EXAMINING CAREER INTEREST AND BARRIERS

WITH ADJUDICATED YOUTH IN DETENTION

by

LAUREN ELIZABETH MANN

(Under the Direction of Brian A. Glaser)

ABSTRACT

There is a paucity of literature related to the use of career assessment and career theory with juvenile offenders. The present study attempts to bridge this gap by piloting the use of the *Self-Directed Search* Fifth Edition (SDS; Holland & Messer, 2013), and by exploring theoretical models of career interest and career self-efficacy with detained juvenile offenders. Participants were adolescents (N = 97), who were detained at a short-term Youth Detention Center in the Southeastern United States at the time of the study. The results of this study indicate good psychometric properties of *Self-Directed Search* Fifth Edition with juvenile offenders. Significant differences were found between the juvenile offender sample and normative high school sample on the Realistic, Investigative, Social, Enterprising, and Conventional themes, but these results differed by gender. In addition, female offenders reported greater barriers in future college pursuits than did male offenders. Study results did not support the initial model domain-specific self-efficacy on the Investigative theme. However, results indicated that male and female

juvenile offenders reported significantly different scores on Realistic and Social themes, indicating that gender is a significant predictor of interest on these two themes for juvenile offenders. These results provide support for the use of the *Self-Directed Search* fifth edition with juvenile offenders, and provide implications for vocational program development for youth in detention that capitalizes on the use of psychometrically sounds assessment tools and theory.

INDEX WORDS: vocation, adjudication, person-environment fit, social-cognitive career theory, adolescence

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DEDICATION

My dissertation is dedicated to the youth detained in detention centers, jails, and prisons across the country as well as the staff, CSOs, counselors, and teachers who work with these youth. It is my sincerest desire to bring hope to the lives of youth, who may often feel that there is no hope left. I dedicate this dissertation to all those who will benefit from the hope that work can bring to their lives.

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TABLE OF CONTENTS

Page

LIST OF FIGURES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

Involvement in the juvenile justice system influences multiple dimensions of an adolescent's life, and presents multiple challenges for stakeholders including parents, educators, politicians, tax payers, and systems resources. Counseling psychologists are uniquely skilled to examine applications of vocational psychology within the juvenile justice population due to the field's focus on social justice, multicultural psychology, and preventative care (APA, 1999; Varghese & Cummings 2013). This chapter will explore vocational assessment and vocational counseling as an understudied and underutilized treatment opportunity for detained youth. In addition this chapter will explore the role counseling psychologists hold in developing these assessment tools and counseling programs. This chapter will also outline two vocational theories Holland's Theory of Personality Environment Fit (Holland, 1997) and Social Cognitive Career Theory (SCCT; Lent, Brown & Hackett, 1994) that can be applied to vocational assessment and counseling with juvenile offenders. Finally, this chapter concludes with the research study questions and hypotheses.

Introduction to the Research Study

Youth largely commit crimes due to lack of opportunity that schools, families, and communities are unable or unwilling to provide, stemming from unjust sociopolitical forces such as poverty, racism, and systemic neglect contributing to juvenile delinquency (Ameen & Lee,

2011). However, “the myth of dangerous and unreformable youth is just untrue” (Ameen & Lee, 2011 p. 98). Evidence indicates that treatment programs including counseling, therapy, and vocational skill building are effective in changing behavior and creating opportunities for delinquent youth (Howell, 2009). Therefore, researchers, program developers, and applied practitioners should seek to examine methods to improve outcomes for youth in the juvenile justice system by addressing specific mechanisms that make-up effective treatment programs.

It is estimated that up to thirty-five percent of youth involved in the juvenile justice system do not continue to the adult justice system (Loeber & Farrington, 2001; Howell, 2009). Further, it is estimated that up to 80 percent of offenders released from secure detention or other secure placements do not return to complete high school, and many youth released from detention do not return to their homes (Platt, Casey, & Faessel, 2006; Coffey & Gemignani, 1994; Munson & Strauss, 1993). By law, juvenile detention facilities are required to have educational and transitional programming, but these programs tend to vary within each facility and state (Puzzanchera, Adams & Hockenberry, 2012; United States Department of Education, 2006). Therefore, it is imperative to address the means by which detention centers manage educational and transitional planning for juvenile offenders.

