Iowa Research Online
The University of Iowa's Institutional Repository

University of Iowa
Iowa Research Online

Theses and Dissertations

2013

Project HOPE: a career education program for rural middle school students

Tina D. Hoffman
University of Iowa

Copyright 2013 Tina D. Hoffman

This dissertation is available at Iowa Research Online: http://ir.uiowa.edu/etd/4991

Recommended Citation
Hoffman, Tina D.. "Project HOPE: a career education program for rural middle school students." PhD (Doctor of Philosophy) thesis, University of Iowa, 2013.
http://ir.uiowa.edu/etd/4991.

Follow this and additional works at: http://ir.uiowa.edu/etd

Part of the Educational Psychology Commons

PROJECT HOPE: A CAREER EDUCATION PROGRAM FOR RURAL MIDDLE SCHOOL STUDENTS

by

Tina D. Hoffman

An Abstract

Of a thesis submitted in partial fulfillment of the
requirements for the Doctor of Philosophy degree
in Psychological and Quantitative Foundations
(Counseling Psychology) in the Graduate College of
The University of Iowa

December 2013

Thesis Supervisor: Associate Professor Saba R. Ali

ABSTRACT

A critical psychology perspective (Prilleltensky and Nelson, 2002) advocates for research that focuses on social change, the mutual participation of community stakeholders, and the empowerment of those served. The current study applies this critical psychology perspective to career education programming in a multiculturally diverse rural high school. This manuscript illustrates the collaborative development, implementation, and evaluation of the "Project HOPE" career education program. Case study methodology is used to examine the effects of the program congruent with a critical psychology paradigm. Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994; 2000) variables of math/science self-efficacy, vocational skills self-efficacy, math/science outcome expectations and intentions, and math/science interests among rural eighth grade middle school students were examined via a pre and post-test design. Additionally, focus group and student evaluation data provide information on how the collaborative development and implementation was experienced.

Abstract Approved: _____
Thesis Supervisor

_____
Title and Department

_____
Date

PROJECT HOPE: A CAREER EDUCATION PROGRAM FOR RURAL MIDDLE SCHOOL STUDENTS

by

Tina D. Hoffman

A thesis submitted in partial fulfillment of the
requirements for the Doctor of Philosophy degree
in Psychological and Quantitative Foundations
(Counseling Psychology) in the Graduate College of
The University of Iowa

December 2013

Thesis Supervisor: Associate Professor Saba R. Ali

Copyright by

TINA D. HOFFMAN

2013

All Rights Reserved

Graduate College
The University of Iowa
Iowa City, Iowa

CERTIFICATE OF APPROVAL

_____

PH.D. THESIS

_____

This is to certify that the Ph.D. thesis of

Tina D. Hoffman

has been approved by the Examining Committee
for the thesis requirement for the Doctor of Philosophy
degree in Psychological and Quantitative Foundations (Counseling
Psychology) at the December 2013 graduation.

Thesis Committee: _____
Saba R. Ali, Thesis Supervisor

_____
David Duys

_____
Stewart Ehly

_____
William M. Liu

_____
Don Yarbrough

To my family who showed me the career opportunities available to a rural Midwestern woman and then encouraged me to forge my own path. To the many mentors throughout my life to have continually supported me as I navigate the paths that are right for me. And to those I hope to empower as they develop their own paths to meet valued life goals.

I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.

Maya Angelou

ACKNOWLEDGMENTS

A special acknowledgment and thank you to the Project HOPE research team, two rural community schools, and my advisor. Without this collaborative working team, guided by similar working goals, this current research study would not have been possible and such wonderful students would not have received the benefits of expanding their career knowledge and awareness.

TABLE OF CONTENTS

LIST OF TABLES viii

LIST OF FIGURES ix

CHAPTER

I. INTRODUCTION 1

Project HOPE: A Career Eduation Program for Rural Middle School Students 1
Project HOPE 6

II. LITERATURE REVIEW 8
Critical Psychology Research 8
Social Cognitive Career Theory 10
Career Intervention Studies 20
Meta-analytic Studies 21
Recent Research on Career Interventions in Middle and High Schools 25
Conclusions 39

III. METHODOLOGY 42
Rationale for the Use of a Case Study Approach 42
Project HOPE 46
Case Studies 49
Surey Instruments 51
Background Questionnaire 52
Math and Science Self Efficacy Scale 52
Career Considerations Scale - Modified 53
Math/Science Outcome Expectations and Intentions Scales 53
Math/Science Interests Scale 54
Vocational Skills Self-Efficacy Scale 54
Focus Group Questions 55
Procedures 56
Project HOPE Program Implementation 56
Survey Administration 57
Student Evaluations 57
Focus Groups and Evaluations 58
Evaluation of Data 59
Conclusion 60

IV. RESULTS 62
Multiple Case Study Results 62
Survey Data 63
Student Evaluations 69
Question 1 Themes 69
Question 2 Themes 71
Question 3 Themes 71
Focus Groups 72
Student Focus Group Themes 73
Stakeholder Focus Group Themes 77

V. DISCUSSION 82
Discussion of Project HOPE Multiple Case Studies 82
School One 82
School Two 89
Limitations 94
Conclusion & Implications 96

REFERENCES 103

APPENDIX A: PROJECT HOPE CURRICULUM 109

APPENDIX B: FOCUS GROUP QUESTIONS 111

LIST OF TABLES

Table

1. Demographic Information in Two Participating Schools. 63

2. Clinical Significance Scale Comparison of Means. 64

LIST OF FIGURES

Figure

1. Social Cognitive Career Theory 11

CHAPTER I

INTRODUCTION

Project HOPE: A Career Education Program for Rural Middle School Students

Health disparities across the nation are on the rise and are increasingly notable for racially and ethnically diverse minority populations. Overall, these health disparities are seen in both mortality and illness rates of diverse groups. In fact, there are higher mortality rates among all groups of Hispanic origin ages 25-44 than for those from the majority population (PEW, 2002). This may be due to the higher rates of obesity, diabetes, tuberculosis and AIDS as compared to their White counterparts. It may also be due to the low rates of health insurance coverage and increased work hours to care for family members; immigration issues such as limited English proficiency, limited access to medical records from country of origin, and no patient health history; adoption of the diet and behavior patterns of the mainstream culture (e.g., decreased fiber consumption; increased use of cigarettes and alcohol); and other barriers to healthcare such as financial cost and transportation. Further, many healthcare facilities lack accurate and applied knowledge about cultural sensitivity, and patients have different ideas about the role of health care professionals in general (PEW, 2002). The result of these effects points toward the decreased use of healthcare for Hispanic populations in the United States.

Institutions commissioned to study the health disparities crisis have noted that a major factor is the lack of a diverse healthcare workforce (PEW, 2002; Sullivan, 2004). Minority groups are continually low in representation within the healthcare field itself (U.S. Census, 2000). In fact, the number of White professionals in all healthcare fields consistently outnumbers all other diverse groups combined by 60-90% (U.S. Census

2000). This trend is even more drastic in Iowa with White professionals outnumbering non-White professionals by 75-100% (U.S. Census, 2000). The Hispanic population is increasingly underrepresented in the Iowa health professions as seen in the U.S. Census (2000) study. State reports estimate that native-born minorities comprise less than 1% of the healthcare workforce (Yehieli, Grey, Vander Werff, Grey, & Whitaker, 2005). This is disturbing as Hispanics numbered 5% of Iowa's total population, thus making this ethnic group the largest minority group in Iowa (U.S. Census, 2010[a]). Overall, this underrepresentation of minorities in general (Hispanic populations in particular) in the health care professions is not only a national problem, but specifically impacts the Iowa workforce.

The Pew Healthcare Commission (1998) recognized this problem in a report that discussed the shortage of diverse healthcare workers in the United States. The report concluded that one of the major factors for this underrepresentation is the perception of barriers to higher education among minority groups (in particular, Latino, Native American, and African American groups). The commission strongly recommended that post-secondary educational systems and academic health centers work together with elementary, middle, and high schools to provide students with early exposure to the sciences and the health professions. The report further emphasized working with populations underrepresented in healthcare fields as a means to increase diversity and begin to address the national shortage of a diverse healthcare workforce. The critical need to increase the diversity of healthcare and health science professionals was echoed by the Sullivan Commission (2004) six years later in a report that encouraged universities to partner with other businesses and schools in order to create a healthcare professions

pipeline. One of the report's recommendations was to increase minority representation through the creation of bridging programs that connect minority students to information about careers in the healthcare professions.

Career development research suggests that the formulation of career goals happens at a relatively young age (Gottfredson, 2005; Lent & Brown, 2005) as individuals consciously or unconsciously eliminate possible career paths based on their perceptions of attainable career goals. This early foreclosure of career options can affect job opportunities and career paths for a lifetime, often limiting perceived work-related opportunities. Factors that influence these decisions are often linked to the perception of an individual's skills and capabilities as well as their perceived social position. Navarro, Flores, and Worthington (2007) demonstrated that factors such as social class, perceived parent support, and confidence in math/science abilities predicted Mexican American eighth grade students' interests and planning for a career in a math/science field. Furthermore, research suggests that Mexican American students report limited learning opportunities and low levels of prior achievement as major barriers affecting their achievement ability in math/sciences courses (Catsambis, 1999). This research underscores the need to begin bridging programs early to ensure that students of color have the necessary information to overcome obstacles/barriers and to appropriately plan for a career in a health science profession.

Overall, research evidence suggests that career interventions are generally effective in assisting adolescents with their concerns about career-related decisions (Brown & Ryan Krane, 2000; Whiston, 2003). Still, some career research scholars (e.g., Whiston, 2003) have advocated for more outcome-based research in an effort to provide

needed evidence to support career interventions and counseling as empirically-supported psychological interventions. While current trends encourage additional empirical support to define characteristics of career interventions effectiveness, a sole focus on scientific inquiry may also be problematic. Career intervention programming requires the developer to be cognizant of specific contextual issues (e.g. school policies, student needs, economic considerations, etc); it does not happen in a vacuum. Public school systems often encounter complex systemic interactions involving challenging needs, problems, and issues that can enhance or interfere with program delivery.

A critical psychology paradigm emphasizes the need for researchers to consider both contextual and practical issues that can have an impact on program effectiveness and successful dissemination of career interventions. For example, researchers need to consider specific contextual variables such as ethnic background, community affiliation, location, local resources, and economic condition as well as practical issues including economic, labor, time constraints in public schools, and the specific needs of the participants when designing and implementing effective career intervention programs. As outlined by both researchers and the American School Counseling Association (ASCA, 2011; Gysbers, Lapan, Multon, & Lukin, 1992), the work activities of school counselors are multifaceted and include core activities such as academic, career, and personal/social development. While this is has been clearly documented, many school counselors tend to see their roles extend into additional domains including administrative/clerical realms and other miscellaneous duties (Foster, Young, & Hermann, 2005; Zalaquett, 2005). With counselor-to-student ratios nearing 634:1 versus the nationally recommended 250:1 ratio,

available time, labor, and ability to adequately meet student needs are certainly stretched to the limits.

Ideally school and university partnerships may be able to augment or enhance career services within the K-12 school system so that career education programs expose students of color to the health sciences early and help them link their high school academic choices and performance to future career opportunities. Concurrently, it is critical to increase their confidence in and planning for a health science career. Fostering the connection between high school academic subjects, experiences, activities, and a lucrative career in a health science field could provide the motivation students need to boost their math/science academic performance. Linking the goals of health science professions to community goals (e.g., helping the minority community) could also foster high school students' motivation to pursue these professions. It is equally critical to provide theoretically grounded programs focused on hands-on learning experiences coupled with career planning. Several scholars within the fields of vocational psychology and community psychology have articulated the importance of "research that can lead to greater equity and social justice" (Blustein, 2006; p. 209) and "research that advances knowledge that helps create social change for the benefit of marginalized people" (Prilleltensky & Nelson, 2002; p. 50). Thus, research that focuses on intervention outcomes as well as the process of the research (e.g., promotion of empowerment, collaboration, and social change) could provide rich information within the field of career development. The current research study addresses the call for bridging programs by working in collaboration with school systems in an effort to create a career intervention

program with the ultimate goal of providing a workforce pipeline within the health science fields for underrepresented students.

Project HOPE

Given limitations experienced in the school, theoretically-driven bridging programs that collaboratively bring together resources from multiple groups to meet the academic, career, and personal/social development needs of students is clearly an attainable solution. This research project (i.e., Project HOPE) builds a series of theoretically-driven programs that incorporate empowerment, collaboration, and social change strategies, which have the potential to make a major impact on the career planning of participating middle school students. The Project HOPE career education program was developed, implemented, and evaluated in two rural Iowa middle schools with a large population of Mexican immigrant students. Programming curriculum was designed to facilitate students' exploration of health science professions and promote the career planning and decision-making processes.

Congruent with a critical psychology perspective (Fox & Prilleltensky, 1997) and the Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994; 2000), a case study methodology was used to examine the effects of the program. Surveys were designed using the SCCT variables of math/science self-efficacy, vocational skills self-efficacy, math/science interests, career considerations and intentions, and math/science outcome expectations and intentions. The surveys were implemented prior to and following the career education program with rural eighth grade middle school students at two Midwestern schools. Scores obtained from the current study were analyzed separately as well as alongside scores derived from the same scales in comparable

studies. Outcomes focused on classroom and experiential learning as well as understanding students' experiences regarding career interests, confidence, knowledge, and planfulness for a career in the healthcare/science professions. Additionally, focus group and student evaluation data provided information on how the collaborative development and implementation was experienced.

CHAPTER II

LITERATURE REVIEW

Critical Psychology Research

Many scholars acknowledge that mainstream psychology is grounded within Western, individualistic values, assumptions, and norms (Fox & Prilleltensky, 1997). If true, this focus may contribute to social injustice and prevent the promotion of human welfare as values, assumptions, and norms of non-White groups are disregarded or go unrecognized. Critical psychology is an approach to research that focuses on "the central themes of pursuing social justice, promoting the welfare of communities in general and oppressed groups in particular, and altering the status quo of society and the status quo of psychology" (Fox & Prilleltensky, 2002, p. 4). Proponents state that research that is conducted "on disadvantaged people, not 'with them'" (Prilleltensky & Nelson, 2002, p. 50) runs a great risk of reinforcing the status quo, not changing it. A critical psychology framework for how to conduct research focuses on open communication and collaboration between researchers and stakeholders, is attuned to power differentials, and has the goal of ultimately impacting social change (Prilleltensky & Nelson, 2002).

Ali, Yang, Button, and McCoy (2011) assert that critical psychology is an important approach to consider when developing career education research designed to bridge this disparate gap. Due to the multiple and complex macro-systemic forces (e.g., contextual, political, and social forces) impacting the delivery of career interventions in schools, the timing could not be more opportune to conduct research that promotes greater understanding regarding how to effectively and collaboratively develop, implement, and evaluate career education programs in school settings. This perspective

also aligns well with community engagement and collaborative evaluation literature as collaboration with key stakeholders enhances the development and evaluation of programs (Chen, 2002; Chen & Rossi, 1989; Devaney & Rossi, 1997). Specifically, Chen (2002) states that "participatory outcome evaluation is defined as evaluation in which the stakeholders take part and in which the stakeholders' needs, concerns, and views are incorporated into the evaluation design and process to ensure the fairness and usefulness of evaluation" (p. 19). At a more individual level, Prilleltensky and Nelson (2002), suggest that the focus of critical psychology research "is on the transition from oppression through empowerment to the well-being of disadvantaged people" (p. 57).

Prilleltensky and Nelson (2002) also support and further assert the importance of collaboration. Specifically, that the people who are the focus of the research need to be represented in the development of research studies. In terms of career education programming in middle and high schools, it is important to have the participants (i.e., students) and their representatives (i.e., school personnel and families) be a part of the development, implementation, and evaluation of the career education program. Further, Prilleltensky and Nelson propose that both quantitative and qualitative methods of research should be conducted using supportive research teams and steering committees to ensure participation of people from oppressed groups. Clarification of roles, responsibilities, values, vision, and an emphasis on clear communication that is jargon-free promotes collaboration and stimulates a shared understanding and working relationship between researchers and stakeholders. From this perspective, current research using traditional methods can be an important starting point in the designing of collaborative career interventions; however, research in this area needs to be expanded to

ensure participation of stakeholders and to attend to the important political, social, and contextual issues that are part of the school system (Ali et al., 2011).

Currently, a substantial compilation of career intervention literature and meta-analyses provides mixed support for career programming effectiveness (e.g., Whiston, Sexton, and Lasoff 1998; Brown & Ryan-Krane, 2000; Whiston, Brecheisen, & Stephens, 2003). For example, much of the research focuses on mainstream psychological values and traditional outcome measurement as well as lack sufficient discussion by the researcher regarding the process of program implementation, thereby making it difficult to replicate the program and compare results. Moreover, a focus on discussing how the extended ecological model of systems influence and are affected by career programming is limited. Specifically, there is no discussion about macro-level systems such as the socio-political realities involved when collaborating with school systems, adolescents, and families to help improve career options for marginalized adolescents. Research that focuses on program implementation and evaluation within a specific school context is sorely needed. Equally important is the need to tie activities of career education programming to theory and to measure outcomes within the context of this theory. Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994) provides an avenue for designing and evaluating career education programming and has support for addressing the career development needs of diverse students.

Social Cognitive Career Theory

Anchored in Bandura's (1986) general social cognitive theory, the Social Cognitive Career Theory (Lent et al., 1994; 2000) is a foundational theory of career development. It has been utilized to better understand how people form interests, make

choices, and achieve vocational goals. Bandura hypothesized that reciprocal interactions occur between people and their environments to influence thoughts, feelings, and behaviors. Following this hypothesis, the SCCT model (see Figure 1) is comprised of individual and environmental variables that interact to influence the course of career development (Lent et al., 2000). It posits that the career choice process occurs as people are exposed to and make decisions about a variety of activities that have career-related value.

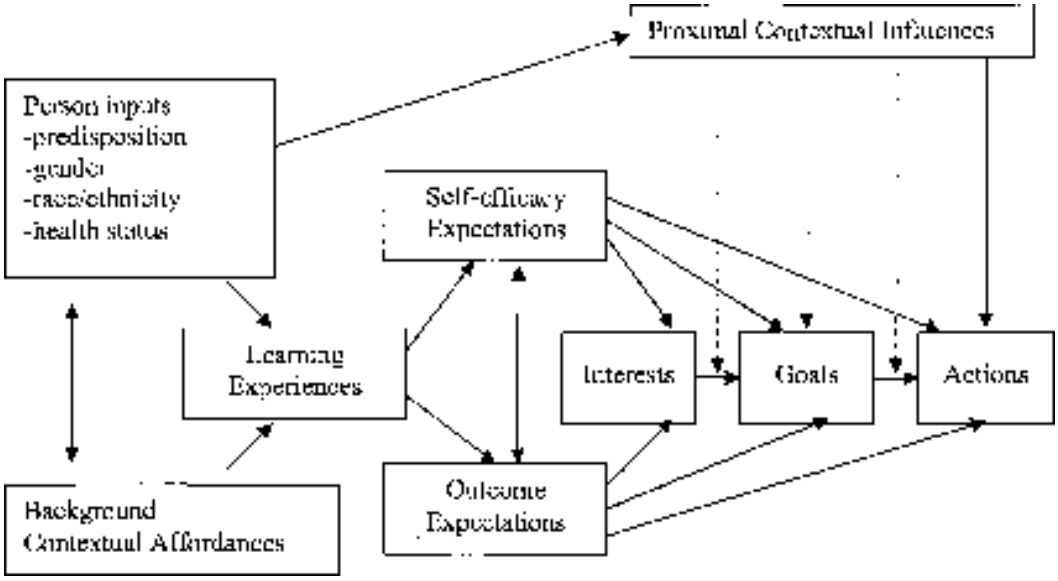

Figure 1. Social Cognitive Career Theory

Source: Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career, and academic interest, choice and performance. *Journal of Vocational Behavior, 45*, 79-122.

