

AN ABSTRACT OF THE DISSERTATION OF

Chris Wood for the degree of Doctor of Philosophy in Counseling presented on August 9, 2001. Title: The Relationship of Career Development Interventions to English Self-Efficacy and English Motivation in High School Students.

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Although some studies have demonstrated different career development interventions to be associated with positive student outcomes such as increased academic achievement, increased educational planning and increased career maturity, there has been no investigation of different quantities of career development interventions related to the student outcomes motivation and self-efficacy. Substantial research has demonstrated motivation and self-efficacy to be related to academic achievement. Over half of America's 12th graders read below proficiency level. Therefore, interventions that promote English self-efficacy and English motivation in students are as important as interventions that help students achieve other positive outcomes.

This exploratory study investigated the relationship of four career development intervention taxa (titled Awareness, Field, Curriculum, and Advising) to the English self-efficacy and to the English motivation of high school students. Self-respondent and archival data were collected from 17 different high schools in three separate

regions of the United States. A total of 249 high school seniors completed an English motivation and English self-efficacy measure as well as an instrument that measured the quantity of career development interventions experienced across high school.

Stepwise multiple regression revealed prior achievement to be a significant predictor of English self-efficacy. The background variables SES, Gender, Parent Educational Level, Race/Ethnicity as well as the four career development intervention taxa were not significant predictors of English self-efficacy. Gender and the Advising taxon were determined to be statistically significant predictors of English motivation. The other career development taxa, Awareness, Field, Curriculum and the remaining background variables (SES, Parent Educational Level, Race/Ethnicity, and Prior Achievement) were not determined to be significant predictors of English motivation. Implications for practitioners include a rationale for increasing the quantity of interventions experienced by high school students. Research implications involve improving the design and measurement of career development interventions. Several research questions are posed as potential areas for future investigation.

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The Relationship of Career Development Interventions to English Self-Efficacy and
English Motivation in High School Students

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DEDICATION

To all my mentors, whose profound influences continue to guide my life in powerful ways.

The Relationship of Career Development Interventions to English Self-Efficacy and English Motivation in High School Students

CHAPTER 1: INTRODUCTION

“The nation guarantees the nurture, education, and comfortable maintenance of every citizen from the cradle to the grave” – Edward Bellamy (1888, p. 73). In 1888, novelist and social reformer Edward Bellamy published a book entitled *Looking Backward, 2000-1887*. Bellamy tells the story of a man who wakes up in the year 2000 and learns of the progress society has made since 1887. The novel is a utopian vision of the potential for America and makes positive conjecture about the progress of education in America. In Bellamy’s vision, American education by the year 2000 has risen to a place where all students access higher education and are supported throughout their educational life. So what is the current state of education now that the 21st century has arrived? This introduction will discuss some current challenges in education and educational research as they relate to the importance of this dissertation.

Rationale

An argument can be made that the progress of society is contingent on the progress of education (Clinton, 1999). The transition to the 21st century calls for students to receive a world-class education (Clinton, 1999) and “offers a challenge to address the growing centrality of career in people’s lives” (Hansen, 2000). Educational interventions that foster the career development of students and facilitate academic progress become increasingly important as a means toward achieving the goals of education for the new century.

Education: Goals and Benefits

What is the purpose of education? The answer to this question is perhaps broader and deeper than the scope of this dissertation, and yet there must be some foundational understanding in order to frame the purpose of any study. While the ideal society depicted by Bellamy may not be everyone's goal for America, few, however, would argue against the notion that education should ultimately improve the quality of life, both for individuals and for society. This abstract concept of improved quality of life can be conceptualized by examining those ingredients that contribute to increased academic success and ultimately an enhanced quality of life.

Most assuredly, one of the many potential goals of education is a vocation. Moreover, a good vocation is one of the benefits of education. A person's satisfaction with their vocation and the financial rewards that their career brings, significantly contribute to an enhanced quality of life.

For these reasons career development should be a key focus of education. Due to changing trends in society and the economic marketplace, career development interventions may play an even more profound role in the education of students today than ever before.

Educational programs should include interventions that contribute to the career development of students since this helps students attain educational goals and enhances the benefits of education. Achieving the goals of education and accessing the benefits is contingent on students being successful in school. Both student motivation and belief in their own ability to achieve are essential gears that help drive student success. It is therefore important that education utilize interventions that foster both the career

development and the academic success of students. These student outcomes are the ultimate objective of education.

Overview

This dissertation will explore the relationship between four career guidance taxa and their impact on the English motivation and English self-efficacy of high school students. The four career development taxa are constellations of interventions categorized through a previous study (Dykeman, et al., 2000). The 44 career development interventions are listed in their entirety in Appendix A. The creation of the career development taxonomy will be explained in greater detail in Chapter 2.

First, in this chapter, a description of the purpose of the current study will outline the overall objectives of this investigation. The discussion of research goals will point out the advantages of the present study followed by an account of the potential ramifications of this research project. Then the reasoning for the selection of the criterion variables will outline the importance of the research questions. Finally, an explanation of the research questions and hypotheses addressed by this dissertation will be detailed, including a rationale for the background variables included in this investigation.

Research Goals

As an exploratory study, this dissertation seeks to provide new knowledge about the nature of the association of career development interventions to student motivation and self-efficacy. Improved student motivation and self-efficacy is most certainly a step toward the educational equity and nurturance that Bellamy (1888)

posited as the potential for American education. Similarly, as will be explained in detail in Chapter 2, present research points to a strong link between improved academics and increased self-efficacy and motivation. However, the research on the relationship of career development interventions and their impact on academic performance/achievement, has not always been so clear.

Previous Research Problems

In the past, previous research has encountered difficulty in investigating career development interventions due to the poorly defined interventions or treatment variables. One form of investigation into career development has been program evaluation of educational services intended to provide career development for students. While this form of investigation can explore the effectiveness of a particular educational program on specific students given select educational outcomes, this type of inquiry often doesn't account for students receiving career development outside the educational program. For example, a study examining a mentorship program may fail to take into account significant mentors present in a student's life outside of the intervention program. Moreover, program evaluations often fail to investigate the impact of interventions on student outcomes such as gains in student self-efficacy and motivation.

Similarly, studies that have attempted to explore the cognitive processes of decision-making in career development have sometimes failed to make connections to educational programs that provide the nascent elements of career development. In fact, no current study in the literature today speaks to the relationship between the career

development interventions explored in this dissertation to student self-efficacy and motivation.

Potential Ramifications

This study is potentially capable of profound ramifications for research and educational practice. The study addresses the holes left by the two forms of research mentioned previously. Secondly, it provides new knowledge that may point to directions for future research. Equally important, the results of this dissertation can provide guidance for educational planners in designing programs that foster student career development and facilitate student academic success. Additionally the findings of this research project may have implications for educational reform.

This dissertation investigates types of career development interventions by exploring the quantity of interventions experienced by high school students. By describing these interventions in behavioral terms as activities, this study can investigate career development interventions occurring outside the educational system as well as interventions designed and implemented by educational programs. For example, by asking specifically about mentoring behaviors, this study taps into the influence of such an intervention as it occurs both within and outside of the physical school environment. Similarly, this study probes the student internal processes of motivation and self-efficacy to discover their association with career development interventions.

Such discovery will undoubtedly unveil new directions for future research. One of several limitations of this study is that it only investigates the quantity of interventions experienced by students. It is in this sense a very broad net attempting to

capture a sense of how the quantity of different career development interventions may impact student self-efficacy and motivation. Future research will most certainly need to take discovery further by investigating how the quality of these interventions impacts the outcomes variables. Issues such as duration of an intervention, delivery, temporal order, and essential components of the interventions are a few of the many variables that will need to be illuminated by other research. This study is very clearly a starting point for empirical research in this area and as such both the significant findings and the limitations can give guidance to future endeavors in the area. The results of this study may be breaking new ground in an area with limited knowledge and understanding. As of yet, no other studies have attempted to explore the impact of career development interventions on academic self-efficacy and motivation. As such findings have implications for multiple academic arenas, clearly this new knowledge is of extreme importance.

Moreover, the results of this study may provide some much needed structure for the strategic planning of educational programs. Current practice in career development seems unfortunately plagued by a lack of direction and/or organization for the available interventions. Many school counselors and other educators try to implement as many interventions as possible. This can lead to a poor quality of design, sporadic implementation within the school, or inequity in access for students. Similarly educational administrators are often forced to make decisions about allocating resources for career development based on opinion rather than empirical research. The results of this study can help provide counselors and educational administrators the

information to help improve the career development interventions they provide for students.

Administrators can conduct financial planning and allocate resources based on a grounded knowledge of which career development interventions are proven most influential in regards to self-efficacy and motivation. This study can provide information for sound decision-making on the part of school district administrators, building principals, and school counselors. Thus financial planning regarding career development interventions can be conducted on a sagacious basis.

Finally, the findings from the present investigation may also have profound implications for current educational reform movements. As the United States is in a time of political transition and the incoming Republican administration appears to place a high priority on accountability in education, the findings of this study may provide needed support for educational reform movements that have started over the last decade. The answers to the research questions addressed by this study may well have positive ramifications for generations of students to come.

So clearly this study is relevant to the goals and benefits of education. Increased awareness about career development interventions can have a substantial impact on the progress of education. Moreover, an understanding of the rationale for investigating the relationship of career development interventions to self-efficacy and motivation may lend further support to the importance of this study and foreshadow the research questions. The research questions encapsulate the potential findings of this study and the hypotheses then provide structure for the investigation.

Career Development, Self-Efficacy, and Motivation

Why investigate the impact of career development interventions on English self-efficacy and motivation rather than other outcomes? There are five primary rationales for this choice: (a) career development is an integral part of academic planning, (b) labor market trends, (c) fiscal responsibility in education, (d) the lack of improvement in reading and math achievement of students, and (e) the relationship of self-efficacy and motivation to academic achievement is strongly supported by previous research.

Career Development as Academic Planning

Career development is an integral part of academic planning. Most certainly if students do not have an adequate knowledge of self and see the connection between their academic endeavors and future, school loses its purpose. Consequently, students who feel a lack of relevancy regarding their schooling often do not expend much effort at school and many even drop out of school. Identifying effective career development interventions have the potential to give school purpose for students and make educational planning meaningful.

In the current labor market, educational planning for students is essential for their future success after high school. The ability to plan is often associated with career maturity, as one renowned career and technical education scholar noted, “Postsecondary success depends on both academic skills and commitment which come from career maturity and direction” (Gray, 2000, p. 124).

Labor Market Trends

Secondly, due to changes in labor market trends, both career development and academic achievement have increasing importance. In 1970, male high school graduates earned on average \$35,553 while in 1998 they earned \$25,864, substantially less. Females made small gains, \$15,356 in 1998 as opposed to \$14,681 in 1970. However, people of both genders with bachelor's degrees earned nearly twice that of the high school graduates (United States Department of Education, 2000, p. 143).

A university degree is not the guaranteed way to professional occupations and high wages however. Only 23% of future jobs are projected to require preparation at the undergraduate or graduate school level (Gray, 2000). For the current high school generation, many of the fastest growing occupations will be in technical areas and will only require some postsecondary training. Only 25% of technical employment requires a university degree and this percentage is not projected to change (Gray, 2000, p. 23). It is estimated that by 2006, 43% of university graduates will be underemployed in vocations with lower wages and not requiring a college degree (p. 26). It is no longer true that simply earning a college degree will lead to a good job with high wages, clearly students will need to actively engage in their own career development as part of the educational process. Career development interventions need to be appropriated to the changing labor market in order to best serve students.

There is a misconception in some educational circles that assisting in a student's career development is futile because individuals change jobs frequently throughout their lifetime and the labor market fluctuates. Gray (2000) points out the importance in discerning the difference between a "job" and a "career." A career can

be conceptualized as a series of related jobs over time, organized around a particular knowledge base and set of skills. While holding multiple jobs is expected and usually a sign of successful wages earnings history, multiple careers are often indicative of a troubled work history and associated with lower earnings. Career development then, becomes an important part of helping students achieve career maturity; make postsecondary plans and achieve a stable career pattern later in life. It is imperative to be mindful that “the goal of career maturity efforts is to help youths make tentative career decisions regarding career interests, not to help them pick jobs” (Gray, 2000, p. 25). Career development interventions then, become essential tools for students in navigating the current labor market, just as motivation and self-efficacy fuel student success in academics.

Fiscal Responsibility in Education

There are significant fiscal reasons why the impact of career development interventions on academic achievement should be explored rather than alternate outcomes. In 1992 there were 43.2 million students in grades 1-12 (United States Department of Education, 2000). It is projected that this will increase to 44.4 million students by the year 2006. With over \$6,000 spent per student in public education this makes K-12 education a trillion dollar industry, nearly \$264 trillion dollars.

As with other areas of education, career guidance personnel have a fiscal responsibility to make sure that the interventions in schools are money well spent. Currently there is not enough knowledge in the field to determine which interventions work best. Yet schools continue to make large financial investments in career development interventions without enough knowledge of how to spend wisely.

Lack of Improvement in Reading and Math Achievement

The lack of improvement in academic achievement, particularly in the realm of reading, points to the need for all educational endeavors (career development included) to be aimed at academic achievement. In 1998, 60% of the 12th grade students performed below proficiency level in Reading (United States Department of Education, 2000). This is unchanged from 1992, suggesting one possible explanation that the current organization and implementation of educational interventions are not having a substantial impact on increasing reading achievement.

Reading achievement (a function of English motivation and English self-efficacy) is especially important due to its importance across subjects in the high school curriculum. Whether solving story problems in math, learning safety procedures in applied technology, or studying ancient Greek Myths, a student's reading achievement level has a substantial impact on all their subsequent achievements across multiple content areas. The subject of English then, becomes of central importance in American education (Riley, 2000).

Self-Efficacy and Motivation Linked to Academic Achievement

A substantial amount of research has established the connection of self-efficacy and motivation to academic achievement. Researchers have consistently demonstrated that self-efficacy predicts students' mathematics performance (Bandura, 1986; Pajares & Miller 1995; Pajares, 1996). There is additional support from empirical research linking motivation and self-efficacy to reading and writing achievement (Multon, Brown & Lent, 1991; Pajares & Johnson, 1996; Shell, Bruning and Murphy, 1989;

Wigfield, Eccles, Mac Iver, & Reuman, 1991; Wigfield, et al., 1997; Wigfield, Eccles, & Roeser, 1998; Wigfield & Eccles, 2000). Such a strong body of research lends substantial support to the use of self-efficacy and motivation as mediator variables for academic achievement.

This last point is perhaps the strongest argument in favor of this investigation. Recent reforms in education have placed a greater emphasis on learning academic skills in the areas of math and English (Cuban, 1998, Herrera & Owens, 2001). Therefore, the recognition of interventions that increase academic achievement as well as endeavor to achieve the goals and benefits of vocational success have become increasingly imperative. Furthermore, the educational agenda of the new federal administration seems to place a high priority on accountability of educational interventions in contributing to academic improvement. Unmistakably, answering research questions about the relationship of career development interventions to self-efficacy and motivation becomes imperative.

Research Questions

This study investigates two main research questions:

1. Beyond the background variables of gender, race/ethnicity, parent educational level, socioeconomic status, and prior achievement, what is the predictive value of the four taxon of career development interventions to English self-efficacy?
2. Beyond the background variables of gender, race/ethnicity, parent educational level, socioeconomic status, and prior achievement, what is the predictive value of the four taxon of career development interventions to English motivation?

For both of the above research questions several hypotheses can be put forth to help guide the study design and subsequent data analysis. Gall, Gall, and Borg (1999) state, “a hypothesis in a research study is a speculation – an educated guess – about how two or more variables are related to each other” (p. 123). For a researcher, “speculations can be based on previous research findings and theory, as well as on your own observations of the phenomenon” (Gall, Borg, & Gall, 1996). The hypotheses in the following section were formulated based on theory, previous findings, and personal experience.

Research Question 1: English Self-Efficacy

Hypothesis #1

Independent of the other career development taxa and all background moderators, quantity of the Advising taxon will predict level of English self-efficacy.

Since career development interventions in the Advising taxon are designed to provide students with direction, these interventions can impact English self-efficacy. Previous research has established a link between self-efficacy and career decision making (Betz & Hackett, 1981, 1986). It is logical to speculate that interventions designed to provide career guidance would have a positive influence on self-efficacy. For example, academic planning counseling might foster students having a greater sense of self-efficacy by encouraging the students to engage in academic course taking behavior. Therefore the Advising taxon is hypothesized to predict level of English self-efficacy.

The background variables included in this study (i.e. Prior Achievement, SES, Gender, Race/Ethnicity, Parent Education Level) are hypothesized to have a substantial moderating effect on English self-efficacy. Each career development intervention taxon must be examined independent of the background variables in order to determine the separate taxa influence on level of English self-efficacy.

Prior achievement is posited to impact the variables English self-efficacy. Since previous success is often a predictor of self-efficacy beliefs (Bandura, 1997; Wigfield & Eccles, 2000), prior achievement is a known influence on the strength of the relationship of the career development taxon variables to English self-efficacy and therefore needs to be held constant.

Parent educational level is also predicted to moderate the effect of the predictor variables on the criterion variable English self-efficacy. Therefore, Parent Education Level is included as a variable to be held constant in order to more fully examine the relationship between the career development taxa and the criterion variable English self-efficacy.

Finally, student ethnicity/race, student gender, and student socioeconomic status are also included as background variables. There is a strong body of literature that points to fundamental differences in performance expectations based on gender and race (Mayo & Christenfeld, 1999). Similarly, research suggests that gender and race influence student self-efficacy and racial minority students have lower expectations for success (Hackett, Betz, Casas, & Rocha-Singh, 1992). Bong (1999) also found significant differences in self-efficacy based on gender and race. Therefore,

these variables also need to be controlled for in order to assess the relationship between the career taxon variables and the outcome variables.

Student socioeconomic status is hypothesized to have a negative association with English self-efficacy. Since students with lower socioeconomic status are more likely to receive lower grades and even drop out of school (Downy, 1994; Dubow & Ippolito, 1994; Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Entwisle & Alexander, 1995; McLanahan & Sandefur, 1994; Pong, 1997; Smith, Brooks-Gunn, & Klebanov, 1997; Seccombe, 2000; Teachman, Paasch, Day, & Carver, 1997), it stands to reason that their English self-efficacy will be lower for students with low SES. For this reason the confounding influence of the SES variable, as with the other background variables, needs to be controlled in order to fully explore the relationship of the career development taxa to the variable English self-efficacy.

Hypothesis #2

Independent of the other career development interventions taxa and all background moderators, quantity of the Field taxon will predict level of English self-efficacy.

The interventions in the Field taxon occur primarily in the community and are usually forms of work-based learning. The nature of such interventions and the intrinsic exposure to the world of work are likely to influence English motivation and English self-efficacy in a positive direction. Similarly, studies have indicated that interventions such as Service Learning can increase students' self-efficacy in regards to social change (Rama, Ravenscroft, Wolcott, & Zlotkowski, 2000) the same may be true for other domains such as English. Also, there is some indication that experienced

based career education and similar career development interventions have a positive influence on student outcomes such as motivation and self-efficacy (Bucknam & Brand, 1983; Watkins & Corder, 1977). Therefore, the variable Field is hypothesized to predict level of English self-efficacy. As explained for Hypothesis #1, it is necessary to control for the background variables gender, parent education level, socioeconomic status, race/ethnicity, and prior achievement to discern the individual contribution of the Field taxon.

Hypothesis #3

Independent of the other career development taxa and all background moderators, quantity of the Awareness taxon will predict level of English self-efficacy.

Interventions in the Awareness taxon are designed to make students aware of career options and the importance of engaging in planning for life after high school. Interventions such as “career day” can increase English self-efficacy by demonstrating to students that they are capable of performing the English skills necessary for vocational success. It has been maintained that interventions such as Career Day have demonstrated an increase in women’s self-efficacy regarding non-traditional careers (Herr & Cramer, 1992; Isaacson & Brown, 1993). Career day programs have been posited to meet the school-to-work needs of students by exposing students to role models and career exploration (Grant & Jackson, 1996). An intervention such as career day might influence academic domains of self-efficacy as well as providing career information, although there is no current research to suggest this assertion. As with Hypothesis #1 and #2, the background variables will need to be controlled for, in order to determine the independent contribution of the Awareness taxon.

Hypothesis #4

Independent of the other career development interventions taxa and all background moderators, quantity of the Curriculum taxon will predict level of English self-efficacy.

The career taxon, Curriculum, is comprised of interventions with informal/formal instruction designed to build in students both foundational work skills and knowledge. These career development interventions are primarily skill based and are likely to increase self-efficacy in domain specific areas. Brown (1999) maintains that learning placed in a work based context (as with interventions in the Curriculum taxon) provides the means toward developing increased self-efficacy expectations. The Curriculum taxon is hypothesized to be associated with English self-efficacy and English motivation. As explained in the above hypotheses, it is necessary to control for the background variables gender, parent education level, socioeconomic status, race/ethnicity, and prior achievement to discern the individual contribution of the Field taxon.

Research Question 2: English Motivation

Hypothesis #1

Independent of the other career development taxa and all background moderators, quantity of the Advising taxon will predict level of English motivation.

As career development interventions in the Advising taxon are designed to provide students with direction, these interventions can impact English motivation as well as English self-efficacy. For example, academic planning counseling might

increase motivation by reinforcing the importance of the academic subject to the students' future plans. Career development expert Ed Herr states "To become motivated, individuals must be assisted to see how their need are met by whatever information is delivered" (Herr & Cramer, 1992, p. 618). Academic planning counseling, as with many other interventions in the advising taxon, attempts to help students see connections between their academic coursework and vocational goals.

The background variables are hypothesized to have a substantial moderating effect on English motivation as well as English self-efficacy. Therefore the background variables must be controlled for, in order to determine the influence of the career development taxa. As explained previously, prior achievement is posited to impact the criterion variable English motivation, moderating the impact of the other predictor variables. As with the other background variables then, it is necessary to hold the career development taxa independent of prior achievement.

As student motivation is based heavily on student task value and parents have an influence in the formation of their children's value beliefs, Parent Educational Level is thought to effect level of English motivation. Therefore, Parent Educational Level is included as a variable to be held constant in order to more fully examine the relationship between the career development taxa and the criterion variable English motivation.

Student ethnicity/race, student gender, and student socioeconomic status are background variables thought to moderate the influence of the other predictor variables. Since there is a strong body of literature that points to fundamental differences in performance expectations based on gender and race (Hackett, et al.,1992;

Mayo & Christenfeld, 1999) these variables also need to be controlled for in order to assess the relationship between the career taxon variables and the criterion variable English motivation.

Student socioeconomic status is hypothesized to have a negative association with English motivation. Since students with lower socioeconomic status are more likely to receive lower grades and even drop out of school (Downy, 1994; Dubow & Ippolito, 1994; Duncan et al., 1998; Entwisle & Alexander, 1995; McLanahan & Sandefur, 1994; Pong, 1997; Smith, Brooks-Gunn, & Klebanov, 1997; Seccombe, 2000; Teachman, Paasch, Day, & Carver, 1997), it is probable that SES will have a moderating influence on other predictor variables. For this reason the confounding influence of the SES variable, as with the other background variables, needs to be controlled in order to fully explore the relationship of the career development taxa on the criterion variable English motivation.

Hypothesis #2

Independent of the other career development interventions taxa and all background moderators, quantity of the Field taxon will predict level of English motivation.

