one-way repeated measure ANOVA is used when the same variable is measured on the same participants. It is often used to measure means at different times (Hair et al. 2010).

### Research Question 1

Research question 1 was as follows: does a one-credit interdisciplinary career-exploration course affect students’ level of career decision self-efficacy as measured by the CDSE-SF? A significant difference was found ( $F(1.63) = 13.347, p < 0.01$ ).

During administration, students were asked not to put identifiable information on their CDSE-SF assessments. The pre-test and post-test comparison of means indicates a higher level of career self-efficacy after students were exposed to the interdisciplinary career exploration course curriculum as specified in Table 2.

### Research Question 2

Research question 2 was as follows: does a one-credit interdisciplinary career-exploration course affect students’ level of career decision-making as measured by the CDS? Table 3 provides the means of student scores on the Certainty Scale of the CDS during pre-test administration over the three semesters. Data is organized by gender and year in college. Means increased as student year in college increased, signifying that during pre-test administration, the further along the students were in college, the more certain they were of their career choice.

As indicated in Table 4, a significant difference was found ( $F(1.56) = 32.199, p < 0.01$ ) between overall pre-test and post-test administrations of the CDS. No significant difference was found between certainty scores and gender, certainty scores and year in college, or certainty scores, gender, and year in college.

A significant difference was found in the CDS scores between pre-test and post-test administrations. Both genders and all years in college reported an increase in the Certainty Scale of the CDS following the interdisciplinary career exploration course curriculum. This answers research question 2: there was an increase in certainty scores after students completed the interdisciplinary career course curriculum.

### Research Question 3

Research question 3 was as follows: will students who complete a one-credit interdisciplinary career exploration course show lower levels of indecision in their ability to choose a

**Table 2** Repeated measures ANOVA on pre-test and post-test scores of the CDSE-SF

	Mean	Std. deviation	N
Total overall score—pre	3.6238	0.72977	64
Total overall score—post	4.0375	0.55526	64

**Table 3** Repeated measures ANOVA: CDS Certainty Scale pre-test

Gender	Year	Mean	Std. deviation	N
Male	Freshman	4.63	1.408	8
	Sophomore	5.58	1.564	12
	Junior	6.33	1.528	3
	Senior	7.00	1.414	2
	Total	5.48	1.584	25
Female	Freshman	4.69	1.750	13
	Sophomore	5.47	1.995	15
	Junior	5.38	1.685	8
	Senior	5.67	1.155	3
	Total	5.21	1.780	39
Total	Freshman	4.67	1.592	21
	Sophomore	5.52	1.784	27
	Junior	5.64	1.629	11
	Senior	6.20	1.304	5
	Total	5.31	1.699	64

**Table 5** Repeated measures ANOVA: CDS Indecision Scale pre-test

Gender	Year	Mean	Std. deviation	N
Male	Freshman	38.13	4.257	8
	Sophomore	32.58	8.867	12
	Junior	28.67	13.577	3
	Senior	20.50	2.121	2
	Total	32.92	9.004	25
Female	Freshman	34.00	5.972	13
	Sophomore	30.60	11.312	15
	Junior	31.38	9.501	8
	Senior	34.33	7.638	3
	Total	32.18	8.985	39
Total	Freshman	35.57	5.653	21
	Sophomore	31.48	10.158	27
	Junior	30.64	10.082	11
	Senior	28.80	9.365	5
	Total	32.47	8.928	64

college major as measured by the Career Decision Scale (CDS)?

Table 5 provides the means of student scores on the Indecision Career Decision Scale during pre-test administration over the three semesters. Data is organized by gender and year in college. As indicated in Table 5, a one-way repeated measures ANOVA was calculated with the pre-test administration scores to compare the differences in means and standard deviation from pre-test administration to post-test administration on the CDS indecision scores.

Table 5 includes the means of student scores on the CDS Indecision Scale during pre-test administration over the three

semesters. Data is organized by gender and year in college. Means decreased as student year in college increased, signifying that during pre-test administration, the further along the students were in college, the more confirmed they were in their career decision.

As indicated in Table 6, a significant difference was found ( $F(1.56) = 7.097, p < 0.010$ ) between overall pre-test and post-test administrations of the CDS. No significant difference was found between certainty scores and gender, certainty scores and year in college, or certainty scores, gender, and year.

Male senior students reported a slight increase in career indecision with their post-test indecision scores. This is

**Table 4** Repeated measures ANOVA: CDS Certainty Scale post-test

Gender	Year	Mean	Std. deviation	N
Male	Freshman	6.00	1.927	8
	Sophomore	6.58	1.505	12
	Junior	7.00	1.000	3
	Senior	7.50	0.707	2
	Total	6.52	1.558	25
Female	Freshman	6.38	1.325	13
	Sophomore	6.67	1.397	15
	Junior	6.88	1.356	8
	Senior	7.00	1.000	3
	Total	6.64	1.308	39
Total	Freshman	6.24	1.546	21
	Sophomore	6.63	1.418	27
	Junior	6.91	1.221	11
	Senior	7.20	0.837	5
	Total	6.59	1.400	64

**Table 6** Repeated measures ANOVA: CDS Indecision Scale post-test

Gender	Year	Mean	Std. deviation	N
Male	Freshman	34.50	6.164	8
	Sophomore	31.33	10.620	12
	Junior	21.00	5.568	3
	Senior	28.50	13.435	2
	Total	30.88	9.488	25
Female	Freshman	26.15	7.093	13
	Sophomore	28.33	9.788	15
	Junior	28.88	10.855	8
	Senior	23.33	2.887	3
	Total	27.33	8.716	39
Total	Freshman	29.33	7.793	21
	Sophomore	29.67	10.080	27
	Junior	26.73	10.110	11
	Senior	25.40	7.570	5
	Total	28.72	9.119	64



something that should be explored more thoroughly with a larger sample size. A significant difference was found in the *CDS* Indecision Scale scores between pre-test and post-test administrations. Both genders and all years in college, except male senior students, reported a decrease in the Indecision Scale of the *CDS* following the interdisciplinary career exploration course curriculum. This answers research question 3: there was a decrease in indecision scores after students completed the interdisciplinary career course curriculum.