Vocational assessment and counseling as part of the rehabilitation model within juvenile detention can be an additive component to existing programing intended to reduce recidivism (Varghese & Cummings, 2013). Further, vocational counseling can contribute to the U.S. Department of Education mission to increase programming and reduce recidivism (United States Department of Education, 2006). Moreover, vocational assessment and vocational counseling are means to better the lives of youth in the juvenile justice system, and may be seen as a tool of empowerment and opportunity for youth caught in an unjust sociopolitical system (Diemer &

Hsieh, 2008), allowing youth to develop their own set of skills and self-efficacy. Finally, career assessment and counseling can aid juvenile offenders in developing career options and educational plans in preparation for release from secure detention or prior to long-term placement in other facilities (Ameen & Lee, 2011). Given that the majority of youth who are involved with the juvenile justice system do not go on to become career criminals, but do not return to high school or their home environments (Loeber & Farrington, 2001; Howell, 2009; Platt, Casey, & Faessel, 2006), it is imperative the vocational counseling and assessment become a part of the model in detention center counseling and education.

Career counseling begins with accurate assessment of interests and skills (Glaser, Calhoun, Bates & Bradshaw, 2003), but currently there are few psychometrically validated instruments for use with juvenile offenders (Barclay, 2004). In addition to accurate assessment, theory must guide assessment and subsequent treatment. However, the study of career theory with criminal and delinquent populations has lagged behind other career theory research (Varghese & Cummings, 2013). Therefore, additional research is needed to address the gap in developing vocational assessments and career theories with juvenile offenders. Vocational assessment, and the theories that guide these assessments as well as subsequent interventions may be an effective component for improving and bettering correctional education, correctional counseling and subsequently the lives of juvenile offenders in secure detention placements and once these offenders are released.

The Role of Counseling Psychologists

Counseling psychology has a strong historical foundation in career and vocational development as well as roots in social justice (APA, 1999); as such, counseling psychologists are uniquely trained to intervene and investigate areas of social inequality within the world of work.

Specifically, counseling psychology's focus on personal and interpersonal functioning across the lifespan and across emotional, social, vocational, educational, developmental and organizational concerns (APA, 1999; Munley et al., 2006) provide a framework for understanding youth development within unjust sociopolitical systems. Therefore, counseling psychologists can make significant contributions in the expansion of career theory to understand individual and environmental variables that affect vocational behavior, choices, goals, and subsequent outcomes (Varghese & Cummings, 2013) by utilizing knowledge of human development and systems across the lifespan.

Furthermore, counseling psychologists can also work to address additional injustices fixed within the justice system that further contribute to poor work and social outcomes for detained youth. Vocational psychology is one avenue for social justice, as the world of work represents a context in which the realities of social iniquities and injustices are clear (Blustein, McWhirter and Perry, 2005). Traditionally the world of work and career development research has focused on the worldview that values autonomy and individualism (Cook, Heppner, and O'Brien, 2002) .Therefore, there is a strong need for examination of values in which the processes of vocational opportunities and adjustment are typically rooted such as schools, courts and prisons (Bluestein, 2001). Risk factors such as behavioral issues, low verbal abilities, psychiatric symptomology, poverty and unstable home environments exacerbate poor educational, vocational, and employment outcomes for juvenile offenders (Platt, Casey, & Faessel, 2006). Furthermore, overrepresentation of minority youth in secure detention placements and on probation (Hockenberry, 2013) necessitate a social justice framework. Counseling psychologists are well positioned to advocate for interventions and polices that will affect vocational outcomes for juvenile offenders (Speight & Vera, 2008).

Juvenile Offenders and Career Development

Vocational assessment and counseling as part of skills training and behavior programs has shown promising effects in reducing recidivism and problem behaviors for juvenile offenders (Lipsey, 2009), but little research has examined career assessments or theoretical career constructs with this population. Currently, career development theories tell us little about utilization with at-risk populations, specifically those with criminal records (Chartrand & Rose, 1996; Glaser et al, 2003). While career theories have been applied and studied within the adult corrections system (Varghese & Cummings, 2013), the study of career theory with juvenile offender populations has lagged behind. Furthermore, educational and career related programs on site at juvenile correctional facilities tend to be atheoretical (e.g Moody et al., 2008). Theory provides psychologists, program developers, researchers, and professionals a framework for conceptualizing behavior and developing effective assessment and programming based on theorized relationships. Therefore it is imperative that career theory guide this research and applied vocational counseling practice (Varghese & Cummings, 2013) as psychologists seek to improve human life, both through applying traditional theory and through improving the real life conditions, including struggles for economic, social, and environmental justice (Teo, 2015).