The Field taxon interventions occur primarily in the community and are usually forms of work-based learning. The nature of such interventions and the intrinsic exposure to the world of work are likely to influence English motivation in a positive direction. If such activities help students to see the connection between school and the application of learning this is probable to increase the task value of subjects within school. The prevailing research on experienced based career education (EBCE)

indicates that EBCE contributes to increased positive life attitudes as well as academic skills (Bucknam & Brand, 1983). It is possible that these positive gains can extend to subject specific areas such as English. Therefore, the variable Field is hypothesized to predict level of English motivation. As explained for Hypothesis #1, it is necessary to control for the background variables gender, parent education level, socioeconomic status, race/ethnicity, and prior achievement to discern the individual contribution of the Field taxon.

Hypothesis #3

Independent of the other career development taxa and all background moderators, quantity of the Awareness taxon will predict level of English motivation.

Interventions in the Awareness taxon are designed to make students aware of career options and the importance of engaging in planning for life after high school. Increased career awareness is a developmental need for students (Tuckman, 1974) as part of formulating the vocational self-concept, the driving force of career patterns (Super, 1957). Interventions such as “career day” can increase English motivation by exposing students to the possibilities for their lives and emphasizing the importance of educational choices, thereby increasing students’ value beliefs regarding the academic tasks in English. Once again, for reasons stated previously, the Awareness taxon needs to be investigated independent of background variables gender, parent education level, socioeconomic status, race/ethnicity, and prior achievement.

Hypothesis #4.

Independent of the other career development interventions taxa and all background moderators, quantity of the Curriculum taxon will predict level of English motivation.

The career taxon, Curriculum, is comprised of interventions with informal/formal instruction designed to build in students both foundational workskills and knowledge. Interventions such as Tech Prep/2+2 curriculum connect school learning to the world of work, thus increasing student value beliefs about academic subjects. Research indicates that career education is a contributor to academic achievement, especially when coupled with math and language arts subject matter (Evans & Burck, 1992). Evans and Burck (1992) state, “because mathematics and English are basic to just about any occupation or life skill, career education concepts can be applied at just about any level to help students see the relevance between the world of work and what they are doing in the subject” (p. 67). Therefore, the Curriculum taxon is hypothesized to predict level of English motivation. Once more it is necessary to control for the background variables gender, parent education level, socioeconomic status, race/ethnicity, and prior achievement to discern the individual contribution of the Curriculum taxon.

Glossary

The following glossary is designed to assist the reader by defining vocabulary terms used throughout this dissertation. The glossary can serve as reference for the definition of constructs as well as variables investigated in the current study.

Achievement Behavior

Academic action such as choices of courses, persistence in education, quantity of effort, cognitive engagement, and actual academic performance in subject areas such as math, English, and science, for example.

Advising

A taxon of career development interventions. This constellation of career development interventions is comprised of activities usually conducted by counselors or guidance personnel. Examples include individual counseling as well as individual parent-student career and educational planning conferences.

Awareness

A taxon of career development interventions. This constellation of career development interventions includes activities designed to increase student awareness of career educational opportunities. Examples include career fairs or career days.

Bivariate or zero-order correlation coefficient

A coefficient (usually denoted symbolically as r) that indicates, on a scale from -1 to 1 , the strength and direction of the relationship between two variables (Licht, 1995).

Coefficient of determination

The zero order correlation coefficient when squared (r^2), it indicates the proportion of variance that is shared by the two variables (Licht, 1995).

Coefficient of multiple determination

Symbolically denoted as R^2 the coefficient which indicates the amount of shared variance in the criterions that is shared by the combination of predictors in a multiple regression correlational analysis (Licht, 1995).

Curriculum

One of the four taxon of career development interventions. This constellation of career development interventions is comprised of activities which are usually incorporated into the educational system or offered as extra-curricular endeavors. Examples include the Tech Prep and/or the 2+2 curriculum.

Domains

Subject specific content areas of knowledge such as math, English, writing. Current research seems to indicate that self-efficacy and motivation are domain specific.

Dummy or Effect Coding

A method for including categorical variables in an multiple regression/correlational analysis whereby the variables are transformed into dichotomous variables indicating the presence or absence of a specific category (Licht, 1995).

Expectancy Value

A model of achievement motivation. In Eccles & Wigfield's (2000) model of achievement motivation, achievement behavior is predicted by two general components: expectancy and task value.

Expectancy

A construct in motivation theory which refers to the beliefs of students about their future success in an upcoming event. This construct is in turn influenced by the students' task specific self-concept and their perception of task difficulty.

Field

One of the four taxon of career development interventions. Activities in this constellation of career development interventions typically take place in an actual work place context rather than an academic setting. Examples within this taxon are job shadows and internships.

Independent Contribution

The relationship of a predictor to the criterion after the relationships of all other predictors in the study have been controlled for.

Motivation

“The organized patterning of an individual's personal goals, emotions, and personal agency beliefs” (Ford, 1992, p. 78). Eccles and Wigfield (2000) define achievement motivation as a function of task value and expectation of success (see expectancy – value).

Outcome Expectation

In Bandura's Theory, outcome expectations are judgments or beliefs regarding the contingency between a person's behavior and the anticipated outcome of engaging in that behavior.

Self-concept

Relating to academic performance, an academic self-concept is an integration of self-perceptions for different domains.

Self-efficacy

"People's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391).

Self-esteem

A global term referring to an individual's self-perceptions of competence and the emotions associated with those self-perceptions.

Task Value

In the expectancy-value theory of motivation, task value is the degree to which an individual believes a task is worthwhile or beneficial.

Taxa

The plural of taxon.

Taxon

The name applied to a group in a taxonomy.

Taxonomy

The systematic classification and naming of type groups within a subject field.

CHAPTER 2: LITERATURE REVIEW

Introduction

“The return from your work must be the satisfaction which that work brings you and the world’s need of that work. With this, life is heaven, or as near heaven as you can get. Without this - with work which you despise, which bores you, and which the world does not need - this life is hell.” – William Edward Burghardt Du Bois, 1958, to his newborn great-grandson on his ninetieth birthday in 1958 (as in Bartlett, 1992).

The eloquent words of W.E.B. Du Bois illustrate the importance of career development. As chapter one pointed out, career development in education is as important as ever. So what progress in recent years has career development made toward better preparing youth for making career decisions? What is the current knowledge in the areas of career development, motivation and self-efficacy? This chapter will explore these questions in light of the research literature relevant to the research questions, hypotheses, and variables used in this study.

Some studies indicate that dropout rates are declining and educational achievement is increasing (Berkold, Geis, & Kaufman, 1998). While only 4% of all young people ages 15-24 who were enrolled in school dropped out of grades 10-12 in 1998 (United States Department of Education, 2000) there are still many important concerns for society regarding the quality of public education.

There has been an increasing emphasis on educational reform in recent years and a growing emphasis on career development as part of educational reform (Drier & Ciccone, 1988; Gysbers, 1992; Gysbers & Henderson, 2000; Herr, 1992). Yet some

critical questions still remain unanswered and the direction for research is still unclear. Some important questions to be investigated include the role of career development in academic achievement, especially, what career interventions are most effective with students, with what types of problems, and at what point in their career development.

In order to investigate these questions, it is first necessary to understand the current research knowledge surrounding the relationship between career development, academic motivation, and academic self-efficacy. To understand the relevant research in the areas of career development, motivation, and self-efficacy, however, it is important to understand these topics as theoretical constructs.

This chapter will define and discuss the constructs motivation and self-efficacy. Following the explanation of the constructs, there will be a brief description of the career development taxonomy study that created the four taxa under investigation in this study. In addition, this literature review will trace the development of career development intervention research from the 1970's through the 1990's. After exploring the historical perspective, the chapter will focus on four meta-analyses that investigate the impact of career development interventions. Then more recent research examining career development interventions at the K-12 level will be explored. Studies on the impact of career development programs will be reviewed. Recent research relevant to the constructs self-efficacy and motivation will be presented. Furthermore, this chapter will give a rationale for the variables included in this study as well as a discussion of academic motivation and self-efficacy measures. Finally, the gaps in the research of career development interventions will be discussed.

Overview of Constructs

A definition of the constructs motivation and self-efficacy is essential to understanding the foundational research relevant to this dissertation. Similarly, it is useful to have knowledge of the career development taxonomy study that established the predictor variables of this study. Once there is an understanding of the constructs motivation and self-efficacy as well as background knowledge on the creation of the career development taxonomy, the connection between previous research and the current study becomes evident.

Motivation

There is no clear consensus on how to define and set parameters for the construct motivation (Ford, 1992). The concept of motivation is inherently broad and multi-faceted (Ford, 1992, p. 78). Any operational definition then, runs the risk of using an overly simplified (and subsequently useless) set of theoretical underpinnings. With this disclaimer in mind, this dissertation will limit itself to the Expectancy-Value theory of goal-directed behavior as the foundation for an operational definition of academic motivation. Other theories of academic motivation were considered (Covington, 2000; Pintrich & Schunk, 1999; Skinner, 1953; Zimmerman, 2000) but were rejected in favor of the Expectancy-Value theory. The Expectancy-Value theory of academic motivation was selected for use as a construct definition in this dissertation because it incorporates both student values of tasks as well as self-efficacy beliefs regarding domain specific behaviors.

Wigfield and Eccles (2000) state that “theorists in this tradition argue that individuals’ choice, persistence, and performance can be explained by their beliefs about how well they will do on the activity and the extent to which they value the activity” (p. 68). Expectancy-Value theory posits that goal directed behavior is a function of (a) expectations – the belief that performance is contingent on effort and that performance will determine the outcome and (b) the value that a person attaches to that outcome (Wigfield & Eccles, 2000; Sheppard & Taylor, 1999).

Self-Efficacy

The construct self-efficacy evolved out of Bandura’s social cognitive model of behavior (1970, 1986) and has progressed into a theory in its own right (1997). According to Bandura, the consequences of one’s past behaviors significantly influence future behavior through the informative and incentive values of those consequences (Bigge & Shemis, 1999). It is the interaction between the individual and their environment in a reciprocal fashion that causes behavior. An individual’s perceptions then, play a key role in this process, especially the perception that there is personal efficacy in exercising influence over what they do and what happens to them. “In social cognitive theory, a sense of personal efficacy is represented as propositional beliefs” (Bandura, 1997, p. 3). Self-efficacy is a major construct in social cognitive theory and these propositional beliefs contribute to how people plan goals and execute courses of actions to achieve objectives. Similarly, an individual’s self-efficacy contributes to motivation for performance. “Beliefs of personal efficacy also regulate motivation by shaping one’s aspirations and the outcomes expected for one’s efforts” (Bandura, 1997, p. 35).

In Bandura's model, self-efficacy is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). In this view then, perceived competence includes both behavioral actions and cognitive skills necessary for performance in a specific domain. "Perceived self-efficacy refers to belief in one's power to produce given levels of attainment" (Bandura, 1997, p.382).

The construct self-efficacy is incorporated into the expectancy construct described above, but there are some important underlying distinctions. "Perceived self-efficacy is a judgment of one's ability to organize and execute given types of performances, whereas an outcome expectation is a judgment of the likely consequence such performances will produce" (Bandura, 1997, p. 21). Though distinct, the constructs expectations and self-efficacy are in agreement with each other, because outcome expectation is contingent on beliefs in one's ability to produce a given outcome.

Career Development Interventions

In this dissertation, a four cluster taxonomy of career development interventions will be employed. The titles of the four taxa are: Field, Advising, Awareness and Curriculum. The career development intervention taxonomy was developed empirically in a study by Dykeman, et al. (2000). Through extensive consultation with career development practitioners and researchers across the United States, researchers compiled a comprehensive list of 44 career development interventions that occur in America's secondary schools. In a survey, the 44 career development interventions were then rated across 5 variables (time, mode, control, place, and size) by a random

sample of the Guidance Division of the Association for Career and Technical Education. The ratings were then cluster analyzed and a four taxon solution was produced. The taxon named “Field” consists of career development interventions that occur in the community as opposed to interventions that occur within the school. The “Advising” taxon is comprised of interventions that are designed to provide the student with direction for education and occupational planning. Interventions designed to make students aware of career options and the need to plan for life after school, are in the “Awareness” taxon. Finally, the “Curriculum” taxon includes interventions with formal and informal instruction designed to build foundational work skills and knowledge in students.

Research on Career Development Interventions

In order to understand the current state of research in the area of career development it is important to understand the historical evolution of research in career education. This understanding frames the foundation and challenges of more recent research regarding career development interventions.

Historical Perspective

In the 1970’s researchers began to investigate the effects of career education on academic achievement. Guiding this research movement were the ten learner outcomes established by the Office of Career Education (n.b., a bureau of the Office of Education, US Department of Health, Education, and Welfare). The first learner outcome had two parts that focused directly on academic achievement. The exact text of this outcome is as follows:

Learner Outcome # 1-a. Competent in the basic academic skills required for adaptability in our rapidly changing society (Reading Achievement).

Learner Outcome # 1-b. Competent in the basic academic skills required for adaptability in our rapidly changing society (Mathematical Achievement). (Hoyt, 1980, p. 23)

A number of studies on Learner Outcome #1 were completed during the course of the federal legislation that sponsored career education. Bonnet (1977) examined over 500 student outcome studies from over 45 programs. She found compelling evidence of career education's positive impact on academic achievement only in selected incidents. Similarly, Bhaerman (1977) examined over 38 studies that focused on mathematics achievement and/or reading achievement and career education. Echoing Bonnet's assertions, Bhaerman concluded that career education did not have a negative impact on student achievement as popularly held by teachers and administrators. In fact, Bhaerman reported that 19 of the studies indicated that career education impacted either reading or mathematics in a positive direction at the .05, .01, or .001 level of statistical significance.

In 1980, Hoyt synthesized these research findings along with additional reports in his evaluation of K-12 career education. An evaluation of the findings of over 114 studies and a review of 257 career education sites drew the conclusion that career education efforts most often produce positive results.

Career education research, however, was hindered by problems of (a) lack of agreement on acceptable measures of outcomes and (b) poor consistency in definitions of "treatment" as well as delivery (Bhaerman, 1977). The literature established that

career education did not impair academic achievement in students. While career education appeared to promote student achievement, however, there were many methodological problems in the research (Bhaerman, 1977; Bonnet, 1977; Hoyt, 1980).

Outlining directions for the 1980's, Hoyt identified four key issues for researchers. The first involves the career education "treatment." In evaluating career education efforts a definition of the treatment must be specific and clear. Moreover, how and when this treatment is delivered must be equally apparent. Second, "intermediate criteria" must be developed to make it possible to measure the developmental, longitudinal nature of career education (Hoyt, p. 36, 1980). The third issue involved establishing and using proper control groups in evaluation designs. Lastly, Hoyt pointed to the issue of the teaching and learning process. He noted that in addition to infusing purposefulness and meaning into the teaching/learning process, as good teachers are already apt to do, and using a project-activity oriented approach to help students acquire decision-making skills, teachers should be combining cognitive and experiential approaches to learning as part of their responsibility to be careers oriented.

Since the 1970's researchers have investigated additional student benefits of career education. There is substantial evidence to support the assertion that vocational education lowers the dropout rate and increases the retention of students (Bishop, 1987; Brown, 1998). Vocational Education has been shown to raise employment rates and earnings of at-risk youth (Brown, 1998) and to have substantial labor market payoffs for high school students (Bishop, 1987).

It has been maintained that career development interventions are an essential part of career education (Bishop, 1987; Drier & Ciccone, 1988; Gysbers, Lapan, Blair, Starr, & Wilmes, 1999; Henderson & Gysbers, 1998; Herr, 1992; Herr & Cramer, 1992; Lapan, Gysbers, & Sun, 1997; Lieberman, 1988; Loughead, Liu, & Middleton, 1995; Marsh & Coddling, 1999). Yet what career development interventions are most effective? What, if any, is their impact on students' academic achievement? This literature review examines recent research in light of these important questions.

Career Development Intervention Meta-Analyses

Several extensive meta-analyses have been done regarding career interventions. Bucknam and Brand (1983) conducted a meta-analysis on the effect of experienced based career education (EBCE) by examining EBCE programs from 1976 to 1982. Their meta-analysis of 80 programs determined those students from all socioeconomic levels and all residential areas that were exposed to EBCE, made larger gains in academic skills and career skills than students in the typical high school curriculum. Even low fidelity to the proven models of EBCE showed better results on academic skills outcomes than did the regular high school curriculum (Bucknam & Brand, 1983). These results are tempered by the fact the study was published in a non-peer reviewed journal. Moreover, the article fails to describe any of the statistical analyses conducted for the meta-analysis.

Oliver and Spokane (1988) conducted a meta-analysis of 58 studies from 1950 to 1979. In 247 treatment controlled comparisons of 58 studies involving 7,311 subjects, Oliver and Spokane examined the various effect sizes on client outcome variables. The outcome variables included aspects of career decision making such as

accuracy of self-knowledge, career salience, and career information seeking as well as aspects of effective role functioning such as academic performance, career related knowledge, and interview skills. Findings indicated an average effect size of .82, which is considered a large effect (Cohen, 1977).

Oliver and Spokane (1988) also examined the effect size of career interventions relative to different treatment modalities as well as effect size by number of sessions. Individual counseling was found to have the largest effect size per hour ($ES=.52$) followed by workshops/structured groups ($ES=.13$) and group counseling ($ES=.08$). A mean effect size of 5.11, 2.73, and 1.19 was found for 20, 7, and 6 sessions respectively. Their findings indicated clear differences in intervention modes and number of sessions suggesting 7 sessions are much more effective than 6 and increasing to 20 session can nearly double effect on client outcome.

In 1998, Whiston, Sexton, and Lasoff conducted a replication of Oliver and Spokane's 1988 study. They examined studies published from 1983 to 1995 using a more sophisticated coding system and more extensive data analysis. Their investigation involved 268 treatment control contrasts from 47 studies that involved 4,660 participants. Whiston, et al examined the same outcome variables organized into the same categories of career decision making, effective role functioning, and counseling evaluation. A smaller average effect size of .45 was found, yet this differed from Oliver and Spokane's previous findings by less than a half a standard deviation (Whiston, Sexton, & Lasoff, 1998).

Effect size per hour calculations yielded some interesting differences from Oliver and Spokane. Individual counseling was still the highest treatment effect size at

.92, but second most effective treatment was computer interventions ($ES=.23$) followed by class interventions ($ES=.08$). Wide variations in the services provided within each treatment category exists and this may inhibit the ability of type of treatment to predict effect size potentially suggesting that the treatment categories need to be more specific.

Evans and Burck (1992) conducted a meta-analysis on career education interventions and their effect on academic achievement. Unlike the previously aforementioned studies that included participants of all ages, Evans and Burck looked only at studies involving K-12 students as participants. Academic achievement was measured by student achievement on standardized and criterion-referenced tests administered after career education interventions. Selection was limited to those research studies that included a control group. The literature search covered 1966 through March, 1986. An overall effect size of .16 was found, indicating a small (Cohen, 1977) positive effect size and warranting the conclusion that career education produces a positive gain in academic achievement as compared to when students receive no career education interventions.

Baker and Taylor (1998) found an even stronger effect of career education interventions in their meta-analysis of 12 studies from 1983 to 1996. Using a strict criteria, they only included studies that were experimental/quasi-experimental with treatment and control groups, were published in refereed journals and had participants from grades K-12. Eleven of the twelve studies indicated a positive effect of career education on student outcomes. Combining these 12 studies with 18 studies from 1970-1982 yielded an estimated effect size of .39 for the 30 studies. According to Cohen (1977) this is between a small and medium positive effect size. An additional

interpretation of their findings indicate that a gain of 19 percentile points (from 50th to 69th) in a participant's percentile rank, can be estimated for a hypothetical career education participant (Baker & Taylor, 1998).

Recent K-12 Career Development Intervention Studies

Of particular interest to this study is the research on career development interventions with American students in grades K-12. Such studies predominately occur separately at the elementary, middle school, and high school levels.

Research at the Elementary School Level

Recent research on career interventions with K-12 students has been somewhat limited in the past few decades. Studies that investigate career development with Elementary students are especially sparse. A study of elementary school guidance, not specifically career related, found that counselor led classroom guidance lessons significantly increased student academic achievement (Lee, 1993).

Research at the Middle School Level

At the middle school level several studies have investigated the impact of career guidance interventions on middle school students (Lapan & Jingeleski, 1992; Luzzo & Pierce, 1996; Mau, 1995; Peterson, Long, & Billups, 1999). Though there are a limited number of studies with this age group, researchers have found positive findings.

Evaluating the effects of a computer guidance system, DISCOVER, on middle school students, researchers (Luzzo & Pierce, 1996) found a statistically significant, positive increase in career maturity. Other studies present evidence that educational

planning and aspirations are closely related to current academic achievement (Mau, 1995).

Peterson, Long, and Billips (1999) explored the effects of career interventions on the educational choices of eighth grade students transitioning to high school. Researchers implemented three levels of career interventions for students. Level one was an announcement in social studies classes by a member of the middle school guidance staff, instructing students in completing a trial high school program of study. Level two consisted of level one with the addition of printed materials, which included graduation requirements as well as examples of a college prep curriculum and a vocational prep curriculum. The third level involved a computer assisted classroom instruction which was designed to foster career problem solving and decision making skills by enhancing self-knowledge, occupational knowledge, decision-making skills as well as metacognitive skills. Instruments designed to measure these outcomes were a career grid which measures students' occupational preference of interest and desired educational level. Students were asked to complete the career grid, which was given to groups in each level of intervention as pre and post test measures. The career grid requires students to identify areas of preferred interest, career aspiration, and desired occupational level. An increase in these areas was the desired outcome, but there was not a statistically significant difference in pre/post measures. The completion of an educational four-year plan was also used as a measure to evaluate the effects of the different levels of career intervention. The four-year plan was examined for specificity, appropriateness, and sequence. A chi-square analysis revealed treatment effects regarding a significantly greater number of students in the level two and three

treatment groups achieving mastery at post-test with the career grid and four-year plan. Only 54% of the level one students met the criteria of specificity, appropriateness, and sequence in the four-year plan as compared to 100% of the level three students.

Research at the High School Level

Studies at the high school level exhibit similar findings to studies at the elementary and middle school levels. Some research has shown that incorporating career guidance into the academic curriculum can lead to positive outcomes for students (Hughey, Lapan, & Gysbers, 1993; Lapan, Gysbers, Hughey, & Arni, 1993). Lapan et al. (1993) found that a program fusing a career guidance and language arts unit significantly increased both the vocational identity scores and the English GPAs of high school juniors. Hughey, Lapan, and Gysbers (1993) found that these students reported a better knowledge and understanding of the career decision making process as well as increased confidence in the career planning process.

Some research examining the efficacy of career guidance interventions is in the form of program evaluations (Cawelti, 1999; Loughead et al., 1995). Career development educational programs such as PRO 100, a career development program for impoverished inner-city youth, have demonstrated the ability to improve students' career planning ability and job search skills (Loughead et al., 1995). Similarly, other program evaluations have identified successful projects that use vocational education and career guidance interventions and have achieved increases in students' GPA and a reduction in the number of courses failed.

Comprehensive Guidance Program Studies

Comprehensive Guidance Programs are Educational Programs designed to assist students with career development, academic/educational planning, and other student competencies. Such programs are often based on the Missouri Comprehensive Guidance Model (Gysbers & Henderson, 2000) which organizes services around four components: (a) a guidance curriculum, such as classroom presentations, (b) individual planning, such as advising, (c) responsive services, such as individual/group counseling, and (d) system support, such as consultation with teachers/administrators. These structural components are adapted and implemented according to the desire of given schools/districts.