## Discussion

This case study examined the effects of an interdisciplinary career exploration course on college undergraduate students' career decision-making and career decision-making self-efficacy. College career courses are popular models of career interventions as college administrators realize many incoming and current students have difficulty making career and major decisions (Folsom et al. 2005; Hansen and Pedersen 2012). By addressing these concerns, students are more likely to be retained, graduate on time, have a higher level of career decisiveness, and make better academic choices during their time in college (Betz and Hackett 1981; Blustein 1989; Cunningham and Smothers 2010; Greenhaus and Callanan 2006; Lent et al. 1984; Luzzo 1993; Luzzo and Day 1999). All majors and college grade levels could enroll in the interdisciplinary career exploration course, whereas many career courses are limited to only freshman and sophomore students or for students who have not yet declared a major (Hansen and Pedersen 2012).

This interdisciplinary career exploration class was taught for the first time during the fall 2014 semester. Data was collected during the fall 2014, spring 2015, and fall 2015 semesters when the course was being taught by the Career Center at a comprehensive university in the southwest United States. Repeated measures ANOVAs were run to compare pre-test and post-test means of scores on the *CDS* and *CDSE-SF*. Data was collected anonymously as the information was used to assess the effectiveness of the curriculum of a new course being offered through the Career Center. The curriculum adhered to the social learning philosophy and utilized formative assessment practices throughout the course. Bandura (2001) described the social learning view as the way the environment, behaviors, and other cognitive and social factors work together to determine and predict one another. Students enrolled in the interdisciplinary career course were given the *CDS* and the *CDSE-SF* during the first and last weeks of classes to compare the overall class pre-test and post-test scores. Having the course be interdisciplinary allowed students to tackle a large question, what should I do with my career, in an environment with peers from all disciplines and years in college. Students were enrolled with peers from different majors and different

years in college. This often resulted in more advanced students giving their experiences of choosing a major or securing an internship. The course was taught in a way to have students engage in reflection activities, first individually, and then with their peers. The interdisciplinary environment also included elements of formative assessment, so students could work on assignments which ultimately became their final project for the course. This formative process started with students completing self-assessments on their personalities, interests, skills, and value. The self-assessment results were then used within prompts for reflective journaling activities. As a midterm project, students researched a career of interest and explained how their self-assessment results fit into this career. For the final project, students created a vision board which highlighted where they wanted to be in 10 years' time, reflecting on the work they had completed throughout the course. Students were given feedback after each assignment leading up to the larger, summative final assignment.

## Conclusion

The results indicated that the interdisciplinary career course curriculum had a positive effect on students' level of career decision-making and career decision-making self-efficacy. Repeated measures ANOVAs were run to examine the differences amongst pre-test and post-test scores. Two separate ANOVAs were run to examine the Certainty and Indecision scales of the *CDS*. The results from the Certainty Scale showed a significant effect ( $F(1.56) = 32.199, p < 0.01$ ) between the overall pre-test and post-test scores of the 64 students, meaning there was an increase in career certainty as measured by the *CDS* Certainty Scale after completing the interdisciplinary career course. The results from the Indecision Scale showed a significant effect ( $F(1.56) = 7.097, p < 0.010$ ) between the overall pre-test and post-test scores of the 64 students, meaning there was a decrease in career indecision after completing the interdisciplinary career course as measured by the *CDS* Indecision Scale.

A one-way repeated measures ANOVA was also calculated to compare the pre-test and post-test scores of the *CDSE-SF*. The results showed a significant effect ( $F(1.63) = 13.347, p < 0.01$ ), meaning there was an increase in overall career decision self-efficacy following completion of the interdisciplinary career course. These results indicate that an interdisciplinary career course can have benefits for all student years in college, and all majors.

This study also examined any gender differences amongst participants. The repeated measures ANOVAs showed no gender differences amongst the student participants. Additional tests were not run due to the anonymous data collection process used when the pre-established data was collected. Due to this, matching and statistical analyses at an

individual level was unable to be conducted. The overall class wide data from all three semesters during data collections indicated an overall increase in career decision, a decrease in career indecision, and an increase in career self-efficacy.

## Limitations and Recommendations for Further Study

Although the interdisciplinary career course curriculum showed an effect on students' career decision-making and career decision-making self-efficacy, caution should be made when generalizing the results to other universities due to the small sample size of this study. This study was conducted using pre-established data, which was collected during the fall 2014, spring 2015, and fall 2015 academic semesters, and which resulted in a sample size of 64 students. Another limitation is the sampling process. Since the sample was a convenience sample, the sampling process was not random and therefore potentially did not accurately represent the entire population. Another limitation is that the class was taught over three semesters. The syllabus was kept the same to help control for this potential problem, but different sections could have presented variability in the classes over the three semesters. This case study was meant to inform future research on interdisciplinary career course curriculum. Further research should be conducted on interdisciplinary career courses with larger sample sizes to determine generalizability of results to other students attending other universities. Having a larger sample size could also provide insight into why the two male students who were seniors reported a decrease in their career indecision but an increase in career certainty. Additional research should also be done, following students who complete an interdisciplinary career exploration course over their time at college to help determine what the lasting impacts and long-term effects the class has on students. Finally, additional research should be conducted which includes a qualitative element, to assess individual changes experienced across the curriculum experience.

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