Environmental, or contextual, factors include multiple sets of variables (e.g., person inputs, background contextual affordances, and learning experiences) that influence self-efficacy (i.e., confidence in one's ability to perform a specific task) and outcome expectations. Moreover, the interaction of contextual factors, self-efficacy, and

outcome expectations influence how interests and goals are formed. Lent et al. (1994; 2000) describe person inputs as objective variables such as individual predispositions, gender, race/ethnicity, and disability/health status. These person inputs are thought to affect the way in which individuals perceive their environment. While person inputs are objective variables, background contextual affordances are perceived environmental constructs that influence the perception of one's environment (Lent et al., 1994). As a result, these background variables, such as career opportunities, resources and supports, and career and personal barriers, are subject to individual interpretation and affect how interests are formed. Learning experiences also influence how interests are formed. For example, background variables, such as socioeconomic status and geographical location, may affect opportunities for and the quality of educational experiences, which have the potential to affect the career development process. It is important to note that this effect may occur regardless of whether or not the individual perceives the effect to exist.

Next, individual (i.e., cognitive-person) variables include multiple constructs such as self-efficacy, outcome expectations, and personal goals. Each of these variables functions within the career development process to enable individuals to perceive, interact, and make decisions. Self-efficacy is defined as judgments people have about their ability to perform certain actions (Lent et al., 1994). For example, students may have confidence in their ability to solve a math problem, but be less confident in their ability to conduct a scientific experiment. Personal agency (i.e., personal control) is anchored within an individual's beliefs about and confidence in his or her ability to perform activities. Similarly, self-efficacy and personal agency influence the formation of career-related interests and the definition of career-related goals. Lent et al. (1994; 2000)

claimed that self-efficacy and personal agency was positively correlated with decision-making and confidence. Thus, higher levels of confidence and personal control lead to better decision-making and confidence in one's ability to overcome obstacles. Conversely, lower levels of confidence and control lead to decreased decision-making and uncertainty in one's ability to overcome barriers.

Outcome expectations are personal beliefs about the envisioned consequences of one's actions. For example, a student may believe she will do better on a science test if she studies versus avoids studying. Lent et al. (1994; 2000) proposed that outcome expectations are an integral construct within career decision making as they can reciprocally affect self-efficacy and personal agency as well as alter how interests are formed and goals defined. Thus, as career options are encountered, students are able to contemplate the options, weigh benefits and consequences of available choices, and act upon the decision they most value. SCCT posits that self-efficacy expectations are an integral component to career decision making as they influence outcome expectations and the formation of interests and goals. Taken together, students consider career options, imagine a myriad of choices, and hypothesize benefits and consequences of each choice. As a result, they may report increased confidence in their ability to define interests and achieve goals.

Lent et al. (1994; 2000) suggest that goals play a role in behavioral self-regulation as they help to organize, guide, and sustain behavior over the course of time. Background affordances and contextual variables help students perceive and engage with the career options presented, which assists in shaping career-related interests and behavior. As interests are formed, students begin to make plans and decisions based upon their

expressed choices. These plans, decisions, and goal aspirations promote the organization of vocational behavior. For example, after briefly hearing about physical therapy in school, a student determines she wants to become a physical therapist. This goal aspiration guides and organizes the behaviors of learning more about the career, the education needed, and enrolling in classes that will provide a foundational education for achieving this goal. Lent et al. (1994) postulated that goals are self-motivating due to the link among self-satisfaction, goal fulfillment, and enactment of behaviors that meet goal aspirations. Thus, successful progress toward goal achievement reinforces positive self-efficacy, enhances outcome expectations, and sustains goal-directed behavior. Consequently, the likelihood of achieving desired outcomes is increased.

Although it is relatively new, the SCCT model has demonstrated some utility in the development and evaluation of career intervention programs for high school students (Lent et al., 1994; 2000). SCCT constructs are easily measurable and account for both internal (i.e., person inputs) and external (i.e., environmental/contextual) factors in the career development process. Initial career-related interests are developed as students participate in multiple activities and interact with diverse people that have career-related value. This exposure is a function of the environment (contextual factors), student characteristics, and socialization processes. As students participate in certain activities, they also receive internal and external reinforcement for pursuing and achieving satisfactory performance. Repeated activity, modeling, support, and feedback from valued others allows children and adolescents to develop specific skills, set performance standards, and increase their confidence to successfully complete specific activities and tasks (i.e., self-efficacy). Simultaneously, students form expectations about the future

outcomes of their performance (i.e., outcome expectations). Through these combined mechanisms, students develop more specific vocational and educational interests over time. Over the course of time, these developing interests affect ongoing choices of activities and eventually lead to career decisions (Lent et al., 1994). Translating thoughts into action, SCCT posits that support for overcoming barriers or obstacles in pursuit of vocational and educational plans (i.e., background contextual factors) could be among the most powerful predictors of career choice behavior. In the SCCT model, career supports and barriers are hypothesized to directly influence career-related learning experiences (i.e., role models, vicarious learning, performance abilities, etc.). In turn, these learning experiences influence the development of self-efficacy beliefs and outcome expectations. There has been a proliferation of research studies that have demonstrated the utility of SCCT in explaining the career development and aspirations of diverse middle and high school students.

In a study by Kenny, Blustein, Chaves, Grossman, and Gallagher (2003), the role of perceived barriers and relational support was investigated for a group of 174 ninth grade students from two urban high schools. Participants from both schools ranged from 13-17 years old (M=14.71) and approximately 74% were eligible for free/reduced lunch. At school one, the ethnic background of students was reported as 50% Black, 36% Hispanic, 8% Asian, and 6% White; the second school reported backgrounds including 66% Black, 22% Hispanic, 11% White, and 2% Asian. Results from multivariate *T* tests indicated that support is positively correlated and barriers negatively correlated with school engagement and work role salience.

Framed within the SCCT framework, this study was replicated by Wettersten et al. (2005) for a group of rural high school students. Wettersten et al. (2005) hypothesized that social support, parental involvement, and perceptions of educational barriers would all have an effect on predicting educational and vocational (i.e., work role) attitudes. Participants in this study included 689 high school students (269 male; 362 female) who identified as 82% White, 10% Native American, 4% Asian American, 1% multiracial, 1% unreported, and <1% African American and/or Latino. Initial results indicated that the student's sex and year in school had an effect on career outcome expectations. Specifically, females exhibiting higher levels of school engagement attitudes than did their male counterparts and seniors had the highest level of outcome expectations. Other results (i.e., support positively and barriers negatively correlated with school engagement and work role salience) mirrored the Kenny et al. (2003) findings, which may support the generalizability of their findings from urban to rural populations. These results may also support theories of developmental readiness for career engagement. Moreover, the results lend credibility to the suggestion that social, parental, and other external supports may lead to increased academic and vocational self-efficacy, pro-educational behaviors, school engagement attitudes, and educational outcome expectations.

Gushue, Clarke, Pantzer, and Scanlan (2006) investigated the relationship among several SCCT variables (i.e., perceptions of barriers, career decision-making self-efficacy, vocational identity, and engagement in career-related activities) in a sample of urban Latino/a high school students. Participants included 128 students (66.4% male; 33.6% female) in tenth grade (46.9%), eleventh grade (44.5%), and twelfth grade (7.8%). Student ages ranged from 15-18 years and all participants self-identified as Latino/a.

Approximately 75.3% reported eligibility for the free lunch program. Results suggested that career decision-making self-efficacy, career search activities, and perceptions of barriers were positively associated with vocational identity, or how one perceives him/herself within the world of work. These results further support SCCT claims that career decision-making self-efficacy is intimately entwined with vocational identity.

Couched in several theoretical frameworks (i.e., life career development theory, social cognitive career theory, and motivational theories), Kenny et al. (2006) investigated the relationship among career development (i.e., planfulness and expectations) and school engagement (i.e., belonging and valuing). The authors expected that active involvement in career planning and expectations for career success would lead to additional school engagement and that increased school engagement would be reciprocally related to increased career expectations and planfulness. Results demonstrated mixed support for the hypotheses. Specifically, higher levels of career planfulness and career expectations were positively associated with school engagements; however, school engagement may not necessarily lead to career planfulness and positive career expectations (Kenny et al., 2006). For example, Kenny et al. (2006) state that some freshman high school students who endorse higher levels of overall planfulness and positive expectations regarding career success may value school and feel a sense of belonging; yet, this may not translate into endorsement of higher levels of career planfulness and positive career expectations. This suggests that there may be other mechanisms (e.g., perceived barriers, self-efficacy beliefs, contextual supports) involved in the reciprocal relationship between school engagement and career development.

Using social cognitive career theory, Ali and McWhirter (2006) studied the relationship among SCCT variables of self-efficacy beliefs, outcome expectations, perceived barriers, SES, and sources of support for a group of rural high school students. Overall outcomes of discriminant functional analysis indicated that the SCCT variables of vocational/educational self-efficacy, college outcome expectations, SES, and the likelihood of encountering barriers to post-secondary education discriminated among those who were aspiring to pursue four different pathways after high school. These included: full time work, vocational/technical school, bachelor's degree only, or bachelor's/professional school. Results suggested that higher college outcome expectations and vocational/educational self-efficacy beliefs were associated with aspirations for pursuing higher education while lower college outcome expectations and vocational/educational self-efficacy beliefs were associated with aspirations to pursue work after high school. Moreover, the SCCT predictor variables were most accurate in correctly classifying students who were aspiring to pursue bachelors/professional degrees. These findings suggest that self-efficacy beliefs and outcome expectations are important variables in determining career choice behavior for rural Appalachian youth. Alternatively, students aspiring to gain work following high school are more likely to have lower vocational/educational self-efficacy beliefs and outcome expectations for postsecondary education and were among those who indicated the lowest SES. Results suggested that an increased perception of barriers was also associated with lower vocational/educational aspirations. This study suggests that students who aspired to obtain vocational/technical training or full time work after high encounter additional barriers including lack of information, guidance, and financial resources, which lower

their perceived self-efficacy for pursuing a higher education and may perceive working or pursuing vocational technical training as their only outlet to gainful employment in the rural Central Appalachian area. While support variables were included in the analyses, in this study they were not predictive of career aspirations for this group.

Ali and Saunders (2009) extended the implications of previous research on SCCT variables (Ali & McWhirter, 2006) by investigating SCCT factors that contribute to career aspirations for rural Appalachian high school students. Specifically, the authors studied personal input variables, cognitive variables, and contextual variables in relation to career aspirations. Results demonstrated a positive association among career aspirations and high levels of self-efficacy beliefs, outcome expectations, and SES. Yet, consistent with previous research (Ali & McWhirter, 2006), the support variables of parental support, sibling support, and peer support were not predictive of career aspirations for this group. This suggests that while career aspirations are influenced by some socio-cognitive factors, more information is needed to determine which contextual and cognitive factors are most influential for different cultural groups.

Navarro, Flores, and Worthington (2007) examined the influence of contextual and cognitive variables on math and science goals for a sample of Mexican American middle school students. Structural equation modeling was used to test the application of the SCCT to math and science accomplishments among this group of middle school students. Specifically, Navarro et al. (2007) found that the SCCT model was a good fit for both males and females and that social class predicted past performance in math and science accomplishments, past performance and perceived parental support predicted math and science self-efficacy, and math and science self-efficacy predicted outcome

expectations, interests, and goals. Overall, results supported previous SCCT findings demonstrating the direct relations between perceived support and self-efficacy. Moreover, as the first study to test portions of the SCCT model with this specific sample, Navarro et al. (2007) established support for the development of career interventions for Mexican American middle school students in the area of math and science.

These and other studies provide support for the social cognitive career theory model. Specifically, studies have provided evidence for the robust connections amongst SCCT variables (i.e., background variables, contextual affordances, career interests, self-efficacy, outcome expectations, and career goals). Moreover, direct and indirect pathways among constructs have been more accurately solidified through rigorous scientific research across various populations. This research has strengthened the platform for researchers to develop and extend academic and career interventions focused on learning experiences within a context of social support. While many research studies provide information about the relationship among SCCT variables and paths for diverse students (Ali & McWhirter, 2006; Navarro et al., 2007), there is a dearth of career education interventions focused on the academic and career needs of Mexican American middle school students. The following section reviews the few career intervention studies and meta-analytic studies that provide some limited evidence that career education programming is both necessary and effective.

Career Intervention Studies

To date, there is limited research demonstrating career interventions effectiveness with middle and high school students. For example, in a recent meta-analysis of 57 studies (studies published between 1983 and 1995), only 15% actually involved high

schools students, and less for younger age groups (Whiston, Brecheisen, & Stephens, 2003). Whiston, Sexton, and Lasoff (1998) noted that the proportion of career intervention studies focused on middle and high school students (relative to adults) was lower after 1983 than prior to that time when there had been a substantial interest in career and vocational education of middle and high school students. It may be that the lack of studies in this area could be related to a lack of control or internal validity due to the multiple and complex contextual issues within public high schools. Although limited, some meta-analytic studies outlining career education intervention research in schools do exist.

Meta-analytic Studies

Prior to the 1988 meta-analytic study conducted by Oliver and Spokane, only two other meta-analyses had been published on career education and counseling intervention strategies (Baker & Popowicz, 1983; Oliver & Spokane, 1981). Together, these studies highlighted the overall effectiveness of group, class, individual, and alternative career-related interventions. Moreover, results from these studies set a foundation for the design of career intervention programs for middle school students. Specifically, results suggested that the design may be most effective when including up to seven sessions, evaluated by 4-6 outcome measures, and situated within classrooms of 50-100 students (Baker & Popowicz, 1983; Oliver & Spokane, 1981). Even with this structure, it remains unclear whether other variables confound outcomes or alter the impact of the career intervention on students.

In a meta-analysis of 67 studies regarding the effects of career education interventions on academic achievement (i.e., standardized test or criterion-referenced test

administered after the intervention), Evans and Burck (1992) provided clarity and significance "to the impact of career education interventions in the education setting by drawing reliable and general conclusions from a large and complex body of literature" (Evans & Burck, 1992, p. 64). Studies were located across multiple database searches (e.g., ERIC, Psychological Abstracts, and National Technical Information Service) from 1996 through 1986, as well as via secondary sources (e.g., bibliographies and requests for information from prominent career researchers). Those selected for inclusion met three criteria including (a) career interventions were conducted as a part of structured learning, (b) a career education strategy was part of the instructional process, and (c) results were quantitative and in statistical form. Results of their review showed a small (r=.16) overall effect size, which indicated at least some positive gain in academic achievement (Evans & Burck, 1992; Welkowitz, Ewen, & Cohen, 1971). Additional results illustrated greater increases in academic achievement when studies were grouped by subject matter, ability level, and grade level. Although Evans and Burck (1992) claimed to have presented the "clear value of career education as a means of enhancing academic achievement" via statistical support (p. 67), additional research yielding greater effect sizes would clearly help substantiate this claim.

In response to earlier and somewhat dated work, Baker and Taylor (1998) replicated, and concurrently updated and extended, the original Baker and Popowicz study (1983) regarding the effectiveness of career education interventions. In this study, research questions examined the effect size of career education interventions published since 1983 as well as the combined effect size of studies included in the original study and for those published since 1983. Glass's (1976) effect size was used to summarize

statistics and Cohen's (1969) criteria were implemented to evaluate effect size results. Given that the original Baker and Popowicz (1983) report did not include the use of an unbiased effect size, current results showed a modest decrease in comparison. Overall results for the revised effect size were r= 0.42 as compared to the original finding of r = 0.50. In studies selected from the combined sample of original studies and those selected between 1983 and 1996, the effect size resulted in an average of r = 0.39. As evaluated by Cohen's (1969) criteria, all estimates fall within the medium moderate range for effectiveness. Baker and Taylor (1998) conclude that given the difficulties inherent in conducting well-designed experimental research projects such as collaborative career intervention programs, "perhaps these modest effects may be viewed as encouraging" (p. 382-383).

Brown and Ryan Krane (2000) conducted a comprehensive and influential meta-analysis that analyzed data from 62 career intervention studies. Empirical results from their initial review supported previously suspected beliefs that career interventions are effective for treated groups as compared to control groups; yet, "how and why they work and for whom they are most (and least) effective is unknown" (Brown & Ryan Krane, 2000, p. 743). In further examination, meta-analyses of outcome data yielded five essential components of career interventions that are effective (i.e., results accounted for between 2% and 38% unique variance in effect sizes) in enhancing the career development and exploration of adolescents and young adults. These five essential components include: (a) written exercises, (b) individualized interpretation and feedback of career inventories, (c) information on the world of work, (d) modeling, and (e) attention to building support. Brown and Ryan Krane (2000) suggested that the

effectiveness of career programs can be markedly improved through the inclusion of these five components. While no study included in the meta-analysis included more than three of the aforementioned components, Brown and Ryan Krane (2000) observed that for each additional component included in an intervention, the average effects size estimate increased linearly. Therefore, studies including four and five of the components are needed to determine whether the benefits continue to result in improved average effects sizes.

This original study by Brown and Ryan Krane (2000) was extended in an attempt to better understand the inconsistent results found in their earlier study (Brown, Ryan Krane, Bresheisen, Castelio, Budisin, Miller, & Edens, 2003). In particular, Brown et al. (2003) suggested career intervention formats may not be as important as "what is done within the intervention itself" (p. 412). Thus, the purpose of the 2003 study was to better understand the critical ingredients as well as how they could be implemented within interventions through methods that would lead to stronger career decision-making outcomes. Results suggested that the effectiveness of career interventions could be increased if professionals assist participants as they (a) develop, write down, and make reasonable attempts to implement their career goals, (b) gather and process career-related information, (c) search for and use career-related information in out-of-session written exercises, (d) compare and consider support for various occupations through written exploration, (e) interpret assessment results in one-on-one sessions, and (f) understand how role models may have explored options, made decisions, and overcome barriers (Brown et al., 2003).

Overall, the results of previous meta-analytic studies support the need for further investigation of career intervention programs in middle schools and high schools. In developing these programs, career education curriculum may be most effective when focused on students in the classroom, providing at least four treatments or sessions, and evaluated by 4-6 outcome measures. Moreover, specific curriculum components may also enhance overall effectiveness of career interventions. Specifically, a focus on (a) providing information about and assistance in exploring the world of work, (b) offering individualized assistance and support (e.g., searching for and gathering career related information' interpretation and feedback of career inventories), (c) promoting ownership of career goals through written exploration exercises in and out of class, and (d) providing opportunities to understand how others (e.g., role models) may have explored options, made decisions, and defined and overcome barriers. Although career intervention research with middle and high school students remains limited, many recent studies have incorporated these components at various levels with some success. The following section highlights the structure and results of these studies in greater detail.

Recent Research on Career Interventions in Middle and High Schools

Research suggests that students, in particular rural middle and high school students are in need of career interventions and guidance. As compared to their urban counterparts, rural students often face geographic isolation, a lack of occupational role models, and economic barriers that inhibit employment and educational opportunities (Lapan et al., 2003; Ali & McWhirter, 2006). For example, Church and colleagues (1992) found that youth from farming families had less confidence in vocational decision-making abilities, which significantly influenced decisions to pursue or reject certain types

of careers. Wettersen et al. (2005) found that rural youth who report more connection to long-term career plans also indicate stronger engagement in school. Taken together, it may be that students benefit from career interventions tied to school achievement. Given feasibility concerns of many rural schools, it is important to collaborate with middle and high school personnel in order to effectively implement and evaluate career education programming. Prior to designing, implementing, and evaluating career interventions, and collaborating with schools, researchers must be familiar with recent school-based career intervention studies.

In his research, Campbell (1995) evaluated the *BreakAway Company*, a career readiness program developed for at-risk adolescents. The program is a 12-week cognitive-behavioral intervention that (a) teaches self-management, self-control, and problem-solving strategies; (b) guides goal-setting and goal-oriented behaviors; and (c) increases career-related knowledge (Campbell, 1995). One goal of the study was to promote the idea that adolescents can use information learned while preparing for employment, transfer their knowledge in situations outside of the classroom, and make better decisions in workplace settings. In addition to evaluating quantitative and qualitative data, the second goal of the study was to interpret program effectiveness based solely upon pre-post outcome measures.

Campbell evaluated the implementation of the *BreakAway Company* with 38 adolescents (34 male, 4 female) aged 12-17 years old. The curriculum lasted twelve weeks and included daily meetings lasting 60-75 minutes. Outcome measures were comprised of teacher and counselor rating scales, measures aligning with program objectives, and individual interviews with students at the end of the program and at a six

month follow-up. Results based solely on quantitative program outcome measures showed no patterns of change; thus, suggesting that the program did not work. However, when other outcome measures and qualitative data were analyzed, outcomes illustrated a reduction of impulsivity and attention problems as rated by teachers and counselors ($p < .002$) as well as increases in student-assessed self-control and problem-solving. Moreover, there was mixed evidence between the middle and end of the program for variables regarding purposefulness, language use, action, self-control, and compliance. The authors suggested that this may be due to the natural tendency for confusion to occur in the middle of the learning process before meaningful constructs are developed (Campbell, 1995).

Based on these results, quantitative outcome evidence via program evaluation may not be the best predictor of intervention effectiveness. Other sources of data including focus groups and individual interviews may provide information about the context in which behaviors are occurring as well as expose additional factors that influence the interpretation of effectiveness and/or influence of the intervention. These factors may positively or negatively influence career decision-making processes in the course of the program or alter participants' subsequent career paths. Overall, these results highlight the importance of using other sources of data (e.g., qualitative and/or mixed methods) to uncover additional influential factors not previously accounted for by the researcher.

Fouad (1995) investigated the influence of a 1-year project (*Career Linking*) designed to increase awareness of math and science careers into eighth grade curricula. Participants included 118 students (42% male; 58% female) in one eighth grade unit of

four classes. Students reported their ethnicity as 31% White, 27% African American, 24% Hispanic, 7% Asian American, and 5% Native American; 5% did not report their ethnicity. Fouad (1995) included 58 eighth graders in another unit as a control group.

In addition to infusing math and science career awareness into various subjects, a 6-week career unit was repeatedly implemented focusing on various career fields. The 6-week unit consisted of an introduction to specific careers within math and science fields, a large group field trip to local businesses with after-activity assignments, speakers from various businesses who discussed their work and answered students' questions, a job shadowing experience aligned with students' career interests, and a closure session including discussion and unit evaluation. Five hypotheses were tested over the course of the year long intervention project. Fouad (1995) hypothesized that the intervention would increase students' knowledge of careers, increase students' self-esteem, increase math and science achievement and effort, result in students making a concrete behavioral choice regarding which high school to attend within the city (e.g., specialty program or attendance school), and affect course selection of and achievement in math and science courses.

Following data analysis, mixed support across hypotheses was reported. Specifically, Fouad (1995) found support by ethnicity for increased knowledge of careers for White students as compared to their non-White counterparts. She also reported increased math and science achievement and no difference in math and science effort, for students in the intervention as compared to the control group. Students in the intervention did appear to make deliberate choices regarding which high school to attend; however, support for increased self-esteem was not found. Minority students were more likely to

take math courses in high school, but science course selection was not affected. And finally, no support was found for differences in math and science achievement between intervention and control group students. Overall, results were mixed regarding the effect of the career intervention on student knowledge of careers and increase in self-esteem, math/science achievement and effort, and selection of courses and schools.

The *Career Horizons Program* was developed to assist with the career development process for 7th grade students that were identified as being at-risk for educational and vocational success (O'Brien, Dukstein, Jackson, Tomlinson, & Kamatuka, 1999). Based on a developmental, life-span perspective, O'Brien and colleagues developed this six-week intensive summer program designed to increase student self-efficacy in career planning and exploration activities, understanding of self, and potential for academic and vocational success. They hypothesized results would show an increase in self-efficacy, number of careers considered, and demonstrate increased congruence between their interests and occupational choices.

To empirically measure changes due to the program implementation, O'Brien and colleagues (1999) used several scales from the Missouri Comprehensive Guidance Evaluation Survey: Grades 6-9 (Gysbers, Lapan, Multon, & Lukin, 1992) including the Career Planning and Exploration scale, Knowledge of Self and Others scale, and Educational and Vocational Development scale. They also had participants fill out the Self-Directed Search Career Explorer (Holland & Powell, 1994) to examine the match between students' career interests and choices. Throughout the intervention, students participated in three career classes including career exploration, career self-awareness, and math and science careers. Students also participated in health and physical education

classes and recreational activities. Four months later, follow-up activities included presentations by a panel of college students and admissions staff. At a nine-month follow-up, students were invited to participate in various field trips to science and art presentations as well as recreational activities. Overall, pre- and post-test results provided support for each research hypothesis. Specifically, students showed increased career planning and exploration self-efficacy, educational and vocational development self-efficacy, the number of careers considered, and congruence between their interests and career choices. Although career intervention outcomes were overwhelmingly positive, without additional sources of qualitative data, it is difficult to distill which career intervention component influenced specific outcomes.

Shorr and Hon (1999) implemented and studied outcomes for the *Career Academy Program* designed to create a "community atmosphere for the students and staff" (p. 381). The authors implemented this program in an urban high school on the west coast that was predominantly composed of students with ethnic minority backgrounds and limited English proficiency. The focus of the academy was on a career theme that was in demand and growing in the local labor market (i.e., media, communication, and technology). Curriculum specifically focused on preparing students for careers in media, television and movies, and technology such as interactive computer industries.

Teachers, parents, local community businesses, and a team of university faculty and students collaboratively designed, implemented, and evaluated the program curriculum. Over the course of the four years, several hundred students applied for and enrolled in the academy. In addition to classroom curriculum being implemented on and

off campus, the program also offered a tutoring program before and after school in order to support students' academic success. A mentoring program was developed to introduce students to the world of work, and the program's success was based on the 19 mentoring teams that reported a desire to continue with the program as well as with the same partner in the coming year. Other *Career Academy Program* results showed 58% of participating students increased their grade point averages, 79% of mentoring teams improved their work habits and cooperation grades, and 89% of students in the academy improved their school attendance. Additionally, 83% of participating students graduated while only 35% of non-academy students graduated in the same time frame. Finally, the internship program was deemed successful as evidenced by the written evaluations completed by students' supervisors in work-based programs. Although there were several limitations to the program, the overall outcomes are promising. Specifically, students and teachers were engaged in a "social mode of learning" (Shorr & Hon, 1999, p. 389) and strategies used to collaboratively connect with the community appeared to be successful. Overall, the results of this study support the effectiveness of critical components in providing information about the world of work, modeling, relationship-building, and support within career intervention programs.

McWhirter, Rasheed, and Crothers (2000) investigated the influence of a nine-week career education class for 166 urban high school sophomores (97 female, 69 male; 129 White, 11 African American, 9 Hispanic, 10 Asian American , and 7 "Other"). Grounded in Social Cognitive Career Theory (SCCT), the career education course was designed to introduce students to and promote their career decision-making skills. Specific decision-making skills included the ability to identify career interests, locate

information about the world of work, and acquire skills relevant to interviewing and job searching. The authors hypothesized that the career education course would lead to (a) increased career decision-making self-efficacy, vocational skills self-efficacy, and outcome expectations; (b) greater understanding of barriers such as the likelihood, magnitude, and difficulty of perceived postsecondary educational barriers as well as students' abilities to overcome these barriers; and (c) greater change in career expectations and educational plans.

To test these hypotheses, McWhirter and colleagues measured variables of career decision-making self-efficacy, vocational skills self-efficacy, perceived educational barriers, outcome expectations, educational plans, and career expectations with pre- and post-test methods. The career education class met daily for 50 minutes over the course of nine weeks. Class content included assessments of career interests, values, and skills; developing and maintaining a budget; learning about work-related expectations; identifying educational options and work-related information such as wages and educational requirements related to specific occupations; learning practical skills such as resume writing, interviewing, locating career information, and identifying funding for postsecondary education; and calculating grade point averages. As compared to a control group class, the career education class demonstrated increased career decision-making self-efficacy, vocational skills self-efficacy, and short-term gains in outcome expectations (McWhirter et al., 2000). However, the program did not appear to influence perceived educational barriers. McWhirter et al. (2000) theorized that perceived educational barriers may not have been affected because their sample of sophomore students may have been

unable to make clear distinctions among the likelihood, magnitude, and difficulty dimensions of perceived barriers to postsecondary education.

Results from this study provide further support for the effectiveness of career education programs implementing Brown and Ryan Krane's critical components. Specifically, the career education course described in this study helped students explore the world of work, provided feedback of career assessments, and provided practical written exercises and relationship-building opportunities for students. Results suggested students experienced increases in the SCCT variables of self-efficacy and outcome expectations. As with earlier studies, understanding which aspects of the program influence outcomes may have more clarity with additional sources of qualitative data. Moreover, additional studies focused on identifying effective components for influencing career and educational barriers would enhance career intervention outcomes.

Solberg, Howard, Blustein, and Close (2002) described a school-to-work-to-life (STWL) framework that extends previous school-to-work (STW) programs by including a focus on student empowerment in basic skills and competencies to "compete in the world of work and world of life" (p. 706). Thus, students learn personal and work-related strategies to be successful in multiple contexts as well as methods for coping with stressful situations. Two programmatic examples of STWL transitions for low-income and diverse urban youth include the *Achieving Success Identity Pathways (ASIP)* program and the *Tools for Tomorrow (TFT)* program.

The *ASIP* program (Solberg, Cusavac, Hamann, Felch, Johnson, Lambora, et al., 1998; Solberg, Close, & Metz, 2001) was designed to help students identify barriers to successful school transitions while developing supportive internal and external resources

as well as a sense of personal agency. The program was implemented with over 1500 freshman and sophomore high school students from diverse backgrounds (72% Latino American; 13% African American, 5% Asian American, 5% Euro/Slavic American, 3% Native American, 2% Other) and low socioeconomic status. Program curriculum included goal-setting, identifying barriers and challenges to successful post-high school transitions; establishing stronger connections with teachers, peers, and other supportive persons; and vocational development skills and activities. The authors reported that program components contributed to higher grades, credits earned, percentage of classes passed, and higher attendance. This study provides further support for Brown and Ryan Krane's critical components as well as mixed support for the effectiveness of the SCCT model and its constructs in grounding effective career intervention programs.

The *Tools for Tomorrow* program was designed as a psychoeducational intervention to promote connections between school, work, and life (Blustein, Jackson, Kenny, Sparks, Chaves, Diemer, et al., 2001; Solberg et al., 2002). The program was delivered to over 600 ninth grade students in two urban high schools in the northeastern United States. The majority of participants were identified as low SES and student ethnicity included 24% Black Caribbean, 27% African American, 22% Hispanic, 10% White, and 7% Asian American or Native American. Curriculum was designed to increase self-knowledge, identify and develop skills to achieve career and educational goals, develop connections with supportive resources, understand and integrate cultural identity factors into self-concept, and learn strategies to overcome challenges (Blustein et al., 2001; Solberg et al., 2002). Although Solberg et al. (2002) were unable to report TFT outcomes at the time of publication, they stated that formative and summative qualitative

and quantitative data appeared promising regarding the program's use of empowerment, self-examination and goal setting, examination of resources and barriers, and strategies for coping with life and work-related challenges.

The *Armed Services Vocational Aptitude Battery (ASVAB) Career Exploration Program* had been implemented across the nation since its inception in 1968 (Baker, 2002). This program provides developmentally appropriate career assessments and exercises to schools in an attempt to assist students as they explore and better understand high school and post secondary education and career opportunities. The ASVAB program is also used to identify those students who may be interested in and qualified for military service. Thus, the overall program was "designed to teach career exploration skills useful both for entry into the workforce and for continued career development" (Baker, 2002, p. 360).

Baker (2002) investigated the ASVAB program and hypothesized that it would (a) increase students' confidence about their ability to engage in the career process, (b) help students begin the career exploration process, and (c) reduce overall career indecision. As part of the program, 677 students from 48 high schools filled out questionnaires and responded to career interest assessments. Following, they received their assessment scores and participated in an interpretation session. Finally, they were provided with an opportunity to research jobs indicated in their assessment results by using the Occupational Outlook Handbook and information about military careers. Although not required as a part of the program, students were encouraged to complete additional career-related exercises designed to develop career exploration skills.

Measures including the Career Exploration and Knowledge scale and the Career Decision scale (CDS) were used to evaluate Baker's initial hypotheses. Results indicated that students who participated in the program had significantly greater positive change (p=.001) in career exploration and knowledge as compared to control group participants. Further results from the Career Decision scale suggested ASVAB participants reported positive changes in career diffusion, which denotes fewer feelings of confusion and discouragement regarding making career decision. ASVAB participants also reported positive changes in the CDS Approach-Approach subscale, which suggests students experience less conflict when choosing from among attractive careers. On the other hand, the CDS subscales of Support and External Barriers did not show any significant changes. This may have been due to the program's structure of simply advising students to use their support systems in the career development process as well as only inviting them to consider the presence of external barriers. Regardless of these mixed results, it appears participants in this study did benefit from the career intervention program by increasing career-related exploration and knowledge as well as reducing career indecision. Although individualized feedback of career assessments may have enhanced program outcomes, this study provides further support for the critical component of career interest exploration by students within the career decision-making process.

In light of the federally funded School-to-Work Opportunities Act of 1994 (STWOA), Lapan, Tucker, Kim, and Koscuilek (2003) studied the impact of four career development curricular strategies and emotional/instrumental support for rural adolescent post-high school transitions. STWOA was initially established with the goal of building school and community partnerships that would help "empower students to overcome

barriers related to demographics, geography, socioeconomic level, or disability/health status" (Lapan et al. 2003, p. 330). Three components to this program included school-based learning activities, work-based learning programs, and connecting activities. Together, it was thought that these components would motivate students to seek postsecondary education, obtain substantive employment, and increase the sophistication of the national economy. Lapan et al. (2003) studied the impact of curriculum strategies and stakeholder support on rural adolescents' post-high school transitions.

Participants included 347 8th graders, 281 10th graders, and 256 12th graders from rural areas in a Midwestern state. Of the students in each grade, 92%, 91% and 92% (respectively) were White while the remaining identified as African American. STWOA curriculum and support services were implemented at the participating schools while each partnership school served as its own control. Four curriculum strategies and three emotional/instrumental supports from school counselors, teachers, and other stakeholders were studied. The four curriculum strategies included (a) curriculum organized around a career goal, (b) explicitly discussing and aligning course content with the world of work, (c) providing career-related learning experiences, and (d) conducting and connecting learning activities to work.

Surveys were developed according to educational level and included questions regarding parent education, grades, educational level needed to reach career goals, and goals and actions regarding careers. Additionally, work-readiness behaviors and social skills; expectations regarding outcome, efficacy, and career-related attributions; person-environment fit; and interests were also assessed. In addition to connecting learning activities to work-related activities, curriculum strategies evaluated included the

relevance of curriculum to the world of work, work-based learning, and job. Finally, overall satisfaction and support from counselors, teachers, and overall support as perceived by students was evaluated.

Results indicated several interesting and important outcomes including that the six career constructs (i.e., grades, expectations, goals and actions, work-readiness behaviors and social skills, person-environment fit, and interests) were correlated with higher levels of satisfaction and education as well as with curriculum strategies and stakeholder support (Lapan et al. 2003). Among 8th and 10th graders, higher levels of satisfaction were correlated with grades and expectations and overall support was correlated with higher educational levels. Moreover, 8th graders who reported receiving more support were also more likely to report making added career-based connections through coursework and in developing career goals (Lapan et al. 2003). Overall, these results suggest that increased career development activities predict student satisfaction and better prepare them for post-high school transitions and that emotional/instrumental support is, and may continue to be, an important aspect for students making educational and career decisions.

Finally, the *Cross-Cultural Education in Public Health* program (CCEPH; Fleming, Berkowitz, & Cheadle, 2005) was designed to promote interest in health care careers among minority middle and high school students. The program developed a 9-week curriculum grounded in Bandura's (1986) theory of self-efficacy. The primary goal was to increase students' level of academic and career self-efficacy via modeling, peer teaching, and skill development as well as increase the range of career options considered by students. Prior to this research, the authors reported that "no studies of successful programs designed to enhance health care career-seeking behaviors among immigrant

and ethnic minority children" were found (Fleming et al., 2005, p. 33). Although they cite two other programs with a similar focus, *Med Start* (Brewer, DuVal, & Davis, 1979) and *Program: Learning According to Needs* (Abi-Nader, 1991), neither were evaluated to determine which program variables contributed to the overall success of increasing college attendance rates and delivering mentoring, skill development, and counseling services in a culturally sensitive manner.

The CCEPH program consisted of data collection at first and last session, one job fair, one field trip, and five classroom-based learning sessions focusing on an introduction to public health, culture and health, planning for personal health and goals, infectious disease, and jobs and careers. Participants included 72 ESL students at two urban high schools in 9-12 grades. Measures included an altered form of the Occupational Self-Efficacy scale (reportedly altered to reflect careers in health care and public health) and the Career Consideration scale. Due to the lack of a control group, a non-experimental, non-comparative, single-group, pre-post test design was used to evaluate the impact of the program. Although results produced non-significant results for academic self-efficacy, results for consideration of careers largely increased at both school 1 and school 2 (13 of 20 and 16 of 20, respectively). Specifically, students' considerations of nursing, nutrition, medical interpretation, health researcher, and social worker were among the occupations most significantly considered. These results suggest that interest in pursuing a career in the healthcare field may increase as a result of targeted programmatic development and implementation.

Conclusions

Couched with a Social Cognitive Career Theory framework, the compilation of meta-analytic and specific career intervention program results provides mixed support for the effectiveness of career intervention programs with diverse rural and urban middle and high school students. The SCCT model accounts for person inputs and background variables as students learn information regarding the world of work. As academic and career knowledge as well as personal awareness increases, self-efficacy and outcome expectations are enhanced, which allows students to identify academic and career interests. These interests lead to academic and career intentions and goals, which leads to choices and action upon those choices. Brown and Ryan Krane's critical component of career interventions are effectively woven throughout this model. Specifically, student explore the world of work, receive individualized assistance and support from a variety of academic- and career-specific interventions, define academic and career goals through written exercises, identify potential sources of support and resources to overcome recognized barriers, and develop relationships with supportive adults who model exploration and decision-making processes.