A number of theories can be useful to conceptualize the career development of youth. However, the unique challenges and barriers that affect youth involved in the juvenile justice system in addition to career-related tasks of adolescence must also be taken into account in building theoretical models. Any singular theory is unlikely by itself to completely conceptualize career development (Savickas, 1996); therefore it is advantageous to explore applications of multiple theories. Holland's Theory of Vocational Personality and Work Environments (Holland, 1997) and the Social Cognitive Career Theory (SCCT; Lent, Brown & Hackett, 1994) have been

utilized to explore career interests and career interest pathways for many different populations across the world (Lent & Sheu, 2010; Fouad & Kantameni, 2010). Research examining Holland's personality environment fit theory suggests the existence of personality environment variables across racial, ethnic, and gender groups (Fouad & Kantameni, 2010). Similarly, research utilizing SCCT has yielded results suggesting that this model of basic interest development is successful in predicting career interest development across racial, ethnic, and gender groups with youth and adults (Gainor & Lent, 1998; Fouad & Smith, 1996; Lent et al., 2005). Scholars within criminal justice settings have taken steps to apply SCCT within the adult corrections system (Fitzgerald, Chronister, Forrest & Brown, 2013), and to apply Holland's theory in juvenile justice settings (Glaser et al., 2003). Therefore, a natural next step would be to explore these constructs together within juvenile settings in order to provide the foundations for exploring career interests and career development for juvenile offenders.

In addition to specific theory, practical applications of theory must also be examined. While, theory provides a framework for understanding behavior, application of theory demonstrates utility in a real-world context (Teo, 2015). One way to examine application of theory is through use of assessment tools. Accurate assessment of career interest is an important component of career counseling intervention (Holland, 1997; Glaser et al., 2003). The *Self-Directed Search* fifth edition (SDS: Holland, Powell, & Fritzsch, 1997) is a career interest inventory that has strong psychometric properties when tested with a normative population. Examining the psychometric properties of this instrument with a juvenile offender population will increase available career counseling instruments for use with juvenile offenders, as well as provide support for the Personality-Environment fit theory on which the instrument in based.

Purpose of the Current Study

The purpose of this study is to twofold. First, this study will explore the use of the *Self-Directed Search* (SDS: Holland, Powell, & Fritzsch, 1997) by examining the psychometric properties of this instrument with a juvenile offender sample. Second, this study will explore a theoretical model of vocational interest development for juvenile offenders using constructs from Holland's Personality Environment Fit Theory (1997) and Lent, Brown, and Hackett's Social Cognitive Career Theory (1994). To date there are few studies (e.g. Glaser et al., 2003) in which career-related measures have been tested with juvenile populations. Testing the properties of instruments and career theories with juvenile populations will expand options for psychologists and career counselors working with juvenile offenders. Furthermore, understanding career-related variables will provide foundation for future program development and will likely lead to more efficacious programs for detained juvenile offenders. In addition, this study will expand on literature related to specific vocational theory and apply these theories to working with juveniles in secure detention.

Research Questions and Hypotheses

This study will examine the *Self-Directed Search* Fifth Edition (Holland & Messer) with both male and female juvenile offenders in a secure detention setting. In addition, this study will examine a predictive model of domain-specific career interest with male and female offenders in a secure detention setting.

Research Question 1 and Hypotheses

1. How do juvenile offenders describe their career interests as measured by the *Self-Directed Search* fifth Edition (Holland & Messer, 2013)?

1.1. This question is exploratory in nature. Therefore, no specific statistical hypothesis will be tested.

Research Question 2 and Hypotheses

2. In what ways does the juvenile offender sample differ from the normative sample on the *Self-Directed Search* fifth Edition (Holland & Messer, 2013)?

   2.1. H_0: There will be no significant differences between the normative population and the juvenile offender population as measured by the *Self-Directed Search* fifth edition (Holland & Messer, 2013).

   2.2. H_a: There will be significant differences between the juvenile offender sample and the normative high school samples as measured by the *Self-Directed Search* fifth edition (Holland & Messer, 2013).

Research Question 3 and Hypotheses

3. Do different categories of juvenile offenders differ on the social cognitive career theory variable of in reported barriers?

   3.1. H_0: juvenile offenders will not report significantly different barriers across categories.

   3.2. H_a: Juvenile offenders will report significantly different barriers across categories.

Research Question 4 and Hypotheses

4. What specific social-cognitive career theory variables contribute to domain-specific RIASEC self-efficacy for juvenile offenders?

   4.1. H_0: The Social Cognitive Career theory (SCCT) model will not predict domain-specific RIASEC self-efficacy for the juvenile offender sample.

4.2. H_a: The Social Cognitive Career theory (SCCT) model will predict domain-specific RIASEC self-efficacy for the juvenile offender sample.

Definitions

The following definitions of terms as used in this study:

Adjudication	Adjudication is a judicial hearing to determine the appropriate legal disposition of a criminal charge. Youth may be adjudicated delinquent or adjudicated a status offender.
Commitment	Commitment to the Department of Juvenile Justice is the most severe disposition under the Juvenile Code. Juveniles who are committed are confined in a youth development center; a locked facility operated by the State, and is almost always indefinite with a six-month minimum.
Career	In this study career and vocation are used interchangeably to mean the work or future work in which a person is employed or trains to be employed.
Detention	A secure placement to hold juvenile offenders that houses juveniles placed in state or local custody while awaiting court hearings, arraignment, and/or juveniles who are placed in long-term care facilities and programs.
Disposition	A hearing during which the juvenile court judge determines the most appropriate sanction which can include commitment to an institution, placement in a group home, probation, referral or mental health agency, fines, community service, or other restitution; Disposition usually involves multiple sanctions or conditions.
Dominant-Type	The highest ranked RIASEC theme as determined by rating scales; the greatest preference of RIASEC types.
Domain-Specific	Refers to a specific type of occupation along the RIASEC dimensions.

Informal Adjustment	In cases where a child is alleged to have committed a delinquent act which is not of a serious nature, or has been alleged to have committed an unruly act intake officer may withhold the filing of a petition for delinquency, handling of the matter informally, which can include the giving of advice and counsel to the juvenile and custodian(s), referrals to other agencies, supervision on unofficial probation, temporary placement outside the home and other referrals to other appropriate public and private agencies.
Juvenile	A juvenile is a youth 18 years of age and below who has been charged with an offense by the Department of Juvenile Justice or the Department of Justice. In 13 states, juvenile refers to youth under the age of 17 or 16, but this definition reflects the state definition where the research presented was conducted.
Juvenile delinquent	A juvenile delinquent is a juvenile who has committed a crime including person, property, drug or public order.
Juvenile offender	A juvenile who has been convicted of either a delinquent or status offense. This term will be used throughout this study to refer to the youth in this sample.
Recidivism	Recidivism is the incidence of juvenile offenders reoffending.
Reoffending	Reoffending is when a juvenile offender adjudicated of one crime is subsequently adjudicated for a new offense.
RIASEC	Acronym in Personality-Environment Fit Theory, referring to domain-specific career types and work environments: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional.

SCCT	Acronym for Social Cognitive Career Theory; refers in this study specifically to the model of self-management (see figure 2).
Status offense	A charge that can solely be given a youth rather than an adult. Status offenses include charges of unruly, ungovernable, runaway, truancy, and curfew violations.
Vocation	In this study vocation and career are used interchangeably to mean the work or future work in which a person is employed or trains to be employed.

Chapter 2

LITERATURE REVIEW

Vocational counseling as part of skills training and behavior programs has shown promising effects in reducing recidivism and problem behaviors for juvenile offenders (Lipsey, 2009); however, few studies have examined vocational assessment or theoretical career constructs with a juvenile offender sample. Holland's Theory of Vocational Personality and Work Environments (Holland, 1997) and the Social Cognitive Career Theory (SCCT; Lent, Brown & Hackett, 1994) have been utilized to explore career interests and career interest pathways for many different populations across the world (e.g. Lent & Sheu, 2010; Fouad & Kantameni, 2010). Therefore these theories can be applicable to assess career interest with juvenile offenders. This chapter will examine relevant extant literature related to the juvenile justice population, Personality-Environment Fit (Holland, 1997) and Social Cognitive Career (Lent, Brown & Hackett, 1994; 2000) theories.

Introduction

The formation of vocational interests and self-efficacy is a critical career development task for adolescence that has a significant impact on adult occupational attainment and future success (Super, 1963, 1980; Erikson, 1963). A number of theories can be useful to conceptualize the career development of youth. However, the unique challenges and barriers that affect youth involved in the juvenile justice system in addition to career-related tasks of adolescence must

also be taken into account in building theoretical models. Currently, career development theories tell us little about utilization with at-risk populations, specifically those with criminal records (Chartrand & Rose, 1996). Scholars within criminal justice settings have taken steps to apply to apply Holland's theory in juvenile justice settings (Glaser et al., 2003) and SCCT within the adult corrections system. Therefore a natural next step would be to explore these constructs together within juvenile settings in order to provide the foundations for exploring career interests and career development for juvenile offenders.

Juvenile Population

In 2010, U.S. courts with juvenile jurisdiction handled an estimated 1.6 million cases with juvenile court jurisdiction, which represents an increase of over 300 percent since 1960 (Puzzanchera, Adams & Hockenberry, 2012). While there was an initial drop in juvenile offenses in the late 1990s, delinquency rates have remained stable throughout the 2000s (Puzzanchera, Adams & Hockenberry, 2012). Approximately 1.1 million (62 percent) of all children and adolescents adjudicated delinquent are placed on probation, while another four hundred thousand (23 percent) are ordered to residential placement (Snyder and Sickmund, 2006). The remainder of cases (15 percent) is status offenses, and youth are often ordered to other types of reconciliation, community service, or other informal adjustment. In contrast with you who are placed in the community on probation or informal adjustment, the youth in residential placement or custody include those who have been detained pending a hearing in court, those committed to a youth agency following an adjudicatory hearing, and those placed in group homes or specialized treatment facilities by the court (Snyder and Sickmund, 2006). These youth may have committed more serious offenses or have no other residency options (Snyder and Sickmund, 2006). The most recent census of youth in residential custody for delinquency showed that

approximately 79,000 youth under age 21 were held in over 2,200 publically and privately operated facilities throughout the United States (Hockenberry, 2013). These youth are held in detention centers, group homes, shelters, mental health facilities, or long-term secure placements (Hockenberry, 2013). The placement of juvenile offenders in both residential and community settings provides challenges for researchers and program planners to create effective programs for both groups.

For youth committed to placement, it is estimated that over 38% of juveniles in secure detention meet criteria for a specific learning disability and over 9% meet criteria for intellectual disability (Quinn, Rutherford, Leone, Osher & Porier, 2005). Further, the number of juveniles in detention is almost four times more likely to be receiving special education services than their same-aged peers in public schools (Quinn et al., 2005). These estimates do not speak to the youth on probation or those not currently in secure detention or released, indicating that the total number of adjudicated youth receiving special education services may be higher than these estimates. Further, youth involved in juvenile justice are also more likely than the general population to have a psychiatric condition or behavioral issue (Quinn et al., 2005; Platt, Casey & Faessel, 2006). Learning disability coupled with other risk factors such as behavioral issues, psychiatric symptomology, or unstable home environment make the juvenile population one of the most challenging school-aged population to work with in the public sector (Platt, Casey & Faessel, 2006). Thus, learning difficulties and other factors must be taken into account when designing interventions for juvenile offenders.

It is further important to note that within the population of youth involved in the juvenile justice system, across both males and females, minority youth are overrepresented in detention and community placements (Hockenberry, 2013). In 2010, Black youth were arrested ten times

the rate of White youth (Puzzanchera, Adams & Hockenberry, 2012). For youth in detention or state commitment, Black youth represented 41 percent of the total number of youth in secure placement and minority youth accounted for 68 percent of total youth in secure placement in 2010 (Hockenberry, 2013). The overrepresentation of minority youth in the juvenile justice system calls for program development and theory that takes into account unique cultural backgrounds and cultural needs of these youth. Minority youth are often further disadvantaged prior to entry into as a result of racism, language barriers, prejudice, and intolerance. As correctional education continues to evolve, newer programs and research should include study of unique cultural factors that contribute to outcome.

Researchers, including criminologists, psychologists, and sociologists, have long studied juvenile criminal trajectory, examining risk factors for contact with the juvenile and criminal systems. Research has demonstrated that both the type of crime committed and the age of first contact with the juvenile justice system contributes to continued contact with the juvenile and adult justice systems, with only 15 to 33 present of all juvenile offenders becoming chronic offenders and/or serious violent offenders (Thornberry, 2005; Loeber & Farrington, 2001; Howell, 2009). These statistics indicate that the majority of youth involved in the juvenile system do not continue a life of crime into adulthood, and that separate risk factors come into play that perpetuate a life of crime after initial contact with the juvenile system.

Career Development and Juvenile Populations

Given that the majority of youth involved in the juvenile justice system do not continue criminal behavior into adulthood (Thornberry, 2005), it is imperative that education and skills training become part of the rehabilitation model within juvenile justice. A major goal of the office of the department of juvenile justice prevention is to decrease recidivism among juvenile

offenders through multidimensional programming efforts, and by law, juvenile detention facilities are required to have educational and transitional programming (Puzzanchera, Adams & Hockenberry, 2012); United States Department of Education, 2006). However, it is estimated that up to 80 percent of offenders released from detention or other secure placements do not return to complete high school and many youth released from detention do not return to their homes (Platt, Casey, & Faessel, 2006; Coffey & Gemignani, 1994; Munson & Strauss, 1993). Further, the number of juveniles in detention are almost four times more likely to be receiving special education services than their same-aged peers in public schools (Quinn et al., 2005), and are less likely to be receiving modified educational instruction in detention settings (Quinn et al., 2005). These youth are then forced to become economically independent to survive on their own, with little training or education in maintaining non-criminal living. Additionally, many youth involved in the justice system, who are not incarcerated, will chose to pursue work in lieu of educational opportunities (Muson & Strauss, 1993). Therefore, understanding career interests of adjudicated and incarcerated youth is paramount to helping these youth become successful.

It costs billions of dollars per year to arrest, prosecute, detain, and treat juvenile offenders. Recent analyses have shown that investments in delinquency prevention can save taxpayers seven to ten dollars for every dollar invested (Greenwood, 2008). In addition, economic factors and government policies have shifted the approach of committing juveniles to high cost residential facilities to providing lower cost options such as probation, day treatment, shorter term placements, or other community-based sanctions (Hockenberry, 2013). This shift in policy reflects an important change in the model for rehabilitation for juvenile offenders and calls for more models for rehabilitation. Vocational training in detention may be the only exposure to the idea of earning a non-criminal living, to explore alternative opportunities, and to?

expand skill development through practice (Ameen & Lee, 2011), and is further likely to provide former inmates and those on probation with more marketable job skills, decrease disciplinary problems upon release, decrease recidivism, decrease probation violations, increase post-detention employment, and reduce correctional costs overall (Ward, 2009).

The first essential component of understanding the career pathway begins with accurate assessments of interests, abilities, and skills; however, the inclusion of vocational assessment is uncommon in juvenile facilities (Platt, Casey, & Faessel, 2006; Glaser et al, 2002). In addition to accurate assessments, occupational guidance including skills training and educational programs are needed to prepare offenders for employment (Platt, Casey, & Faessel, 2006). Educators, psychologists, criminologists, sociologists, and politicians have worked together over the years to create prevention programs aimed at reducing the number of youth who become involved with the juvenile system and to reduce recidivism for those who have previously been charged. Iselin and colleagues (2012) longitudinally examined the relationship between perceptions and behaviors regarding goal attainment (outcome expectations) in delinquent adolescents over a period of 10 years. Their research demonstrated that delinquent adolescent's perceptions of having a job appear to be predictors of positive work in the community such as obtaining a job, and avoidance of negative behavior such as illegal money making activities over a longitudinal period, indicating that attitude is a significant and important component of career exploration (Iselin et al., 2012).

Several programs have shown promise in preventing delinquency including counseling, skills training, and behavior interventions (e.g. Lipsey, 2009; Howell, 2009). Vocational counseling has shown promising in initial meta-analyses and program-specific studies (Lipsey, 2009; Greenwald, 2006; Cohen & Piquero, 2010). One such program is the YouthBuild (YB)

USA Offender Program, an intervention that provides both employment within the context of construction trade skills and educational training for 16-24 year olds (Cohen & Piquero, 2010). Results from a longitudinal study of YB graduates and dropouts indicated that graduates were more likely to have a job and earned their GED at the time of follow-up as compared to dropouts. Further, dropouts from the program were more likely to have spent time in an adult correctional facility prior to entry in the program (Cohen & Piquero, 2010), pointing to the importance of early career-based intervention with juvenile offenders.

Although career development and skills training programs have shown modest to significant effects in reducing recidivism and job placement, at present, educational and career related programs on site at juvenile correctional facilities and those in the community tend to be rooted in sociological or criminological principles without strong career-based theoretical foundation. For example, the Career Development Curriculum used at the Robert Farrell School, located on the campus of Hillcrest Youth Correctional Facility, included lessons related to development of a resume, completion of job applications, writing thank-you letters, and developing transition planning activities (Moody et al., 2008), but methodology did not explain why these specific tasks were chosen or utilized in career-building activities. Without specific theory driven programming, it is difficult to measure outcomes, obtain funding, and develop consistent interventions. This presents a strong need for a theoretical basis for understanding career-related variables for youth involved in juvenile justice systems in order to develop more efficacious and measurable outcomes.

A number of theories can be useful to conceptualize the career development of youth. However, the unique challenges and barriers that affect youth involved in the juvenile justice system in addition to career-related tasks of adolescence must also be taken into account in

building theoretical models. Any singular theory is unlikely by itself to completely conceptualize career development (Savickas, 1996). Therefore it is useful to explore applications of multiple theories. Holland's Theory of Vocational Personality and Work Environments (Holland, 1997) provides a concise framework to explain interrelationships among personality. Having a concise framework allows career counselors and educators to provide juveniles with foundational knowledge during counseling interventions. Further, this theory has been previously applied in juvenile justice settings (Glaser et al., 2003) and warrants further exploration. In addition, Lent, Brown, and Hackett's Social Cognitive Career Theory (1994, 2000) concurrently explains that career choice is a complex interaction between contextual supports, barriers, skills, abilities, and learning experiences, offering relevant concepts that can be applied to this population (Varghese & Cummings, 2013). Scholars within adult criminal justice settings have taken steps to apply social cognitive constructs to this population (Fitzgerald, et al., 2013); therefore an important subsequent step would be to explore these constructs within juvenile settings. Taken together, Holland's Theory of Vocational Personality and Work Environments (Holland, 1997) and the Social Cognitive Career Theory (SCCT: Lent, Brown & Hackett, 1994) can provide the foundations for exploring career interests and career development for juvenile offenders.

Theory of Vocational Personality and Work Environments

Holland's Theory of Vocational Personality and Work Environments states that a reciprocal relationship exists between people and their environments such that people influence the work environment and the work environment influences people (Holland, 1997). This theory proposes a typology of work environments to suggest how people make vocational choices and how job achievement occurs. The typology of work personalities and environments proposes six personality types and six corresponding work environments (commonly abbreviated by the

acronym RIASEC): Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (Holland, 1997; Holland, Powell & Fritzsche, 1997). Overall, Holland's Theory hypothesizes that career choice is an expression of one's personality, such that people search for environments that will let them exercise their skills and abilities and take on agreeable roles (Holland, 1997). Stated differently, personality types are predictive of specific work environments.

Work Personality Type

Most persons can be categorized as one if the six RIASEC personality types (Holland, 1997). Each RIASEC personality type is defined by a specific set of characteristics and general abilities and attitudes for coping with environmental problems and tasks. Each type has its own constellation of characteristics, preferred vocational or avocational activities, self-beliefs, problem solving style abilities, and values (Holland, 1997). First, the Realistic personality type is described as practical and is defined by having mechanical abilities, but often lacking social abilities. The Realistic type tends to enjoy enjoys work environments that involve working with one's hands, being outdoors, or using machinery. Second, the Investigative personality type is described as analytical, independent, and rational and is defined by having specific mathematical or scientific abilities. The Investigative type tends to enjoy work environments that utilize hypothesis testing or research methodology such as laboratory work or medicine. Third, the Artistic personality type is described as expressive, creative, and open and is defined by abilities including writing, music or art. The Artistic type enjoys work environments that involve production or design of subject specific applied artwork.

Fourth, the Social personality is defined as cooperative, empathetic, sociable, and patient and is defined by having social skills, but lack of mechanical ability. The Social type tends to enjoy work environments that include teaching, counseling, and therapy. Fifth, the Enterprising

type is described as ambitious, extroverted, and managerial and is defined by abilities in leadership and speaking, but often lacks scientific ability. The Enterprising type tends to enjoy work environments that include management, business executive, and retail. Finally, the Conventional type is described as orderly, efficient, and practical and is defined by abilities in clerical work and organization, but tends to lack artistic abilities. The conventional type enjoys work environments that include financial planning, bookkeeping, and development.

In arguing the presence of six basic RIASEC personality types, Holland (1997) asserted that most individuals have a dominant type (one which they most closely represent), plus one or more additional types called subtypes. The dominant type and the subtypes together represent what Holland called a personality pattern, which summarizes an overall profile of one's personality characteristics. In defining the personality pattern Holland created several instruments to assess the RIASEC typology (e.g. SDS: Self Directed Search: Holland, Powell & Fritzsche, 1997; SII: Strong Interest Inventory: Strong, Donnay, Morris, Schaubhut, & Thompson, 2004) and created a classification suitable for interpretation in career counseling for both counselors and clients. Holland recommended administering the instrument and then rank-ordering of all six types to describe the personality pattern (Nauta, 2013). In practice, most counselors use a two or three-point code, also called a Holland Code, to describe a person's personality pattern. For example, if a client endorses a number of items on the SDS pertaining to Social, Artistic, and Investigative personality traits in descending order, then Social would be represent the dominant type, with Artistic and Investigative representing subtypes, and the overall personality type represented by the three-point Holland Code SAI.

The presence of basic types has been demonstrated across numerous populations. During theory development, John Holland completed four separate studies over a two-year period with

both high school and college-aged samples in the United States to further examine the presence of personality types (Holland, 1997). Across the four studies, Holland found that specific RIASEC interest types as measured by either the Vocational Preference Inventory or the Strong Vocational Blank Inventory were predictive of specific characteristics matched to each RISAEC type (Holland, 1997; Holland; 1962, Holland 1963, Holland & Nichols, 1964; Holland 1963-1964). For example, boys who endorsed Investigative themes on vocational measures also endorsed characteristics such as being analytical, curious, and scientific, which are associated with the Investigative theme. Recent studies have also indicated that specific personality characteristics are consistent with proposed RIASEC types (Sullivan & Hansen, 2004; Wille & De Fruyt, 2013). Specifically, the big five-factor model of personality has been proposed to account for specific characteristics of RIASEC types. Studies have indicated that personality does account for significant portions of variance in specific RIASEC types for adult participants in the United States (Sullivan & Hansen, 2004; Wille & De Fruyt, 2013). For example, Extroversion is highly correlated with Enterprising Types and Openness to Experience is highly correlated with Artistic Types (Sullivan & Hansen, 2004; Wille & De Fruyt, 2013), both of which are characteristics proposed within Holland's original model for these themes. Overall personality, self-descriptions or characteristics, values, and abilities and competencies have consistently predicted specific RIASEC types across studies in discriminant analyses (Holland, 1997), demonstrating the presence of the RIASEC types in the United States.

In addition, studies have also demonstrated that the RIASEC types exist across ethnic groups in the United States. For example, Fouad (2002) demonstrated that the effect sizes for ethnic differences across five major ethnic groups in the United States (Caucasian American, African American, Asian American, American Indian, and Hispanic American) were non-

significant across RIASEC tasks. However, within this sample Fouad (2002) found that Asian Americans scored higher on Investigative themes as compared to the other ethnic groups, but noted that even in this difference effect sizes were small (η^2= .03). This specific result may indicate that specific racial-ethnic groups differently endorse items due to a secondary trait such as familial duty in addition to the trait that the scale intended to measure (Fouad & Walker 2005; Gupta & Tracey, 2005). Overall, Fouad (2002) concluded that that racial-ethnic groups do not practically differ on the RIASEC interested measured on the Strong Interest Inventory. These results support the assertion that these personality types exist across ethnic groups in the United States, with minimal differences across groups.

While research has indicated few ethnic differences regarding the presence of basic types in the United States, studies have shown that there are significant gender differences on specific vocational instruments. For example, in the 1994 normalization sample of the Self Directed Search Form R, male and female high school student's dominant-type scores yielded the majority of males reporting R (29.6%) and E (22.8%) dominant type codes, and females reporting S (50.1%) dominant type codes (Holland, Powell & Fritzsche, 1997). This pattern is similar into adulthood with adults in the 1994 normalization sample of the Self Directed Search Form R. Dominant-type scores for adult males yielded R (32.3%) and E (22.7%) dominant type codes, and for adult females yielded S (49.4%) dominant type codes (Holland, Powell & Fritzsche, 1997). Similarly, studies have shown significant differences between males and females in type of work into adulthood (Holland, Powell & Fritzsche, 1997). Further, a longitudinal study from 1960-1990 across decades indicated that males were most likely to be working in jobs that would be described as Realistic (52%) across four decades (Reardon, