

Career Exploration at an Appalachian University: Effectiveness and Pre-Existing Resources

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*Abstract: Many universities offer career exploration courses designed to assist students in making effective career choices; however, it remains unclear whether pre-existing resources have a significant influence on students' ability to benefit. The purpose of this study was (a) to measure the efficacy of a career exploration course at an Appalachian institution in improving college and career decision self-efficacy and (b) to determine if the following pre-existing resources, academic readiness, academic achievement, and familial financial resources, were significant predictors of post-test college and career decision self-efficacy scores. Participants were 127 traditionally-aged, undergraduate students at a private, Appalachian university enrolled in a 15-week career exploration course. Paired samples *t*-tests revealed a significant positive change from pre to post-test for college and career decision self-efficacy; however, hierarchical linear regression analyses revealed no significant influence of the pre-existing resources on post-test scores for either construct.*

Keywords: career, self-efficacy, academics, finances, preparation

Career exploration interventions have been implemented in higher education across many different types of institutions and student populations (Spitzer, 2000). Research has consistently demonstrated the effectiveness of face to face career interventions such as career exploration courses in improving a variety of outcome variables including career indecision (Peng, 2001), college self-efficacy (Hsieh, Sullivan, & Guerra, 2007), and career decision self-efficacy (Bollman, 2009; Komarraju, Swanson, & Nadler, 2014); however, the influence of pre-existing resources (i.e., academic readiness, academic achievement, and familial financial resources) on students' ability to benefit from career exploration interventions remains unclear. Although self-reported socio-economic status (SES) might be a predictor of response to some types of related intervention (Quon & McGrath, 2015), little is known about the influence of variables common in Appalachian contexts such as lack of academic readiness, lack of academic achievement, and lack of familial financial resources on the effectiveness of course-based career interventions.

Career exploration is widely accepted as a critical component of the overall career development process. The opportunity to explore one's self and the world of work contextually has been linked to many positive benefits including a stronger sense of vocational identity and improved career decision making (Gushue, Clarke, Pantzer, & Scanlan, 2006). Colleges and universities have utilized career exploration courses to increase student success in a variety of areas (Komarraju, Swanson, & Nadler,

2014; Spitzer, 2000) including career maturity and decidedness (Hardesty, 1991), career decision making (Fouad, Cotter, & Kantamneni, 2009), occupational engagement (Fouad, Ghosh, Chang, Figueiredo, & Bachhuber, 2016), career-related skills (Whiston, Sexton, & Lasoff, 1998), and career decision self-efficacy (Hansen & Pederson, 2012; Reese & Miller, 2006). Career exploration courses have also been found to be an effective means by which to reduce dysfunctional or negative career thoughts (Osborn, Howard, & Leierer, 2007; Reed, Reardon, Lenz, & Leierer, 2001). These types of interventions have been shown to be effective for diverse populations including students in Hong Kong, (Cheung & Jin, 2016), students attending mid-western community colleges (French, 2014), racially diverse first year students (Osborn, Howard, & Leierer, 2007), and students attending large, religiously affiliated universities (Hansen, 2016). Other more macro level benefits have also been demonstrated such as increased rates of retention, graduation, and academic performance (Hansen, 2016). Interventions typically utilized within career exploration courses include career assessments, exposure to resources, skill-building exercises, information about career tools such as resumes, and an emphasis on personal awareness (Brown et al., 2003). Although career exploration courses have been shown to have many positive benefits, one particular benefit that is well documented is an increase in various forms of self-efficacy (Bollman, 2009; Hansen & Pederson, 2012; Reese & Miller, 2006).