Studies have assessed the impact of career guidance programs in high schools (Gysbers, Hughey, Starr, & Lapan, 1992; Gysbers et al., 1999; Hotchkiss & Dorsten, 1985; Lapan et al., 1997; Whiston & Sexton, 1998). Some of these studies have taken a more extensive approach toward examining the influence of career interventions by investigating them within the context of a comprehensive guidance program delivery model (Gysbers, 1992; Gysbers & Henderson, 2000; Henderson & Gysbers, 1998).

Hotchkiss and Dorstein (1985) researched the effects of career guidance programs on five outcomes: locus of control, self-esteem, perceived ability to complete college, educational expectation, and occupational expectation. Students attending schools with active guidance programs and students not attending such schools were compared across these five outcomes. Attending a school with an active career guidance program did not have much effect on the five outcome variables (Hotchkiss & Dorsten, 1985).

Gysbers, Lapan, and Sun (1997) conducted a statewide evaluation of the implementation of comprehensive guidance programs and their subsequent effects on student outcomes. Data from 22,964 students in 236 high schools was evaluated using a previously established framework for measuring outcomes (Gysbers et al., 1992). The study established four outcome goals to investigate: (1) if student achievement was enhanced in schools with more fully implemented comprehensive guidance programs, (2) if all students would benefit from the program irrespective of gender, ethnicity/racial status, size of school, and socioeconomic level, (3) if there is a direct link between fully implemented programs and student perceptions of a more positive school climate, and (4) if there is a connection between increased availability of career information and “enhanced student expectations that their school experiences were adequately preparing them for their future” (Gysbers, 1997, p. 293). Results indicated that students enrolled in more fully implemented comprehensive guidance program schools reported earning higher grades. This relationship was established after removing effects of school size, socioeconomic status, and minority student attendance. Additionally, self reported student GPA is perhaps not the most valid measure of academic achievement.

Whiston and Sexton (1998) conducted a major review of the school counseling outcomes research from 1988 to 1995. They noted how research methodology problems left it difficult to draw any definite conclusions about the relationship between guidance and academic achievement.

There do seem to be some additional benefits to guidance program implementation. Students attending schools with more fully implemented guidance

programs were also found to indicate they felt the quality of their education adequately prepared them for their future and reported a more positive school climate and greater feelings of safety and belonging (Gysbers et al., 1999).

Sink and MacDonald (1998) investigated the national trend toward development and implementation of comprehensive guidance and counseling programs. They conducted a nationwide survey and determined that 24 states had produced some type of comprehensive guidance and counseling model. An additional 17 states either have a model under development or allow individual districts to create guidance programs. Only 11 states, however, include a guidance curriculum in their models and all the state models seem to inherently lack a developmental emphasis.

After further investigating the content of guidance programs, MacDonald and Sink (1999) found that comprehensive guidance and counseling programs were weak on developmental attention. In particular, guidance programs did not seem to address cultural development issues. Additionally, the researchers found that within the models tasks were not well grounded in theory. Moreover, developmental levels were unclear and did not have consistency within or across models. In most of the models, developmental components such as personal/social, cognitive, and career development were not integrated in any thorough or systematic manner.

How do the school counselors feel about program implementation? Gysbers, Lapan, Blair, Starr, and Wilmes (1999) conducted a survey of 430 school counselors in Missouri. The school counselors were asked to evaluate the extent to which their district had implemented a district wide comprehensive guidance program, what changes in their roles had taken place, and to what extent were nonguidance tasks

eliminated from their current duties. The survey results indicated that 80% to 96% of the school counselors felt the major program components were in place and two-thirds felt they had the means available to carry out the program. Many thought that significant changes in their role had taken place but most indicated that nonguidance tasks had not been reduced or eliminated. This would seem to suggest that while students feel greater satisfaction about career guidance services, schools counselors' duties have not significantly changed.

So what decisive conclusions can be drawn from the research on career development interventions? It is difficult to draw clear conclusions from the conglomeration of research in the area. The literature on career development interventions does support several points, however. One, as the research from the 1970's illustrates, career development interventions do not harm students or inhibit their educational progress in academics. Two, recent research indicates that career development interventions contribute to a variety of positive student outcomes from career planning abilities to career decision making to job search skills and even increased academic performance. There is some evidence to suggest that career development interventions contribute to positive student gains in academic achievement. Also evident in the current studies are the longstanding research methodology problems discussed earlier.

There are several unique challenges in attempting to investigate career development interventions. Current research is still hindered by a poor definition of treatment in some studies. Similarly, there is a lack of a consistent definition in what constitutes a career development intervention in some studies of guidance programs

and vocational education. Many studies that have investigated academic achievement have attempted to link career guidance or other educational programs directly to academic achievement without determining specifically which interventions provide what leverage for academic achievement. The investigation of intermediary processes to academic achievement, such as academic self-efficacy and motivation, could serve to remediate the inability to establish a solid link between career development and academic achievement.

Similarly, it is clear from the literature review on guidance programs that the foundational research around career development is lacking. The lack of a foundation establishing the connection between career development interventions and academic achievement or various other positive student outcomes inhibits the direction of future research. Subsequently, there is a significant gap from the lack of impact studies with clear findings. This research gap, when combined with the missing knowledge of what leverages student processes that contribute to academic achievement, makes the design and evaluation of educational programs problematic.

Research on the Criterion Variables

As illustrated in chapter one, there are several convincing reasons for exploring the association of career development interventions to level of English self-efficacy and English motivation rather than other criterion variables. As explained previously these reasons include: (a) career development is an integral part of academic planning, (b) labor market trends, (c) fiscal responsibility in education, (d) the lack of improvement in reading and math achievement of students, and (e) the relationship of self-efficacy and motivation to academic achievement is strongly supported by

previous research. The next sections of the literature review examine the research on the topics of self-efficacy and motivation as related to academic achievement.

Self-Efficacy

The literature around self-efficacy as a construct has a stronger research foundation (greater consistency, clearer results) than the literature on career development. This section outlines the predominant research on self-efficacy, particularly as it relates to academic achievement. Special emphasis will be placed on exploring the research on self-efficacy as it relates to Math and English achievement.

The research review will follow chronological order whenever practical. Due to the enormous quantity of research in the area and in the interest of being concise, only the most relevant and substantial studies will be detailed. Self-efficacy is hypothesized to impact choice of tasks, effort expended, persistence, and achievement (Bandura, 1997). This literature review of the construct self-efficacy will focus primarily on self-efficacy in the academic realm. The research investigating self-efficacy and academic outcomes can be organized into the categories of (a) self-efficacy and general academics, (b) self-efficacy and mathematics, and (c) self-efficacy and English.

Self-Efficacy and General Academics

In 1977, Albert Bandura published an article proposing a theory of personal efficacy. He sought to explain the origins, mediating mechanisms, and impact of beliefs on expectations of personal efficacy. Bandura posited that “psychological

procedures, whatever their form, serve as a means of creating and strengthening expectations of personal efficacy” (1977, p. 193).

Perceived efficacy is the construct of self-efficacy that came to be defined as a person’s judgments of one’s capabilities to organize and execute courses of action to attain designated goals (Bandura, 1977, 1997; Zimmerman, 2000). In an academic setting then, a student's self-efficacy beliefs refers to their judgments of confidence to successfully perform academic tasks (Pajares, 1996b, 1999; Schunk, 1991, 1996). In regards to their content, self-efficacy measures focus on academic performance capabilities rather than psychological characteristics (Zimmerman, 2000). In regards to researching self-efficacy in academic settings then the focus has been on mastery criterion of performance.

Numerous studies have investigated the relationships among efficacy beliefs, academic motivation, and achievement. These studies have reported that self-efficacy beliefs are correlated with motivation constructs, academic choices, changes, and achievement (Pajares, 1996b). There is evidence that self-efficacy “predicts such diverse outcomes as academic achievements, social skills, smoking cessation, pain tolerance, athletic performances, career choices, assertiveness, coping with feared events, recovery from heart attack and sales performance” (Schunk, 1991, p. 208).

Schunk has conducted and reported on numerous studies that have explored self-efficacy beliefs in a variety of academic contexts (Schunk, 1982, 1984a, 1984b, 1985, 1989, 1991, 1994, 1995; Schunk & Cox, 1986; Schunk & Gunn, 1985; Schunk & Hanson, 1989a, 1989b). These studies underscore the significant role of self-efficacy beliefs in the learning process.

Investigating the role of modeling and self-efficacy, Schunk gave low-achieving children either cognitive modeling or didactic instruction. Both methods raised self-efficacy equally well, but cognitive modeling led to greater gains in skill. Regardless of the treatment condition, self-efficacy related positively to both persistence and achievement.

In academic settings, self-efficacy beliefs have been shown to be predictive of two measures of student effort: rate of performance and expenditure of energy (Zimmerman, 2000). Salomon (1984) found self-efficacy to be positively related to self-rated effort and achievement with text material that was perceived as difficult. Schunk (1981) conducted path analyses that show self-efficacy influences skill acquisition both directly and indirectly through persistence.

Lastly, a heavy emphasis in researching self-efficacy in academic settings has been on self-regulation of learning. In this area the predominant thinking is that “self-efficacy beliefs also provide students with a sense of agency to motivate their learning through use of such self-regulatory processes as goal setting, self-monitoring, self-evaluation, and strategy use” (Zimmerman, 2000, p. 87). Bountiful research supports the impact of self-efficacy of those four self-regulatory processes (Multon, Brown, & Lent, 1991; Pintrich & Schunk, 1996; Schunk, 1994).

Much of the research in self-efficacy is task specific within the academic content areas. Generally speaking, “one line of inquiry has assessed judgments of self-efficacy in terms of particularized self-perceptions of competence highly consistent with the criterial task being assessed” (Pajares, 1996b, p. 547). This approach most certainly makes sense as more global attempts to measure self-efficacy tend to lower

the explanatory power of self-efficacy in academic achievement as compared to investigating self-efficacy in domain specific areas.

Bong (1999) made several important discoveries when investigating personal factors affecting academic self-efficacy judgments. Girls' self-efficacy perceptions were more subject-specific than boys and in particular girls showed greater differentiation between verbal and math subjects. Additionally, Bong found that Advanced Placement students were also more discriminative in their self-efficacy beliefs and demonstrated less generality of self-efficacy beliefs than their regular-class peers.

In summary, research on self-efficacy in academic settings lends support to the use of self-efficacy as a criterion variable in this study. As mentioned before, much of the research on self-efficacy in academic settings is task specific in particular domains. What of the research on self-efficacy as related to Mathematics and English?

Self-Efficacy and Mathematics

The bulk of the research investigating the connection between self-efficacy and academic achievement is in the area of mathematics. A precursory understanding of the literature on this topic outlines the framework for establishing similar connections between self-efficacy and the subject of English. Additionally, some of the findings regarding self-efficacy in the mathematics domain may have implications for other domains as well.

Bandura and Schunk (1981) explored self-efficacy and goal setting with children. They found that providing children with a proximal goal heightened motivation and increased self-efficacy and skill acquisition.

Schunk (1981) assessed childrens' division, skill, persistence, and self-efficacy for solving different types of division problems before and after watching adult modeling or didactic instruction. He determined that self-efficacy related positively to persistence and achievement for children receiving both types of instruction.

In a study involving children receiving long division instruction, Schunk (1983b) showed that giving children specific performance goals enhanced self-efficacy. Moreover, more difficult goals increased self-efficacy and when combined with persuasory information (statement of belief in student's capabilities) led to the highest math skill level.

When students set their own goals, this promotes self-efficacy (Schunk, 1985). Schunk studied sixth graders with learning disabilities who were receiving subtraction instruction. Self-set performance goals led to the highest self-efficacy and skill (Schunk, 1991).

Schunk and Hanson (1989a) conducted a similar study of low achieving children who were attempting to learn subtraction operations. After having the children observe videotapes of different models (i.e., peer mastery model, peer coping model, or adult/teacher model) explaining and demonstrating math subtraction operations, peer modeling was determined to increase self-efficacy for learning and skill better than teacher models or no models.

Schunk and Gunn (1985) also showed that modeled strategies enhance self-efficacy and motivation during mathematics instruction. Similarly Schunk and Cox (1986) found that having a strategy when applying it, raised motivation, self-efficacy, and skill in subtraction and regrouping operations in mathematics.

Students who were below grade level in math and learning fraction skills were videotaped in a study by Schunk and Hanson (1989b). Some students were shown videotapes of themselves successfully solving problems; these were the “self-modeling” group. Other students were taped and not shown their tapes until after the study while still other children were not taped at all. The self-modeling group of children scored higher on self-efficacy for learning, motivation, and post-test self-efficacy and skill than did children in the other two conditions.

Lopez and Lent (1992) investigated sources of Mathematics self-efficacy in high school students. They determined that grades in perceived performance accomplishments accounted for substantial amounts of variance in self-efficacy. This would seem to support the idea that previous performance is the most influential source of math self-efficacy of high school students.

Pajares and Miller (1994) used path analysis to test the predictive and mediational role of self-efficacy beliefs in mathematical problem solving. They reported that math self-efficacy had stronger direct effects on mathematics problem solving than did self-concept, perceived usefulness, or prior experience.

In 1995, Pajares and Miller explored three types of mathematics self-efficacy judgments: (a) confidence to solve mathematics problems, (b) confidence to succeed in math-related courses and (c) confidence to perform math related tasks. For the 391 students in the study, reported confidence to solve mathematics problems was the most powerful predictor of math performance.

Other studies have shown similar support for the construct self-efficacy and social cognitive learning theory. In a study of middle school gifted students, Pajares

(1996a) again used path analysis to explore the predictive and mediational role that self-efficacy beliefs play in mathematical problem solving. Gifted students reported higher self-efficacy and self-efficacy for self-regulated learning than did regular education students. “In essence, the mathematics self-efficacy beliefs of gifted students performed the predictive and mediational roles hypothesized by social cognitive theory” (Pajares, 1996a, p. 338).

In 1999, Pajares and Graham conducted a study to determine whether students’ mathematics self-efficacy beliefs make an independent contribution to the predictions of mathematics performance when other motivation variables shown to predict math related outcomes are controlled. The researchers assessed 273 6th graders across the variables mathematics self-efficacy, mathematics anxiety, and mathematics self-concept both at the beginning and end of the academic school year. They determined that self-efficacy made a modest but independent contribution to the prediction of mathematics performance and mathematics self-efficacy was the only motivation variable to predict mathematics performance both at the beginning and end of the school year. Clearly there is a strong body of research on self-efficacy and mathematics achievement, but what about English?

Self-Efficacy and English

As with mathematics performance, there has been extensive research on the relationship of self-efficacy and English performance. The two topics most examined have been the relation of self-efficacy to the sub-skills of reading and writing. Exploring the relationship between self-efficacy and reading/writing achievement there are five major studies: (a) Shell, Bruning and Murphy (1989) (b) Schunk and Swartz

(1993) (c) Pajares and Johnson (1994) (d) Zimmerman and Bandura (1994) (e) Pajares and Johnson (1996).

Shell, Bruning, and Murphy (1989) examined the relation between self-efficacy and outcome expectancy beliefs to achievement in reading and writing with 153 college students. Their results indicated that self-efficacy and outcome expectancy beliefs are significantly related to performance for both reading and writing. Self-efficacy beliefs were more strongly related to achievement than outcome expectancies for both reading and writing.

Schunk and Swartz (1993) looked at how goal setting and progress feedback impact self-efficacy and writing achievement by conducting two experiments with elementary school children. In one experiment, 60 fifth graders were given a pretest on self-efficacy and randomly assigned to one of four different treatment groups receiving either: (a) product goal, (b) process goal, (c) process goal plus progress feedback, or (d) control group. Following treatment, each group was administered a post-test to measure self-efficacy and achievement outcomes. The study results showed that children who received process goals and progress feedback outperformed other students. In a second experiment replicating experiment 1, fourth grade students were placed in the same treatment groups and groups were also assessed for academic strategy use following treatment. "As predicted, we also found that combining process goals with progress feedback enhanced transfer of writing strategy use, skill and self-efficacy" (Schunk & Swartz, 1993, p. 351). For both experiments self-efficacy was highly predictive of writing skill.

Pajares and Johnson (1994) explored the role of self-efficacy, outcome expectancy, and apprehension in 30 undergraduate preservice teachers in a Language Arts class. The researchers used the same measure for writing self-efficacy as used by Shell, Bruning, and Murphy (1989). Writing self-efficacy was the only variable among the three that was significantly related to writing performance both at the beginning and end of the course.

In their path analytic study, Zimmerman and Bandura (1994) found that self-efficacy for writing beliefs significantly predicted college students' personal standards for the quality of writing considered self-satisfying. Self-efficacy for writing also was found to significantly predict student goal setting and writing proficiency.

Pajares and Johnson (1996) conducted a path analysis to test the influence of writing self-efficacy beliefs, writing apprehension, and writing aptitude on the writing performance of entering high school students. The self-efficacy of 181 ninth graders in a public high school was hypothesized to play a predictive and mediational role in the prediction of writing performance. "Our results indicate that students' self-efficacy perceptions are strong predictors of their writing performance and play the mediational role that social cognitive theory hypothesizes" (Pajares & Johnson, 1996, p. 169). The research investigating the relationship of self-efficacy and English is hindered by some limitations. Evaluating writing usually involves subjective measures, making the use of writing achievement as an outcome variable problematic for assessing writing achievement. Additionally, as with writing, most measures of reading achievement are not criterion referenced, which inhibits the examination of their relationship to self-efficacy due to its domain specific nature. Despite these research challenges, there

seems to be substantial support for the use of self-efficacy as an outcome variable in this study. As mentioned previously, the importance of career development as an integral part of academic planning, the emerging labor market trends, the need for fiscal responsibility in education, the lack of improvement in reading and math achievement of students, and the relationship of self-efficacy and motivation to academic achievement all support the investigation of English self-efficacy as an outcome variable this study.

Motivation

Margaret Uguroglu and Herbert Walberg (1979) synthesized research on motivation and academic achievement from a calibration sample of studies from 1974-1976. "For grades 1-12, 232 uncorrected observed correlations showed a mean of .338 indicating 11.4 percent of the variance accounted for in achievement by motivation" (Uguroglu & Walberg, 1979, p. 375).

Covington (2000) discusses the evolution of the construct achievement motivation. Covington posits that the construct motivation evolved from being conceptualized as drives to an alternative view of motives as goals that influence the quality and intensity of behavior. Achievement goal theory hypothesizes that "learning goals favor deep-level, strategic-processing of information, which in turn leads to increased school achievement" (Covington, 2000, p. 175). Covington maintains that the available evidence supports this hypothesis.

Another long standing conceptualization of motivation is Expectancy-Value theory. The Expectancy-Value theory of motivation was selected for use in this dissertation due to its consistent nature with the construct self-efficacy and the

supporting research for the theory. As explained in the previous chapter, Expectancy-Value theory maintains that an “individual’s choice, persistence, and performance can be explained by their beliefs about how well they will do on the activity and the extent to which they value the activity” (Wigfield & Eccles, 2000, p. 68).

A strong body of research supports the expectancy-value model of motivation. Eccles and her colleagues (see Eccles, 1983; Eccles & Wigfield, 1995; Wigfield and Eccles, 2000) have conducted three major longitudinal studies investigating how children’s expectancies for success, ability beliefs, and task values change across school years and how childrens’ beliefs and values relate to their performance and activity choice.

The first longitudinal study explored gender differences in achievement beliefs and values about Mathematics and English. A cross-section of fifth through twelfth graders completed questionnaires over a two year period. The questionnaires measured the students’ achievement beliefs and values regarding the tasks in school. Results indicated that boys’ and girls’ beliefs and values differ in stereotypical ways.

A second longitudinal study looked at the how the transition from elementary to junior high school influenced children’s beliefs and values regarding different academic subjects, sports, as well as social activities. Following sixth grade children into seventh grade children’s ratings of the importance of both Math and English decreased. Similarly, their liking for both subjects decreased as well.

In a third longitudinal study, Eccles and Wigfield followed a group of students in the first, second, and fourth grades all the way through high school graduation to see how children’s achievement beliefs and values change through the elementary and

secondary school years (Eccles et al., 1993; Wigfield et al., 1997). The ten-year project yielded several interesting findings.

In cross-sectional analyses of the study researchers found linear decreases in children's ability related beliefs across the elementary school years, especially in the academic achievement domains. These declines continue across the high school years. Continued analysis of the data (Eccles et al., 1993) showed that older elementary children valued math and reading less than younger children. In contrast, children's value of sports activities was higher in older children than younger children.

One of the most significant findings from the three longitudinal studies is in regard to ability related beliefs and subjective task values predicting performance and choice. Children's subjective task values were the strongest predictors of their intentions to keep taking math. There is similar evidence for the impact of ability related beliefs and expectancy for success on academic achievement; "even when previous performance is controlled, children's beliefs about their ability and expectancies for success are the strongest predictors of subsequent grades in math, predicting those outcomes more strongly than either previous grades or achievement values" (Wigfield & Eccles, 2000, p. 77).

Rationale for the Selection of Variables Included in Study

Predictor Variables

The predictor variables in this study are the four career development intervention taxa (i.e., field, counseling, awareness and curriculum) that were formed from a cluster analysis of 44 career development interventions (Dykeman, et al., 2000).

These career development taxon are posited to positively impact student English self-efficacy and English motivation and are thought to be moderated by student background variables: (a) Prior Achievement, (b) Parent Education Level, (c) Student Race, (d) Student Gender, and (e) Student Socioeconomic status.

A moderator variable affects the direction and/or strength of the relationship between an independent/predictor variable and a dependent variable (Baron & Kenny, 1986). “Specifically within a correlational analysis framework, a moderator is a third variable that affects the zero-order correlation between two other variables” (p. 1174). There are several background variables that need to be controlled for in order to determine the independent contribution of the predictor variables to the association with English self-efficacy and English motivation.

Background variables included in this study are student prior achievement (Prior Achieve.), parent educational level (Parent Ed Level), student race, student gender, and student socioeconomic status. Mok and Flynn (1997) found student gender and parent educational level to be better predictors of quality of school life than school size. This underscores the influence of student gender, parent educational level, and student socioeconomic status as background variables.

Similarly, there is research to support the relevancy of student race as a student level variable (McWhirter, Hackett, & Bandalos, 1998) included in this study. Both student race/ethnicity and student gender have been determined to influence academic outcomes.

Recent research continues to find a relationship between student socioeconomic level and academic outcomes (Jimerson & Egeland, 1999; Seccombe, 2000; Sutton &

Soderstrom, 1999). Research indicates that “overall, poor children receive lower grades, receive lower scores on standardized tests, are less likely to finish high school, and are less likely to attend or graduate from college than are nonpoor youth (Downy, 1994; Dubow & Ippolito, 1994; Duncan et al., 1998; Entwisle & Alexander, 1995; McLanahan & Sandefur, 1994; Pong, 1997; Smith, Brooks-Gunn, & Klebanov, 1997; Teachman, Paasch, Day, & Carver, 1997)” (Seccombe, 2000, p. 1108). Awareness of the relationship between student SES, predictor variables, and the outcomes variables English self-efficacy and motivation also has importance for school district administrators. Some researchers maintain that “at the local level, school district policy makers need to recognize that socioeconomic level, as often defined by students eligible for free or reduced-price lunch, places those students at risk for poor performance, failure, suspension, or dropping out of school” (Sutton & Soderstrom, 1999, p. 339). Therefore, student socioeconomic status was included as a background variable to be controlled in order to determine the independent contribution of the predictor variables.

Self-Efficacy and Motivation Measures

The wide array of measures for self-efficacy and motivation are further evidence of the utility of self-efficacy and add to its credibility as a criterion variable. In 1978, Keller, Kelly, and Dodge published a guidebook to concepts and measures of motivation in education. The authors found an array of assessments focused on six aspects of motivation: achievement motivation, locus of control, curiosity and arousal seeking, anxiety, general academic motivation, and motivation and attitude.

Ray (1982) produced a similar catalog of self-report measures of achievement motivation. Ray noted that “the projective measurement of achievement motivation has fallen into disrepute” (p. 3) and that there has been an increase in self-report measures. As Ray (1982) clearly points out, “it should now be evident that there are a large number of scales available which are quite suitable for measuring achievement motivation and related concepts” (p. 11).

More recently, Barbuto and Scholl (1998) produced an inventory with five subscales designed to measure an integrative taxonomy of motivation sources. The five subscales developed were intrinsic process motivation, instrumental motivation, self-concept external motivation, self-concept internal motivation, and goal internalization motivation.

Numerous assessments have also been developed to measure the self-efficacy component of motivation. Betz and Hackett (1982, 1983) developed the Mathematics Self-Efficacy Scale (MSES). The MSES was originally a 52 item, three subscale instrument designed to assess the math self-efficacy of college students with greater specificity than previous measures. A revised version of the MSES, the MSES-R was used by Pajares and Miller (1995), Pajares and Kranzler (1995), as well as Kranzler and Pajares (1997) and found to have very high internal reliability.

Macmillan, Simonetta and Singh (1994) developed a measure of student motivation based on the expectancy-value model of academic motivation. The authors used ability perceptions and self-efficacy beliefs as the expectancy component and the importance of the learning task as the goal value. With this theoretical rationale, MacMillan, Simonetta and Singh developed four areas of items: (a) attitudes and self-

efficacy in general, (b) attitudes and self-efficacy toward mathematics (c) attitudes and self-efficacy toward English, and (d) attitudes and self-efficacy toward science. The researchers conducted item development in consultation with public school teachers and students from grades K-12. In addition to input from teachers and students, existing academic self-concept and attitude instruments were used to develop the initial pool of items. Research on self-efficacy, attitudes, and motivation also contributed to item development.

Revised drafts of Mcmillan, Simonetta, and Singh's instrument were administered to 238 fourth graders, 403 eighth graders and 213 eleventh graders for validation. The first draft of each of the three questionnaires (elementary, middle school, and high school) consisted of 94 to 121 items. After three subsequent drafts of the instruments, the number of items was narrowed down to 33 items in the elementary form, 36 items in the middle school form, and 37 items in the secondary form. The final draft was given the title, Student Opinion Survey (SOS).

Triangulation was achieved by administering two additional instruments to students validating the SOS. Students at the three levels taking the SOS also responded to questions from two other instruments, the Minnesota School Attitude Survey (MSAS) and the Maehr Scale. The student responses on the additional instruments provided convergent correlations with the SOS self-efficacy items and additional discriminant correlations.

The test-retest correlations indicated satisfactory reliability for each subscale and strong reliability when all items were totaled. "Stability estimates of reliability ranged from .56 to .88 for the elementary school form, .67 to .89 for the middle school

form, and .69 to .88 for the high school form” (McMillan, et al., p. 496). There is confirmation that the SOS is a credible measure of motivation and self-efficacy. For this reason the SOS was selected as an assessment for the criterion variables in this study.

Conclusion

While there is strong research in the area of self-efficacy and motivation, there are formidable gaps in the research investigating career interventions. The career intervention studies have been singular and isolated, often without consideration or measure of students’ level of career development. The lack of studies on specific career interventions and career development activities is a hindrance to designing and implementing effective comprehensive guidance programs.

Moreover, the relationship between career development and academic achievement is ambiguous, unclear, and vastly under investigated. More research in this area is clearly necessary as well. Equally disturbing are the contradictory findings regarding student outcomes such as career maturity and academic achievement. This incongruity points to a need for greater replication of previous studies and continued re-evaluation and operationalization of constructs within the field of research in career development. Researchers need to continue to weave the nomological net around career development and career development interventions. The nomological net being variance (both direct and indirect) in academic achievement accounted for by specific career development interventions rather than laws of science.

Although recent designs in career development delivery systems have done much to increase the organization and structure of guidance services, such designs are

not always based on career interventions appropriate for students' career development. The research base simply hasn't been available for the creation of such an orderly classification of career interventions in relation to their effects on specific student career concerns.

Several years after Bellamy's eloquent prophecy about education, Frank Parsons writes, "We guide our boys and girls to some extent through school, then drop them into this complex world to sink or swim as the case may be. Yet there is no part of life where the need for guidance is more emphatic. . . ." (Parsons, 1909). Now, over 90 years after Parsons' insightful words, the questions regarding what helps students prepare for their future still remain. How will education answer?

Career development interventions have the potential to both help guide students as well as increasing student motivation and self-efficacy. Little is known, however, about the relationship of career development interventions to motivation and self-efficacy. Greater understanding of the influence career development interventions have on student motivation and self-efficacy would greatly advance the state of knowledge and practice in the area.

CHAPTER 3: METHOD

Introduction

This chapter will explain the methods used for data collection in this study. The participants will be described followed by the procedures for selecting schools and the protocol for obtaining written consent for participation in the study. The procedure for collecting archival data and administering the study surveys will be illustrated. A brief discussion of limitations given the participant selection and data collection procedures will precede the details of the measures used in the study. Finally, the variable coding and data analyses will be detailed.

Participants

High school seniors with complete student records aged 18 and over were the sample population. This sample was selected for three reasons. First, as legal adults the students are able to give informed consent without parental permission. This sample of participants was preferred to using minors who require parental permission to participate in the study for several reasons. Since parents of low socioeconomic status are less likely to return permission slips, the use of minors would result in a skewed sample. Similarly, parents who are suspicious of education, parents who are antagonistic toward schools, or parents from certain political/cultural backgrounds may be unwilling to allow their children to participate in the study.

Second, as 18 year old seniors in their last semester of high school, these respondents were less susceptible to biases such as a social acquiescent response set. Students in other grades of high school may be concerned that giving negative

responses may result in negative consequences for them as students despite the assurances presented in the standard letter of consent.

Third, as seniors these students were able to reflect on four years of high school experiences in responding to survey data. Younger students in lower grades have fewer experiences to reflect on and may not have had the opportunity to experience those interventions that tend to occur in the upper grades.

There were a total of 249 student respondents for the study. The respondents were 47.6% female and 52.4% male. The self-identified race/ethnicity demographics were as follows: 72% White/European, 3.6% Asian/Asian American, 7.2% Black/African American, .4% Middle Eastern/Middle Eastern American, 8.8% Hispanic/Latino American, 1.6% Pacific Islander, 1.6% American Indian/Alaskan Native, 1.2% Other, and 2.4% Declined to Respond. The participants were primarily 18 years old (92.9%); some were 19 years old (4.8%) and 8.7% of the students were on free/reduced lunch.

Procedures

There were procedures for the selection of schools used in the sample as well as for the selection of the individual participants. Moreover, a standardized protocol detailed the selection of individual participants, the collection of archival data and the administration of surveys.

School Selection

The participants came from three different regions of the country. The regions were the Northwest, the Southwest, and the Midwest. Seventeen high schools were

selected from these three different regions of the United States. In each of the regions the high schools were selected based on the school's willingness to participate in the study. In each of the regions, a researcher contacted an administrator at the district level and solicited interest in the research project. The district administrator then recruited high schools and school counselors within the district to participate in the research study.

Northwest Region. Spokane is the second largest city in the State of Washington and District #81 is the largest school district in Eastern Washington. There are five high schools located within Spokane School District #81. In Spokane, all five of the high schools were selected to participate in the research study and a high school from a contiguous district, Freeman High School, was included to increase the area school participants to a total of six high schools. Freeman High School is located in Rockford, Washington, a small rural town close to the nearby city of Spokane.

Southwest Region. Clark County School District has a student population of 230,000 students K-12 and contains 28 high schools. In Clark County, five high schools were drawn from a convenience sample of high schools within the Clark County School District. There were six high school counselors that volunteered to assist with the research and subsequently the counselors' six high schools were selected as the sample for the Southwest region. The schools selected were Bonanza High School, Cheyenne High School, Desert Pines High School, Silverado High School, and Western High School. Bonanza High School has an annual enrollment of approximately 2,500 students in grades 9-12. Cheyenne High School has an

enrollment of 2,300 students, grades 9-12. Desert Pines High School is also a four-year high school and has an enrollment of 1,800 students. Silverado High School is the largest of the five schools selected from Clark County School District with an enrollment of 3,600 students in grades 9-12. Western High School has an enrollment of 2,200 students in grades 9-12.

Midwest Region. In Illinois, the Glenbard School District #87 was selected for four of the six schools participating: Glendard North High School, population 2,722 students; Glenbard South High School, population 1,430 students; Glenbard East High School, population 2,509; Glenbard West High School, population 1,906 students. The Glenbard school district reports a graduation rate of 90.5%, an ethnic minority percentage of 24.4%, and a dropout rate of 2.1%. The additional two schools for this region were selected from neighboring school districts. Waubonsie Valley High School and Neuqua Valley High School were selected from the closest neighboring school district Indian Prairie School District Community Unit School District # 204, to bring the total school sample size from the region to six schools. Neuqua Valley high School serves 2,600 students and Waubonsie Valley High School has a student population of 2,700.

School Level Procedures

From each of the 18 participating high schools, a school counselor was selected to administer survey materials and assist with archival data collection. The 18 school counselors were selected on a volunteer basis as solicited at the request of district administration personnel. The school counselors were individually contacted by the

researchers and sent a standardized protocol (see Appendix B) for selection of subjects, administration of survey materials, and collection of archival data. The school counselors were provided with ongoing assistance from the researchers regarding questions and concerns about data collection. In return for their efforts, the high school counselors who assisted with data collection were awarded a continuing education credit from Oregon State University.

Individual Participant Selection

The counselor protocol for selection of the subjects is included in Appendix B. Each counselor used a random sampling procedure to obtain 15 high school seniors, age 18 and above. First, counselors obtained an alphabetized list of seniors aged 18 years and above. After counting the total number of eligible students, counselors divided the total number by 20. Using the result of this calculation, counselors counted down the list, circling participants every time they counted down to the calculated number (from the division calculation), until a total of 20 names were selected. Counselors then checked for complete records on each student and obtained 15 students with complete records including previous achievement data and a complete transcript/grade report.

Written Consent

The counselors met with the participants of the subject group individually or in small groups to explain the research project. A “Research Introduction Letter” (Appendix C) and an “Informed Consent Statement” (Appendix D) were given to each counselor to assist counselors in discussing the research project and explaining the

rights of the research participants. Students who agreed to participate in the study, signed the informed consent document and gave it to the counselor. Counselors replaced students who declined to participate in the study with other students from the originally formulated subject group of 20 students.

Appeal Letter. The research introduction letter (Appendix C) explained the nature of the study to the participants. The letter emphasized the importance of the research and stressed the need for conscientious respondents.

Informed Consent. Each participant was required to sign an informed consent document (Appendix D). The document explained in detail the rights of the study participants. Participants signed the document as an indication that they agreed to be a part of the study and understood their rights as research participants.

Survey Administration

The counselors gathered the participant group together for a two-hour time period and administered both the self-efficacy/motivation assessment and the career development taxon survey. Researchers provided the counselors with both instructions and example sections for counselors to read to the participants during the administration of the survey instruments. This administration protocol helped provide both clarity and standardized administration.

Archival Data Retrieval

In addition to the administering the career development survey and self-efficacy/motivation assessments, the counselors also collected necessary archival data

on the students, school, and school district. For each student in the subject group, counselors collected the following: (a) a copy of an official or unofficial transcript or grade report of student course work from grade 9 to 12, (b) a copy of the student high school attendance record, (c) a copy of standardized achievement test results from the ninth grade or prior to high school, and (d) the student's free/reduced lunch status.

Cautions Given Participant Selection Process

Although the student subjects were drawn using a random sampling procedure, the representativeness of the student subjects selected has several limitations. These limitations confine the generalizability of the findings to 18 year old seniors within their respective schools. The student sample was drawn from high school students in their last semester of senior year, several months before graduation. Additionally, only those seniors with complete student records were included in the sample. This is likely to be something of a select population, as drop out and attrition are likely to have already occurred for many of the target population from which the sample was drawn. Since, as mentioned previously, 4% of all young people ages 15-24 who were enrolled in school dropped out of grades 10-12 in 1998 (United States Department of Education, 2000), a small group of students have been eliminated from possible selection as participants in the sample by the time this study's participants were selected. Moreover, as students with incomplete records were eliminated from the sample, further selection bias was introduced into the study. Similarly, the selection procedure for school districts and high schools was neither random nor representative, further compromising the design of the study. Therefore, these cautions should be kept in mind when interpreting results and considering the generalizability of study findings.

Measures

Senior Survey

To measure the 44 career interventions and four career development taxon, a survey instrument (Appendix F) was designed by a team of career development experts. Each career intervention was described in behavioral terms to prevent confusion with technical terms or career development jargon. National career development experts critiqued the survey instrument and recommendations for improvements were incorporated into subsequent later drafts of the survey. In addition to respondent information on the career development interventions, the survey also collected information on student age, student race/ethnicity, student gender, and parent educational level.

Student Opinion Survey (SOS)

Self-efficacy and motivation were measured using the Student Opinion Survey (SOS), an assessment developed by McMillan, Simonetta, and Singh (1994). The 37-item instrument was based on the expectancy-value model of motivation and developed to measure both self-efficacy and attitudes of elementary, middle, and secondary students toward the importance of learning in general and the subjects science, mathematics, and English. McMillan, Simonetta and Singh used Eccles and Wigfield's expectancy-value model of motivation and Bandura's definition of the construct Self-Efficacy as the theoretical underpinnings in designing the instrument. The English self-efficacy and English motivation items in the instrument are designed to assess the

degree to which students value the task of English and believe that they are capable of being successful in English.

The English self-efficacy subscale and the English motivation subscale were used in this study. These two subscales were extracted from a larger study that also used the mathematics self-efficacy and motivation subscales. The English self-efficacy subscale has a reliability coefficient of .82 for the high school form. The English motivation subscale has a reliability coefficient of .77 for the high school form. The items that make up the English motivation and English self-efficacy subscales are listed in Appendix E. The alpha coefficient for the English self-efficacy subscale is .68 (N=249) in the present study. The alpha coefficient is .72 (N=249) for the English motivation items.

Predictor Variables

Gender

Description. Gender was determined by respondents choice between the categories male or female on the survey instrument.

Coding. Gender was coded for data analyses in the following manner:

0 = Female

1 = Male

Race/Ethnicity

Description. Student race/ethnicity was determined by student selection from the category choices of Black/African-American/Non-Hispanic, Asian or Asian American, Pacific Islander, American Indian or Alaskan Native, Hispanic or Latino American, White/European American/Non-Hispanic, Other, or Decline to respond.

Coding. Race/Ethnicity was coded as follows:

0 = White, European American, Non-Hispanic

1 = Student of Color

Socioeconomic Status

Description. Student socioeconomic status was based on whether or not students qualified for free/reduced lunch services. The federal eligibility requirements for free lunch is that a family's total income be below 130% of the national poverty threshold. The eligibility requirement for reduced school lunch is that the total family income be between 130-185% of the national poverty threshold. The national poverty threshold is a matrix established, based on the size of the family unit and the number of children in a household. For example the national poverty threshold for a single parent family of three is an income of \$13,874 per year. The information regarding each student's free/reduced lunch status was obtained from the district as supplied by the school counselor.

Coding. Student socioeconomic status was coded as follows:

0 = No free/reduced lunch

1 = Yes free/reduced lunch

The data on this variable was analyzed to determine percentage of students in the sample on free/reduced lunch and then the coding was changed so that an increase in score reflected an increase in SES for correlation and regression analysis.

Parent Educational Level

Description. Parent educational level was also determined by respondents' selection from the following categories: master's degree/doctorate, 4 year college, community college, high school diploma or GED, or none. Respondents were asked to select one of the categories as the highest degree for the adult with whom the student has spent the most time during high school. Since high school students often experience a variety of living situations throughout their high school experience the operational definition of "adult with whom you have spent the most time" was used rather than the term parent. Respondents were asked to select one of five categories: (a) none, (b) High School Diploma or GED, (c) Community College (AA, AS, AAS, etc.), (d) four-year College (BA, BS, etc.), or (e) Master's Degree or Doctorate.

Coding. Parent education level was coded as:

0 = None or High School Diploma/GED

1 = Community College or above

Prior Achievement

Description. Prior achievement was operationalized as student scores on standardized achievement tests from the seventh, eighth, or ninth grade. The school counselors gathered the students' achievement scores from student files. Achievement scores were entered into the statistics database as national curve equivalent (NCE) percentages. The NCE scores were taken from the Reading Total section of the achievement exams. The Reading total section is a combination of the students' Reading Comprehension and Reading Vocabulary scores.

Quantity of Field Career Development Interventions

Description. The taxon named "Field" consists of career development interventions that occur in the community as opposed to interventions that occur within the school. The field taxon includes the career development interventions: cooperative education, internships, job shadowing, job coaching, job placement, mentorship programs, service learning/volunteer programs, work based learning projects, work study, and youth apprenticeship.

Coding. The participants were supplied two different metrics for use in responding to the survey questions about quantity of career development interventions. For items that occur episodically during a school year (e.g., job shadow), the participants were simply asked to report how many times they experienced the intervention during each year of high school. The total for each year of all four years of high school was computed and entered into the database. Some participants entered

responses such as “a lot,” “infinity,” or “hundreds.” These responses were coded as “99” when entered into the database and excluded from the frequencies run for the data. The responses were then replaced with the top of the range for that item as listed in the frequency count. For items that occur on a semester basis (e.g., youth internship), the participants were asked, for each year of high school, to circle “1st” if they experienced the intervention during the first semester and circle “2nd” if they experienced the intervention during the second semester. For the purpose of data analysis in this dissertation, the total number of semesters circled for each year of high school was computed and entered into the database. How the totals for the episodic and semester were combined in order to arrive at a total score for Field will be discussed later in this chapter.

Quantity of Advising Career Development Interventions

Description. The “Advising” taxon is comprised of interventions that are designed to provide the student with direction for education and occupational planning. The advising taxon includes the career development interventions: academic planning counseling, career focused parent/student conference, career peer advising/tutoring, career map, career maturity assessment, career counseling, career interests assessments, career library/career resource center, career cluster/pathway/major, career skill certificate, college admissions testing, computer assisted career guidance, cooperative/dual enrollment, information interviewing, job hunting preparation, personal/social counseling, portfolio/individual career plan, recruiting, referral to external training programs, and referral to external counseling/assessment.

Coding. The participants were supplied two different metrics for use in responding to the survey questions about quantity of career development interventions. For items that occur episodically during a school year (e.g., career focused parent/student conference), the participants were simply asked to report how many times they experienced the intervention during each year of high school. The total for each year of all four years of high school was computed and entered into the database. Some participants entered responses such as “a lot,” “infinity,” or “hundreds.” These responses were coded as “99” when entered into the database and excluded from the frequencies run for the data. The responses were then replaced with the top of the range for that item as listed in the frequency count. For items that occur on a semester basis (e.g., career pathway, cluster, etc.), the participants were asked, for each year of high school, to circle “1st” if they experienced the intervention during the first semester and circle “2nd” if they experienced the intervention during the second semester. For the purpose of data analysis in this dissertation, the total number of semesters circled for each year of high school was computed and entered into the database. The process for combining the episodic and semester totals in order to arrive at a total score for Advising will be discussed later in this chapter.

Quantity of Awareness Career Development Interventions

Description. Interventions designed to make students aware of career options and the need to plan for life after school, are in the “Awareness” taxon. The awareness taxon includes the career development interventions: career day/career fair, career field trip, career aptitude assessment, community members teaching in the classroom,

guidance lesson on personal/social development, guidance lessons on career development, and guidance lessons on academic planning.

Coding. The participants were supplied two different metrics for use in responding to the survey questions about quantity of career development interventions. For items that occur episodically during a school year (e.g., career day), the participants were asked to report how many times they experienced the intervention during each year of high school. The total for each year of high school was computed and entered into the database. Some participants entered responses such as “a lot,” “infinity,” or “hundreds.” These responses were coded as “99” when entered into the database and excluded from the frequencies run for the data. The responses were then replaced with the top of the range for that item as listed in the frequency count. How the totals for the episodic and semester were combined in order to arrive at a total score for Awareness will be discussed later in this chapter.

Quantity of Curriculum Career Development Interventions

Description. The “Curriculum” taxon includes the career development interventions with formal and informal instruction designed to build foundational work skills and knowledge in students. The curriculum taxon includes the career development interventions: career information infused into the curriculum, career/technical education courses, career skills infused into the classroom, career academy/magnet school, school based enterprise, student clubs/activities, and Tech Prep/ 2+2 curriculum.

Coding. For items that occur on a semester basis (e.g., Tech. Prep./2+2), the participants were asked, for each year of high school, to circle “1st” if they experienced the intervention during the first semester and circle “2nd” if they experienced the intervention during the second semester. For the purpose of data analysis in this dissertation, the total number of semesters circled for each year during high school was computed and entered into the database.

Criterion Variables

English Self-Efficacy

Description. English self-efficacy was measured using the Student Opinion Survey (SOS). As mentioned previously, the SOS defines self-efficacy as a student’s belief in his/her ability to be successful at a given task. The English self-efficacy items in the instrument are designed to get at the degree to which students believe that they are capable of being successful in English. The item, “I find the reading assignments for my English class easy” is an example of the items aimed at measuring student self-efficacy in English.

Coding. For the SOS, the scale was coded:

5 = Always

4 = Almost Always

3 = Often

2 = Sometimes

1 = Rarely or Never

English Motivation

English motivation was also measured using the Student Opinion Survey (SOS), an assessment developed by McMillan, Simonetta, and Singh (1994). Using Eccles and Wigfield's expectancy-value model of motivation as described in Chapter 2, English motivation is defined primarily as valuing the tasks associated with the subject English.

The English motivation items in the instrument are designed to get at the degree to which students value the task of English. Items such as "A person who does well in English class gains skills that are important" are exemplary for assessing a student's task value of English.

Coding. For the SOS, the scale was coded:

5 = Always

4 = Almost Always

3 = Often

2 = Sometimes

1 = Rarely or Never

Data Analysis

Overview

Stepwise multiple regression was used as a statistical procedure to analyze the data and test the null hypothesis. Each of the career development taxa was entered as a predictor variable and regressed against English self-efficacy to determine the

independent contributions above and beyond the effects of the background variables. The process was repeated regressing the career development taxa on the other criterion variable, English motivation. Thus statistical analyses will be used to determine both information on all the predictors as a group (R^2) as well as the contributions of individual predictors by examining their bivariate correlations (r). Moreover, stepwise multiple regression also gives partial regression coefficients in the form of standardized beta weights that can be used to formulate multiple regression equations and can be interpreted as the amount of change that is expected to occur in the outcome variable per unit of change in the predictor variable (Agresti & Finlay, 1997; Licht, 1995). Thus, these methods of statistical analyses afford the study useful options in exploration of the data.