The current study implemented each of these critical components within the theoretically-driven SCCT framework of career development. Case study methodology was used to explore the impact of the program on students and the school system. First, surveys assessing the SCCT variables of self-efficacy, outcome expectations, and academic/career interests were administered prior to and following the Project HOPE career intervention program. As a method to better understand how scores change as a result of Project HOPE, outcome data were analyzed in terms of clinical (or practical) significance via growth or reduction in scores. Second, focus groups were conducted with

both students as well as school collaborators (i.e., classroom teachers, guidance counselors, and principals) to explore how the students and school collaborators experienced the development, implementation, and evaluation of the career education program.

This study also incorporated a participatory research design, which included the additional component of formative assessment prior to and throughout the course of the program. Prior to program development and implementation, a formative assessment of results from previous implementations as well as informal focus groups with students from previous implementations provided data that researchers reviewed. After review of this data, results were discussed and the Project HOPE curriculum, activities, and format were altered in order to meet students' developmental needs and preferences. Throughout the current study, the research team continued to discuss their perceptions of how the intervention was received by students and staff as well as offer suggested modifications, which were then implemented during the next day/class. This formative evaluation allowed the research team to closely align with a participatory research design and critical psychology research perspective as well as integrate program evaluation components to potentially increase the positive reception of the Project HOPE within each site. Overall, this structure of combined theory, community participation, and on-going program evaluation allowed researchers to better understand the impact of the career education program within the school context for the two participating schools.

CHAPTER III

METHODOLOGY

Rationale for the Use of a Case Study Approach

The purpose of the current manuscript is to describe a critical psychology case study approach in the systematic development and evaluation of a career education program within two ethnically diverse rural middle schools. Project HOPE (Health career Occupations, Preparation, and Exploration) was collaboratively developed and implemented by a university-based research team, middle and high school personnel, and students at participating schools. A multiple-case study design was utilized to explore Project HOPE and understand the impact of the program within the school context for the given samples.

Case study methodology is "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2008, p. 18). Because case study methods allow the researcher to better understand real life phenomena in depth and within the specific context, it has been commonly used in evaluating program effectiveness. Case study methodology also has the ability to examine multiple project elements (e.g., student outcomes, teacher perceptions of the implementation process, and student perceptions of the curriculum). This is a good complement to a critical psychology approach as multiple perspectives are better understood within a specified context.

One typical method used to better understand career education programs is an experimental approach that seeks to improve internal validity via environmental control,

such as randomized and control groups. When researchers are more interested in studying a phenomenon in its natural environment and do not have any actual control over the environment, a case study approach may be more appropriate (Yin, 2009). Yin (2008; 2009) outlined several methods to appropriately utilize case designs. Specifically, Yin (2009) urges researchers to develop “how” and “why” research questions; base research on sound theoretical propositions; define a collective unit (e.g., school) as the appropriate unit of analysis, and include multiple sources of data collection. The use of multiple sources of data also assist with understanding the implementation effects of an intervention, which is of great benefit to the research design and complements best practices in program evaluation (Preskill & Donaldson, 2008). Moreover, Yin (2009) suggests that case study methodology is appropriate when the researcher does not seek to have control over the environment and is not interested in statistical generalization. Instead, the researcher is interested solely in the application of analytic generalization. Analytical generalization occurs when “previously developed theory is used as a template with which to compare the empirical results of a case study” (Yin, 2009, p. 38).

One way to study analytical generalization is via clinical (or practical) significance. Whereas statistical generalization examines significance beyond a specific set point, clinical significance might be better analyzed in terms of growth. To analyze outcome data in terms of growth, the scores from pre to post survey data are compared and then meaning is extrapolated from the growth or reduction of outcome scores. Scores may also be compared to outcome data from the same measures in comparable studies. Researchers may then deduce meaning regarding clinical (or practical) significance as a result of these comparisons.

Caracelli & Greene (1997) state that by mixing methods and integration of elements of disparate paradigms has the potential to "produce significantly more insightful, even dialectically transformed, understandings of the phenomenon under investigation" (p. 23). Overall, these methods allow for the "ability to provide significantly more germane and useful information" (Caracelli & Greene, 1997, p. 22) as compared to more statistically structural explanations. Caracelli & Greene (1997) further state that combining/comparing results from studies with complementary designs helps to "minimize study biases that derive from inherent design weaknesses" (p. 23). Increased support for clinical/practical significance via growth may then be strengthened.

So what determines a clinically significant change in scores from pre- to post-intervention in this study? The researchers based this decision in the context of the population. Specifically, students in both School 1 and School 2 were underrepresented students from rural backgrounds, primarily Hispanic in ethnic origin, and lower social class status. Research (Catsambis, 1999; Hoffman, 2011; Liu & Ali, 2011; Zur, 2006) suggests that individuals from rural and ethnically diverse backgrounds have less access to educational opportunities, educational resources, work prospects, and support. Thus, a meaningful change in scores self-efficacy, interests, outcome expectations, intentions, and career considerations would be expected to be smaller when compared to scores from students of higher social status or more privileged backgrounds. For example, if scale mean scores for Student A from Time 1 to Time 2 yielded growth of .10 for a measure, this might be a meaningful level of growth for minority students from poor or lower social status rural families. On the other hand, a growth in scale mean scores of .50 might be more clinically meaningful for students from more privileged backgrounds.

Given this information, researchers in the current study determined a 0.10 change in scale mean scores from pre to post would be meaningful and clinically significant for the students in this study. Researchers determined that any changes in scale mean scores resulting in less than 0.10 may occur by chance and any change in scale mean scores beyond the set point of 0.10 would lend greater support to the clinical significance identified within the current context. Similarly, any decreases at these levels may also be analogously defined. In comparing current study outcomes with previous study outcomes, it is important to use equivalent data. Because some studies report item mean scores in lieu of scale mean scores, these scores were converted into scale mean scores for comparison purposes.

Due to the acceptance and motivation of two rural schools to participate, the current study utilized a multiple-case study design. One Midwestern rural school represented a case in which Project HOPE was replicated after an initial pilot study one year prior. The pilot study was developed and implemented by a collaborative team of university-based researchers, school personnel, and middle school students. Both Midwestern rural schools in the current study also previously participated in a general career education program developed within a community-based participatory research model and implemented several years earlier. The rationale for the use of a multiple case study design at this time was based on the following: (1) the researchers were interested in understanding how the career intervention program impacted students and how school personnel and students experienced the collaborative program development and implementation; (2) the current study's propositions are based in prior research and theory; (3) the unit of analysis was at the collective level (i.e., school) and survey

methods, student evaluations, and focus group data were collected; (4) the researchers did not seek to control behavioral or contextual variables, but were more interested in the program's implementation in collaboration with environmental resources within the context of this specific community; and (5) the researchers were interested in analytic generalization (i.e., drawing appropriate inferences from cases and experiments to the theory from which it is derived).

Project HOPE

Project HOPE was developed by a team of university-based researchers comprised of the principal investigator, ten graduate research assistants (i.e., 7 counseling psychology doctoral students, 2 counselor rehabilitation doctoral students, and 1 school psychology doctoral student), and one undergraduate research assistant (i.e., microbiology major). Due to the foundation of continuous collaboration within a critical psychology approach, school personnel (i.e., guidance counselors, teachers, and principals) and 8th grade students were also viewed at part of the team.

Prior to developing the current program curriculum, outcome data from the pilot program was evaluated to identify significant changes within SCCT variables from pre-intervention (i.e., Time 1) to post-intervention (i.e., Time 2). Further, pre-intervention student and school personnel focus groups were held following the pilot study to help refine career intervention components. Student focus groups included 5 student participants (3 identified as Hispanic and 2 identified as Caucasian) who each reported their age as 14 years. These students were chosen at random and asked to participate in the focus group part of the study. The pre-intervention school personnel focus group consisted of the middle school principal, one teacher, and one guidance counselor. The

three participants identified as Caucasian American and African American and were between the ages of 25-50. Content analysis was conducted and evaluated to identify positive versus neutral and negative experiences. From this data, the team of researchers developed suggestions for modifying Project HOPE goals and curriculum, which led to the current, collaboratively-developed Project HOPE career intervention program.

The team grounded the Project HOPE program, its goals, and interventions in the tenets of the SCCT framework (Lent et al., 1994). Moreover, the activities comprising the Project HOPE program were intended to include the five critical components of effective career interventions identified by Brown and Ryan Krane (2000). The entire team met and collaboratively identified the following goals for Project HOPE: (a) to increase participants' awareness of self (e.g., career interests, personal strengths, barriers, support systems, role models, and expectations about the future); (b) knowledge of the world of work and opportunities in healthcare fields (e.g., education/training required for careers, financial assistance for education/training); (c) confidence in their ability to complete career related tasks (e.g., resume writing, identifying a post-secondary educational or career path, interviewing skills); (d) expectations for outcomes (e.g., increase or strengthen expectations that planning and preparation will assist them in reaching their goals); (e) awareness of, and ability to cope with, barriers to pursuing postsecondary education/training and employment; and (f) identification of and access to support systems (e.g., parents, peers, siblings, and school personnel). During planning meetings, teams strategized about the most effective way of implementing Project HOPE within the context of the particular schools while attending to collaboratively defined goals.

After identifying the goals and implementation strategy of the Project HOPE program, the principal investigator and graduate students developed an age-appropriate/goal-directed curriculum based in the tenets of the SCCT (Lent et al., 1994) and included the essential components of effective career interventions (Brown & Ryan Krane, 2000). Moreover, curriculum was designed around math and science-related activities to expose students to a variety of information regarding the opportunities available in health science fields (see Appendix A). Specifically, curriculum components (e.g., health career jeopardy, career search, and resume writing) were designed to increase students' career interests in math and science fields via knowledge of healthcare opportunities and connecting opportunities with the education and training required. Activities (e.g., career fair, career guided imagery, and mock interviews) also sought to enhance student awareness of personal strengths in scientific areas and ability to identify expectations about valued career choices, potential barriers they may encounter, and resources they could access to assist in overcoming possible obstacles to goal achievement. Particular lessons (e.g., resume writing, career guided imagery, and mock interviews) were designed to enhance students' confidence in their ability to complete career related tasks. Overall, each component was designed to align with specific SCCT constructs, include Brown and Ryan Krane's (2000) essential career intervention components, enhance student awareness of career opportunities in math and science-related fields, and promote self-efficacy.

Throughout program development, the entire team and 8th grade students were consulted to ensure that the curriculum components were consistent with research interests, values, and aspirations. Following initial curriculum development, the entire

team met again to further refine intervention components. The goals of this second meeting were to ensure that the activities were age appropriate, the activities would be well-received by the middle school students, and discuss roles and responsibilities of all the research team members. Throughout implementation, research team members met with school personnel to discuss continuous refinement of program components to meet school and student needs. Moreover, input was sought from student participants and adjustments were made to reflect their feedback. Overall, the program's curriculum consisted of six sessions (i.e., Health career Jeopardy, Career Fair, Career Guided Imagery, Career Search and Resume Writing, Mock Interviews, and Field Trip), plus two sessions devoted to pre and post survey administration (see Appendix C).

Case Studies

The case studies included two community middle schools in the Midwest. Both were located in rural areas. The term "rural" was characterized by a combination of small size (i.e., population ≤ 2,500), low population density, geographical isolation, familiarity and interconnectedness of people and systems, and limited resources (Helbok, 2003; Hoffman, 2011; Zur, 2006). These two schools were included due to their acceptance and motivation to participate in a career education program with a particular focus on careers in the health science fields.

The first participating school was a small rural community middle school of approximately 250 students located in a rural area in the Midwest. The demographics of the middle school indicated that 42.98% of the students identify themselves as White and 51.76% identify themselves as "Hispanic", "Mexican", and/or Latino/a (terms used by students). The remaining demographic breakdown included Black/African American,

Asian/Asian American, and Native American/American Indian (1.75%, 3.07%, and 0.44%, respectively). Of these, approximately 51% were male and 49% female. Approximately 22% were identified as having Limited English Proficiency (LEP), or English Second Language (i.e., ESL) students (Iowa Department of Education[b], 2010; West Liberty Community School District, 2009). Roughly 50% of students at this school were reported to be eligible for the free and reduced-price lunch program (Iowa Department of Education, 2010[a]). The demographic information of the students who participated in the program and for whom survey data and student evaluation data was collected are outlined in the following chapter.

The second participating school was a small community junior high and high school of approximately 462 students (70 of which are 8th grade students) located in a rural area in the Midwest. Combined demographics report that approximately 35.3% of the students identified themselves as White and 62.6% identified themselves as Hispanic. Additionally, demographics included approximately 1.4% identifying as Black/African American, and less than 1% identifying as either Asian/Asian American or Native American/American Indian (Columbus Community Schools, 2009). Approximately 50% of students at this school were reported to be eligible for the free and reduced-price lunch program and 22% were identified as having Limited English Proficiency (Iowa Department of Education, 2010[a]; Iowa Department of Education[b]). Further demographic information regarding specific make-up of the participating 8th grade class (i.e., age, race/ethnicity, and gender) is provided in the following chapter.

In addition to the above demographic information, the median household income for each of the two counties averages (i.e., ~$51,000 and ~$50,000) was lower than both

the state (~$62,000) and national (i.e., ~$52,000) national averages (U.S. Census Bureau, 2010[b]; 2010[d]; 2010[e]). The majority of the jobs within the counties included in the current research study include primarily labor jobs and service-oriented occupations (U.S. Census Bureau, 2010[b]; 2010[d]). As compared with the national outlook regarding primarily management and sales/office occupations, work within the identified areas typically earn less on average. These numbers become increasingly discrepant when considering the large Hispanic population, who typically earn less than their White counterparts (U.S. Census Bureau, 2010[c]). As a result, the demographic outlook for the areas within the current research study identify both poverty-level and working-class individuals, which is a stark contrast to other areas within the state and nation that include a wider variety of social class individuals (e.g., middle and upper class).

Survey Instruments

The survey instruments selected for this study included a background demographics questionnaire, multiple scales to assess SCCT variables, and focus group questions for students and school staff. The background demographics questionnaire was used to accurately describe the sample of students in addition to providing data regarding the SCCT variables of person inputs and background contextual affordances. The Math/Science Self-Efficacy scale, Career Considerations Scale – modified, Math/Science Outcome Expectations and Intentions scale, Math/Science Interests scale, Career Interests and Intentions scale, and Vocational Skills Self-Efficacy scale were used to provide data regarding the SCCT variables of self-efficacy, interests, and outcome expectations. Finally, focus group questions for students and school personnel were used to better understand the “how and why” of the case study phenomenon (Yin, 2008).

Background questionnaire. This questionnaire asked respondents to indicate their age, sex, race/ethnicity, household composition, parent educational level, parent occupations, average school grades, and their long-term plans to either live in the state or leave the state. Sex and age were assessed by having respondents selecting *male* or *female,* and by having participants write in their age in the appropriate space. The response options included 1 = *"Male"* and 2 = *"Female."* Participants indicated their race/ethnicity by selecting the response option(s) that most accurately described them. The response options included 1 = "*White/Non-Hispanic,"* 2 = *"African American,"* 3 = *"Chicano(a)/Mexican/Hispanic/Latino(a),"* 4 = *"Asian/Asian American,"* 5 = *"Native American/American Indian,"* and 6 = *"Other."* For those who selected "*Other*," a space was provided to describe their race/ethnicity. For students who selected more than one response, they were coded as a 7 = *"Multiracial."*

Math and science self-efficacy scale (MSSE; Fouad, Smith, & Enochs, 1997). The MSSE scale is a 12-item measure used to assess participants' pre/post intervention level of self-reported beliefs about their ability to complete math and science related outcomes. Participants rated their level of confidence in their ability to complete each item by responding on a five-point Likert-type scale including 1 = very unsure I can do this, 2 = somewhat unsure I can do this, 3 = uncertain, 4 = somewhat sure I can do this, and 5 = very sure I can do this. High scores indicated higher levels of math/science self-efficacy. Fouad et al. (1997) rated the internal consistency reliability of this scale .84 and also provided criterion-related validity evidence via an intervention that demonstrated the scale's ability to detect changes in math and science self-efficacy (Navarro et al., 2007).

Career considerations scale – modified (CCS; Fleming, Berkowitz, & Cheadle, 2005). The CCS scale was originally developed from a modified version of Betz and Hackett's (1981) Occupational Self-Efficacy scale. The OSES was constructed to assess for student's career considerations regarding a variety of careers and work environments. The modified version was designed by Fleming et al. (2005) to focus specifically on healthcare careers; thus, new healthcare occupations were designed to replace original non-healthcare focused careers on the list. The 9-point Likert-type scale asks students to rate their level of confidence in their ability to successfully complete the educational requirements for each of the 20 career considerations listed. For example, students may rate (0 = *no confidence*; 9 = *complete confidence*) how certain they are in their ability to complete the education needed to become a secretary, dentist, physical therapist, or engineer. While internal consistency reliability for the OSES was cited as .95 and also had strong content, concurrent, and construct validity, Fleming et al. (2005) did not report validity and reliability coefficients for the modified version.

Math/science outcome expectations and intentions scales (MSOE; Fouad et al., 1997). Math/science outcome expectations and intentions refer to the anticipated results of math and science specific behaviors. The MSOE scale was developed using a modified version of the original Career Decision Outcome Expectations scale (CDOE; Betz & Voyten, 1997). Betz and Voyten (1997) constructed the scale to assess (a) the relevance of educational performance to career options and success (using five items) and (b) outcome expectations for career decision-making behaviors (using four items). Modifications included the incorporation of math and science specific questions and extended the original 9-item scale to 12 items. Of these 12 items, six map onto the MSOE

subscale and six onto the MSI subscale. For example, while the original item may have stated "If I try hard enough, I will get good grades," a modified sample item may state "If I take a lot of math courses, then I will be better able to achieve my future goals." All items were answered on a five point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*). Betz and Voyten (1997) reported adequate validity and reliability information for this scale in the original version while Fouad et al. (1997) reported a .71 correlational coefficient for discriminant validity on the MSOE subscale. For the Math/Science Intentions subscale, examples include items such as "I intend to take science classes in high school" and "I want to enter a career that will use math." Discriminant validity for the MSI subscale was reported as .66, which was corrected for attenuation.

Math/science interests scale (MSI; Fouad & Smith, 1996). The Math/Science Interests scale is a 20-item scale that assesses students' interests in math and science-related activities (Fouad & Smith, 1996). Students are asked to rate the extent to which they might like or dislike an activity. For example, on a 3-point Likert-type scale, students rate the extent to which they might *like*, are *uncertain*, or *dislike* (1, 2, and 3, respectively) visiting a science museum, taking math classes, or working with a chemistry set. Scores are then reverse coded so that higher scores represent higher math and science-related interests. Fouad et al. (1997) rated the reliability for this scale at .90 (Fouad & Smith, 1996).

Vocational skills self-efficacy scale (VSSE; McWhirter, Rasheed, and Crothers, 2000) is a 37-item measure used to determine students' self-reported confidence in their abilities to complete specific vocational tasks. Ellen Hawley McWhirter originally

developed the VSSE for the purpose of the evaluating a nine-week career intervention among high school sophomores. Items were originally derived from state-developed vocational skills guidelines and were reviewed by a career education teacher to ensure their appropriateness. On a 9-point Likert-type scale (0 = *no confidence*; 9 = *complete confidence*), students are asked to rate their degree of confidence in their ability to complete tasks. For example, each student rates how certain they are in their ability to "identify three of my strengths as a person," "describe my academic strengths," and "complete a job application correctly." In the original intervention, the test-retest correlational coefficient was .68 and subsequent validity and reliability tests ranged from .84 to .91.

Additionally, students were asked to respond to three additional questions regarding their career interests as well as those careers their parents and teachers want for them or think they should enter. In particular, students are asked to list "the career my parents want for me," "the career my teachers think I should enter," and "the career I am interested in." These questions were not part of any published measure known to the authors; therefore validity and reliability were not reported.

Focus group questions. Students and school personnel (i.e., stakeholders) were asked a variety of questions focused on program evaluation, external influences on career decision making, and future aspirations (see Appendix B). Questions were designed to develop a deeper understanding of participants' experiences with the program. In particular, researcher sought to understand how self-efficacy, outcome expectations, and career goals changed for students from pre to post intervention; how students and school personnel experienced collaboration in developing and implementing the program within

their school; and to gather suggestions for future modification and replication. Program implementation "success" was assessed via several questions including, in what way would you consider this a "successful" program, in what way did students benefit (or not benefit) from the program, and would you find it beneficial to implement the program in subsequent years. Overall, being invited to implement the program in subsequent years may be the most appropriate measure of overall success.

Procedures

Project HOPE program implementation. The University's Institutional Review Board approved the researcher to conduct this study prior to the implementation of the Project HOPE career intervention program. Informed consent forms were distributed two weeks before the implementation start date at each respective site. Parental consent and student assent was obtained as informed consent forms were reviewed and signed by one parent/guardian as well as the student. They were then collected prior to program implementation.

The Project HOPE career intervention program was implemented in two schools across the course of 6-weeks and 6 days, respectively. Based upon the school's unique needs (e.g., number of students, instruction time, and scheduling issues), each of the school personnel in consultation with parents and other administrators determined the length of delivery and the setting (e.g. classroom, learning center) in which the program would be implemented. School 1 opted to have the curriculum implemented within the career education course with all of the 8th grade students over a six-week period; once a week for one hour with each of the four sections of 8th grade students. The sixth week included a one-day field trip to a large Midwestern university for all 8th grade students.

School 2 opted to implement the curriculum within the science education course with all of the 8th grade students across the course of one week; daily with each of the three sections of 8th grade science education students. The sixth day included the one-day field trip to a large Midwestern university for all 8th grade students. At each school, graduate student facilitators led each of the sessions in collaboration with school personnel, who were primarily responsible for introductions of the research team and classroom management. Graduate student facilitators and school personnel were also present during the field trip as guides, facilitators, and to answer any questions.

Survey administration. At both schools, the participants enrolled in the Project HOPE program completed the pre-test measures one week prior to the first day of the delivery of any activities. Similarly, post-test questionnaires were completed by participants during the week following the completion of the field trip for each school. Participants were surveyed in intact classroom groups using standardized administration procedures. Graduate student facilitators were instructed to make note of any students who reacted negatively to the surveys, demonstrated low motivation, or who appeared to randomly respond.

Student evaluations. Student evaluations were administered as students were asked to respond in writing to two open ended questions: (1) “one thing I learned from this program is…” and (2) “one thing I found helpful from this program was…” Following each day of instruction, students responded to these two questions in their student workbooks. At the end of the program, these evaluations were collected, anonymously transcribed to maintain confidentiality, and qualitatively analyzed via content analysis.

Focus groups and evaluation. Focus groups were conducted to evaluate and understand how the school personnel (i.e., classroom teachers, guidance counselors, principals) and students experienced the collaborative development, implementation, and evaluation of Project HOPE. Focus groups are one qualitative research methodology that has been used in different clinical settings (Kress & Shoffner, 2007) using a moderator to gather information. According to Kress and Shoffner (2007), the main purpose of the focus group moderator is to ask open-ended questions that facilitate an exchange of information between participants. In the present study, the focus group moderator was a forth-year counseling psychology graduate student and author of this study. The moderator was a part of the research team and participated in the implementation of Project HOPE. Open-ended questions were asked in each of the focus groups (see Appendix B), which examined the strengths and weaknesses of the program, suggestions for improvements, and general information on how they experienced the program in their school.

Prior to the start of each of the focus groups, the moderator described the purpose of the group to the participants as gathering information about the impact of the Project HOPE program on the students and school system. Focus group discussion lasted approximately 40 minutes for each of the school personnel focus groups and each of the student focus groups. Each focus group was conducted in an office inside the school. Discussion questions were presented one at a time by the moderator, who recorded (i.e., audiotape) and took detailed notes throughout the session. At the close of the focus group session, participants were thanked for their time and honesty. At the end of the program,

focus group data were transcribed verbatim from the audiotapes and qualitatively analyzed via content analysis.

Evaluation of data. Within this study, data derived from the survey measures (i.e., Math/Science Self-Efficacy, Career Considerations, Math/Science Interests, Math/Science Outcome Expectations and Intentions, and Vocational Skills Self-Efficacy) provide a foundational understanding of growth and clinical significance. Mean scores from each measure within the current study were initially analyzed and then compared to scores derived from the same measures used in previous studies; thus, it allows researchers to assess the comparative baseline of students in the current study with those in previous studies. Pre-survey and post-survey mean scores were then compared in order to help determine growth or decline that may have occurred throughout the intervention. These scores were also compared to pre and post mean scores from appropriate intervention studies previously examined that used the same measures. Additionally, individual student scores are presented in order to provide additional support for clinical significance throughout the career education program.

Student evaluations, student focus group data, school personnel focus group data were analyzed separately by a collaborative research team. The research team was comprised of four members including the author of this study and a faculty advisor (i.e., one graduate student in counseling psychology; one faculty member of the counseling psychology program), one graduate student in counseling psychology who was directly involved with program implementation at one school, and one graduate student in counseling psychology who was not directly involved with program implementation at either school. Coders were trained in content analysis by using holistic/descriptive coding

and pattern coding (Saldaña, 2009) by the faculty advisor and author of this study. When collaboratively coding qualitative data, inter-coder agreement is critically important to the validation process (Saldaña, 2009). As suggested by Harry, Sturges, and Klingner (2005) simple majority group consensus was used as an agreement tool in this process.

In order to gain insight into the holistic experience of the program, first- and second-cycle coding of focus group data were completed following each intervention. In a similar vein, first-cycle coding methods employed a combination of holistic and descriptive coding. While both holistic and descriptive coding are appropriate for multiple types of qualitative studies, Saldaña (2009) suggests that both descriptive and holistic coding are particularly appropriate for beginning qualitative researchers and for studies with a wide variety of data forms (e.g., interview transcripts, field notes, correspondence, etc.). As suggested by Saldaña (2009), second-cycle coding methods were then implemented to generate more abstract constructs. These constructs allow researchers to either develop or compare and contrast data with the foundational theory. Pattern coding will be employed throughout the second-cycle. Pattern codes are appropriate for the development of major themes from data due to their ability to identify and explain emergent themes from data (Saldaña, 2009).

Conclusion

The current study was guided by two main research questions. The first research question was: How did the SCCT variables of math/science self-efficacy beliefs, math/science outcome expectations, math/science and career-related interests, and vocational skills self-efficacy (as assessed by survey administration) changed from pre-intervention to post-intervention for students who participated in the program? The

second research question was: How did the students/school personnel experience the collaborative program development and implementation within the context of their school system? Following implementation, additional time was dedicated to conduct student and school personnel focus groups. Focus group data was used to better understand how students and school personnel experienced the collaborative program development and implementation within the context of their school system.

As outlined previously, case study methodology examines multiple project elements (e.g., quantitative surveys, qualitative focus group information, and student evaluations) as a way to triangulate information directed toward answering specific research questions, understanding the project within a specified context, and analytic generalization. Consequently, quantitative pre-post measures were combined with student focus group data and student evaluations to determine how SCCT variables of math/science self-efficacy, vocational skills self-efficacy, math/science interests, career considerations, and math/science outcome expectations and intentions change for those who participated in the program. While quantitative data highlight significant changes in SCCT variables from pre to post intervention, information from student focus groups, student evaluations, and school personnel focus groups emphasize additional information and experiences. The collection of this rich information constructs an overview regarding how the collaborative development and implementation of the program was experienced and impacted the short-term effects on individual and systemic outcomes.

CHAPTER IV

RESULTS

Multiple Case Study Results

Survey data were collected prior to and directly following the Project HOPE career intervention program. Upon completion of the Project HOPE program at each school, pre-intervention data (Time 1) and post-intervention data (Time 2) were initially downloaded into a master file in which variables were coded according to the guidelines for each measure as outlined in the previous chapter. A total of 65 and 71 students (School 1 and School 2, respectively) participated in the Project HOPE program with parental consent.

Data were then reviewed for completeness as well as random responding. Participants with a large degree of missing data (e.g., more than half of the measures were not completed and either pre-intervention or post-intervention data were unavailable) and obvious random responding (i.e., same answer was consistent across multiple measures; for example, all 9's were recorded on the CCS and VSSE measures and all 5's were recorded for the MSSE and MSOE measures) were not included in the following analyses. A total of six students from School 1 and eight students from School 2 did not provide full scale data (i.e., pre- or post-measure missing data and/or random responding) and were not included in the following analyses. If a maximum of 20% of the responses were missing within a scale, the missing data were transformed and replaced with the average missing value according to SPSS functions. Thus, the current study analyzed and reported data from students providing complete information across scales (N=59 and N=63; School 1 and School 2, respectively). Due to researcher error,

the VSSE scale administered to both School 1 and School 2 contained only 35 of the 37 survey items. To rectify this input error, the VSSE scale mean was calculated and used as a replacement score for the final two items for each student in both schools. Demographic information for each both School 1 and School 2 were reported in Table 1.

Table 1. Demographic Information in Two Participating Schools

	School 1	School 2
Gender		
Male	30	28
Female	29	27
Age		
M	13.51	13.69
SD	.504	.540
Range	1	2
Ethnicity		
Caucasian	18	22
Hispanic	31	27
Other	10	14
Total Participants	65	71
Missing/Incomplete Data	6	8
Valid Sample	59	63

Survey Data

Following the review and transformation of data, means for each measure were computed and are reported in Table 2. Similarly, means for the same scales in comparable studies were gathered and the compilation of this data is also reported in

Table 2. Clinical Significance Scale Comparisons of Means

Variable	Study	Scale Means
Math/Science Self-Efficacy Scale	Current Study	
	School 1 (Pre / Post)	46.91 / 46.00*
	School 2 (Pre / Post)	46.92 / 47.41**
	Navarro, Flores, & Worthington (2007)	41.76
	Fouad & Smith (1996)	42.85
Career Considerations Scale	Current Study	
	School 1 (Pre / Post)	87.60 / 90.00**
	School 2 (Pre / Post)	85.00 / 95.40**
	Fleming & Berkowitz (2005)	
	School 1 (Pre / Post)	143.8 / 146.4
	School 2 (Pre / Post)	151.8 / 138.4
Math/Science Outcome Expectations Scale	Current Study	
	School 1 (Pre / Post)	23.72 / 23.74
	School 2 (Pre / Post)	24.39 / 24.20*
	Navarro, Flores, & Worthington (2007)	25.02
	Fouad & Smith (1996)	24.47
Math/Science Intentions Scale	Current Study	
	School 1 (Pre / Post)	23.02 / 23.26**
	School 2 (Pre / Post)	22.68 / 23.03**
	Navarro, Flores, & Worthington (2007)	23.10
	Fouad & Smith (1996)	22.90
Math/Science Interests Scale	Current Study	
	School 1 (Pre / Post)	44.26 / 42.92*
	School 2 (Pre / Post)	44.04 / 46.17**
	Navarro, Flores, & Worthington (2007)	44.80
	Fouad & Smith (1996)	44.66
Vocational Skills Self-Efficacy Scale	Current Study	
	School 1 (Pre / Post)	227.35 / 219.64*
	School 2 (Pre / Post)	237.26 / 219.03*
	McWhirter, Rasheed, & Crothers (2000)	
	Pre/Post	252.50 / 278.50
	Follow-up	265.40
	Ali et al. (2011)	
	School 1 (Pre / Post)	220.96 / 241.96
	School 2 (Pre / Post)	189.83 / 223.17
	School 3 (Pre / Post)	221.98 / 248.57

*Clinically significant reduction.
**Clinically significant growth.

Table 2. For comparison purposes, the Math/Science Outcome Expectations and Intentions scale was divided to accurately analyze the two individual scales represented within the overall measure.

The mean pre-intervention scores from the current study were first compared to group mean overall scores and pre-intervention scores from the same measures in comparable studies. In the current study, the Math/Science Self-Efficacy scale yielded a scale mean of 46.91 and 46.92 at School 1 and School 2, respectively. The scale means from previous studies were identified as 42.85 (Fouad & Smith, 1996) and 41.76 (Navarro et al., 2007). Thus, students in the current study identified a higher baseline regarding math and science self-efficacy as compared to previous studies.

Conversely, the pre-intervention scale means for students in the current study were lower (i.e., 87.60 and 85.00) as compared to a previous study (i.e., 143.80 and 151.80) for the Career Considerations scale (Fleming & Berkowitz, 2005). Lower scores in the current study were also reported for the Math/Science Outcome Expectations scale (i.e., 23.72 and 24.39) as compared to the scale mean score (i.e., 24.47) reported by Fouad and Smith (1996) and item mean score (i.e., 25.02) reported by Navarro et al. (2007). The Math/Science Interests scale also showed lower pre-intervention scale mean scores for the current study (i.e., 44.26 and 44.04) as compared to previous studies (i.e., 44.66, Fouad & Smith, 1996; 44.80, Navarro et al., 2007). Therefore, students in the current study reported lower consideration of careers, math and science outcome expectations, and math and science interests prior to the career intervention as compared to baseline data from previous studies.

Baseline comparison for the Math/Science Intentions scale and the Vocational Skills Self-Efficacy scale showed mixed results between the current and previous studies. The current study showed scale mean scores of 23.02 and 22.68 on the Math/Science Intentions scale. Scores in the current study were slightly lower as compared to the reported score of 23.10 from Navarro et al. (2007). The comparison scale mean score of 22.90 (Fouad & Smith, 1996) was slightly lower than School 1 (i.e., M = 23.02) and slightly higher than School 2 (i.e., M = 22.68) in the current study. In the current study, the Vocational Skills Self-Efficacy scale generated pre-intervention scale mean scores of 227.35 and 237.26 for School 1 and School 2, respectively. These scores were lower than the pre-intervention the pre-intervention scale mean score of 252.50 reported by McWhirter et al. (2000) and higher than the pre-intervention scale mean scores for Schools 1, 2, and 3 (M = 220.96, 189.83, & 221.98, respectively) reported by Ali et al. (2011). As a result, student in the current study reported mixed pre-intervention baseline scores regarding their intentions to pursue math and science activities as well as their confidence in general vocational skills.

Next, the pre-survey and post-survey scale and item mean scores were compared in order to help determine growth (or reduction) that may have occurred throughout the intervention. The MSSE scale at School 1 returned scale mean scores of 46.91 (pre-intervention) and 46.00 (post-intervention). Scale mean scores were reduced from pre to post intervention (i.e., M = -0.91). School 2 showed an increase in scale mean scores from Time 1 to Time 2 (i.e., M = 0.49). Based on the criteria researchers set for clinical significance (i.e., $M \geq 0.10$), the Math/Science Self-Efficacy scale was clinically significant in both reduction and growth at School 1 and School 2, respectively. Thus,

students at School 1 reported decreased confidence in their math and science skills while students at School 2 increased in math/science skill confidence as a result of Project HOPE.

The Career Considerations scale produced clinically significant results at both schools. At School 1, scale mean scores increased a total of 2.40 points and School 2 showed an increase of 10.40 points between Time 1 and Time 2. Both change scores surpassed criteria for clinically significant growth at $M \geq 0.10$. Thus, students at School 1 and School 2 reported increased confidence in their ability to complete the education required for specific careers within the health science field following Project HOPE implementation.

The MSOEI scale was split into two scales for comparison purposes. The first scale, Math/Science Outcome Expectations, did not result in clinical significance at School 1 (i.e., $M = 0.02$). While some students slightly increased or decreased their scores from pre to post intervention, the majority of students showed no change in mean scores. School 2 showed a significant decrease in mean scores from pre to post intervention (i.e., $M = -0.19$). The second scale, Math/Science Intentions, displayed clinically significant increases at both School 1 and School 2. Specifically, data revealed a score reduction of 0.24 and 0.35 at School 1 and School 2, respectively. Thus, students at School 1 showed no change in math/science outcome expectations and increases in math/science intentions. Students at School 2 showed decreases regarding math and science outcome expectations and increases in math/science intentions as a result of Project HOPE implementation.

The MSI scale showed mixed results by school. School 1 produced a an average change score of -1.34 and School 2 yielded an average change score of 2.13 in scale means. According to the clinical significance set point of $M \geq 0.10$, this would suggest a clinically significant reduction of scores in School 1 and clinically significant growth in scores at School 2.Therefore, students at School 2 appeared to have increased (and students at School 1 decreased) their interests in math and science as a result of Project HOPE.

The VSSE scale generated a clinically significant reduction in scale mean scores at both School 1 and School 2. School 1 showed a decrease of -7.71 from pre to post intervention. School 2 revealed a decrease of -18.23. Thus, students at both schools reported a clinically significant decrease in their overall confidence regarding general vocational skills.

Given the reported data and information regarding clinically significant growth and reduction, it was important to know if these changes were typical for these scales. Thus, the growth/reduction scores from the current study were compared to pre-post scale mean scores from appropriate comparative intervention studies that employ the same measures. The Career Considerations scale was used in an intervention study that presented pre and post intervention scale means. Fleming and Berkowitz (2005) reported using the same measure in two schools. Pre and post scale means were identified as 143.80 and 146.40 at School 1 and 151.80 and 138.40 at School 2. The change in scores was 2.60 and -13.40 at School 1 and School 2, respectively. When compared with the change scores in the current study (i.e., 2.40 and 10.40), clinically significant growth and reduction appear typical, if not increasingly variable.

The Vocational Skills Self-Efficacy scale was compared to two different studies using the scale across multiple times (McWhirter et al., 2000) and at multiple schools (Ali et al., 2011). McWhirter reported pre and post scores of 252.50 and 278.50, respectively; thus showing a growth of 26.00 points. Showing a mean difference of 12.90 points, this growth decreased slightly from pre-intervention to a six-month follow-up. Ali et al. (2011) implemented their intervention in three schools and showed a growth of 21.00, 33.34, and 26.59 points at each of the three schools, respectively. As compared to these studies, the reduction of scale means (i.e., -7.71 and -18.23) in the current study does not appear to be typical.

Student Evaluations

Responses to the student evaluations were independently coded into categories by the lead author, a graduate student who was involved in the Project HOPE program, and a graduate student who was not originally part of the research team. A coder who was not originally part of the research team was used to ensure a less biased coding of the results.

Following independent categorization of the data from both schools, the coding team met to discuss the coding scheme and how the data were categorized. The coding team then collectively agreed upon six independent categories for the data for the first question, five categories for the second question, and four categories for the third question. After collectively agreeing on these categories, the lead author met with a coding auditor to review the categories and discuss to consensus. The identified themes were consistent within both schools.

Question 1 themes. The categories for Question 1 were identified as: Broaden Educational/Career Knowledge, Active Learning, Building Support, Role Models, and

Personal Influences. When asked to write down the thing they liked most about the day's activity, many students identified elements of learning that were categorized under the theme of Broaden Educational/Career Knowledge. For example, one student stated *"I learned new things about the healthcare."* While another stated *"Learning things that I haven't known about."* Similarly, some students reported that they liked *"Looking at the requirements for my dream job."* Other students identified liking components related to Active Learning (e.g., *"When we were playing the game"* and *"Working as a group to solve fun questions"*).

Many students reported liking their exposure to Role Models. For example, one student liked *"Getting to meet real college students."* Another student stated they liked *"Talking with another person who has experiences in the health field."* Additionally, students reported that they liked gaining support from others (i.e., Building Support). One student stated they most enjoyed *"Talking about jobs casually."* Another student reported explained *"My favorite part was talking to [a Project HOPE facilitator]."*

Finally, students discussed likes that were categorized into the theme of Personal Influences. Several students stated that they learned more about themselves. For example, one student stated *"I liked learning about the different types of careers and finding out what interests me the most"* while another stated they liked *"How we can be creative about our ideas in the future."* Students also reported that *"We got to have fun"* and what they liked best was *"We got candy."* Overall, it appeared that students varied on what they liked best, which included learning about careers, engaging in active learning, meeting new people, and having fun.

Question 2 themes. The categories for Question 2 were: Competition, Developmental Difficulty, Lack of Active Learning, Lack of Time, and Effortful Tasks. In the second question, students were asked to write about the thing they liked least about the day's activity. Similar to the students in the first question who reported liking working as a group to solve questions, some students stated that what they liked least was *"The competition."* Moreover, students appeared to dislike that some of the activities were developmentally difficult (e.g., *"Some of the questions were too hard to answer"* and *"I was confused on the posters"*). Students also identified a dislike for activities that required effort (i.e., Effortful Tasks). For example, students identified that they didn't like *"The writing," "There was a lot of thinking,"* and *"The analyzing."*

Additionally, the students vocalized disliking activities that encompassed a Lack of Active Learning. Specifically, students reported *"Some of the centers were not as interesting"* during the Holland Career Fair and that during the Career Guided Imagery activity, *"Closing my eyes makes me go to sleep."* Moreover, they reported disliking a Lack of Time for some of the activities. For example, students stated they disliked that *"We didn't finish," "How little time we had,"* and *"Having the period end."*

Question 3 Themes. Students were asked to identify two things that they learned during each day of the program. Overall, the categories identified for Question 3 included: Broaden Educational/Career Knowledge, Broaden Self-Awareness, Active Learning, and Building Support. Many students stated that they learned about educational and career-related knowledge. Specifically, one student stated learning *"That radiologist take x-ray and that people with lab coats aren't always doctors."* Another student stated *"You only need 2 years of training to become a nurse, and to fly a helicopter, you don't*

need perfect vision." In addition to broadening educational and career knowledge, students also identified that they were able to Broaden Self-Awareness. For example, one student stated *"I have an S in my [code] because I like to help people"* while another student reported *"I'm nervous during interviews and I have many strengths and I am very ambitious."*

Additionally, students reported that Active Learning and Building Support were components that they learned. For example, one student commented on the Active Learning theme via *"Learning about the questions in the game and learned how to play healthcare jeopardy."* Another student discussed the importance of Building Support by stating they learned *"I'm not the only person trying to become a doctor. I should talk to people more often"* while another student reported learning *"That we can get a scholarship to [Midwestern university] from going to [School 1]."*

Focus Groups

In order to obtain qualitative information pertaining to how the Project HOPE program was experienced within each school's specific context, focus group interviews were conducted with school personnel and participating students from each of the middle schools following the career intervention program. Responses to the student and stakeholder focus groups were independently coded using a two-cycle process including holistic and descriptive coding (Cycle 1) and pattern coding (Cycle 2) by the lead author, a graduate student who was involved in the Project HOPE program, and a graduate student who was not originally part of the research team. After independently coding Phase I, holistic and descriptive coding, the team met to discuss the coding scheme and how the data were categorized; the team discussed coding categories to consensus.

Following, the team independently coded Cycle 2, pattern coding, and then met to discuss these categories to consensus. The lead author then met with the coding auditor to discuss categories. After being unable to reach consensus, the lead author re-coded Cycle 1 and Cycle 2 coding. The coding team met again to discuss coding, further collapse categories into overall themes, and arrived at consensus. To assure consistency across the entire coding team, the lead author again met with the coding auditor to discuss data themes and arrived at consensus.

Student focus group themes. The following eight overarching themes arising from the patterns of the data were identified by the three coders and coding auditor: Broaden Educational/Career Knowledge, Active Learning, Broaden Self-Awareness, Role Models, Building Support, Identifying Strengths and Barriers, Familial Influences, and Dislikes/Program Challenges. Each theme was consistent within both schools.

The theme Broaden Educational/Career Knowledge included several components including career skills, career flexibility, starting early, obtaining a realistic view regarding the world of work, students thinking about school beyond high school and/or careers, and students considering careers within the healthcare field as well as other fields. For example, students identified elements of broadening educational and career knowledge by reporting that the most important or meaningful experiences within the Project HOPE program included "*learning about different career paths and what it takes to reach those, like educational standards and the different skill types*" while another student stated learning about *"the job that we're interested in, like information about them and what you have to do to get them."* Another student stated *"I kept my mind open on what I wanted to be because changing it can be a better thing than keeping it as one."*

Moreover, students stated that it was important to start thinking about your future career early as *"It could probably give them a head start on what to expect."*

Students also highlighted the Active Learning components of the Project HOPE program. Specifically, students reported the most meaningful portion of the program included *"hands-on stuff, getting to do instead of just sitting there and talking about it on paper, and actually doing it."* In response to asking about student's favorite part of the program, one student stated *"I learned that to be a dentist and we had to fill in people's teeth with wax you kinda have to swirl around the face kinda to get it up to a cone shape to fit the filling."*

Many students discussed Broadening their Self-Awareness. Multiple components reported by the students included increased personal awareness, learning about self and others, individualized attention, personal awareness, personal influences, fun, and enjoying the incentives (i.e., candy). One student stated that their favorite part of the program was that *"I learned how many students have such similar career ideas and how they interact… I'd say one person never talked to another person but then they started talking because they had similar career ideas*" while another student reported that

> *Coming into this classroom for this Project HOPE, I did not have any clue of what I was going to be doing as of when I got older. So this HOPE project helped find my interests and put them all together and form some pretty decent job choices that I could probably accomplish if I tried hard enough to do so.*

Another student simply stated *"Yeah, it [Project HOPE] was fun; it was exciting and it was interesting."* Some students explored deeper thoughts including

> *I don't know what my parents wanted to be when they grew up, but my dad, he was in college but he dropped out and now he works in a factory, but I know I don't want to work in a factory because he comes home and tells all the bad things and how much he hates working there.*

and *"I don't really know what my parents wanted to be, but I'm sure that they want me to do better because, I mean, like my parents hate their job and that they have to do it."*

Another consistent theme within both School 1 and School 2 included Role Models. Students reported that they liked *"Going on the field trip. We got to look at the jobs that we liked. Like real people who actually do them."* When asked if students liked the people who ran the program, one student stated *"They were cool, the best part. Like, they're like kinda like us, but a little bit older and they choose their career and they can teach us to choose one."*

In addition to the above theme, the theme of Building Support was outlined at both schools. Building support was seen as both experiencing personal investment from teachers, family, and peers as well as actively talking to family and friends about their future education and career. For example, when asked how their teachers could help them become more confident in their ability to achieve a chosen career, one student stated *"They just have to push you and for you to do your best. Like they can't expect perfection all the time, but they can help you reach, give your best."* Another student offered that *"They have to believe in you."* A third student simply replied *"Support us."* Students further discussed receiving support from others. For example, one student reported that *"Sometimes my grandma wants me to have a certain career or job, but she still supports*

what I decide to do" while another student stated *"That they [parents] think I'm actually gonna do a great job on what I'm reaching."*

In addition to building support, students were able to collectively Identify Strengths and Barriers. Some students identified personal and career-related strengths that would help them to achieve their dream job. Specifically, one student reported that *"A strength for me would be that I do alright in school."* A second student stated *"I am energetic, I'm good at memorizing things, so I can memorize lines. I have a good work ethic. I stay on task."* Moreover, students identified that an additional career-related strength is that *"I have an idea of what it [their dream job] is, what it looks like."* Regarding perceived barriers, students identified personal, educational, and career-related barriers. For example, one student identified a personal barrier by stating *"My mind tends to run faster than my mouth, so I stutter over words and can't really catch up."* Others students identified education barriers such as *"I'm not good at math"* and difficulty *"Keeping my grades up."* Further, students reflected on career-related barriers by stating it may be difficult *"Actually getting the job."*

Familial Influences arose as a common theme within both schools. Specifically, students reported attending to parental expectations and parental influences as they were considering their future career options. For example, one student stated

> *My mom is always telling me to get into volunteer programs at the hospital. I mean, she says she wants me to [be] something in a hospital because that is a good job. That's a very, very, it gets you very smart. You have to go through a lot of education to get there and my dad has a family business, and he may want me*

to take over the family business. And that's just the thing, it's almost like you can just, you have to count that opinion before you make any other decisions.

The final theme identified was Dislikes/Program Challenges, which included surveys, effortful tasks, and long lectures. Students were asked what they disliked about the program and subsequently reported that *"One thing that I didn't like about it was the tests and stuff were kinda long and I don't like long tests."* Other students identified that *"I disliked the writing part, like, my hand hurt a few times"* and

My only thing was we sat there for about two hours, I think, learning about eyes, and I'm not gonna lie, it's just about everything he said we already learned in here when we did the eye unit. It was kind of boring.

Stakeholder focus group themes. In School 1, the stakeholder focus group consisted of the classroom teacher and school counselor, while the classroom teacher, school counselor, and principal were present at School 2. The following six overarching themes arising from the patterns of the data were identified by the three coders and coding auditor: Broaden Educational/Career Knowledge, Role Models, Building Support, Communication and Collaboration, Program and School-Level Challenges, and Program Benefits. Similar to the student focus groups, each theme was consistent within both schools.

The first theme, Broaden Educational/Career Knowledge, arose when asked how they experienced the program within their school, what program strengths they might identify, what elements make the program successful, and in what way students appear to have benefited from the program. At School 1, stakeholders reported experiencing beneficial components such as exposure to careers (e.g., *"I would say exposure. In the*

sense of the kids understanding that there are different careers out there within the health field besides being a doctor or nurse"), links between careers and education (e.g., *"And especially when we start making posters and stuff like that, they knew 'Okay, well these are the requirements that I need in order to do this'"*), and students benefitting from

> *Just exploring different types of careers and now they're startin' to think about what they might want to do in the future, and with getting their courses ready for high school, and knowin' that if I want to go into the healthcare profession, I need to take more science, more math, and so on.*

Stakeholders at School 2 reported that it students benefitted from "*You know, just increasing their background knowledge of what's out there - health careers and careers in general*" and that *"The health stuff is, kids love learning about their bodies and doing things, just the hands-on nature of the field trip was very good for them."* The principal at School 2 summed it up by stating *"As far as the principal's role, I am happy and grateful for the opportunity for students to get exposed to and learn more about health careers, and especially the part about the college visit."*

School staff and administrators were also vocal about the benefit of Role Models within their school. Specifically, School 1 reported *"My mentality is the more positive, different, diverse, adult role models we can bring to the kids, the better. And I think you guys offered that. You know, different male, female, different races, different interests, likes, dislikes, focuses."* School 2 stated *"I think it's so good for our students to see people from college level."*

In addition to having role models, stakeholders identified Building Support as an additional benefit to students. Specifically, individuals at one school stated a component

of the programs' success was *"Developing relationships with the kids, you know, making it fun yet knowledgeable."* At the other school, respondents reported that there was *"Good communication, good interaction with the facilitators and the kids, you know. They interacted well."* Additionally, stakeholders at both schools identified elements of individualized attention as a beneficial element for students. Specifically, one person stated *"I think when you have, again, more adults, you're circulating, you can talk to one kid one-on-one so you can do more individualized attention."* One teacher commented on the students' investment in the program by stating *"I think just what [classroom teacher] was saying earlier, the students were engaged, they talked about it afterwards."*

Stakeholders at both schools were asked about their experience working with Project HOPE and a theme emerged regarding Communication and Collaboration. Specifically, staff identified that their role included both coordinating logistics at the school-level. For example, one person offered *"As far as from a school standpoint, there's a bit of coordination just to see, at the beginning, to see if teachers and other school personnel are willing to add this to their list of things that they do everyday"* and another stated *"The culminating event is that field trip, so helping organize that as far as the bus planning."* They reported that their experience working with the Project HOPE research team was easy, simple, and collaborative. For example, one person reported their communication experience as, *"It was just via email mostly and these days worked, how's that work, and you know, I like that. It's quick and easy."* Another explained,

> *I don't think there were very many scheduling issues. Anything that did happen, I think you guys were really on top of identifying what you needed and*

communicating that, usually through email, and we would just take care of it on our end and say 'Yep, we got this taken care of , we have this taken care of.'

When asked about challenges and benefits, two main themes arose (i.e., Program and School-Level Challenges; Program Benefits). First, stakeholders identified both Program and School-Level Challenges. Specifically, School 1 identified school-level challenges regarding working technology by stating *"It's because of our technology issues, but we're kinda scramblin' to get things done that we need to get done as far as from a just school requirement and what our job is."* School 2 identified school-level challenges regarding *"Bus scheduling on our part."* Additionally, both schools identified some program-related challenges. Specifically, School 1 stated one program limitation included the lack of dual language curriculum materials (e.g., *"I think having material in English and Spanish for our district is essential"*) and School 2 stated that the *"consent form"* is a limitation to student participation. One respondent at School 2 also stated that *"I think it [surveys] could be a little longer, you know, we have plenty of time."*

Second, stakeholders at both schools identified multiple Program Benefits. Specifically, both schools reported that the length of the program as implemented at their individual schools was appropriate (e.g., *"I think the timing was fine. Yeah, I was gonna say any longer and it would get harder for us to accommodate that"*). Each school also identified additional program benefits including content (e.g., *"So the content is what makes it successful"*) that was developmentally appropriate (e.g., *"Well the activities were all very appropriate for middle school kids"*) and included elements of active learning (e.g., *"I think developmentally and just, you know, activity-based, they could*

understand it"). Additionally, School 2 offered two additional comments regarding the Project HOPE program. First, they reported that it was culturally sensitive by stating

> *I think one of the things that we deal with daily, with our population, is the knowledge, background knowledge that may be taken for granted in other schools. We aren't your typical middle class, white, you know, where kids come in with a lot of background, so I think, I didn't observe a lot of what the activities were, but we have to continuously be aware of talking and using terminology and language that may not be within the students' background and so the scaffolding and drawing on their experiences is important for us so that we know where they're at and know what kind of language and vocabulary type things to use.*

And second, they stated

> *I just think that every day that you, well you know, before we started, you organized everything and then every day we would kind of regroup and at the end of the day and, 'Okay, now what do we need for tomorrow' and I noticed that you and your facilitators were always planning, 'Okay now what do we need to do for tomorrow' and I think just on a daily basis, regrouping on a daily basis was a good thing.*

Overall, it appeared results from the stakeholder focus group identified both benefits and areas for improvement at programmatic and school levels. Moreover, personnel from both schools indicated that they were pleased with the experience of collaborating with the Project HOPE facilitators and research team. When asked, both schools stated they would be happy to invite the Project HOPE program back for implementation in subsequent academic years.

CHAPTER V

DISCUSSION

Discussion of Project HOPE Multiple Case Studies

The purpose of the current study was to apply a critical psychology research perspective to the development, implementation, and evaluation of the Project HOPE career intervention program. A critical psychology perspective (Prilleltensky & Nelson, 2002) advocates for research that focuses on social change, the mutual participation of community stakeholders, and the empowerment of those served. This perspective helped to frame program development and allow for collaboration among researchers, school personnel, and eighth grade students in two multiculturally diverse rural community middle schools in the Midwest. Given that one of the primary purposes for using the case study methodology is to allow for a unique understanding of each distinct context, this methodology was used to evaluate the Project HOPE program within two diverse, rural middle schools.

The current study was guided by two main research questions. First, how did the SCCT variables of math/science self-efficacy beliefs; math/science outcome expectations, intentions, and goals; math/science and career-related interests; and vocational skills self-efficacy (as assessed by survey administration) change for participating students throughout Project HOPE? And second, how did the students and school personnel experience the Project HOPE program within the context of their school system. Both quantitative and qualitative forms of data were collected for each school and separately evaluated in order to best answer these research questions.

School One

School one is a small rural community middle school in which over half of the students identify as "Hispanic." As evidenced by median household incomes and county-based job indices (U.S. Census Bureau, 2010[b]; 2010[d]; 2010[e]), the students and their families originate from primarily poverty-level and working-class backgrounds. Project HOPE curriculum was implemented with 8th grade students in their Career Education course weekly for five weeks; an additional sixth meeting included a field trip to a local university. The classroom teacher was present for all of the sessions and the guidance counselor was present for half of the sessions.

The analyses of the quantitative data revealed information regarding the baseline scores within the current study as compared to those reported in previous studies. Specifically, the baseline scores in the current study were higher on the Math/Science Self-Efficacy scale and lower on the Career Considerations scale, Math/Science Outcome Expectations scale, Math/Science Intentions scale, and Math/Science Interests scale. The baseline scores for the Vocational Skills Self-Efficacy scale yielded mixed results in comparison to two previous studies (McWhirter et al., 2000; Ali et al., 2011). These results suggest that (prior to Project HOPE implementation) students in School 1 had a higher baseline regarding confidence in their math and science abilities as compared to students in previous studies. Conversely, as compared to students in previous studies, students in the current study started at a lower baseline regarding math and science outcome expectations, intentions, and interests as well as confidence in their ability to complete the educational requirements necessary for specific health science careers.

These differences in baseline scores may be due to multiple variables including low social status and ethnicity, which may influence the values students initially place on

school and future work. Lower baseline scores due to ethnicity and social status aligns with previous research regarding the SCCT framework as person inputs and background contextual affordances influence an individual's beliefs about and confidence in his or her ability to perform activities, which also affects outcome expectations, intentions, goals, and behaviors (Lent et al., 1994; 2000). This hypothesis also parallels research suggesting Mexican American students report limited learning opportunities and low levels of prior achievement as major barriers affecting their achievement ability in math/sciences courses (Catsambis, 1999). Limited learning opportunities may also be a direct result of the rural environment, due to lack of resources and opportunities. Gushue et al. (2006) suggested that career decision-making self-efficacy, career search activities, and perceptions of barriers were positively associated with vocational identity, or how one perceives him/herself within the world of work. If one cannot envision themselves in the world of work, this may influence their perceptions of and value for educational and career opportunities. Following, if a student perceives decreased or inferior future prospects as compared to their White, middle-class, urban counterparts, they may lack initial motivation for school, work, and a career education program.

The comparison of scores from Time 1 to Time 2 also yielded mixed results. Specifically, the students reported clinically significant reductions in the math/science self-efficacy scale, math/science interests scale, and vocational skills self-efficacy scale. Thus, students reported overall decreased confidence in their ability to perform general vocational, math, and science-related skills as well as decreased interest in math and science-related activities. There may be a number of explanations for this unexpected decrease in outcomes. First, students genuinely may not have significantly increased their

math/science interests or vocational skills self-efficacy throughout the career intervention program. Second, the measures used were lengthy and may have resulted in fatigue, which may have a negative effect on student attention to survey questions. Third, program-level challenges were experienced regarding technology in both pre and post testing sessions. Student frustration and perceived pressure to complete surveys before the end of the class may have resulted in decreased attention to questions as well as possible random responding. Fourth, the measures may not have adequately aligned with intervention activities. For example, a larger number of global vocational activities were included within the overall curriculum whereas a smaller number activities focused on increasing math/science interests.

Students identified clinically significant increases regarding confidence in their ability to complete the educational requirements of specific health science careers. This may be due to specific classroom and field-based activities focused on providing students hands-on experience with a variety of careers. The comparison of pre-post scores also increased for students regarding math/science intentions. One possible reason for this may be due to an increased sense of personal agency. Lent et al. (1994, 2000) discussed personal agency (i.e., personal control) as a factor affecting confidence in one's ability to perform activities. The author claimed that self-efficacy and personal agency are positively correlated with decision-making and confidence in one's ability to overcome barriers (such as cultural norms, parental influences, and financial resource) and that outcome expectations are integral within the decision-making process. Thus, without personal agency, one's interests, intentions, and goals may be altered. It may be that students increased confidence in their ability to complete the educational requirements of

certain health science careers, which may have led to an increased sense of personal agency and more positively influenced outcomes regarding interests, intentions, and goals.

In recent months, some exciting new research has emerged regarding a Social Cognitive Model of Vocational Hope (Brown, Lamp, Telander, & Hacker, in press). Brown et al. (in press) used SCCT's models of interest development, choice, performance, and satisfaction to outline a preventively-oriented career interventions designed to increase vocational hope. The authors defined vocational hope as "a positive motivational state associated with envisioning a future in which meaningful work is attainable" (pg. 20).

The current study, and recent career intervention literature, suggests that SCCT-based career interventions can be generally effective; however, the barriers present in environments where choices are perceived as limited or non-existent (e.g., for under-represented or marginalized youth) may influence short and long-term outcomes. Thus, fostering a sense of vocational hope may be a central component in sustaining intervention gains as well as empower students to persist educationally and occupationally across time. In other words, "students will develop the positive future orientation and motivational state associated with vocational hope if they view themselves as able to complete tasks necessary to attain meaningful work in the future and see more positive than negative outcomes associated with their efforts" (Brown et al, in press, pg. 22). The authors further explicate clear theoretical scaffolding upon which hope-promoting interventions can be designed and research conducted.

The focus group data indicated that school personnel were pleased with the types of information provided to broaden both educational and career-related information, the format in which the information was delivered to the students (e.g., role models, building support), and the focus on careers within the healthcare field (while concurrently maintaining flexibility with student career interests that may not fall within the healthcare field). Student focus group and evaluation data echoed these results. Specifically, data suggest that students were happy with learning from role models, gaining support throughout learning components, and bridging educational and career-related information. For example, students reported understanding their own strengths as well as the need to enroll in additional math and/or science classes in order to prepare for a career in the healthcare field. Student focus group and evaluation data also highlighted additional information that indicated student satisfaction with the active learning components of the curriculum. Specifically, they reported enjoying and learning from the activities as compared to less active components of the program. These results appear to provide support for a collaboratively designed, developmentally-focused, activity-based career education program.

Given the limited resources, opportunities, and role models in a small school and in a rural town, there seems to be an importance on expanding the understanding of occupations beyond that of what is observable within the community alone. Specifically, it is important to expose students to a variety of diverse role models and career fields at an early age as early exposure may increase interest and motivation in work opportunities and prevent career foreclosure from occurring early on in students' educational and career trajectories. Providing a broader understanding of career opportunities and

providing specific information on how to reach more distal goals may also assist students as they plan for their future education and career. Moreover, it may be important to engage students in active learning through developmentally appropriate curriculum in order to obtain and maintain interest in work-related learning and tasks.

From a critical psychology approach, the communication and collaboration among the researchers, students, and school personnel greatly enhanced the delivery of the Project HOPE program. In fact, school personnel reported that communication was easy and assisted with planning and program implementation as well as resolving any challenges that arose throughout the program. Moreover, students and school personnel both reported that they felt a positive connection with graduate student facilitators, which may have added to the reported success of the program. School personnel also indicated that Project HOPE provided an opportunity to expose students to a wide variety of academic and career opportunities, which may not have otherwise been possible given their limited time, budget, and resources.

Within School 1, a challenging yet important theme that emerged from the focus groups was the lack of dual language materials throughout the program. After the program was implemented in the school, the school personnel believed that ESL students may not have benefitted from the program as much as those who identified as English proficient. Providing all documents, materials, and activities in both English and Spanish at a school where more than half of the students identify as Hispanic may offer more benefits in both learning and relationship elements. This may lead to greater links between specific career interests and school as well as possibly enhance student engagement in school (Wetterson et al., 2005).

School Two

School two is a small community middle/high school in a Midwestern rural area. Similar to School 1, the majority of the students enrolled in this school also identified as "Hispanic" and originate from primarily poverty-level and working-class backgrounds (U.S. Census Bureau, 2010[b]; 2010[d]; 2010[e]). At this site, the Project HOPE curriculum was implemented with eighth grade students in their Science Education course daily for one week, with an additional sixth day serving as the field trip to a local university. The classroom teacher was present for all of the sessions, the guidance counselor was present for less than half of the sessions, and the school principal was present for less than ten minutes across the course of three sessions.

Mixed results were identified as researchers compared baseline scores within the current study to those in previous studies using the same measures. Students in the current study identified lower scores on the Career Considerations scale, Math/Science Interests scale, and Math/Science Outcome Expectations scale. Higher baseline scores were observed on the Math/Science Self-Efficacy scale and the Math/Science Intentions scale. In comparison to previous studies, the Vocational Skills Self-Efficacy scale yielded mixed results regarding baseline scores [i.e., scores were higher in comparison to Ali et al. (2011) and lower as compared to McWhirter et al. (2000)]. These differences in baseline scores may be due to multiple variables outlined in the Social Cognitive Career Theory model. Specifically, person input variables of ethnicity, background contextual affordances variables including low social status, and learning experiences may collaboratively influence the student motivation and values for school and work achievement. It may also be that limited resources and opportunities within a rural

environment negatively affect perceptions regarding future educational and career opportunities. Lent et al. (1994) outlined this premise within the SSCT framework that people and their environments reciprocally interact to influence thoughts, feelings and actions; thus, person inputs, background contextual affordances, and learning experiences reciprocally interact with self-efficacy, interests, outcome expectations, intentions, and goals.

A comparison of pre to post survey results generated clinically significant results for all scales at School 2. Clinically significant growth was observed on the Math/Science Self-Efficacy scale, Career Considerations scale, Math/Science Intentions and Goals scale, and Math/Science Interests scale. School 2 may have observed clinically significant increases for a number of reasons. First, Project HOPE activities were developed to specifically focus on Brown et al.'s (2003) five essential components for effective interventions including written exercises, individualized assistance, information on the world of work, role modeling, and attention to building support. These components may have positively influenced student learning and self-efficacy related to academic and career interests.

Second, the setting identified for Project HOPE implementation at School 2 was a science classroom, which may also have affected the findings. The science teacher was both present and actively involved with each lesson and, by her report, continued to reinforce lessons beyond the program (i.e., discussion of Project HOPE activities infused with classroom-based assignments). Together with the career education program, students may have experienced and increased presentation of information, role modeling, support, and reinforcement beyond the limits of Project HOPE. It may also be that

students were motivated to learn, experience, and consolidate information, activities, and experiences, thereby increasing their investment in the program (i.e., increased sense of personal agency). Lent et al. (1994, 2000) also supports this hypotheses by describing how repeated activity, modeling, support, and feedback from valued others allows students to develop specific skills, set performance standards, and increase their confidence to successfully complete activities and tasks. The SCCT framework also hypothesizes that career supports and barriers directly influence career-related learning experiences (e.g., role models), which in turn influence the development of self-efficacy beliefs, interests, and intentions (Lent et al., 1994; 2000).

A clinically significant reduction in scores was produced on the Math/Science Outcome Expectations scale and Vocational Skills Self-Efficacy scale. One potential reason for this may be related to specific SCCT variables including personal input variables (e.g., ethnicity), background contextual affordances (e.g., social class), proximal contextual affordances (e.g., family support) and environmental barriers. Navarro et al. (2007) found that social class predicted past performance in math and science accomplishments, past performance and perceived parental support predicted math and science self-efficacy, and math and science self-efficacy predicted outcome expectations, interests, and goals. The study by Wetterson et al. (2005) indicated some support to suggest that social, parental, and other external supports may lead to increased academic and vocational self-efficacy, pro-educational behaviors, school engagement attitudes, and educational outcome expectations. Another study suggested an increased perception of barriers was also associated with lower vocational/educational aspirations (Ali & McWhirter, 2006). Taken together, it may be that students in this study perceived

an increased level of barriers to career goals as compared to support received. On the other hand, it may be that students were simply not developmentally ready to engage with career planning as suggested by Kenny et al. (2006). Even if students were engaged in school, this may not necessarily lead to career planfulness and positive career expectations (Kenny et al., 2006).

As with School 1, another potential reason for this observed decrease in scale mean scores from pre to post intervention include that students became fatigued by lengthy measures and the activities may not have adequately aligned with the measures used. Given the high number of ESL students at School 2, students may have experienced additional language barriers, which may have negatively affected their understanding of and response to the questions presented in the surveys.

Student evaluations and focus group data reveal that students particularly enjoyed the active learning components of the Project HOPE curriculum and broadening their educational and career knowledge. Students indicated they were happy with being exposed to role models and building support for their learning and future career. Students also noted an ability to link concepts learned throughout the program with personal influences such as individual interests and broadening self-awareness.

School personnel also reported being pleased with the specific program components including exposure to role models, building support, and broadening student educational and career-related knowledge. They noted specific program benefits such as increasing career knowledge in general career fields as well as healthcare fields, student investment in learning, and exposure to a college campus and environment. School personnel reported a high level of student engagement, which may lend additional

support to the overall increases observed in the Career Considerations and Math/Science Interests scales. Although unobserved via traditional survey methods, the comments regarding student learning may also lend support for increased vocational self-efficacy.

Implementation in School 2 was also consistent with a critical psychology perspective as interventions were designed in collaboration with key stakeholders, an emphasis was placed on relationship-building among students, school personnel, and researchers, and challenges experienced throughout the intervention were addressed as a collaborative team. A collaborative investment was also noted in focus groups as school personnel identified school-level challenges (e.g., presenting Project HOPE to students and parents; bus scheduling), discussed possible changes to be made during future implementations, and requested feedback from the researchers. Data further suggested future improvements to be made at both the program-level and school-level by inviting ways for parents to participate in Project HOPE, including participation as chaperones on the field trip.

The importance of a collaborative effort that focuses on involving the key stakeholders in the process of development, implementation, and evaluation of the Project HOPE program appears to be underscored by the compilation of survey data, student evaluations, and the information gathered from student and stakeholder focus groups. By including multiple decision-makers and systems into multiple layers of the program, researchers are better able to understand how macro-level systems (e.g., sociopolitical realities) influence the program and affect career options for marginalized adolescents. Equally important is the relationship between the activities of career education programming to theory and measurement outcomes.

Limitations

Amidst multiple strong outcomes, limitations must be noted. First, a lack of internal validity is arguably the predominant limitation of this study. Due to the lack of control group data (i.e., students who did not receive the intervention) in both schools, comparisons cannot be made and interpretation of findings must be strongly cautioned. Lack of internal control and the ability to compare results hinders the ability to determine whether the observed differences from pre- to post-test can be attributed to the Project HOPE career intervention program. Positive gain scores might also be attributed to variables outside of the Project HOPE program including parental and teacher encouragement, reinforcement of skills, role modeling by valued others within the students' lives, and general developmental gains experienced as a result of learning in other classes and contextual settings.

Given these limitations, it will certainly be important to continue empirical evaluation of the Project HOPE career education intervention in order to support the current findings. For example, research designs that include long-term program effects (e.g., 6 months, 2 years, and 4 years) may yield additional information regarding the effectiveness of the program design, implementation, and effects. For example, do students continue to retain the information presented and make educational and work-related decision based on these teachings as opposed to other external experiences? How might the long-term follow-up of participants' math/science and vocational skills self-efficacy be affected? Long-term follow-up of participants may also yield information regarding whether students exposed to a career intervention focused on health science fields follow through with math and science educational goals. Specifically, did students

enroll in a higher number of math/science classes in high school as compared to students who did not receive an intervention? Did a greater number of students enroll in math/science post-secondary education or receive math/science-related scholarships? Answers to these questions may lend further support for the effectiveness of career intervention programs focused on health science occupations.

Second, the measures themselves may also have some limitations as applied to use within a health career focused intervention program. A number of the measures were modified to include math/science and healthcare-focused questions as compared to the originally-designed questions with general vocational foci. Without reliability and validity studies on these measures, it remains unknown whether the current measures were accurately assessing math/science and healthcare-related career self-efficacy, considerations, interests, outcome expectations, intentions, and goals.

Developing new reliable and valid measures that better align with the healthcare career interests, self-efficacy, and goal representations among minority students may be better suited for this type of intervention project. Lent and Brown (2006) argue that measures have to match outcomes. They specifically state that "social cognitive research calls for measures that are tailored to the specific domain and dependent variables of interest" (Lent & Brown, 2006, p. 12). For a career intervention project that focuses on health science occupations, math/science self-efficacy, and math/science outcome expectations and intentions for minority students, measures that appropriately assess these areas are necessary. After a search by members of the Project HOPE research team, it was concluded that currently, there are no sufficient quantitative measures of healthcare-related occupational interest, self-efficacy, and goal representations among

minority children. This lack of appropriate measures for minority students underscores the importance of clinically significant findings in this study. Project HOPE research team members also reported that the current measures of career self-efficacy, interest, and goal representations do not specifically address the skills identified by national funding agencies (i.e., science, technology, engineering, and mathematics skills) as crucial for healthcare career development.

Creating these measures of healthcare career interests, self-efficacy, and goal representations among minority students may lead to more accurate assessment of career intervention programs focused on health science occupations as well as inspire the development of other pipeline programs' that encourage minority students to pursue healthcare careers. In a current research proposal, Ali (2012) and her research team proposes to do just that. The proposed study is grounded within the premise of assessing racial and ethnic minority student's healthcare career interests, self-efficacy, and outcome expectations. Current Project HOPE activities will be adjusted based on data from previous research and measurement standards. Together, outcomes will better inform curriculum decisions in pipeline education programs focused on increasing minority representation in healthcare occupations.

Conclusion and Implications

Despite multiple limitations, the current research study provides mixed support for the effectiveness of the Project HOPE career education program as well as highlights additional information regarding how the program was experienced within the context of two diverse rural middle schools. The Project HOPE intervention was collaboratively designed to include developmentally-appropriate career education delivered through a

variety of activities and evaluated in collaboration with key stakeholders. Program curriculum, delivery formats, and evaluation were theoretically-driven and included SCCT variables, critical components for career education programming success, and a critical psychology perspective, which allowed for on-going collaboration among researchers and the school community.

The critical psychology perspective sought to enhance the degree to which Project HOPE was positively viewed and accepted by those involved and to target change at multiple systemic levels (e.g., individual, school, and community levels). First the individual activities of this study's Project HOPE curriculum were designed to broaden students' awareness and understanding of interests, strengths, personal barriers, and support systems. Second, the curriculum also sought to enrich students' support networks and access to information through connections with parents, school staff, community resources, and university students and personnel. And third, the program was designed to target a number of the predominant barriers (e.g., parental income, educational attainment, and support) to academic and career planning experienced by students attending two diverse Midwestern rural middle schools.

Results from quantitative measures showed clinically significant increases in the Career Considerations scale and Math/Science Intentions and goals scale at both School 1 and School 2. In addition, School 2 also reported increases in the Math/Science Self-Efficacy scale and Math/Science Interests scale. No significant changes were observed in the Math/Science Outcome Expectations scale at School 1. And clinically significant decreases were found in the Math/Science Self-Efficacy scale, Math/Science Interests scale, and Vocational Skills Self-Efficacy scale at School 1 and in the Math/Science

Outcome Expectations scale and Vocational Skills Self-Efficacy scale at School 2. The SCCT model highlights the importance of gaining knowledge and awareness regarding work (i.e., learning experiences) as a precursor to self-efficacy beliefs, outcome expectations, interests, goals, and actions. Further, the support of background and proximal contextual affordances (i.e., role models and building support) also positively influences this path that potentially results in action (Lent, Brown, & Hackett, 1994).

Qualitative findings from focus groups and student evaluations provide additional information regarding how the program was experienced within the context of each school, which quantitative findings could not highlight. They suggest a number of perceived benefits as a result of the Project HOPE program. Themes from student evaluations, student focus groups, and school personnel focus groups at both schools suggested there were benefits to student learning. Specifically, all qualitative data noted benefits related to exposure to role models, building support for personal and professional goals, and broadening of educational and career awareness. The focus group and student evaluation results were congruent with student learning. This data underscores the noted positive influences of a career intervention program for younger students and supports a solid recommendation for greater depth and breadth of career information and counseling for middle school students.

One of the main roles of the school guidance counselor is to assist students as they plan for their future academic and work-related goals (ASCA, 2011). Results from this intervention could be used by guidance counselors as they provide on-going career-related information integrated within academic planning. Specifically, they can provide activity-based exploration of careers within the health science occupations, invite current

healthcare employees to discuss their work, and encourage ongoing relationship-building activities with these important resources (e.g., job shadowing experiences; one-on-one conversation hours; parent/professional resource roundtables). Counselors can build upon these activities as they help students select classes that better align with their career-related interests and individual strengths or talents (e.g., enroll in math and science courses if the student hopes to pursue a career within a health science field). Students can also seek the assistance of guidance counselors regarding paid and unpaid experience working with others and with health-related tasks in order to develop skills needed for this future endeavor. Additionally, guidance counselors can seek out and encourage minority students to apply for scholarships to fund their education to help attain their goals.

Focus group and student evaluation data further suggest that this collaborative program development produced developmentally-appropriate and activity-based lessons that included the critical components of written exercises, individualized feedback of career inventories, information about the world of work (e.g., healthcare-related careers and general vocational education), role modeling, and attention to support building. The combined results from surveys, focus groups, and student evaluations suggest that the Project HOPE curriculum actively engaged students in the learning process and allowed them to broaden their educational and career knowledge in School 1 and additionally increased their math and science interests and career considerations in School 2.

Qualitative data also highlighted some programmatic challenges including arranging bus schedules, experiencing technology issues, and developmental difficulty in some lessons as identified by students. Although some challenges were experienced,

focus group data also suggested that these challenges were collaboratively discussed and resolved as a team. Project HOPE was integrated within current career and science education classes and promoted math/science-related careers. Focus group comments underscored this effort and both participating students and school personnel reported a generally positive perception of the program as helpful and worthwhile. In light of this data, it appears that if Project HOPE was perceived as successfully integrating with and expanding upon existing curricula and academic coursework.

At the systemic level of researcher-school community collaboration, themes from structured interviews with the focus groups suggest that the collaboratively-developed format was preferable within each school. In particular, a weekly intervention within a career education classroom was preferred at School 1 and a daily intervention within a science education class was preferred at School 2. School personnel also highlighted that communication was an important component to addressing challenges arising throughout program implementation.

The combined results suggest that the individual components did broaden student knowledge of educational, career, and personal awareness regarding interests, strengths, barriers, and support systems at both schools. Qualitative and quantitative results were suggestive of enriching these networks and connections via role modeling and building support. Results from student focus groups and student evaluation data suggest that students participating in Project HOPE considered these barriers and also identified personal strengths and support systems as resources they could use to overcome them. Finally, combined results suggest that both students and school personnel positively viewed the intervention program and noted student learning and personal benefits

observed throughout the program. As a potential added sign of program success, each school invited Project HOPE to return in future academic years.

Given that minority students are underrepresented in healthcare related occupations (Sullivan Commission, 2004), it is increasingly important to promote career exploration, interests, and goal-attainment within the health science fields. A higher representation of minority populations in health science fields will certainly add to the cultural competency of professionals within health science occupations (Cohen, Gabriel, and Terrell, 2002). It might also assist in educating minority populations in general about health disparities and mortality rates in diverse groups as well as increase access to services in underserved communities (The United States Department of Health and Human Services, 2010).

Activities promoted by career intervention teams, school guidance counselors, and other school personnel and community members certainly aid students as they explore educational and career-related interests. Research in the area of career education programming for school-aged children has identified a number of critical components that may enhance student-focused programs (Brown & Ryan Krane, 2000). As a way to target the larger social issues affecting students' career development, Prilleltensky and Nelson (2002) have also argued the importance of collaborating with those individuals most important in promoting positive changes for youth including classroom teachers, parents, community members and students themselves. Project HOPE curriculum was developed with this these collaborative elements in mind.

Continued implementation of health science-focused career intervention programs assists in meeting the documented interest to create pipeline programs intended to

increase exploration of and preparation for healthcare occupations among K-12 minority students (National Institute of Health (NIH); National Science Foundation (NSF); Sullivan Commission, 2004). As this study suggests, this pipeline might be created by introducing bridging programs that are developed collaboratively among post-secondary educational systems, academic health centers, and schools to provide early exposure to the sciences and the health professions (Pew Healthcare Commission, 1998; Sullivan Commission, 2004).

To conclude, this study took a critical psychology perspective to extend our understanding of how to collaboratively develop, implement, and evaluate a health career intervention program (i.e., Project HOPE) in two ethnically diverse middle schools. By collaboratively working with key stakeholders, the Project HOPE program was able to be successfully implemented while concurrently meeting the unique needs of each school. Moreover, this study provides support for the idea that combining the critical psychology perspective with case study methodology can lead to an empowerment-focused method for gathering outcome evidence. Overall, the findings of this study provide mixed support for the effectiveness of the intervention as well as highlighting additional information regarding how Project HOPE was experienced within the context of each diverse rural middle school.

REFERENCES

Ali, S. R. (2012). *Construction and validation of healthcare occupation interest, self-efficacy, and outcome expectations measures.* Iowa Measurement Research Fund Grant Proposal.

Ali, S. R., & McWhirter, E. H. (2006). Rural Appalachian Youth's Vocational/ Educational Post-secondary Aspirations: Applying Social Cognitive Career Theory. *Journal of Career Development, 33,* 87-111.

Ali, S. R., & Saunders, J. L. (2009). The career aspirations of rural Appalachian high school students. *Journal of Career Assessment, 17,* 172-188.

Ali, S. R., Yang, L. Y., Button, C. J., & McCoy, T. (2011). Career education programming in three diverse high schools: A critical psychology – case study research approach. *Journal of Career Development.*

American School Counselor Association. (2011). *ASCA national model.* Available at http://www.ascanationalmodel.org/content.asp?contentid=28

Baker, S. B., & Taylor, J. G. (1998). Effects of career education interventions: A meta-analysis. *Career Development Quarterly, 46,* 376-385.

Baker, S. B., & Popowicz, C. L. (1983). Meta-analysis as a strategy for evaluating the effects of career education interventions. *Vocational Guidance Quarterly, 31,* 178-186.

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., & Voyten, K. K. (1997). Efficacy and outcome expectations influence career exploration and Decidedness. *Career Development Quarterly, 4,* 413-428.

Blustein, D. L. (2006) *The Psychology of Working.* Mawah, NJ: Lawrence Erlbaum Associates.

Blustein, D. L., Jackson, J., Kenny, M. E., Sparks, E., Chaves, A., Diemer, M. A., et al. (2001, March). *Social action within an urban school context: The Tools for Tomorrow project.* Paper presented at the Fourth National Counseling Psychology Conference. Houston, TX.

Brown, S. D., Lamp, K., Telander, K. J., & Hacker, J. (in press). Development as prevention: Toward a social cognitive model of vocational hope. In E. M. Vera (Ed.) *The Oxford Handbook of Prevention in Counseling Psychology*. New York: Oxford University Press.

Brown, S. D., & Ryan Krane, N. E. (2000). Four or five sessions and a cloud of dust: Old assumptions and new observations about career counseling. In S. D. Brown & R. W. Lent (Eds.) *Handbook of Counseling Psychology* (3rd ed.). New York: Wiley.

Brown, S. D., Ryan Krane, N. E., Brecheisen, J., Castelino, P., Budisin, I., Miller, M., & Edens, L. (2003). Critical ingredients of career choice interventions: More analyses and new hypotheses. *Journal of Vocational Behavior, 62,* 411-428.

Caracelli, V. J., & Greene, J. C. (1997). Crafting mixed-methods evaluation designs. *New Directions for Evaluation, 74*, 19-31.

Catsambis, S. (1999). The path to math: Gender and racial-ethnic difference s in mathematics participation from middle school to high school. In L. A. Peplau, S. C. DeBro, R. C. Veniegas, & P. L. Taylor (Eds.) *Gender, culture, and ethnicity: Current research about women and men*. Mountain View, CA: Mayfield Publishing.

Chen, H. (2002). Designing and conducting participatory outcome evaluation of community-based organizations' HIV prevention programs. *AIDS Education and Prevention, 14,* 18-26.

Chen, H. & Rossi, P. H. (1989). Issues in the theory-driven perspective. *Evaluation and Program Planning, 12,* 299-306.

Church, A. T., Teresa, J. S., Rosebrook, R., & Szendre, D. (1992). Self-efficacy and occupational considerations in minority high school equivalency students. *Journal of Counseling Psychology, 39,* 498-508.

Cohen, J. (1969). *Statistical power analysis for the behavioral sciences.* New York: Academic Press.

Cohen, J. J., Gabriel, B. A., & Terrell, C. (2002). The case for diversity in the health care workforce. *Health Affairs, 21,* 90-102. doi:10.1377/hlthaff.21.5.90

Columbus Community Schools (2009). Quick facts: 2009-2010. Available at http://www.columbus.k12.ia.us/

Devaney, B. & Rossi, P. (1997). Thinking through evaluation design options. *Children and Youth Services Review, 19,* 587-606.

Elias, M. J. (1995). 'Primary prevention as health and social competence promotion'. *Journal of Primary Prevention, 16,* 5-24.

Evans, Jr., J. H., & Burck, H. D. (1992). The effects of career education interventions on academic achievement: A meta-analysis. *Journal of Counseling & Development, 71,* 63-68.

Foster, L. H., Young, J. S., & Hermann, M. (2005). The Work Activities of Professional School Counselors: Are the National Standards Being Addressed? *Professional School Counseling, 8,* 313-321.

Fouad, N. A., & Smith, P. L. (1996). A test of a social cognitive model for middle school students: Math and science. *Journal of Counseling Psychology, 43,* 338-346.

Fouad, N. A., Smith, P. L., & Enochs, L. (April, 1997). Reliability and validity evidence for the middle school self-efficacy scale. *Measurement & Evaluation in Counseling & Development (American Counseling Association), 07481756, Vol. 30, Issue 1,* p. 17-31.

Glass, G. V. (1976). Primary, secondary, and meta-analysis of research. *Educational Researcher, 5,* 3-8.

Gottfredson, L. S. (2005). Applying Gottfredson's theory of circumscription and compromise in career guidance and counseling. In S. D. Brown & R. W. Lent (Eds.) *Career development and counseling: Putting theory and research to work.* Hoboken, NJ: John Wiley & Sons, Inc.

Gravetter, F. J., & Wallnau, L. B. (2004). *Statistics for the behavioral sciences* (6th ed.). Belmont, CA: Wadsworth/Thompson Learning, Inc.

Gushue, G. V., Clarke, C. P., Pantzer, K. M., & Scanlan, K. R. L. (2006). Self-efficacy, perceptions of barriers, vocational identity, and the career exploration behavior of Latino/a high school students. *The Career Development Quarterly, 54,* p. 307-317.

Gysbers, N. C., Lapan, R. T., Multon, K. D., & Lukin, L. E. (1992). *Missouri Comprehensive Guidance Evaluation Survey: Grades 6-9.* Jefferson City, MO: Missouri Department of Elementary and Secondary Education.

Harry, B., Sturges, K. M., & Klingner, J. K. (2005). Mapping the process: An exemplar of process and challenge in grounded theory analysis. *Educational Researcher, 34,* 3-13.

Department of Health and Human Services. (2011, March). *Report on Minority Health Activities*. Available at http://www.healthcare.gov/law/resources/reports/minorities03252011a.pdf

Helbok, C. M. (2003). The practice of psychology in rural communities: Potential ethical dilemmas. *Ethics & Behavior, 13,* 367-384.

Hoffman, T. D. (2011). Rural ethics: Culture, dilemmas, and strengths-based resolutions. *Journal of Rural Community Psychology, E14 (1).* Available at http://www.marshall.edu/JRCP/VE%2014%20N%201/JRCP%20Hoffman%2014.1%20ready.pdf

Holland, J. L., Fritzsche, B. A., & Powell, A. B. (1994). *The Self-Directed Search (SDS) technical manual*. Odessa, FL: PAR.

Holland, J. L. & Powell, A. B. (1994). *The SDS Career Explorer technical information booklet.* Odessa, FL: Psychological Assessment Resources.

[a]Iowa Department of Education. (2010). 2010-2011 Iowa public school PK-12 students eligible for free and reduced-price lunch by school. Available at http://educateiowa.gov/index.php?option=com_docman&task=cat_view&gid=514&Itemid=55

[b]Iowa Department of Education. (2010). 2010-2011 Iowa public school PK-12 limited English proficiency (LEP) by district and grade. Available at http://educateiowa.gov/index.php?option=com_docman&task=cat_view&gid=93&Itemid=1563

Kress, V. E., & Shoffner, M. F. (2007). Focus Groups: A practical and applied research approach for counselors. *Journal of Counseling and Development, 85,* 189-195.

Lapan, R. T., Tucker, B., Kim, S., & Kosciulek, J. F. (2003) Preparing rural adolescents for post-high school Transitions. *Journal of Counseling and Development, 81,* 330-342.

Lent, R. W, & Brown, S. D. (2005). *Career development and counseling: Putting theory and research to work.* Hoboken, NJ: John Wiley & Sons, Inc.

Lent, R. W. & Brown, S. D. (2006). On conceptualizing and assessing social cognitive constructs in career research: A measurement guide. *Journal of Career Assessment, 14,* 12-35.

Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology, 47,* 36-49.

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career, and academic interest, choice and performance. *Journal of Vocational Behavior, 45,* 79-122.

Liu, W. M., & Ali, S. R. (2008). Social class and classism: Understanding the psychological impact of poverty and inequality. In S. D. Brown and R. W. Lent

(Eds.). *Handbook of multicultural counseling*. Hoboken, NJ, US: John Wiley & Sons Inc.

McWhirter, E. H., Rasheed, S., & Crothers, M. (2000). The effects of high school career education on social cognitive variables. *Journal of Counseling Psychology, 47,* 330-341.

Navarro, R. L., Flores, L. Y., & Worthington, R. L. (2007). Mexican American middle school students' goal intentions in mathematics and science: A test of social cognitive career theory. *Journal of Counseling Psychology, 54,* 320-335.

Preskill, H. & Donaldson, S. I. (2008). Improving the evidence base for career development programs: Making use of the evaluation profession and positive psychology movement. *Advances in Developing Human Resources, 10,* 104-121.

Prilleltensky, I., & Nelson, G. (2002). *Doing psychology critically: Making a difference in diverse settings.* London: MacMillan/Palgrave.

Pew Healthcare Commission. (1998). Hispanic health: Divergent and changing. Available at http://pewhispanic.org/files/factsheets/1.pdf

Pew Healthcare Commission. (2002). National Survey of Latinos. Available at http://pewhispanic.org/files/reports/15.pdf

Shorr, A. A., & Hon, J. E. (1999). The said it couldn't be done: Implementing a career academy program for a diverse high school population. *Journal of Education for Students Placed At-Risk, 4,* 379-391.

Sullivan Commission. (2004). Missing persons: Minorities in the health professions. Available at http://www.jointcenter.org/healthpolicy/docs/SullivanExecutiveSummary.pdf

Taylor, K. M., & Betz, N. E. (1994). *Manual for the Career Decision Making Self-Efficacy Scale.* Columbus, OH: Author.

United States Census Bureau. (2000). The United States Census Bureau. Available at http://www.census.gov/main/www/cen2000.html

[a]United States Census Bureau. (2010). The Hispanic population: 2010. Available at http://www.census.gov/prod/cen2010/briefs/c2010br-04.pdf

[b]United States Census Bureau. (2010). Louisa County economic statistics. Available at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

[c]United States Census Bureau. (2010). Money income of households – median income by race and Hispanic origin in current and constant (2009) dollar. Available at http://www.census.gov/compendia/statab/2012/tables/12s0691.pdf

[d]United States Census Bureau. (2010). Muscatine County economic statistics. Available at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

[e]United States Census Bureau. (2010). National economic statistics. Available at http://quickfacts.census.gov/qfd/states/00000.html

Welkowits, J. Ewen, R., & Cohen, J. (1971; as cited in Evans & Burck, 1992). *Introductory statistics for the behavioral sciences.* New York: Academic Press.

West Liberty Community School District (2009). Base enrollment figures: October 2009. Available at http://www.wl.k12.ia.us/210510921103250993/lib/210510921103250993/Snapshot_09-10.pdf

Wettersen, K. B., Guilmino, A., Herrick, P., Hunter, P. J., Kim, G. Y., Jagow, D., Beecher, T., Faul, K., Baker, A. A., Rudolph, S. E., Ellenbecker, K., & McCormick, J. (2005). Predicting educational and vocational attitudes among rural high school students. *Journal of Counseling Psychology, 52,* 658-663.

Whiston, S. C. (2003). Application of the principles: Career counseling and interventions. *The Counseling Psychologist, 30,* 218-237.

Yehieli, M., Grey, M, Vander Werff, A, Grey, M, & Whitaker, J (2005). A strategic plan to increase minorities in the health professions in Iowa. Available at http://www.idph.state.ia.us/hpcdp/common/pdf/workforce/strategic_plan_minorities.pdf

Yin, R. K. (2008). *Case Study Research: Design and Methods*. Thousand Oaks, CA: SAGE Publications, Inc.

Zalaquett, C. P. (2005). Principals' Perceptions of Elementary School Counselors' Role and Functions. *Professional School Counseling, 8,* 451-457.

Zur, O. (2006). Therapeutic boundaries and dual relationships in rural practice: Ethical, clinical and standard of care considerations. *Journal of Rural Community Psychology, E9.* Available at http://www.marshall.edu/jrcp/9_1_Zur.htm

APPENDIX A
PROJECT HOPE CURRICULUM

Lesson Title	Activities	Purpose	SCCT/Critical Components
Pre-Survey	Pre-test survey and brief introduction to facilitators	Assessment/Evaluation	Baseline on SCCT measures
Introduction and Healthcareer Jeopardy!	Traditional jeopardy game in which students compete in groups to earn points.	Introduce participants to world of work and broaden their understanding of the variety and diversity of occupations that comprise the health care career field	World of Work Information
Healthcare Career Fair	SDS completion; self-assessment using modified Holland party exercise. SDS Occupational Finder Search	Identify at least three occupations that are of interest to students; compare results of Holland Party to SDS results and discuss possible discrepancies; Find occupations that match Holland Code in Occupations Finder	Interest Assessment and Feedback; World of Work Information;
Career Guided Imagery	Graduate Assistant use career guided imagery activity to help students visualize future career plans and supports and barriers; students then students draw their futures with assistance from graduate students	Help students identify who/what influences their career decisions; brainstorm about how to overcome barriers by using support systems	Supports and Barriers-overcoming barriers; Written Exercise; Attention to Building Support and Self-Efficacy; Vicarious Learning
Build-A-Dream Career Search and Resume	Future oriented resume worksheet; group sharing Explore one or two of the occupations from their list generated in lesson 2.	Identify goals and objectives and plan of how to achieve them; support and feedback from others	Goal planning; Attention to Building Support; Written Exercise
Mock Interviews	Interview with health science students who role played employers. Students are provided feedback after the interview	Identify personal strengths and areas of improvement; opportunity for performance accomplishment	Performance Accomplishment; Attention to building support; Personalized Feedback
The Real World/Simulation Experiences	Field Trip to University for simulated health science experiences - Nursing - Medicine - Dentistry - Public Health - Health and Wellness - Hardin Medical Library	Broaden students' understanding of occupations and educational opportunities by hands on/practical learning experiences	Access to role models; Information about world of work; Performance Accomplishments

Appendix B

Focus Group Questions

Student Focus Group Questions

1. What were your most important experiences during the Project HOPE program? What was most meaningful to you?
2. What did you learn from the Project HOPE program?
3. In what ways are you different as a result of participating in the HOPE? What effects did the program have on you?
4. What did you like about the Project HOPE program? What did you dislike?
5. What was your favorite part of the program and what made it your favorite part? What effects did it have on you?
6. What was your least favorite part of the program and why was it your least favorite? What effects did it have on you?
7. What was the most challenging activity or part of the Project HOPE program?
8. What kind of jobs do you like?
9. Did you like the "teachers" who ran the activities?
10. What would you change about the HOPE in Iowa program?
11. What else do you have to say about the HOPE in Iowa program?
12. Would you recommend this program to your friends? What do you think they would like about this program? What do you think they would learn from this program?
13. Who did you talk with about the things you experienced or learned in the Project HOPE program and what did you say?
14. How often do you talk about education after high school with your friends/family? How important are your conversations with friends and family about education after high school and what do you discuss?
15. Have you talked to your parents about careers in the last few weeks? Follow-up: How many times? What did you talk about in regard to careers/work? What did you learn from that conversation? How did you feel following that discussion?
16. In what ways have your family/friends' career aspirations or work affected your opinions about your own future job?
17. If you could tell your parent(s) only one thing about what you learned, what would it be and why? Family members? Siblings? Friends?
18. Can you see yourself working in your "dream job" someday? What would it be?
19. How could the "teachers" help you in the next 3-4 years to become more confident in your ability to achieve your career goal?
20. What do you see as your strengths in being successful in getting that dream job? What do you see as the challenges you will have?
21. What do you think about school beyond high school and/or a career in health care?

Stakeholder Focus Group Questions

1. How would you describe your role as a partner within this program?
2. In general, how did you experience the program in your school?
3. What were some of the strengths of the program (e.g., specific content, student participation, interaction between researchers and students/staff, activities, etc.)?
4. What were some of the weaknesses of the program (e.g., specific content, student participation, interaction between researchers and students/staff, activities, etc.)?
5. What suggestions might you offer for improving the program in the future?
6. What makes this Project HOPE program "successful"?
7. In what way would you consider this a successful program (setting, length of program)?
8. In what way was the program developmentally appropriate (or inappropriate) for the students involved?
9. In what way did the students appear to have benefited (or not benefited) from the program?
10. How were scheduling issues/concerns addressed collaboratively and professionally?
11. How was communication among researchers, facilitators, partners, and students collaborative?