Appalachian Student Population and Pre-Existing Resources

When exposed to generalized career exploration opportunities, minority populations typically benefit and demonstrate increased goal selection and planning skills as a result of intervention (Blair, 2013). However, the idea that career exploration interventions should be developed and delivered through the lens of culture, given the unique perspectives and needs of various cultural groups, is also well supported (Aguayo, Herman, Ojeda, & Flores, 2011; Cheung & Jin, 2016; Leong, Hardin, & Gupta, 2010). Therefore, although career exploration courses might be effective in the general college population, little is known about the effectiveness of such interventions in rural, Appalachian contexts. First generation students and those from rural backgrounds may have unique needs and thus require unique interventions and resources that are not typically available through most university career development centers (Joslyn, 2016). Further, due to a lack of available models and resources, targeted interventions must be considered to connect specific Appalachian populations such as high school girls with specific career fields such as science (Kelly, 2016). In fact, students who are the first in their family to attend college are four times more likely to drop out than others (Engle & Tinto, 2008) and rural, Appalachian students are much more likely to be the first in their family to attend college than the average population (Ali & Saunders, 2006). Social Cognitive Career Theory (SCCT) variables such as self-efficacy beliefs, outcome expectations, SES, and perceptions of support have also been shown to predict significant amounts of variance in the college and career aspirations (Ali & Saunders, 2006, 2009) and post-secondary pathways of Appalachian youth (Ali & McWhirter, 2006). Therefore, because Appalachian populations typically face issues associated with rural geography, decreased access to resources, and first generation status and because the career development of Appalachian students might be significantly influenced by these social and environmental factors (Ali & McWhirter, 2006; Ali & Saunders, 2006, 2009; Kelly, 2016), it follows that the influence of these challenges on students' ability to benefit from intervention should be studied.

Academic Readiness. The academic readiness of students is one of the many unique challenges that Appalachian students and institutions might face. Ali and Saunders (2006) examined the effectiveness of college preparation efforts at rural high schools in Appalachia and found that students are not as academically prepared for college as their non-rural/non-Appalachian counterparts. Some reports have indicated that only 77.5% of students from rural high schools ever matriculate to high school graduation (Strange, Johnson, Showalter, & Klein, 2012) compared to a

national average of about 81% (Snyder & Dillow, 2013). Currently, only 22.6% of individuals age 25 years or older in rural Appalachia hold at least a bachelor's degree compared to the United States average of 29.8% (Pollard & Jacobsen, 2017). These social/environmental conditions create financial difficulties, reduce the number of available models (i.e., others who have succeeded academically and/or professionally), and set cultural norms that are not supportive of higher education (Ali & Saunders, 2006).

Academic Achievement. Academic achievement, or one's ability to produce successful academic outcomes, is another challenge that might influence Appalachian populations. The majority of college students who achieve academic success have high levels of learning, persistence, effort, and prior achievement (Bong & Skaalvik, 2003). The ability to achieve success is also influenced by a student's past Grade Point Average (GPA) and educational experiences (Fenning & May, 2013), support, in the form of familial, financial, or religious resources (Maton & Wells, 1995; Spitzer, 2000), SES (Hopkins, 2005), and self-efficacy (Bandura, 1986). Although students from rural Appalachian areas might display a strong drive to succeed academically, they might be limited in how much academic success they actually produce due to a variety of factors including the environmental deficits mentioned above (Hand & Payne, 2008).

Familial Financial Resources. The influence of a student's familial financial resources or SES on a variety of higher education outcomes such as physical and mental health of students (Quon & McGrath, 2015) and post-degree employment (Baldry, 2016) has been well documented. A connection has also been established between financial resources and various aspects of career development such as prevalence of negative career beliefs (Arulmani, van Laar, & Easton, 2003), inappropriate and unsupportive parental expectations (Zhang, Yuen, & Chen, 2015), and difficulty gaining admission into selective post-bachelor's training (Griffin & Hu, 2015). Subjective judgements of career potential might also be unduly influenced by SES, an assertion which further supports the broader claim that SES negatively affects self-efficacy on the whole (Kuncel, Rose, Ejiogu, & Yang, 2014). Given the varied and significant connections between financial resources and student success, the possibility that this variable might somehow moderate attempts to provide effective career intervention should be explored.

Self-Efficacy

Self-efficacy is the idea originally asserted by Bandura (1977) that one's belief in one's ability to accomplish a particular task will play a significant role in factors such as likelihood to attempt, potential for success, and evaluation of attempts. Students with high self-efficacy tend to show greater cognitive effort in tasks, increased motivation, and better self-regulation for course completion (Bandura, 1997). The concept of self-efficacy has also been expanded through SCCT (Lent, Brown & Hackett, 1994, 2000) to include one's beliefs about his/her ability to complete specific tasks such as those necessary to be successful in college (Solberg, O'Brien, Villareal, Kennel, & Davis, 1993) or make effective career decisions (Taylor & Betz, 1983).

College Self-Efficacy. College self-efficacy is the belief that one has the skills necessary to succeed in the college environment (Gore, Leuwerke, & Turley, 2005). Examples include tasks such as asking a professor for help, getting a date, or writing a paper (Solberg et al., 1993). College self-efficacy has been linked to a variety of factors such as students' perceptions of the campus environment (Jones, 2015), ethnic identity development, college adjustment (White, 2000), academic success (Wright, Jenkins-Guarnieri, & Murdock, 2013), GPA, educational goal setting (Garriott & Flores, 2013), and general persistence and performance (Gore, Leuwerke, & Turley, 2005). College self-efficacy has also been shown to be one of the strongest predictors of intent to persist through the first year of college, retention (Baier, Markman, & Pernice-Duca, 2016; Wright, Jenkins-Guarnieri, &

Murdock, 2013), and satisfaction with college (DeWitz & Walsh, 2002). More specific to career related issues, a belief in one's ability to succeed in college has been associated with early career development efforts (Wright, Jenkins-Guarnieri, & Murdock, 2013). Therefore, it follows that learning more about self and the world of work might help one feel more confident in his/her ability to succeed at college and an increase in college self-efficacy is a highly desirable outcome for intervention. However, little is known about this particular relationship, especially within Appalachian contexts.

Career Decision Self-Efficacy. Research has consistently demonstrated the role and importance of self-efficacy in relation to one's perceived ability to make career decisions (Betz & Klein, 1996). Based on Bandura's (1977) original concept of self-efficacy and extended into the realm of career-related behavior (Hackett & Betz, 1981), the construct of career decision self-efficacy refers to one's belief that he/she is able to make decisions related to the career development process such as summarize skills or utilize resources to search for jobs (Taylor & Betz, 1983). Confidence in leadership abilities along with a general sense of confidence in areas such as math and science are some of the most significant predictors of career decision self-efficacy (Paulsen & Betz, 2004). Other possible predictors include adaptive perfectionism (Ganske & Ashby, 2007), authenticity (Russon & Schmidt, 2014), and emotional intelligence (Jiang, 2016). Students who do not believe in their ability to make effective career decisions will experience higher levels of general indecision, lack of structure, and lack of confidence (Taylor & Betz, 1983). Higher levels of career decision self-efficacy have also been related to differentiated vocational self-concept, greater engagement with career exploration activities (Hargrove, Creagh, & Burgess, 2002), and stronger career decision making skills (Luzzo, 1993). Further, lower levels of career decision self-efficacy have been found in at-risk populations such as first-generation students (Harlow & Bowman, 2016). Therefore, because career decision self-efficacy seems to be such a critical aspect of the career development process and a desirable outcome in general, diverse students who complete courses in career exploration should be able to demonstrate an increase in this construct as a result of intervention.

Hypotheses

The purpose of this study was (a) to measure the efficacy of a career exploration course at an Appalachian institution in improving college and career decision self-efficacy and (b) to determine if academic readiness, academic achievement, and/or familial financial resources were significant predictors of post-test college self-efficacy and career decision self-efficacy scores. Thus, this study tested the following hypotheses:

- (a) A positive, significant change will be found in college self-efficacy from pre-test to post-test.
- (b) A positive, significant change will be found in career decision self-efficacy from pre-test to post-test.
- (c) When pre-test college self-efficacy is entered as a covariate, then academic achievement, academic preparation, and familial financial resources will all be significant predictors of variance in post-test college self-efficacy.
- (d) When pre-test career decision self-efficacy is entered as a covariate, then academic achievement, academic preparation, and familial financial resources will all be significant predictors of variance in post-test career decision self-efficacy.

Method

Participants

Participants for this study were 127 traditionally-aged, undergraduate students at a private, rural, Appalachian university. Each participant was enrolled in an elective, 15-week career exploration course during the fall of 2015 or spring of 2016 that covered topics such as self-exploration, leadership potential, understanding the world of work, and job search preparation. All participants were over the age of 18 and provided voluntary consent to participate. The sample was approximately 48% male and 52% female; between the ages of 18-34 with a mean age of 19; 64% first year students, 17% sophomores, 7% juniors, and 13% seniors; and 77.2% White, 11% Black or African American, 2.4 % Hispanic/Latino, 1.6% Asian, and 6.3% other. The average cumulative, college GPA of the sample was 2.92. The average ACT was 22.29 and approximately 54.3% of the participants were Pell Grant eligible. For the purposes of this study, the characterization of Appalachian was utilized broadly to describe the context and identity of the university rather than a demographic of individual students. However, according to the university's registrar, over 54% of students at the university identify with the term in some form including region of origin, cultural background, ethnicity, or descent (Dupier, personal communication, March 15, 2016).

Materials

Measures of Pre-Existing Resources. Academic readiness was measured by utilizing each student's ACT score as recorded in their official student record. The ACT is a standardized test typically administered in high school and designed to determine academic readiness for college. ACT scores are frequently utilized in college admissions decisions (Zwick, 2006). Although some have questioned the validity of ACT scores in predicting success (Fauria & Zellner, 2015) others have found it to be a significant predictor of grades and retention (Welborn, Lester, & Parnell, 2015; Westrick, Le, Robbins, Radunzel, & Schmidt, 2015).

Academic achievement was measured through GPA. GPA is widely accepted as a valid marker of academic achievement and is the standard scale most colleges use in order to rate a student's performance in course work. GPA was measured on a 4.0 scale (College Board, 2017).

Familial financial resources were measured by determining a student's Pell Grant eligibility status and coded as Federal Financial Aid (FFA). The Federal Pell Grant program is the nation's most extensive collegiate grant program providing funding for college students based on demonstrated financial need. Although there are basic performance requirements for maintaining a Pell Grant such as GPA and satisfactory academic progress, initial eligibility is determined based on financial need alone (Schudde & Scott-Clayton, 2016). Pell Grant eligibility has also been utilized in other studies as a general marker of financial resources (Bird & Castleman, 2016; Phillips & Herlihy, 2009).

College Self-Efficacy Inventory. The College Self-Efficacy Inventory (CSEI) was developed by Solberg et al. (1993) to measure college students' perceived level of ability to succeed in specific situations related to the tasks of college. The CSEI is a 19-item instrument and has an internal consistency of $\alpha = .93$ with three subscales: Course Efficacy, Roommate Efficacy, and Social Efficacy each with an $\alpha = .88$. Respondents are asked to rate their level of confidence in tasks such as, "Research a term paper; write course papers; or, do well on your exams." Each item is measured on a 10-point Likert-type scale ranging from 0 (not at all confident) to 10 (extremely confident; Solberg et al., 1993). Although some authors have suggested slight modifications to the CSEI in order to enhance reliability and validity, they also noted that most hypothesized relationships between the CSEI and related constructs were generally supported (Barry & Finney, 2009).

Career Decision Self-Efficacy Scale. The Career Decision Self-Efficacy Scale (CDSE) (Betz & Taylor, 2012) was originally developed by Taylor and Betz (1983) and known as the Career Decision-Making Self-Efficacy Scale. Currently, the CDSE has been revised to include both a long and short form (Betz, Klein, & Taylor, 1996). The CDSE is a 50-item measure with 5 subscales. It measures confidence in ability to complete major career decision tasks with an $\alpha = .97$ for the total score and a range of $\alpha = .86-.89$ for the subscales (Betz & Taylor, 2012). Example items include, “How much confidence do you have that you could: list several majors that you are interested in; use the internet to find information about occupations that interest you; or, make a plan of your goals for the next five years?” Each item is measured on a 5-point Likert-type scale ranging from no confidence at all, very little confidence, moderate confidence, much confidence, to complete confidence. The CDSE has been shown to have strong reliability and validity in a variety of contexts and is frequently utilized as a pre/post measure for evaluation of career interventions (Betz & Taylor, 2012).

Procedure

The lead investigator or graduate assistant visited each section of a 15-week career exploration course at a private, rural Appalachian university during week two of the class in both fall and spring semesters to obtain informed consent and a general demographics questionnaire, administer the CSEI, and provide instructions for accessing the CDSE online. Students were advised that participation is voluntary and that they would receive an informational presentation on career decision making and self-efficacy at post-test regardless.

The lead investigator or graduate assistant then returned to each course section during week 14 of the course in both semesters to administer post-test versions of the instruments including the CSEI and the CDSE and provide the informational presentation. The lead investigator then collaborated with an institutional administrator to gain access to GPA, ACT, and FFA eligibility for all study participants. The data was then coded, matched, de-identified by using a participant number, and analyzed utilizing SPSS version 24.

Results

Initial analyses included descriptive statistics for all variables. Participants with missing CSEI or CDSE measures were eliminated from the study.

Paired samples t-tests showed a significant increase in CSEI scores from pre-test ($M = 7.33$, $SD = 1.04$) to post-test ($M = 8.12$, $SD = 1.16$), $t(126) = -7.75$, $p < .000$. Paired samples t-tests also revealed a significant increase in CDSE from pre-test ($M = 3.92$, $SD = .60$) to post-test ($M = 4.11$, $SD = .62$), $t(126) = -4.16$, $p < .000$.

A hierarchical linear regression analysis was conducted with pre-test scores entered into step one as a covariate. The variables of ACT, GPA, and FFA eligibility were entered into step two as predictors of career decision self-efficacy. Semi-partial correlations were examined for each predictor variable, and none of the variables predicted significant variance in post-test scores (see Tables 1 and 2).

Discussion

Analyses revealed a statistically significant improvement in participants' college and career decision self-efficacy from pre to post-test supporting the career exploration course as an effective intervention at the target institution. In addition, ACT, GPA, and FFA eligibility were not significant predictors of

the variance in post-test scores for college or career decision self-efficacy, suggesting that career exploration courses might influence students indiscriminately, regardless of pre-existing resources. This finding provides evidence to support the use of this intervention for every student, as individual differences in academic achievement and socioeconomic status—which are variables usually associated with greater academic self efficacy—do not play a role in the impact of career exploration intervention.

Although this result was a disconfirmation of study hypotheses, the implication is generally a positive one that includes greater institutional and policy support for career exploration courses, especially at rural, Appalachian universities. First, diverging from the common practice of only requiring at-risk or under-prepared students to complete career exploration courses, this research supports the assertion that all college students could benefit equally and thus should be required to complete a career exploration course. Second, academic departments may consider creating their own career exploration courses or non-credit bearing interventions. These interventions could target similar skills such as career decision self-efficacy, but from the perspective of a student who may have selected a major but is still unsure about a particular career path. Given the demonstrated effectiveness of career exploration interventions, all faculty members should consider ways to assist students in carrying out the tasks of translating education to the world of work and avoid delegating this task solely to student affairs or offering intervention only to students who are undecided.

Although the scope of this study does not include an analysis of exactly how or why the course achieved such an indiscriminant influence, a potential explanation is that self-efficacy is a pliable construct that can change relatively easily with effective intervention regardless of pre-existing resources. Perhaps the skills taught and experiences gained during the course are universally applicable enough to be influential for students regardless of their academic readiness, academic achievement, and/or familial financial resources.

Limitations

Limitations of the current study are related to the small sample size and the absence of a comparison group, leaving the changes in post-test scores open to the effects of history and/or maturation. Future studies focusing on this same topic and population should seek to increase the participant total while remaining within the target institutional context and add a comparison group of similar students at a similar institution or perhaps within the same institution.

Another limitation to consider is the limited scope of the participant pool in general. Although the aim of this study was to test the effectiveness of a career exploration course at the particular target institution, the results might not be generalizable to other institutions with different demographics or even those with similar demographics. Therefore, even though broad generalizations across institutions might not be warranted at this time, a continuation and expansion of this research within unique populations is clearly supported, especially those that might be under-resourced or under-prepared. Implications for higher education institutions in general include exploring the possibility of adding career exploration courses as a requirement vs. an elective, thus exposing all students to the intervention as opposed to just those identified as undecided or at-risk.

A final limitation is that the characterization of Appalachian was applied broadly to describe the university's context and history rather than a demographic of individual students. The term is difficult to apply as an actual demographic variable as its meaning can be varied and open to interpretation. Future research should attempt to fully operationalize the term and then collect data from those who identify with the operational definition that is utilized (i.e., region of origin, culture, ethnicity, or descent.)

Future Directions

In addition to those previously mentioned, future directions also include an expansion of the dependent variable in order to ascertain what, if any, additional effects career exploration courses might have outside of self-efficacy related variables. Possibilities for additional effects could include influence on leadership skills, ambiguity tolerance, vocational identity, or influence on/interaction with other variables such as religiosity or major decidedness status.

Finally, although this study found the influence of pre-existing resources on students’ response to intervention to be insignificant, future research should continue studying these variables as possible moderators between established relationships relevant to college and career success. This research becomes even more critical when considering the increasing number of students entering college with a variety of social, emotional, and cognitive stressors (Kadison & DiGeronimo, 2005) as well as academic under-preparation in critical subjects (Combs et al., 2009).

Conclusion

Overall, the assertion that career exploration courses are an effective way to increase students’ sense of self-efficacy for college and career decision making was supported. In particular, the idea that this type intervention is effective for students at the rural, Appalachian target institution was also supported. Perhaps most important though was the non-significant finding involving pre-existing resources as a moderator for potential response to intervention. Therefore, although it remains well established that under-prepared and under-resourced students have unique needs, it is encouraging to know that the lack of resources these students face might not significantly deter their ability to benefit from various forms of intervention and that even well-prepared and resourced students might also benefit. The implication is then that institutions of higher education continue to offer and support career exploration courses and consider ways to increase participation from students regardless of pre-existing resources.

Appendix

Appendix 1. Hierarchical Linear Regression Model for CSEI Post-Test on ACT, GPA, & FFA

	R	Rsq.	Rsq. Δ	β	semi-partial r	p-value
Model 1	.45	.21	.20			
CSEI Pre-Test					.45	.45
Model 2	.46	.21	.007			
ACT				-.05	-.04	n.s.
GPA				.06	.06	n.s.
FFA				-.06	-.06	n.s.

Note: Federal Financial Aid (FFA) Eligibility Status: 0 = No, 1 = Yes

Appendix 2. Hierarchical Linear Regression Model for CDSE Post-Test on ACT, GPA, & FFA

	R	Rsq.	Rsq. Δ	β	semi-partial r	p-value
Model 1	.66	.44	.44			
CDSE Pre-Test					.66	.66

Model 2	.67	.44	.004			
ACT				.01	.01	n.s.
GPA				-.02	-.02	n.s.
FFA				.06	.06	n.s.

Note: Federal Financial Aid (FFA) Eligibility Status: 0 = No, 1 = Yes

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