The statistics program SPSS was used for all regression analyses. Using SPSS, predictor variables must be entered together as a block or separately each within their own block. When items are entered together as a block, SPSS holds each predictor constant against the others.

When each predictor is entered as a separate block, the order of the variables influences their explanatory power within the regression. Therefore, it is necessary to have a rationale for the order when opting to enter predictor variables as separate blocks within the regression analyses.

The more conservative form of multiple regression analyses is to enter predictor variables that are oriented together as a block, allowing the computer to determine order of entry into the regression. However, in this process, SPSS will give order priority to the variables with the largest R^2 , or proportion of explained variance.

In this study, as there was no predetermined rationale to help determine the order of entry for the predictor variables, the background variables were all entered as one block and the career development intervention taxa were entered as a second block for the regressions on English Self-Efficacy and English Motivation.

Calculating Total Score for Career Development Taxa

Some of the career development interventions included in the Senior survey were measured on different scales. For example, the intervention “career map” defined in item #43 of the Senior survey (Appendix F) is defined as “I diagramed and/or made a list of all of the steps necessary to reach my career goals.” In contrast, item #65 “I took a voc-ed/technical-ed class” is measured on a different scale comprised of respondents selecting the semester and year the intervention occurred. Since these interventions are measured on different scores it was necessary to convert the variable values to z-scores for the purpose of data analyses. The standardized z-scores were obtained by subtracting the mean for each variable and dividing by its standard deviation. The z-score was calculated for each intervention. Finally a total score for each of the four taxa was determined by averaging the total z-scores for the interventions within that taxon.

Missing Values

Missing values were handled using the expectation maximization (EM) procedure in SPSS. This procedure was selected because the missing values were primarily random in nature rather than occurring in a systematic fashion. EM “is the recommended approach for dealing with most data problems. It has the advantages of

the SPSS implementation of the regression approach, plus it uses additional information through the iteration process” (Acock, 1997, p. 94). Using an algorithm to estimate the means, the covariances and Pearson correlations of quantitative variables, EM computes expected values on the observed data and estimates of the parameters then calculates maximum likelihood estimates of the parameters based on the expected values.

Multicollinearity Analysis

The statistics program SPSS comes with collinearity diagnostics that report the Tolerance and Variance Inflation Factor (VIF) scores. Tolerance is $1-R^2$ when one predictor is regressed on all the other predictors. It is the variance in the predictor that is independent of the other predictors. The measure of tolerance then gives the amount of variance left as potential explanation for the effect on the criterion variable. The higher the tolerance, the greater the percent of variance that is independent of the other predictors.

The variance inflation factor (VIF) indicates how much the standard error is inflated by each added variable. A VIF score of 2.0 when adding a given variable means that adding that variable doubles the standard error. A VIF score of greater than 5 is generally interpreted to be problematic (Agresti & Finlay, 1997). Thus both Tolerance and VIF scores were used to aide in the interpretation of statistical analyses.

Regression Study # 1: English Self-Efficacy

Type of Regressions

Stepwise multiple regression with forward inclusion was used to investigate the relationship of the predictor variables to the criterion variable English self-efficacy.

Determining Prediction Equation

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English self-efficacy was entered in as the dependent variable.

Block 2. The predictor variables Field, Advising, Awareness and Curriculum were added to the predictor variables entered in block 1 and again entered as independent variables while English motivation remained as the dependent variable.

Determining Individual Contribution of Field Taxon

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English self-efficacy was entered in as the dependent variable.

Block 2. The predictor variables Advising, Awareness and Curriculum were added to the predictor variables entered in block 1 and again entered as independent variables while English self-efficacy remained as the dependent variable.

Block 3. Again, all the predictor variables from block 2 were entered in as independent variables and the variable Field was added. The dependent variable was still English self-efficacy.

Determining Individual Contribution of Awareness Taxon

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English Self-Efficacy was entered in as the dependent variable.

Block 2. The predictor variables Field, Advising, and Curriculum were added to the predictor variables entered in block 1 and again entered as independent variables while English self-efficacy remained as the dependent variable.

Block 3. Again, all the predictor variables from block 2 were entered in as independent variables and the variable Awareness was added. The dependent variable was still English self-efficacy.

Determining Individual Contribution of Advising Taxon

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English self-efficacy was entered in as the dependent variable.

Block 2. The predictor variables Field, Awareness and Curriculum were added to the predictor variables entered in block 1 and again entered as independent variables while English self-efficacy remained as the dependent variable.

Block 3. Again, all the predictor variables from block 2 were entered in as independent variables and the variable Advising was added. The dependent variable was still English self-efficacy.

Determining Individual Contribution of Curriculum Taxon

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English self-efficacy was entered in as the dependent variable.

Block 2. The predictor variables Field, Advising, and Awareness were added to the predictor variables entered in block 1 and again entered as independent variables while English self-efficacy remained as the dependent variable.

Block 3. Again, all the predictor variables from block 2 were entered in as independent variables and the variable Field was added. The dependent variable was still English self-efficacy.

Regression Study # 2: English Motivation

Type of Regressions

Stepwise multiple regression with forward inclusion was used to investigate the relationship of the predictor variables to the criterion variable English motivation.

Determining Prediction Equation

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English motivation was entered in as the dependent variable.

Block 2. The predictor variables Field, Advising, Awareness and Curriculum were added to the predictor variables entered in block 1 and again entered as independent variables while English motivation remained as the dependent variable.

Determining Individual Contribution of Field Taxon

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English motivation was entered in as the dependent variable.

Block 2. The predictor variables Advising, Awareness and Curriculum were added to the predictor variables entered in block 1 and again entered as independent variables while English motivation remained as the dependent variable.

Block 3. Again, all the predictor variables from block 2 were entered in as independent variables and the variable Field was added. The dependent variable was still English motivation.

Determining Individual Contribution of Awareness Taxon

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English motivation was entered in as the dependent variable.

Block 2. The predictor variables Field, Advising, and Curriculum were added to the predictor variables entered in block 1 and again entered as independent variables while English motivation remained as the dependent variable.

Block 3. Again, all the predictor variables from block 2 were entered in as independent variables and the variable Awareness was added. The dependent variable was still English motivation.

Determining Individual Contribution of Advising Taxon

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were

all entered in as independent variables and English motivation was entered in as the dependent variable.

Block 2. The predictor variables Field, Awareness and Curriculum were added to the predictor variables entered in block 1 and again entered as independent variables while English motivation remained as the dependent variable.

Block 3. Again, all the predictor variables from block 2 were entered in as independent variables and the variable Advising was added. The dependent variable was still English motivation.

Determining Individual Contribution of Curriculum Taxon

Block 1. The predictor variables: Student Gender, Student Socioeconomic Status, Student Race/Ethnicity, Parent Educational Level, and Prior Achievement were all entered in as independent variables and English motivation was entered in as the dependent variable.

Block 2. The predictor variables Field, Advising, and Awareness were added to the predictor variables entered in block 1 and again entered as independent variables while English motivation remained as the dependent variable.

Block 3. Again, all the predictor variables from block 2 were entered in as independent variables and the variable Field was added. The dependent variable was still English motivation.

Summary

This chapter details the methods and procedures employed for data collection and analyses in this study. As described, the sample of participants were drawn from a population of 18 year-old high school seniors in 17 high schools. The 17 high schools were selected from 3 different regions of the United States: Northwest, Southwest, and Midwest. Within each high school, school counselors followed a written protocol for collecting archival data and administering measures.

The Student Opinion Survey (McMillan, Simonetta, & Singh, 1994) was used to measure English Self-Efficacy ($\alpha = .82$) and English Motivation ($\alpha = .77$). The “Senior Survey” was created to collect demographics of participants and measure the quantity of 44 career development interventions. National experts examined the Senior Survey and made suggestions to improve the face validity of the instrument. Finally, the coding of variables for data entry was explained, as well as the procedure for stepwise multiple regression.

CHAPTER 4: RESULTS

Introduction

The specific contribution of background variables and four career development taxon to the English self-efficacy and English motivation of 249 high school seniors was examined through stepwise multiple regression. Each predictor set included (a) five background variables (Gender, Race/Ethnicity, Prior Achievement, SES, and Parent Educational Level) and (b) four career development intervention taxa variables (Field, Awareness, Advising, and Curriculum). The two criterion variables examined were English self-efficacy and English motivation. This chapter presents the results of the statistical analyses.

First, the chapter will detail the descriptive statistics of the career development intervention taxon. Then, there will be a section that details the findings regarding the criterion variable English self-efficacy and another section explaining the findings relative to the criterion variable English motivation.

The English self-efficacy section will present the correlations between the career development intervention taxon and the criterion variable English self-efficacy noting the significant correlations, $p < .05$. Then, the results of the stepwise multiple regression on English self-efficacy will be described, followed by a prediction equation incorporating the statistically significant findings.

The English motivation section will list the correlations between the career development intervention taxon and the criterion variable English motivation, again noting the significant correlations, $p < .05$. The section will then describe the results of

the stepwise multiple regression and formulate a prediction equation based on the significant findings.

Career Development Interventions: Descriptive Statistics

This study asked respondents to indicate the number of times they engaged in various career development interventions across four years of high school. As explained in Chapter 3, the interventions were measured by one of two metrics, an episodic or an academic term. The episodic metric measured the number of times the respondent indicated they engaged in a given interventions across high school. For example, if a student went on three job shadows in the four years of high school, the quantity was measured as three for that intervention. The academic term metric was used for interventions that occur on a semester basis such as a vocational education/technical education course. These interventions were measured as one semester and/or two semesters for each year the student was in high school. In item # 62 of the Senior Survey for example, respondents circled the semesters they worked in a business that operated out of their school.

Table 1 shows the descriptive statistics for the career development interventions measured on the episodic metric. Each career development intervention is listed, followed by a Roman numeral that indicates in which taxon the intervention belongs. The table gives the sum/total quantity for each intervention as well as the average and range. In total there were 33 career development interventions measured using the episodic metric and 11 measured using the academic term metric.

Table 1

Descriptive Statistics for Interventions Rated by an Episodic Based Metric

| Intervention | Sum | Mean | Standard Deviation | Minimum | Maximum |
|---|--------|------|--------------------|---------|---------|
| Job Shadowing (I) | 406.00 | 1.63 | 5.17 | 0 | 49.00 |
| Work Based Learning Project (I) | 200.00 | .80 | 2.42 | 0 | 25.00 |
| Internship (I) | 528.00 | 2.12 | 14.69 | 0 | 216.00 |
| Job Placement (I) | 64.00 | .26 | .84 | 0 | 7.00 |
| Mentorship Programs (I) | 99.00 | .40 | 1.84 | 0 | 25.00 |
| Job Coaching (I) | 79.00 | .32 | 1.20 | 0 | 9.00 |
| Personal/Social Counseling (II) | 345.91 | 1.39 | 3.91 | 0 | 48.00 |
| Career Focused Parent/Student Conference (II) | 140.00 | .56 | 1.27 | 0 | 10.00 |
| Career Maturity Assessment (II) | 293.00 | 1.18 | 1.45 | 0 | 10.00 |
| Referral to external counseling/assessment (II) | 30.00 | .12 | .44 | 0 | 3.00 |
| Referral to external training programs (II) | 57.00 | .64 | .23 | 0 | 4.00 |
| Career Interests Assessment (II) | 449.00 | 1.80 | 1.37 | 0 | 9.00 |

Table 1, continued

| Intervention | Sum | Mean | Standard Deviation | Minimum | Maximum |
|--|--------|------|--------------------|---------|---------|
| Recruiting (II) | 479.00 | 1.92 | 2.79 | 0 | 25.00 |
| College Admissions Testing (II) | 269.00 | 1.08 | 1.42 | 0 | 7.00 |
| Job Hunting Preparation (II) | 329.00 | 1.32 | 1.76 | 0 | 10.00 |
| Information Interviewing (II) | 195.00 | .78 | 1.30 | 0 | 10.00 |
| Career Peer Advising/Tutoring (II) | 130.00 | .52 | 1.36 | 0 | 8.00 |
| Computer Assisted Career Guidance (II) | 650.00 | 2.61 | 4.15 | 0 | 35 |
| Portfolio/Individual Career Plan (II) | 148.38 | .60 | 1.10 | 0 | 8.00 |
| Career Cluster/Pathway/Major (II) | 304.05 | 1.22 | 2.37 | 0 | 30.00 |
| Career Library/Resource Center (II) | 342.00 | 1.37 | 2.38 | 0 | 23.00 |
| Career Map (II) | 129.00 | .52 | 1.37 | 0 | 14.00 |
| Career Counseling (II) | 368.00 | 1.48 | 4.20 | 0 | 53.00 |
| Academic Planning Counseling (II) | 474.00 | 1.90 | 4.18 | 0 | 55.00 |

Table 1, continued

| Intervention | Sum | Mean | Standard Deviation | Minimum | Maximum |
|---|----------|------|-----------------------|---------|---------|
| Guidance Lessons on Personal/Social Development (III) | 342.00 | 1.37 | 3.93 | 0 | 35.00 |
| Guidance Lessons on Academic Planning (III) | 212.54 | .85 | 1.70 | 0 | 10.00 |
| Guidance Lessons on Career Development (III) | 356.00 | 1.43 | 2.49 | 0 | 18.00 |
| Community Members Teach in the Classroom (III) | 308.00 | 1.24 | 2.56 | 0 | 27.00 |
| Career Day/Career Fair (III) | 211.00 | .85 | 1.29 | 0 | 6.00 |
| Career Aptitude Assessment (III) | 348.00 | 1.40 | 1.63 | 0 | 15.00 |
| Career Field Trip (III) | 183.00 | .73 | 1.39 | 0 | 12.00 |
| Career Skills Infused into the Classroom (IV) | 2,382.00 | 9.57 | 33.89 | 0 | 222.00 |
| Career Information Infused into the Classroom (IV) | 2,437.00 | 9.79 | 33.46 | 0 | 226.00 |

Note:

N = 249

I = Field

II = Advising

III = Awareness

IV = Curriculum

As indicated by the data in Table 1, the interventions “Career Skills Infused into the Classroom” and “Career Information Infused into the Classroom” occurred in greatest total quantity according to respondents. Each intervention occurred 2,382 times and 2,437 times respectively. The average (per student during high school) for “Career Skills Infused into the Classroom” was 9.57 ($SD = 33.89$) and 9.79 ($SD = 33.46$) for “Career Information Infused into the Classroom.” Each intervention is part of the Curriculum taxon as well.

The career development intervention “Computer Assisted Guidance” (Advising taxon) was the third greatest total quantity with 650 and an average of 2.61 ($SD = 4.15$) per respondent. The next largest total quantity and average quantity per respondent was “Internship” with a total of 528 and an average of 2.12 ($SD = 14.69$). The career development intervention “Internship” is in the Field taxon. In the Advising taxon, the intervention, “Recruiting” had a total of 479 and an average 1.92 ($SD = 2.79$) indicating that students experienced this intervention an average of 2 times through their high school years.

The intervention “Referral to External Counseling/Assessment” had the lowest quantity of interventions at 30, and the lowest average per respondent ($M = .12$, $SD = .44$). “Referral to External Training Programs” had a total quantity of 57 and an average of .64 ($SD = .23$). Both of these interventions are in the Advising taxon.

The descriptive statistics for the interventions that occur on a semester basis are detailed in Table 2. As with Table 1, the total quantity of interventions is listed, followed by the average quantity of the intervention per respondent, the standard deviation, and then the range of scores for that career development intervention. The

career development intervention tax a Field, Advising, and Curriculum all had interventions that were measured using the academic term based metric but the Awareness taxon did not.

Table 2 displays the data for the quantities of career development interventions on the academic term metric. Respondent data indicated that enrollment in a “Career/Technical Education Course” had the greatest quantity with a total of 430. The average for the intervention ($M = 1.73$, $SD = 3.20$) indicated that respondents took an average of almost two semesters of career/technical classes during their four years of high school. The intervention “Career/Technical Education Course” is in the Curriculum taxon.

The “Tech Prep/2+2 Curriculum” career development intervention is within the Curriculum taxon. This intervention had the lowest total quantity (53.16) and the lowest average per respondent ($M = .21$, $SD = 1.01$).

Nearly as low was the intervention “Youth Apprenticeship” within the Field taxon. The “Youth Apprenticeship” intervention had a total quantity of 66.00, with an average of .27 ($SD = 1.20$) per respondent.

The range for the career development interventions, measured by the academic term metric, was never greater than 12 semesters for any of the career development interventions measured on the academic term based metric. On a six period day schedule, for example, there would be a total of 48 semesters across the four years of high school. The maximum of 12 would be 25% of the courses in a high school with a total of 48 semesters.

Table 2

Descriptive Statistics for Interventions Rated by an Academic Term Based Metric

| Intervention | Sum | Mean | Standard Deviation | Minimum | Maximum |
|---|--------|------|-----------------------|---------|---------|
| Cooperative Education (I) | 123.00 | .49 | 1.35 | 0 | 8.00 |
| Youth Apprenticeship (I) | 66.00 | .27 | 1.20 | 0 | 9.00 |
| Work Study (I) | 105.00 | .42 | 1.22 | 0 | 9.00 |
| Service Learning/Volunteer Programs (I) | 117.00 | .47 | 1.52 | 0 | 12.00 |
| Cooperative/Dual Enrollment (II) | 337.00 | 1.35 | 2.24 | 0 | 12.00 |
| Career Passport/Skill Certificate (II) | 175.00 | .70 | 1.97 | 0 | 12.00 |
| Student Clubs/Activities (IV) | 266.00 | 1.07 | 2.59 | 0 | 12.00 |
| School Based Enterprise (IV) | 339.00 | 1.36 | 2.99 | 0 | 12.00 |
| Tech Prep/2+2 Curriculum (IV) | 53.16 | .21 | 1.01 | 0 | 6.00 |
| Career Academy (IV) | 74.00 | .30 | 1.18 | 0 | 8.00 |

Table 2, continued

| Intervention | Sum | Mean | Standard Deviation | Minimum | Maximum |
|--|--------|------|--------------------|---------|---------|
| Career/Technical Education Course (IV) | 430.00 | 1.73 | 3.20 | 0 | 12.00 |

Note:

N = 249

I = Field

II = Advising

III = Awareness

IV = Curriculum

Table 3 lists the average quantity of interventions within each of the taxa for both rating metrics. As the table demonstrates, the Advising taxon had the largest average in the episodic metric ($M = 20.61$, $SD = 19.51$) followed by the Curriculum taxon as a close second ($M = 19.35$, $SD = 66.09$). The Field and Awareness taxon had smaller averages with 5.53 ($SD = 20.70$) and 7.87 ($SD = 7.95$) respectively.

For the academic term metric, Curriculum had the largest average with 4.67 ($SD = 6.06$). The Advising taxon had an average of 2.06 ($SD = 3.02$) and the Field taxon had an average of 1.65 ($SD = 3.31$). There were no career development interventions in the Awareness taxon that were measured using the academic term metric.

Table 3

Average Quantity of Interventions by Taxon and Rating Metric

| <u>Metric/Taxon</u> | <u>Mean</u> | <u>Standard Deviation</u> |
|----------------------|-------------|---------------------------|
| <u>Episodic</u> | | |
| Field | 5.53 | 20.70 |
| Advising | 20.61 | 19.51 |
| Awareness | 7.87 | 7.95 |
| Curriculum | 19.35 | 66.09 |
| <u>Academic Term</u> | | |
| Field | 1.65 | 3.31 |
| Advising | 2.06 | 3.02 |
| Awareness | n/a | n/a |
| Curriculum | 4.67 | 6.06 |

Criterion Variables: Descriptive Statistics

The descriptive statistics for the criterion variables, English self-efficacy and English motivation are displayed in Table 4. The Student Opinion Survey (SOS) English subscale items (Macmillan, Simonetta, & Singh, 1994) were used to measure the criterion variables. The total score for both English self-efficacy and English motivation has a possible range from 4 to 20 points. As the data in Table 4 indicates, respondent scores for English self-efficacy ranged from 8.52 to 20.00 with a mean of 16.34 ($SD = 2.57$). The mean for respondent scores on the English motivation subscale was 15.79 ($SD = 2.92$) and scores ranged from 7 to 20.

Table 4

Criterion Variables: Descriptive Statistics

| Variable | Min | Max | Mean | Standard Deviation |
|-----------------------|------|-------|-------|--------------------|
| English self-efficacy | 8.52 | 20.00 | 16.34 | 2.57 |
| English motivation | 7.00 | 20.00 | 15.80 | 2.92 |

N = 249

English Self-Efficacy: Correlations

The correlations of the background variables and career development intervention taxa to the criterion variable, English self-efficacy are detailed in Table 5. Overall, the correlations were low (with the exception of Advising and Awareness) yet there were several noteworthy correlations among the variables.

The strongest correlations were among the career development taxon. Advising and Awareness had the strongest correlation ($r = .62$) while Curriculum and Awareness had the next closest association with an $r = .41$, indicating a moderate correlation. Advising and Curriculum, as well as Advising and Field, were also found to have correlations of $r = .41$, while Field and Awareness were also moderately correlated ($r = .38$) at a significant level. Finally, Field and Curriculum had a moderate correlation of $r = .35$. The career development intervention taxa quantities were more strongly correlated with each other than they are with any other variables (n.b. the quantities were determined to be more strongly correlated with each other, not the taxa themselves).

Table 5

Correlations of Predictor Variables to English Self-Efficacy

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------------|-----|-----|-------|------|------|-------|------|--------|-------|-------|
| 1. English SE | --- | .02 | -.12* | .06 | .06 | .19** | .02 | -.08 | .05 | .02 |
| 2. SES | --- | --- | .05 | .11* | .07 | .11* | -.02 | -.19** | -.08 | -.04 |
| 3. Gender | --- | --- | --- | -.06 | -.09 | -.03 | -.08 | -.03 | .01 | -.08 |
| 4. Parent Ed. Level | --- | --- | --- | --- | -.02 | .33** | -.09 | -.16** | -.09 | -.10 |
| 5. Race/Ethnicity | --- | --- | --- | --- | --- | -.02 | -.08 | -.03 | -.11* | -.00 |
| 6. Prior Achievement | --- | --- | --- | --- | --- | --- | -.26 | -.29* | -.05 | -.12 |
| 7. Awareness | --- | --- | --- | --- | --- | --- | --- | .38** | .41** | .62** |
| 8. Field | --- | --- | --- | --- | --- | --- | --- | --- | .35** | .41** |
| 9. Curriculum | --- | --- | --- | --- | --- | --- | --- | --- | --- | .41** |
| 10. Advising | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

* $p < .05$, ** $p < .01$, $N = 249$

As with the career development intervention taxon, the background variables also were correlated with each other. Parent Educational Level had a moderately strong, statistically significant positive correlation with Prior Achievement ($r = .33$). Prior Achievement also possessed a weak, but statistically significant, positive correlation with SES ($r = .11$).

Some of the background variables were correlated with the career development intervention taxon at a statistically significant level. Prior Achievement had a weak, negative correlation with both Awareness ($r = -.26$) and Field ($r = -.29$). Field possessed a weak, negative correlation with Parent Education Level ($r = -.16$) and a weak, negative correlation with SES ($r = -.19$).

There were some statistically significant correlations between the predictor variables and the criterion variable English self-efficacy. Gender had a weak, negative correlation with English self-efficacy ($r = -.121$). This correlation indicated that being male is slightly associated with lower English self-efficacy. Prior Achievement had a weak, positive correlation with English self-efficacy ($r = .19$). These were the only two statistically significant correlations with the criterion variable, English self-efficacy.

English Self-Efficacy: Stepwise Regression Results

Given the exploratory nature of this study, stepwise multiple regression was conducted to explore research question #1: Beyond the background variables of gender, race/ethnicity, parent educational level, socioeconomic status, and prior achievement, what is the predictive value of the four taxon of career development interventions to English self-efficacy? The stepwise criteria to enter the variables was $p < .05$ and to exclude the variables was $p < .10$ as the five background variables (Gender, Race/Ethnicity, Prior Achievement, SES, and Parent Education Level) and four career taxon (Awareness, Field, Curriculum, and Advising) were regressed against the criterion variable English self-efficacy.

Table 6

Summary of Stepwise Regression Analyses for Variables Predicting English Self-Efficacy (N = 249)

| Variable | Unstandardized Coefficients B | Std. Error | Standardized Coefficients Beta | <u>R</u> | <u>R</u> ² | Std. Error of the Estimate | <u>R</u> ² Change |
|-------------------|----------------------------------|------------|-----------------------------------|----------|-----------------------|----------------------------|------------------------------|
| Constant | 15.127 | .440 | | | | | |
| Prior Achievement | .002 | .007 | .186 | .186 | .034 | 2.53 | .034 |

Significant Predictors

As the data in Table 5 indicates, Prior Achievement independently accounted for 3.4% of the variance in the criterion variable and is significant at the $p < .01$ level. The $R = .186$ indicated a weak positive relationship between the prior achievement of students and student self-efficacy scores in English.

Prediction Equation

Using data displayed in Table 6, a prediction equation can be calculated: $E(Y) = 15.13 + .002 (\text{Prior Achievement})$. In the equation $E(Y)$ represents the estimated English self-efficacy score. To illustrate an interpretation using this equation, an arbitrary value for Prior Achievement can be entered into the equation. For example, 2 points on the Total Reading Achievement scale (National Curve Equivalent) would correspond to a score of 15.1 for total English self-efficacy. The total scores possible for the English self-efficacy scale range from 4 to 20.

None of the career development taxon were determined to be statistically significant in the stepwise multiple regression. Therefore, further analyses to determine their individual contribution to explained variance in English self-efficacy were not conducted.

Collinearity Statistics

Both Tolerance and Variable Inflation Factor (VIF) scores were used to aide in the interpretation of statistical analyses. Table 7 gives the Tolerance and VIF scores for the included and excluded variables in the stepwise multiple regression analyses on the criterion variable, English self-effiacy.

Table 7

Tolerance and VIF of Predictor Variables: English Self-Efficacy Regression

| Variable | Tolerance | VIF | Excluded/Included |
|--------------------------|-----------|------|-------------------|
| Prior Achievement | 1.00 | 1.00 | Included |
| SES | .99 | 1.01 | Excluded |
| Gender | 1.00 | 1.00 | Excluded |
| Parent Educational Level | .89 | 1.13 | Excluded |
| Race/Ethnicity | 1.00 | 1.00 | Excluded |
| Awareness | .93 | 1.08 | Excluded |
| Field | .91 | 1.10 | Excluded |
| Curriculum | 1.00 | 1.00 | Excluded |
| Advising | .98 | 1.02 | Excluded |

The collinearity analysis indicated that there was over 90% of the variance available in each of the background and taxa variables for prediction of the criterion variable, English self-efficacy. Similarly, the VIF scores indicated that adding each variable does not overly increase the standard error. The results indicated no substantial problems of multicollinearity.

English Motivation: Correlations

As with the criterion variable English self-efficacy, there were statistically significant correlations between the background variables, career development taxon, and the criterion variable English motivation. Table 8 shows the correlations between English motivation and the different predictor variables.

The strongest correlations were again between the career development intervention taxon. Awareness and Advising had a moderately strong positive correlation ($r = .62$). Advising also had a moderate correlation with Field ($r = .41$) and Curriculum ($r = .41$).

Several of the background variables had significant correlations with other background variables. SES had a weak, positive correlation with both Parent Educational Level ($r = .11$) and Prior Achievement ($r = .11$). Parent Educational Level had a moderate positive correlation with Prior Achievement ($r = .33$).

The background variables also had some statistically significant correlations with the career development taxa. Parent Educational Level had a weak, negative correlation with the Field taxon ($r = -.16$). Similarly, SES had a negative correlation with Field ($r = -.19$). Prior Achievement had a weak, negative correlation with Awareness ($r = -.26$), Field ($r = -.29$), and Advising ($r = -.12$).

Table 8

Correlations of Predictor Variables to English Motivation

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------------------|----|------|-------|------|------|-------|--------|--------|-------|-------|
| 1. Eng. Motivation | -- | -.00 | .30** | .01 | -.01 | -.07 | .20** | .05 | .11* | .20** |
| 2. SES | -- | -- | .05 | .11* | .07 | .11* | -.02 | -.19** | -.08 | -.04 |
| 3. Gender | -- | -- | -- | -.06 | -.09 | -.03 | -.08 | -.03 | .01 | -.08 |
| 4. Parent Ed. | -- | -- | -- | -- | -.02 | .33** | -.09 | -.16** | -.09 | -.10 |
| 5. Race/Ethnicity | -- | -- | -- | -- | -- | -.02 | -.08 | -.03 | -.11* | -.00 |
| 6. Prior Ach. | -- | -- | -- | -- | -- | -- | -.26** | -.29* | -.05 | -.12* |
| 7. Awareness | -- | -- | -- | -- | -- | -- | -- | .38** | .41** | .62** |
| 8. Field | -- | -- | -- | -- | -- | -- | -- | -- | .35** | .41** |
| 9. Curriculum | -- | -- | -- | -- | -- | -- | -- | -- | -- | .41** |
| 10. Advising | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

* $p < .05$, ** $p < .01$, $N = 249$

Only one of the background variables was determined to have a statistically significant correlation with the criterion variable, English motivation. Gender had a moderate, negative correlation with English motivation ($r = -.30$). This indicated that being male is slightly associated with lower English motivation.

The career development taxa, Awareness, Curriculum and Advising all had statistically significant correlations with the criterion variable English motivation. Awareness and English motivation had a weak, positive correlation ($r = .20$). Curriculum had a weak, positive correlation with English motivation ($r = .11$) and Advising also had a small positive correlation with English motivation ($r = .20$).

English Motivation: Stepwise Regression Results

Stepwise Multiple Regression was conducted to investigate research question #2: Beyond the background variables of gender, race/ethnicity, parent educational level, socioeconomic status, and prior achievement, what is the predictive value of the four taxon of career development interventions to English motivation? Again the stepwise criteria to enter the variables was $p < .05$ and to exclude the variables was $p < .10$ as the five background variables (Gender, Race/Ethnicity, Prior Achievement, SES, and Parent Education Level) and four career taxon (Awareness, Field, Curriculum, and Advising) were regressed against the criterion variable English motivation. Table 5 displays the results of the regression analyses.

Significant Predictors

Only Gender and Advising were statistically significant as predictor variables in the stepwise regression analyses. As shown in Table 7, Gender accounted for 9.1% of the variance in English motivation independently. Combined, Gender and Advising accounted for 12.2% of the variance in English motivation while Advising independently accounted for 3.1% of the variance in English motivation.

Prediction Equation

Using the data shown in Table 8, a prediction equation can be formulated. The prediction equation is as follows: $E(Y) = 12.24 - 1.68(\text{Gender}) + .32(\text{Advising})$. $E(Y)$ represents the estimated change in total score for English motivation.

Table 9

Summary of Stepwise Regression Analyses for Variables Predicting English

Motivation (N = 249)

| Variable | Unstandardized Coefficients | | Standardized Coefficients Beta | R^2 | Std. Error of the Estimate | R^2 Change |
|----------|-----------------------------|------------|-----------------------------------|-------|----------------------------|-----------------|
| | B | Std. Error | | | | |
| Constant | 12.243 | 1.527 | | | | |
| Gender | -1.678 | .350 | -.287 | .091 | 2.793 | .091 |
| Advising | .323 | .109 | .178 | .031 | 2.750 | .031 |

The equation, $E(Y) = 12.24 - 1.68 (\text{Gender}) + .32 (\text{Advising})$, can be used to estimate the effects of an increase in the Advising sum of z-scores, on the criterion variable, English motivation as measured on the SOS scale for English motivation. Stepwise multiple regression revealed the Advising taxon to be the only statistically significant predictor among the career development taxa. As none of the other career development taxon were determined to be statistically significant, analyses to determine their individual contribution to explained variance in English motivation were not conducted.

Collinearity Statistics

Again, Tolerance and VIF scores were used to aide in the interpretation of statistical analyses. Table 9 gives the Tolerance and VIF scores for the included and excluded variables in the stepwise multiple regression analyses on the criterion variable, English motivation.

Table 10

Tolerance and Variable Inflation Factor Scores (VIF) of Predictor Variables

| Variable | Tolerance | VIF | Excluded/Included |
|--------------------------|-----------|------|-------------------|
| Prior Achievement | .98 | 1.02 | Excluded |
| SES | 1.00 | 1.01 | Excluded |
| Gender | .99 | 1.01 | Included |
| Parent Educational Level | .98 | 1.02 | Excluded |
| Race/Ethnicity | .99 | 1.01 | Excluded |
| Awareness | .63 | 1.58 | Excluded |
| Field | .85 | 1.18 | Excluded |
| Curriculum | .84 | 1.19 | Excluded |
| Advising | .99 | 1.01 | Included |

The collinearity diagnostics showed no substantial problems with multicollinearity. The Awareness taxon had the lowest tolerance score (.63) but still had over 60% of the variance within the quantity taxon score available to predict the criterion variable, English motivation. Similarly, the VIF scores indicated that adding

each of the variables to a model predicting English motivation would not introduce an excessive increase in standard error.

Summary of Findings

This chapter presented the results of this study. The following results were explained: (a) descriptive statistics for the career development interventions measured on the episodic metric, (b) descriptive statistics for the career development interventions measured on the academic term metric, (c) descriptive statistics for the career development taxa, (d) descriptive statistics for the criterion variables English self-efficacy and English motivation, (e) correlations among the variables, (f) results for the stepwise multiple regression on English self-efficacy, and (g) results for the stepwise multiple regression on English motivation.

The descriptive statistics for the career development interventions that were measured on an episodic metric indicated that the interventions are occurring on average in very low quantities. The interventions “Career Skills Infused into the Classroom” ($M = 9.57$, $SD = 33.89$) and “Career Information Infused into the Classroom” ($M = 9.79$, $SD = 33.46$) occurred most frequently on average. The interventions “Computer Assisted Guidance,” ($M = 2.61$, $SD = 4.15$) and “Internship” ($M = 2.12$, $SD = 14.69$), are the only other interventions to occur more than twice on average across all four years of high school. Of the 33 interventions measured on the episodic metric, 15 occurred less than twice and 14 of the interventions occurred less than once on average.

The interventions measured on the academic term metric also occurred on average in low quantities. Out of the 11 interventions measured on the academic term

metric, 6 of the interventions occurred on average less than .50 times across the four years of high school according to respondents. “Career/Technical Education Course” had the largest average ($M = 1.73$, $SD = 3.20$) indicating that respondents took an average of almost two semesters of career/technical classes during their four years of high school.

The descriptive statistics for the career development taxa revealed Advising to have the largest average on the episodic metric ($M = 20.61$, $SD = 19.51$). The career development taxon Curriculum had greatest average on the academic term metric ($M = 4.67$, $SD = 6.06$).

The descriptive statistics on the criterion variables indicated that on average the respondents had high English self-efficacy and high English motivation. The respondent scores for English self-efficacy ranged from 8.52 to 20.00 with a mean of 16.34 ($SD = 2.57$). The mean for respondent scores on the English motivation subscale was 15.79 ($SD = 2.92$) and scores ranged from 7 to 20.

For both the analyses with English self-efficacy and English motivation, the strongest correlations were between the career development taxa. Advising and Awareness had the strongest correlation ($r = .62$) while Curriculum and Awareness had the next closest association with an $r = .41$, indicating a moderate correlation. Advising and Curriculum, as well as Advising and Field, were also found to have correlations of $r = .41$, while Field and Awareness were also moderately correlated ($r = .38$) at a significant level.

Stepwise multiple regression showed Prior Achievement to be the only statistically significant predictor of English self-efficacy. Prior Achievement

independently accounted for 3.4% of the variance in English self-efficacy. None of the career development taxa were statistically significant predictors of English self-efficacy.

Gender and Advising were determined to be statistically significant predictors of English motivation. Gender accounted for 9.1% of the variance in English motivation while the Advising taxon accounted for 3.1%. Chapter 5 will discuss the findings in greater detail.

CHAPTER 5: CONCLUSION

Discussion

This exploratory study investigated the relationship of career development intervention taxa to the English self-efficacy and to the English motivation of high school students. Self-respondent and archival data were collected from 17 different high schools in three separate regions of the United States. A total of 249 high school seniors completed an English motivation and English self-efficacy measure as well as an instrument that measured the quantity of career development interventions experienced across high school. Stepwise multiple regression revealed prior achievement to be a significant predictor of English self-efficacy. Gender and the Advising taxon were determined to be statistically significant predictors of English motivation.

This chapter will first discuss the non-significant predictors of English self-efficacy and English motivation. Following the discussion of non-significant findings, there will be an examination of the significant findings. Furthermore, the findings of the present study will be related to research in the area. The limitations of the present study will then be explained. Implications for practitioners will be explored as well as implications for researchers. Finally, suggestions for future research in the area will be posited.

Regression Study 1: English Self-Efficacy

Non-significant Predictors

The findings presented several non-significant predictors. In the stepwise multiple regression on the criterion variable English self-efficacy, none of the career development taxa and only one background variable were determined to be statistically significant predictors of English self-efficacy. Prior achievement remained as the only statistically significant independent contribution to the explanatory variance in English self-efficacy. There are several plausible explanations for the lack of significant findings. The explanations include: (a) potential problems of multicollinearity, (b) the targeting of low achieving students for career development interventions (c) an overly encompassing influence of prior achievement, (d) design and/or measurement shortcomings, (e) the complex nature of learning, (f) the lack of quantity of career development interventions, and (g) that there is no relationship of career development interventions to English self-efficacy.

Multicollinearity. As mentioned previously in Chapter 4, the career development taxa have a stronger correlation with each other than with the criterion variable. The collinearity diagnostics for the career development taxa revealed the Tolerance in Awareness, Field, Curriculum, and Advising to be .934, .917, .998, and .986 respectively. These tolerance scores would indicate that each of the taxa has over 90% of their variance available to estimate their effects on English self-efficacy. Although the standard collinearity diagnostics in SPSS suggested that multicollinearity was not problematic within the data of the present study, pockets of intercorrelation

among predictor variables potentially masked the full contribution of each predictor. The degree to which the career development taxa quantities are intercorrelated suggests the potential to inhibit their potential explanatory power. Agresti and Finlay (1997) stated that “ideally, for prediction purposes one should model Y using explanatory variables having weak correlations with each other but strong correlations with Y” (p. 398).

Moreover, the career taxon Field was found to have a stronger correlation with SES ($r = -.188$) and Prior Achievement ($r = -.288$) than Prior Achievement did with English self-efficacy ($r = .186$). Since Field was so strongly correlated with the other taxa it is possible that the negative influence of one taxon overshadowed the positive impact of the other variables.

Targeted Students. Another plausible explanation for the lack of significant predictors also involves the Field taxon. As Chapter 2 avowed, there is evidence in the research that indicates Experience Based Career Education (EBCE) model, is related to positive student outcomes. The interventions that make up the Field taxon are largely drawn from the EBCE model. Using the knowledge of EBCE, educators may be using Field interventions with specific groups of students to try and improve specific student outcomes such as attendance and attrition. The correlation between Field and Prior Achievement ($r = -.288$) as well as Field and SES ($r = -.188$) might suggest that the interventions in the Field taxon are being targeted toward poorer, low achieving students. This process in turn could contribute to the lack of significant predictors identified in the stepwise multiple regression on English self-efficacy.

Further data analyses were conducted to examine this rationale. The variables Prior Achievement and SES were regressed on the career development taxon Field. Both SES and Prior Achievement were determined to be statistically significant predictors of the career development taxon Field with SES explaining 2.2% of the variance and Prior Achievement explaining 7.9% of the variance in the Field taxon. Moreover, SES had a beta weight of $-.16$ while Prior Achievement had a beta weight of $-.27$ when regressed on the career development intervention taxon Field. The results of these additional analyses would seem to support the argument that poorer, lower achieving students are being targeted with interventions from the Field taxon.

Influence of Prior Achievement. The strong influence of prior achievement on self-efficacy may be another factor impeding the identification of more significant predictors. As described in Chapter 1, Bandura (1977) maintained that “strong efficacy expectations are developed through repeated success” (p. 195). The research detailed in Chapter 2 and the present findings certainly support this assertion. The impact of prior achievement on English self-efficacy may be so powerful that it overshadows not only the influence of other background variables such as SES, Parent Education Level, and Race/Ethnicity, but any other predictors as well.

To investigate this possible explanation, additional analyses were conducted. The stepwise multiple regression was again employed, this time excluding the variable Prior Achievement. The additional analyses revealed Gender as a significant predictor, explaining less than 2% of the variance in English self-efficacy. These analyses would seem to refute the argument that the impact of Prior Achievement is preventing the determination of the influence of other variables.

Design Shortcomings. There may be design shortcomings in this study that contributed to a lack of identification of predictors for English self-efficacy. It may be that the career development taxonomy overly collapses the impact of career development interventions. Within each of the career development intervention taxa it is possible that there may be interventions that increase English self-efficacy and other interventions that do not increase English self-efficacy. In essence, such interventions would cancel each other out within the taxon masking any positive influence.

To test this explanation further analyses were conducted. A stepwise multiple regression analysis was conducted on the Awareness taxon. The Awareness taxon was selected to regress on English self-efficacy for two reasons: (a) due to its short number of interventions (seven), and (b) all of the interventions within the Awareness taxon were measured on the same episodic metric. The intervention “Career Aptitude Assessment” was determined to be a statistically significant predictor adding an additional 2% explained variance to the 3% of variance explained by Prior Achievement alone. No other individual interventions were statistically significant predictors. It is interesting to note, however, the direction of correlations between the individual interventions within the Advising taxon and the criterion variable, English self-efficacy. Though not statistically significant, several of the correlations are in opposite directions and approximately equal in strength. For example, the intervention “Guidance Lessons on Career Development” had a very small, positive correlation with English self-efficacy ($r = .08$, $p = .13$) while the intervention “Community Members Teach in the Classroom” had a very small, negative correlation with English self-efficacy ($r = -.08$, $p = .10$). These correlations are not statistically significant, but do

approach statistical significance and although weak correlations, the relationships lend credence to the argument explained above. It is possible that the interventions within the taxon may be canceling out the effect of each other, masking influence on the criterion variable.

There may be design shortcomings relating to the instruments used in this study as well. The career development interventions were measured using two different metrics, an episodic metric and an academic term metric. The metric quantities are not compatible and the necessary conversion to z-scores for data analyses again compounds the problem of collapsing explanatory variance.

Additionally, there may be a compromised integrity of the measure for the criterion variable inhibiting the identification of significant predictors. Although the SOS was proven to be a sound instrument for English self-efficacy as detailed in Chapter 2, this was determined in a study using the complete instrument including the Science subscale, which was deleted from the instrument employed in the present study. Withdrawing the other items altered the reliability of the instrument. The alpha coefficient was determined to be .68 (N=249) in the present study, lower than the reliability of the complete instrument. The diminished reliability may have adversely affected the current investigation. Further discussion of additional research design issues will be presented in the limitations section of this chapter.

Learning as Complex Process. Another plausible explanation for the lack of more significant findings is the inherently complex nature of learning. As learning is an incredibly complex phenomenon, there are many different variables to take into account. The attempts of this study to isolate the independent influence of career

development interventions on English self-efficacy as a part of the learning process may be an overly parsimonious attempt at an exploratory study.

Lack of Quantity. As described in Chapter 4, on average, only a small quantity of the career development interventions given to respondents. It is possible that there is a threshold effect and that students may not be getting enough dosage of career development interventions in order to register a positive impact on English self-efficacy. Drawing on an analogy in medicine, a study that investigated only low doses of antibiotics might erroneously determine that the antibiotics have no positive impact on fighting infection. Similarly, the respondents in this study may have experienced such a low quantity of career development interventions that they are simply not getting enough of the intervention to discern positive effects.

Research certainly seems to support this argument. As explained in Chapter 2, Oliver and Spokane (1988) found that increasing a career counseling session from 6 to 7 increased the average effect size by 2.3 times, from $ES = 1.19$ to $ES = 2.73$ respectively. Such drastic increases were not always the case though as the effect size decreased from $ES = .85$ to $ES = .74$ when going from 2 to 3 sessions. Whiston, Sexton, and Lasoff (1998) provide similar support in their replication study which indicated that the mean effect size for number of career counseling sessions went from $ES = .08$ at 5 session to $ES = .99$ at 5.5 sessions. It is quite possible then, that the lack of significant findings may be due in part or whole to the lack of a substantial quantity of career development interventions.

Career Development Interventions not Related to English Self-Efficacy.

Of course, one explanation for the present findings is that they are entirely accurate. The career development interventions contained in the four taxa: Advising, Awareness, Field, and Curriculum may not be related to English self-efficacy in high school students. Therefore, the career development taxa have no predictive power regarding the English self-efficacy of American high school students.

Significant Predictors

Stepwise multiple regression revealed Prior Achievement to be a significant predictor of English self-efficacy. The finding of prior achievement as a significant predictor variable is consistent with other research and further evidence of the strong link between self-efficacy and academic achievement (Eccles, 1983; Multon, Brown & Lent, 1991; Pajares & Johnson, 1996; Schunk, 1982, 1984a, 1984b, 1985, 1989, 1991, 1994, 1995; Schunk & Cox, 1986; Schunk & Gunn, 1985; Schunk & Hanson, 1989a, 1989b; Wigfield et al., 1992; Wigfield et al., 1997; Wigfield, Eccles, & Roeser, 1998; Wigfield & Eccles, 2000). For instance, Multon, Brown, and Lent (1991) stated unequivocally that “as predicted by Bandura (1986), self-efficacy beliefs were more strongly related to achievement than outcome expectancy for both reading and writing” (p. 96).

The prediction equation $E(Y) = 15.13 + .002 (\text{Prior Achievement})$, given in Chapter 4, illustrates the impact Prior Achievement ($\beta = .186$) has on English self-efficacy. Prior Achievement explained 3.4% of the variance in English self-efficacy. Using the prediction equation to estimate English self-efficacy scores can demonstrate

that even a one percent increase in the National Curve Equivalent (NCE) for total reading corresponds to an English self-efficacy score of over 15 points.

The English self-efficacy items (see Appendix E for a list of the English self-efficacy items) were scored on a Likert scale where the response “Never” corresponded to 1 point while the response “Always” was 5 points. Thus the total possible score ranged from 4 to 20 with a higher score indicating a greater level of English self-efficacy. A total score of 4 points would mean that a respondent had answered each of the English self-efficacy as “Never.” A score of 20 points would indicate that a respondent answered “Always” for all four English self-efficacy items. As a one percent NCE score for total Reading corresponds to 15 points on the English self-efficacy score, clearly prior achievement has a substantial influence on English self-efficacy.

Regression Study 2: English Motivation

Non-significant Predictors

There are several plausible explanations for the lack of significant predictors in the stepwise multiple regression on English motivation some of which are: (a) problems of specific multicollinearity, (b) the influence of an excessive amount of poorer, lower achieving students experiencing the bulk of the career development interventions, (c) predictors may not have a linear relationship with English motivation, (d) design and/or measurement shortcomings, (e) the complex nature of learning and motivation, (f) the lack of quantity of career development interventions, and (g) there is

no positive relationship between career development interventions and English motivation.

Multicollinearity. As mentioned earlier, one problem multicollinearity presents is that it causes variables to overshadow each other, making it difficult to discern the individual explanatory power. Another problem is that “a primary effect of multicollinearity is that estimated regression coefficients have large standard errors” (Agresti & Finlay, p. 541-542). The large standard errors in turn cause wide confidence intervals and tend to have large p values (unless there is a very large sample), thus making statistically significant results much more difficult to find.

Unlike the analyses in the previous study, several of the excluded variables either were significant before the addition of other variables or approached significance. In model one, with only Gender as a predictor, Awareness had a significance level of $p = .01$ which is significant at the $p < .05$ level. In the same model, Curriculum taxon had a significance level of $p = .05$, which approaches significance at the $p < .05$ level.

Considering that Awareness and Advising have the strongest of all correlations ($r = .615$) it would suggest that awareness may very well be a significant predictor but has very little unique explanatory power due to its high correlation with the Advising taxon. The same may be true of the taxon Curriculum as it also has a significant correlation with Advising ($r = .41$). So again, issues of multicollinearity may have masked the potential of the career development taxa as to be significant predictors.

Targeted Students. As expected, Prior Achievement was positively correlated with SES ($r = .11$) and Parent Educational Level ($r = .33$). The Field taxon was negatively correlated with both SES ($r = -.19$) and Parent Educational Level ($r = -.16$). Considering these statistically significant correlations it is not surprising that the Field taxon is negatively correlated with Prior Achievement ($r = -.29$). Again, this would suggest that lower achieving students from lower income, less educated families are experiencing a larger number of career development interventions in the Field taxon.

As described earlier, additional analyses lend some minimal support to this argument. Multiple regression on the variable Field taxon revealed Prior Achievement ($\beta = -.27$), and SES ($\beta = -.16$) to be statistically significant predictors of quantity of interventions within the Field taxon. Prior Achievement explained 7.9% of the variance in quantity of the Field taxon and SES explained 2.2%.

All of the career development taxa were negatively correlated with Prior Achievement. Awareness, Field, and Advising were all negatively correlated with Prior Achievement, ($r = -.26$, $r = -.29$, and $r = -.12$ respectively) at a statistically significant level. Again this would support the notion that the lower achieving students are receiving a disproportionate dosage of career development interventions and may be skewing the results.

To explore this explanation the background variables were regressed on the career development taxa Awareness, Advising, and Field in additional stepwise multiple regression analyses. Prior Achievement was determined to be a significant predictor of Awareness ($\beta = -.27$) and Advising ($\beta = -.13$) explaining 7.5% and 1.7% of the variance in Awareness and Advising respectively. Both SES and Prior

Achievement were statistically significant predictors of the Field taxon as mentioned previously. These additional analyses seem to lend credence to the explanation that the career development interventions may have been targeted toward students with lower achievement.

Nonlinear Predictors. Another plausible explanation for the non-significant predictors is that one or more of the predictors may not have a linear relationship with the criterion variable, English motivation. It is a general underlying assumption in regression analyses that the form of the relationship between the predictive and criterion variables is linear. This assumption simply may not be true for all of the background variables and career development taxon explored in this study. Prior Achievement, for example, was found to have a weak and statistically non-significant negative correlation with English motivation ($r = -.07$). It is possible that students scoring lower in Prior Achievement may in fact have higher English motivation, valuing the tasks of English as critical to desired improvement. At the same time, students scoring higher in Prior Achievement may also have higher English motivation than students who scored in the middle range for Prior Achievement. This pattern would suggest a curvilinear relationship between the predictor variable Prior Achievement and English motivation. This relationship might very well be strong but regression analysis would not reflect the strength of the relationship because it is curvilinear in form.

The same phenomenon could mask the predictive strength of a career guidance taxon. The Field taxon, for example, has a weak, statistically non-significant correlation with the criterion variable, English motivation. An exemplary career

guidance intervention within the Field taxon is “Internships.” Hypothetically, an internship could initially increase English motivation for the first several weeks as students see some important applications of the subject in the world of work. As the dosage of the variable intervention increases, however, the student may begin to devalue the importance of English, feeling overconfident in their current English abilities and seeing the tasks involved in English as unnecessary busywork. Although hypothetical (and there is currently no base of research to support or refute this hypothesis), this supposition does illustrate how a strong curvilinear relationship might exist and would not be identified due to the necessary assumption of a linear relationship in regression analyses.

Design Shortcomings. As mentioned before, problems in the research design as well as measurement of variables provide an additional explanation for a lack of significant predictors. The compounding of the separate interventions into a single taxon score is a tradeoff. While it organizes a complex phenomenon and allows systematic investigation it may be collapsing needed explanatory variance within the taxon or masking the individual influence of specific interventions within the taxon. Similarly, separate interventions may be in correlational opposition within the taxon and effectively canceling out the potential impact of the overall taxon. Further explanations of limitations of the study will be discussed later in the chapter.

Complex Nature of Learning and Motivation. Motivation is as complex a phenomenon as is learning. As both motivation and learning are often defined more as a process than a product, this further delineates their complex nature. It is incredibly

difficult to operationalize and empirically verify a process. Many different variables influence such complex phenomenon. Isolating the individual variables that contribute to such complex processes becomes an incredibly daunting task. A study such as this may have been an oversimplified attempt to determine connections between such complex phenomena.

Lack of Quantity of Career Development Interventions. As explained previously, the results indicated that only a small quantity of the career development interventions were given to respondents. It is possible that that students may not be getting enough dosage of career development interventions in order to register a positive impact on English motivation. In other words, the respondents in this study may have experienced such a low quantity of career development interventions that they simply did not receive enough of the Awareness, Field, and Curriculum taxa for this research to discern the positive effects on English motivation.

No Relationship Between Career Development Intervention Taxa and English Motivation. One possible explanation is that the career development intervention taxa, Awareness, Advising, and Curriculum, are not related to English motivation. The finding that three out of the four career development taxa were not significant predictors of English motivation may simply be a reflection of the lack of a substantial relationship between those classification of career development interventions and the criterion variable English motivation.

Significant Predictors

Stepwise multiple regression retained both Gender and Advising as significant predictors of English motivation. As explained in Chapter 4, a prediction equation can be formulated to aide in interpretation: $E(Y) = 12.24 - 1.68 (\text{Gender}) + .32 (\text{Advising})$.

In the equation, the Advising taxon is based on the z-score conversion. It should be noted that the statistical conversion of intervention quantities to z-scores makes the interpretation of a prediction equation difficult. Due to the conversion to z-scores, the prediction equation from the stepwise multiple regression results cannot be interpreted directly as a dictum to increase the number of interventions within the taxon but rather as an increase in the taxon score (a sum of the z-scores).

For males (coded in data entry as 1), a 1 point increase in the Advising taxon sum of z-scores is equated to a 10.89 in the total score for English motivation as estimated by the prediction equation: $E(Y) = 12.24 - 1.68 (1) + .32 (1) = 10.89$. For females (coded on data entry as 0) a 1-point increase in the Advising taxon z-score sum of z-scores corresponds to a score of 12.57 for English motivation. As the total score for English motivation ranges from 4 to 20, a 10 or 12 point score is substantial. For example, females scoring a total English motivation score of 4 would have answered every question about importance of English tasks as “Never.” A score of 12 points would indicate that their total score now represents an average of “Often” for each respondent rating of items measuring English motivation.

The mean for the Advising taxon sum of z-scores is 13.72. Entering the mean for the taxon into the prediction equation yields a total English motivation score of 15.00 for males and 16.68 for females. This calculation demonstrates two important

points. One, the average influence of the Advising taxon on English motivation is fairly substantial. Two, as the Advising taxon score increases, the effect of gender becomes more prominent, highlighting the disparity between males and females in total English motivation score.

There were 20 interventions clustered into the Advising taxon. The intervention with the greatest mean for the taxon is “Computer Assisted Career Guidance” ($M = 2.61$). The second and third largest averages for interventions in the Advising taxon are “Recruiting” ($M = 1.92$) and “Academic Planning Conference” ($M = 1.90$). These averages indicate that the three interventions which students engage in most frequently (on average) throughout their high school experience are “Computer Assisted Guidance,” “Recruiting,” and “Academic Planning Counseling” and students engage in these interventions an average of 2 to 3 times across high school. The smaller mean sizes suggest that students are not engaging in any one specific intervention within the Advising taxon an excessive quantity of times, as compared to other interventions within the taxon.

The average number of total interventions for the taxon is 22.67 ($SD = 19.97$). The total average and standard deviation for the taxon, as well as the three highest average individual interventions, support the notion that interventions in the Advising taxon are spread out with no one particular intervention occurring more often or in greater total quantity. This points to the need for further research on specific interventions within the Advising taxon to determine their individual impact on English motivation. The implications of this study for future research will be discussed later in this chapter.

It makes logical sense that many of the interventions in the Advising taxon increase English motivation. Interventions such as a “Career Map,” “Career Counseling,” and “Portfolio/Individual Career Plan” help students to develop goals for their future. As mentioned in Chapter 2 goals and goal setting is an integral part of motivation (Covington, 2000; Ford, 1992; Lasane & Jones, 1999; Schunk 1984a). It stands to reason then, that interventions that encourage the formation of goals would have a positive influence on motivation.

It is reasonable that interventions in the Advising taxon such as “Academic Planning Counseling” and “Career Focused Parent/Student Conference” increase English motivation as well. These interventions have the capacity to help students see the connection between their academic tasks and their vocational goals. Seeing the connection between their current English schoolwork and their vocational goals increases students’ valuing of the subject English and their subsequent scores on the English motivation subscale of the SOS. Of course, further research is necessary to examine these specific interventions.

Though very modest, the findings in regard to the Advising taxon are especially important in several respects. Interventions in the Advising taxon are sometimes overlooked. Interventions such as “Career Day/Career Fair” (in the Awareness taxon) are certainly much higher profile and receive greater notice from educational administration and the community. Similarly, interventions such as “Academic Planning Counseling” are not given as much acclaim or praise.

Much emphasis has been placed on work-based learning activities the likes of which are in the Field taxon. These interventions often receive not only special

emphasis among career development interventions but often special funding as well, as outlined in the School to Work Opportunities Act (1994). Burnett (1993) echoes this point by stating that K-12 counseling programs (often comprised of many of the Advising taxon interventions) have been “conspicuously missing from the education reform initiatives” (p. 51). Interventions in the Advising taxon are often taken for granted in the respect that it is just assumed that they are actually occurring within the school setting. These findings might suggest a renewed emphasis on interventions within the Advising taxon.

Additional analyses of the individual interventions within the Advising taxon were conducted. Stepwise multiple regression was conducted using the background variables and each individual interventions within the Advising taxon. Out of the 20 interventions, only “Academic Planning Counseling,” ($\beta = .16$) along with the background variable Gender ($\beta = -.30$), was determined to be a statistically significant predictor of English motivation. The intervention “Academic Planning Counseling” accounted for 2.0% of the variance in English motivation. These additional analyses would also seem to provide some moderate support for incorporating “Academic Planning Counseling” into educational programs. A later section of this chapter will further expound on potential implications for practitioners.

Relation of Current Findings to Previous Research

This exploratory study investigated the relationship of four career guidance taxa (Advising, Awareness, Field, and Curriculum) to two student outcomes, English self-efficacy and English motivation. No other study has investigated the relationship of career development interventions to these specific student outcomes. Although this

study is unique in this sense, the findings do relate to other literature within the area. The prevalent research in the area seems to either (a) concur with the findings of this study, or (b) contradict the findings of this investigation.

Concur. Several studies seem to concur with the results of this investigation. The reviews of the literature from the 1970's seem to be in accord with the findings of this study. The large-scale syntheses of literature from Bonnet (1977) and Bhaerman (1977) found little to no positive impact of career education on academic achievement in math and English. The final conclusion of the hundreds of studies conducted throughout the 1970's is that career education doesn't hinder academic achievement and may promote positive academic outcomes (Bhaerman, 1977; Bonnett, 1977; Hoyt, 1980).

The meta-analysis by Baker and Taylor (1998) also seems to concur with the findings of this study. A moderate effect size was determined for the type of interventions that are categorized in the Advising taxon. Similarly, the Oliver and Spokane (1988) meta-analysis and the Whiston, Sexton, and Lasoff meta-analysis seem to concur with the findings of this study in the sense that low quantities of career development interventions have little or no effect on outcome variables.

Some research examining career development interventions at the high school level also seems to be in agreement with the findings of this dissertation. Hotchkiss and Dorstein (1985) determined that attending a school with an active career guidance program did not have much effect on outcomes such as locus of control, self-esteem, perceived ability to complete college, educational expectation, or occupational expectation.

The findings of this study are also consistent with some of the literature in the area of self-efficacy and motivation. This study found gender to be a significant predictor of English motivation. Bong (1999) found significant gender differences in self-efficacy perceptions in verbal and math subjects. Similarly, Wigfield and Eccles (2000) found that the self-efficacy and motivation of boys' and girls differ along subject lines with boys' having lower self-efficacy and motivation in the academic domain of English.

Several studies also concur with this study's determination of prior achievement as a predictor of English self-efficacy. Lopez and Lent (1992) found previous performance to be an influential source of mathematics self-efficacy in high school students. Shell, Bruning and Murphy (1989) found self-efficacy beliefs to be the most strongly related variable to achievement in reading and writing. Similarly, Pajares and Johnson (1994) found writing self-efficacy to be the only variable significantly related to writing performance at the beginning and end of a Language arts course.

Contradict. The results of other studies contradict the findings of this investigation. The meta-analysis by Bucknam and Brand (1983) determined that students made "large gains not only in career skills and life attitudes but also in academic skills" (p. 66). Those findings are not consistent with the findings of this study.

Similarly, Lapan et al. (1993) found that a program fusing a career guidance and language arts unit significantly increased both the vocational identity scores and the English GPAs of high school juniors. In contrast, in this study the intervention

“Guidance Lessons on Career Development,” a part of the Curriculum taxon, was not determined to be a significant predictor of English motivation or English self-efficacy.

Gysbers, Lapan, & Sun (1997) determined that students enrolled in more fully implemented comprehensive guidance programs reported earning higher grades. These findings also seem to be substantively different from the findings of this dissertation.

As in the literature as a whole, this study is consistent with the findings of some studies in the field and in apparent opposition to other research findings. In a sense then, the present study’s contribution to the current literature is not a definitive argument one way or another, but rather a perpetuation of the debate over whether career development interventions have a positive influence on student outcomes. Perhaps a more significant contribution for this study is to examine its limitations as potential pitfalls to be avoided in future research.

Limitations

Every study has limitations and this dissertation is certainly no exception. There are three primary areas of limitation for the results of this dissertation: (a) generalizability compromised, (b) narrow intervention measures, (c) the retrospective nature of the study, and (d) the set of respondents.

Generalizability. Several considerations limit the generalizability of the findings. The regions and process of selection for schools compromises the generalizability of the findings. The regions for this study were the Midwest, Southwest, and Northwest.

Moreover, district and school selection was done with a convenience sampling procedure rather than a random sampling procedure. The strength of random sampling increasing generalizability lies in the concept that the procedure allows each study participant an equal chance of being selected (Agresti & Finlay, 1997; Rubin & Babbie, 1997). While respondents within the schools were selected using a random sampling procedure, the schools were selected based on the willingness of counselors to participate. The sampling procedure for this study did not give an equal chance of selection for schools or the respondents therein. Therefore, broader studies are needed to confirm the general applicability of the findings of this study.

Narrow Intervention Measures. There are limitations to the study measures for career development interventions. The interventions measure used in the present study simply determines the occurrences of the interventions. This is a narrow metric in two ways. First, the unit measured is inexact. Second, there is no assessment of quality.

The inexact measurement problem is specifically the fact that the quantity of interventions is measured in occurrences rather than hours. This choice for quantity also limits the results of the study in that there is not a comparison of the number of hours required per intervention. In the example of Service Learning given above, it is conceivable that a student may have spent two hours in the intervention for one school, while at a different school a student may have spent six hours. Although three times as long, for this study both may have been counted equally.

The intervention metric employed in this study did not assess intervention quality. Specifically, this study does not measure quality in terms of (a) level of implementation (i.e., is the intervention conducted for students school wide, as an

essential component of their educational program), (b) timing of the intervention (i.e., grade, time of academic year), or (c) delivery of the intervention (i.e., which educational personnel conducted the intervention -- counselor, teacher, aide, principal, or other). These factors would logically influence the potential efficacy of career development interventions.

The quality of an intervention also refers to the inclusion of essential components of the intervention, the amount of time spent in an intervention, and educational emphasis on the intervention itself. For example, "Service Learning" is a career development intervention in the Field taxon. Item #58 of the Senior Survey (Appendix F) measures this intervention by asking respondents to indicate the number of times "I worked as a volunteer and got high school credit for it." This item assesses quantity only. Some schools implement this intervention merely as requiring students to conduct volunteer hours in community service while other schools require students to keep a reflection journal and complete class assignments that relate the students' experiences to their vocational aspirations. These are qualitatively different interventions and the measurement of the quality component may potentially be more influential on the formation of English motivation and English self-efficacy than quantity.

Since there is not a measure of quality in this study's assessment of the interventions, there is no guarantee of a standardized delivery of the interventions under investigation. There is no guarantee that the interventions students are experiencing are delivered in the same fashion at the different schools in the study. For this reason, it becomes problematic to assume that increasing the quantity of any

interventions will necessarily lead to the increase in English motivation as the results of this study suggest.

Similarly, the statistical conversion of intervention quantities to z-scores makes strategic planning using the results difficult. The conversion of intervention quantities to z-scores was necessary to capture quantities of interventions that occur on different metrics (episodic vs. academic term). The z-score conversion, however, prevents the interpretation of the prediction equation as a direct increase in the number of total interventions within the Advising taxon. The increase in the prediction equation is actually an increase in the taxon score (a sum of the z-scores). While the prediction equation can be interpreted as “more is better,” a limitation of the findings is that a direct connection to specifically how much more of the Advising taxon cannot be determined, thus inhibiting specific strategic planning.

Moreover, the results do not break down the individual interventions within each taxon. Therefore, the findings do not demonstrate the individual contribution that the interventions within the taxa make toward explaining English self-efficacy and English motivation. This task will be left to future researchers.

Retrospective Design. Another limitation of the study is its retrospective nature. Respondents are asked to reflect on their four years of high school and recall career development interventions. This may be a difficult task for adolescents especially and they may be unable to recall isolated activities from prior years of high school. The respondent data then, may be more a collection of those interventions which respondents recall as being most significant, rather than the representative total quantity of career development interventions.

One potential method of dealing with this limitation is to survey educational personnel regarding the interventions provided for students. Information as to what interventions are provided at each grade level could be used as a check on the reliability and validity of the student response data. The school counselors at each of the high schools were surveyed for such information, but the results of their data were not used for this dissertation.

Set of Respondents. Finally, the respondents in the study may be something of a biased group. The measures were administered to high school seniors in the last few months of high school. At that point in the academic school year some students have already dropped out since, as mentioned previously, the event drop out rate is 4% (United States Department of Education, 2000). Moreover, the study only examined high school seniors in traditional American high schools and did not investigate any alternative schools or training programs. For these reasons, some students who may have been profoundly impacted by career development interventions may have been excluded from participation in the research.

As mentioned previously, there is some evidence to suggest that some of the career development interventions may have been targeted toward students with low Prior Achievement and low SES. If this is true, then this study is investigating the impact of those career development interventions on a select population rather than examining how the interventions affect students in general.

Moreover, as the descriptive statistics for the criterion variables indicate the respondents in this study have fairly high English self-efficacy ($M = 16.34$, $SD = 2.57$) and English motivation ($M = 15.79$, $SD = 2.92$). These high levels of English self-

efficacy and English motivation may also be a function of the selected respondent set. Again, as with the influence of attrition, as high school seniors nearing graduation the respondents may be a select group of students not representative of the English self-efficacy and English motivation of students in general.

Implications

Implications for Practitioners

The findings have several important implications for practitioners. Most notably, this study presents additional evidence that career development interventions are not detrimental to students' English motivation and English self-efficacy. None of the career development intervention taxa were determined to have an adverse effect on either English self-efficacy or English motivation.

This finding is important to note for several reasons. The findings lend additional support to refute the longstanding argument that career development interventions take time away from reading, writing, and arithmetic and therefore damage student's academic development (Miller, 2001). Moreover, although this study investigates the impact of career development intervention taxa on English self-efficacy and English motivation, there is evidence that career development interventions contribute to numerous other positive student outcomes such as improved career planning, job search skills, reduction in course failures, more positive school climate, greater sense of school safety, and perceptions of a greater preparation for the future (Cawelti, 1999; Gysbers et al., 1999; Loughead et al., 1995). The finding that career development interventions are not detrimental to English self-efficacy and

English motivation adds credence to the exploration of other positive outcomes of career development interventions. If career developmental interventions do not deter from academic learning, then proof of other positive outcomes becomes an important argument in favor of increasing the use of career development interventions.

Menefee (1942) conducted “the most comprehensive, most carefully designed evaluation” (Kliebard, 1999, p. 211) of vocational education. In his study, Menefee compared youths given vocational education under the Smith-Hughes Act with other youths and determined that the former were not significantly better off than the latter. In light of his findings, Menefee pointed to the need for greater vocational guidance. He stated that, “vocational training is less effective than might otherwise be the case because of a lack of opportunity for individual guidance in the public schools” (p. 104). The findings of this study regarding the Advising taxon would seem to support Menefee’s assessment of the importance of guidance in public schools.

As referred to previously, in 1994, the School to Work Opportunities Act (STWOA) describes in its purposes section the objectives: “(7) to help all students attain high academic and occupational standards; (8) to build on and advance a range of promising school to work activities, such as tech-prep education, career academies, school-to-apprenticeship programs, cooperative education, youth apprenticeship, school-sponsored enterprises, business-education compacts.” While the present study can be interpreted as weakening the case for the effectiveness of any of those career development interventions, interventions in the Advising taxon are noticeably absent from mention.

The movement away from a focus on Advising interventions can be found in other legislation as well. For example, the Carl D Perkins Vocational Education Act (1984) contains specific language about interventions that fall in the Advising taxon. However, the Perkins III legislation (1998) contains no such language. Instead, Perkins III, like STWOA, can be interpreted as placing greater emphasis on career development interventions that occur in the Field, Awareness, and Curriculum taxa as well as broader attempts to integrate academic and vocational education (Stasz, 1999).

In summation, the results of this dissertation have three major implications for practitioners. First, the incorporation of career development interventions into educational programs will not be detrimental to students' English self-efficacy or English motivation. Second, this study lends further support to the evidence of a discrepancy between males and females in regards to English motivation. Educators should be aware of the influence of gender on English motivation and take this into account when designing and implementing curriculum as well as educational programs. Finally, there is some weak evidence to indicate that career development interventions within the Advising taxon will not negatively effect students' English motivation and may in fact improve the English motivation of high school students. Therefore, when designing and implementing educational programs, career development interventions from the Advising taxon should not be ignored. It is important for practitioners to note, however, that these implications are tempered by the weak strength of the relationship between the Advising taxon and English motivation in this study, and the numerous limitations of the study mentioned in the previous section.

Implications for Researchers

This study has implications for researchers as well as practitioners. Future research investigating career development interventions can improve the quality of inquiry in three ways. These improvements entail: (a) improved sampling, (b) the use of quality measures, and (c) the use of experimental control. Furthermore, this study generates research questions that warrant further investigation.

Improved Sample. Two improvements in the sampling procedure can improve the design of the present study. One, a larger sample will help to compensate for issues of multicollinearity by decreasing the standard error. Two, a stratified sample or probability proportionate to size sampling procedure would greatly enhance the representativeness of the sample and the ability to generalize study findings. Since the population is essentially a known population, this makes more representative sampling possible. As information such as SES (as free/reduced lunch status), race/ethnicity, gender, etc. are usually available from schools/ school districts, it is possible to use sampling procedures which ensure greater representativeness. Improving the sampling procedure not only improves the generalizability of the research findings but helps create a more sound research design as well.

Quality Measures. As discussed previously, one of the major limitations of this investigation is a lack of measures for career development intervention “quality.” This problem suggests the creation of a means for measuring the best practice and correct implementation of career development interventions is a worthwhile research endeavor. Incorporating measures for “quality” would be beneficial to future research in the area.

Experimental Control. Moreover, experimental control would greatly enhance future investigations. Investigating the impact of career development interventions presents unique challenges. The level of control necessary to discern connections between career development interventions and student outcomes such as motivation and self-efficacy may require longitudinal studies, experimental control groups, and/or the use of single subject design.

Levin and O'Donnell (1999) make several recommendations for improving the educational research. To improve the "credibility" of educational research by increasing experimental control, Levin and O'Donnell advocate the use of three phases for educational research. The three phases parallel the phases of medical research where initial clinical trials determine the best delivery methods and dosage of medication. Clinical trials determine if the drug produces a desired effect in the second phase. In the third phase, trial studies compare the effects of the new drug against the existing standard(s) by conducting carefully controlled randomized experiments. To follow these stages, Levin and O'Donnell argue that educational research needs to consist of randomized classroom trial studies. These studies should occur under carefully controlled conditions. Careful control involves the use of multiple independent classrooms (in each study and subsequent replication studies), the inclusion of alternative interventions (such as a placebo or control group), and "across-classroom randomization of interventions" (p. 199). In this way students are randomly assigned to classrooms and interventions are randomly assigned to classrooms in multiple instances. Moreover, Levin and O'Donnell also argue in favor of safeguards

such as “blind” and “double blind” studies to eliminate student, teacher, and researcher bias.

These suggestions have implications for investigating the effects of career development interventions. Perhaps rather than global attempts to discern connections between career development interventions and complex outcomes such as student learning, research in this area should follow Levin and O’Donnell’s prescription for greater research “credibility.” For example, the Advising taxon intervention, “Career Map” could be taken through each of the subsequent phases, using the recommended careful control procedures. Early research can investigate those precise dimensions of the “Career Map” interventions that are most essential and determine the critical level of quantity. With the results of this research as foundation, the “Career Map” can be further investigated for efficacy using additional randomized classroom trial studies. Then finally, the intervention can be compared to other career development interventions and/or investigated within the context of a greater educational program.

Clearly this dissertation points to several improvements that can help guide future research. Additionally, this study augments nascent questions that will drive further research.

Further Research

This study generates questions of interest for further research in several areas: (a) the Advising taxon, (b) the quality of interventions, (c) the sequencing of interventions, (d) the interaction among the career development intervention taxon, and (e) the investigation of other student outcomes.

Advising. One potential research question from this topic is; “What is the impact of the individual interventions within the Advising taxon on English motivation?” The significant findings in regard to the Advising taxon point to further research within the taxon. A replication of this study should be conducted using the interventions within the Advising taxon rather than the four career development intervention taxa investigated in this dissertation. The findings of this study and the research in the area provide a rationale for an investigation of the separate interventions within the Advising taxon. Moreover, research exploring the career development interventions within the Advising taxon can incorporate the research improvements suggested above. For example, investigating the Advising taxon interventions using an improved sampling procedure and experimental control can greatly improve the potential implications of the study findings.

Quality. There are several research questions that surround the issue of quality regarding the implementation of career development interventions. One potential question is; “What quality variables have the most leverage with English motivation and English self-efficacy?” For example, one quality variable could be the professional performing the intervention. An example research question would be; “Does a Career Focused Parent/Student Conference need to be conducted by a school counselor or would a teacher be more effective?” A similar question might investigate whether a mentor from the community might have more leverage with student motivation. Each of these questions attempt to illuminate the larger question, “What are all of the dimensions of quality for career development interventions?”

Determining the elements of quality which constitute the defining aspects of career development interventions may be essential before investigating any issues of quantity.

Sequencing. It would also be worthwhile to investigate issues of sequencing with career development interventions. One potential line of inquiry could focus on whether there is an optimal developmental sequencing of career development interventions. One potential sequencing research question might be, “does attending a Career Day/Fair prior to a Job Shadow, increase the influence of the Job shadow on student motivation and self-efficacy?” Similarly, what grade levels are most appropriate for what interventions?

A similar line of investigation can explore time sequencing for career development interventions relative to each other. An example research question may be, “is it more effective to have a Career Focused Parent/Student Conference two weeks after a Job Shadow or several months later?” Perhaps a Career Interest Assessment is most effective at the beginning of 11th grade as opposed to other school years. Clearly there are a multitude of potential studies involving sequencing of career development interventions.

Interaction. Rather than occurring in a given order, perhaps career development interventions need to happen together. What is the interaction effect of career development interventions? Academic Planning Counseling, for example, might be most effective when combined with Internship. The opposite may be true as well. Researchers have not investigated whether certain career development interventions may cancel out the positive impact of others.

Similarly, for strategic planning purposes, the investigation of the career development taxa for interaction effects may also be useful. The presence of a large quantity of the Awareness taxon might increase the efficacy of the Field taxon, while a lack of Awareness taxon quantity might diminish the influence of the Field taxon.

What is the interaction effect of the career development taxa?

Other Outcomes. Investigating the influence of career development interventions and/or the Advising, Field, Awareness, and Curriculum taxa on other student outcomes has additional merit. In order to have a broader understanding of the use of career development interventions in education, it is also important to explore their bearing on outcomes such as attendance, drop-out rate, career maturity, and post-secondary educational attainment. Knowledge from these explorations would certainly inform the best practices of educational programs.

Conclusion

This dissertation sought to investigate the relationship of career development interventions to English self-efficacy and English motivation in high school students. Perhaps, if nothing else, this dissertation is a reminder of the daunting task of investigating the efficacy of interventions within education. Former President Clinton (1999) emphasized giving a “world-class education” to America’s children; “As President Kennedy said: ‘Our progress as a nation can be no swifter than our progress in education.’ In the 21st Century, in an economy driven by intellect and powered by ideas that will certainly be the case” (p. 18). While it is no small task to determine

those interventions that provide the best education for America's youth, it is profoundly imperative to do so. Our progress as a nation depends on it.

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APPENDICES

APPENDIX A

List of Career Development Interventions

1. Academic Planning Counseling
2. Career Cluster/Pathway/Major
3. Career/Technical Education Course
4. Career Information Infused Into Curriculum
5. Career Academy/Career Magnet School
6. Career Passport/Skill Certificate
7. Career Field Trip
8. Career Day/Career Fair
9. Career Aptitude Assessment
10. Career Library/Career Resource Center
11. Career Skills Infused Into Curriculum
12. Career Maturity Assessment
13. Career Focused Parent/Student Conference
14. Career Peer Advising/Tutoring
15. Career Map
16. Career Counseling
17. Career Interests Assessment
18. College Admissions Testing
19. Community Members Teach In Classroom
20. Computer Assisted Career Guidance

- 21.Cooperative/Dual Enrollment
- 22.Cooperative Education/Structured Work Experience
- 23.Guidance Lessons on Academic Planning
- 24.Guidance Lessons on Career Development
- 25.Guidance Lessons on Personal/Social Development
- 26.Information Interviewing
- 27.Internship
- 28.Job Hunting Preparation
- 29.Job Coaching
- 30.Job Placement
- 31.Job Shadowing
- 32.Mentorship Programs
- 33.Personal/Social Counseling
- 34.Portfolio/Individual Career Plan
- 35.Recruiting
- 36.Referral to External Counseling/Assessment
- 37.Referral to External Training Programs
- 38.School Based Enterprise
- 39.Service Learning/Volunteer Programs
- 40.Student Clubs/Activities
- 41.Tech Prep/2+2 Curriculum
- 42.Work Based Learning Project

43. Work Study

44. Youth Apprenticeship

APPENDIX B

**NATIONAL RESEARCH CENTER FOR CAREER AND TECHNICAL
EDUCATION
CAREER GUIDANCE RESEARCH TEAM**

Data Gathering Protocol for School Counselor Research Partners

This protocol serves as a guideline for essential steps necessary for the career counselor involved with the CGRT Project. The project has seven steps that involve the school counselor. These steps are (1) formulation the subject group, (2) obtaining written consent, (3) survey administration, (4) file data retrieval, (5) school data retrieval, (6) intervention census, (7) OSU enrollment, (8) collation of materials, and (9) shipping materials.

Please read the instructions carefully.

Step #1. Formulation of the Subject Group:

It is critical that each eligible student has an equal chance to be chosen. Therefore, it is recommended that our school counselor research partners follow the student selection process detailed below:

1. Obtain from the school district office or form the school an alphabetized list of seniors who are 18 years of age or above.
2. Count the number of eligible students on the list. You then divide the total number of eligible students by 20. For example: the district office produced a list of 200 hundred eligible students (i.e., students that are age 18 or above) out of a possible 473 high school seniors in your school. Divide the eligible number (e.g., 200) by 20. In the case of our example, this division would result in an answer of 10.
3. Circle the first name on the list and then count down X number of names (remember that X = the number you determined in Step 2) and circle that name. Continue this counting and circling until 20 names have been circled.

4. Starting with the first circled name, check to see if you have a complete (i.e., 9th grade to the present) transcript/grade report sheet on file for each student. It does not matter if it is an official or unofficial transcript/grade report. Continue going down the list of circled names until you have obtained 15 students who have complete transcripts/grade report sheets.

Step #2. Obtaining Written Consent:

5. Once 15 students have been chosen, contact them about the project. Give them a brief explanation of the nature and the importance of the project. The “Research Introduction Letter” and the “Informed Consent Statement” can assist you with this step.

6. Speak with students individually and/or in small groups about the importance of the project and what will be required of them.

7. If a student is willing to volunteer, have the student sign the gold copy of the informed consent document and then collect it from the student. In the unlikely event that a student declines to participate in the project, pull another student from the list of 20 you previously generated.

Step #3. Survey Administration:

8. We recommend that you gather the 15 students together for a two-hour period of time. This will allow for efficiency and a minimal disruption of the school schedule. It will also provide an opportunity for students to clarify concerns and ask questions.

9. When all the students are assembled, explain the survey process to them:
1. Distribute to each student a survey, scantron answer form, and #2 pencil.
 2. Explain completion of the demographic portion of the survey.
 3. Explain completion of the questionnaire portion of the survey.
 4. Remain available to assist students while they complete the surveys.

Step #4. File Data Retrieval:

For each student that completed a survey, collect the following materials from their

school file or district records:

8. Copy of official or unofficial transcript/grade report of coursework (9th grade to present).
9. Copy of high school attendance record (9th grade to present).
10. Copy of standardized achievement test results (e.g., Stanford Achievement Test, Iowa Test of Basic Skills). Preferably these test results will be from 8th grade. Second preference: 7th grade. Third preference: 9th grade.
11. Student's free/reduce lunch status (this information will be placed on the student cover sheet). The best sources for this information are: (1) school principal, (2) school cafeteria manager, and (3) district food service manager.

APPENDIX C

Research Introduction Letter

January 12, 2001

Dear High School Senior,

On average, it takes a high school student 10 years after graduating to settle on a career! This 10 year gap presents a lot of personal and financial problems for today's young adults! I am the leader of a research team at Oregon state University and Penn State University who are trying to figure out how we can help young adults close this gap. This is where you come in. You are part of a select group of high school seniors from across the nation that we would like to survey. As a researcher and educator, I am asking you to share (on a strictly confidential basis) some of your opinions and experiences related to your school work from 9th grade to today.

Your participation in this study is voluntary. Please read the attached "Informed Consent Document." If you are willing to participate in our study, please sign the gold copy of this document and return it to the counselor from your school that is helping us. You may keep the blue copy of this document.

If you have any questions about our research project, please feel free to contact me at (541) 737-8204. If I am not available when you call, please leave a message and I will call back. Thank you for your time and assistance in helping our research team improve the career development activities in America's high schools.

Sincerely,

Cass Dykeman, PhD, NCC, MAC, NCSC
Associate Professor of Counseling
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APPENDIX D

Informed Consent Document

I. Title of the Research Project: The Relationship of Career Development Interventions to Positive Student Outcomes.

II. Investigator: Dr. Cass Dykeman of Oregon State University.

III. Purpose of the Research Project: The purpose of the study is to investigate the relationship between career development interventions and how well students do in school.

IV. Procedures:

I understand that as a participant in this study the following things will happen:

1. Selection:

I understand that I was randomly selected for this study by a counselor at my school. This selection was based on my being a senior in high school and 18 years of age or above. Every student in my school meeting these two criteria had an equal chance to participate in this study.

2. What Participants Will Do During the Study:

I will be given a survey that takes around one hour to complete. The survey is designed to gather my thoughts about career development interventions, career-related experiences, and career perceptions in high school.

A guidance counselor at my school will pull from my student file data on my test scores, attendance, grades, and enrollment status in free/reduce lunch programs.

V. Foreseeable Risk or Discomforts:

I understand that although highly unlikely, it is possible that I might find some of the questions difficult to answer. If this occurs I could feel temporarily confused or anxious. Clearly, any such possible feelings should subside very quickly. Also, I understand that my school counselor is available should I desire to discuss these feelings.

VI. Benefits to Be Expected from the Research:

I understand that the overall results of this research may appear in scholarly journals or presented at research conferences. More importantly, the information that I provide may potentially assist future students and school counselors in developing more effective career interventions.

VII. Confidentiality:

I understand that a counselor from my school will have access to my completed survey as well as my test scores, attendance records, grades, and free/reduced lunch enrollment status. I further understand that this school counselor will give this all of this information to Dr. Dykeman *minus any reference to my name*.

VIII. Compensation for Injury:

I understand that the Oregon State University does not provide a research subject with compensation or medical treatment in the event that the subject is injured as a result of participation in the research project.

IX. Voluntary Participation Statement:

I understand that my participation in this study is completely voluntary and that I may either refuse to participate or withdraw from the study at any time without penalty.

X. If You Have Questions:

I understand that any questions I have about the research study or specific procedures should be directed to Dr. Cass Dykeman, 541-737-8204, 100 Education Hall, Oregon State University, Corvallis, OR 97331. I also understand that if I have a question about my rights as a participant, I should contact the IRB coordinator at Oregon State University, (541) 737-3437.

My signature below indicates that I have read and that I understand the procedures described above and give my informed and voluntary consent to participate in this study.

 Signature of Subject

 Printed Name of Subject

 Date Signed

 School

APPENDIX E

English Self – Efficacy and English Motivation Items

English Self-Efficacy Items

1. I find the reading assignments for my English class easy.
2. If I want I can get good grades in English.
3. It is easy for me to answer questions the teacher asks in English class.
4. No matter how hard I try, I have trouble with English (reversed item).

English Motivation Items

1. A person who does well in English class gains skills that are important.
2. I do all my English homework.
3. English is a waste of time and I do just enough to get by (reversed item).
4. The things I learn in English are important.

APPENDIX F

Senior Survey

LAST NAME

Introduction: This survey has 4 parts. In Part 1, we ask you background questions. In Part 2, we ask your opinions about your math and English classes. In Part 3, we ask whether you have received certain career activities that occur in high schools. Finally, in Part 4 we ask whether you participated in certain classes or programs. Parts 1,2, and 4 are short and quick. Part 3 takes about 20 minutes to finish. It is longer than the other parts, but if we are going to improve career activities in America's high schools and colleges, we need the most accurate answers you can provide. Thank you for taking the time to finish this survey and help us with our work to better the lives of America's young adults!

Survey Instructions: Please write your last name in pencil in the top left hand corner. Remember that the school counselor will erase your name before sending the survey to Dr. Dykeman. Then go ahead and answer questions 1 through 65.

PART 1

1. Age: *(check one)*

- 18
- 19
- Other

2. Gender: *(check one)*

- Male
- Female

3. Hi#hest degree of the adult with who whom have spent the most time during high school: *(check one)*

- None
- High School Diploma or GED
- Community College (ALA, AS, ALAS, etc)
- 4 Year College (BA, BS, etc)
- Master's Degree or Doctorate

4. Which best describes your racial/ethnic identity: *(check one)*

- white, European American, Non-Hispanic
- Asian or Asian American
- Black, African American, Non-Hispanic
- Middle Eastern or Middle Eastern American
- North African or North African American
- Hispanic or Latino American
- Pacific Islander
- American Indian or Alaskan Native
- Other
- Decline to respond

PART 3: Activities

Instructions: Please write down how often you participated in each activity while in high school and how helpful you found this activity in preparing you for the future.

Example: Susan is a Senior in High School. As a Freshman, she went to a work site and followed a worker around watching what the worker did. Susan did this activity twice as a Sophomore. As a Junior and Senior, Susan did not do this activity. Thus, on question #22, Susan would fill in a "1" under one under **9th/Frosh** and a "2" under **10th/Soph**—leaving the **11th/Junior** and **12th/Senior** cells blank. Also, Susan thought this activity was helpful in preparing her for the future so she placed a check mark

(✓) under **Helpful**.

| # | Activity | 9 th Frosh | 10 th Soph | 11 th Junior | 12 th Senior | Helpful (✓) |
|----|---|--------------------------|--------------------------|----------------------------|----------------------------|------------------|
| 22 | I visited a work site and followed a worker around watching what he/she did | 1 | 2 | | | ✓ |

SURVEY OF ACTIVITIES

| # | Activity | 9 th Frosh | 10 th Soph | 11 th Junior | 12 th Senior | Helpful (✓) |
|----|---|--------------------------|--------------------------|----------------------------|----------------------------|------------------|
| 22 | I visited a work site and followed a worker around watching what he/she did | | | | | |
| 23 | I went to a work site and completed a project as part of a school assignment | | | | | |
| 24 | I did unpaid work at a job site to get a feel for what it was like to work in that industry | | | | | |
| 25 | An adult at school helped me find a job | | | | | |
| 26 | I was given a mentor who taught me about the world of work | | | | | |
| 27 | An adult from school came to my job and gave me feedback on my work skills | | | | | |
| 28 | A counselor helped me understand more about myself and/or my family | | | | | |
| 29 | My parents, counselor, and I met at school to talk about my career choices and plans | | | | | |
| 30 | I took a test that told me about how well I know myself or make decisions | | | | | |
| 31 | An adult at school referred me to a counselor in the community | | | | | |

| # | Activity | 9 th Frosh | 10 th Soph | 11 th Junior | 12 th Senior | Helpful (✓) |
|----|---|--------------------------|--------------------------|----------------------------|----------------------------|----------------|
| 32 | An adult at school referred me to a training program in the community | | | | | |
| 33 | I took a test that told me what careers might interest me | | | | | |
| 34 | I learned about further education options from a military, apprenticeship, or college recruiter | | | | | |
| 35 | I took a college admissions test | | | | | |
| 36 | I was taught how to find a job and get hired | | | | | |
| 37 | As a school project, I interviewed someone about their job and industry | | | | | |
| 38 | I talked with a <i>peer</i> advisor about a career question or problem that I had | | | | | |
| 39 | I used a computer program and/or went online to learn more about careers | | | | | |
| 40 | I created a portfolio of the career interests, skills, and experiences that I have had | | | | | |
| 41 | I chose a career cluster, pathway, or major | | | | | |
| 42 | I went to my school's library or career center to learn more about careers | | | | | |
| 43 | I diagramed and/or made a list of all of the steps necessary to reach my career goals | | | | | |
| 44 | I talked with a school counselor or teacher about a career question or problem that I had | | | | | |
| 46 | I had a lesson about how to better handle a personal or social problem | | | | | |
| 47 | I had a lesson about how to select classes to take that match my goals | | | | | |

| # | Activity | 9 th Frosh | 10 th Soph | 11 th Junior | 12 th Senior | Helpful (✓) |
|----|---|--------------------------|--------------------------|----------------------------|----------------------------|----------------|
| 51 | I took a test that suggests what jobs best match the skills and talents I have | | | | | |
| 52 | I went on a field trip to a work site | | | | | |
| 53 | In an English, math, social studies, or science class, the teacher used examples from the world of work to teach a <i>skill</i> | | | | | |
| 54 | In an English, math, social studies, or science class, the teacher used examples from the world of work to teach us some <i>facts</i> | | | | | |

TURN TO PAGE 6



Part 4: Programs/Classes

Instructions: Please indicate how many semesters you participated in each program/class while in high school and how helpful you found this program/class.

Example: Jerald worked at McDonald's during the first and second semesters of his Sophomore year and the first semester of his Junior year and his school gave him credit each semester for this work. Thus, on question #57, Jerald circled "1st" and "2nd" under 10th/Soph and "1st" under 11th/Junior. Jerald did not think this program was helpful in preparing him for the future and left the **Helpful** column blank.

| # | Program/Class | 9 th Frosh | 10 th Soph | 11 th Junior | 12 th Senior | Helpful (✓) |
|----|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------|
| 57 | I received high school credit for a job I had separate from any school program | 1 st 2 nd | |

SURVEY OF PROGRAM/CLASSES

| # | Program/Class | 9 th Frosh | 10 th Soph | 11 th Junior | 12 th Senior | Helpful (✓) |
|----|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------|
| 55 | I was in a 1 year long program where I went to school part time and worked part time and got both high school credit and pay | 1 st 2 nd | |
| 56 | I was in a 2 to 3 year long program that combined training from both school and work | 1 st 2 nd | |
| 57 | I received high school credit for a job I had separate from any school program | 1 st 2 nd | |
| 58 | I worked as a volunteer and got high school credit for it | 1 st 2 nd | |
| 59 | I earned both high school credit and college credit for a class I took | 1 st 2 nd | |
| 60 | I participated in a program where I could earn a certificate to do a certain type of work | 1 st 2 nd | |
| 61 | I was a member of a student club that does things which help me learn about different types of work | 1 st 2 nd | |
| 62 | I worked in a business that operated out of my school | 1 st 2 nd | |

| # | <i>Program/Class</i> | 9 th Frosh | 10 th Soph | 11 th Junior | 12 th Senior | Helpful (✓) |
|----|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------|
| 63 | I was in a program that combined the last two years of high school with the 2 years of community college to prepare me for a career | 1 st 2 nd | |
| 64 | I went to a school that organized itself around a particular career field | 1 st 2 nd | |
| 65 | I took a voc-ed/technical-ed class | 1 st 2 nd | |

**Thank you for your
time and effort!**

**Please turn the survey
in to your counselor.**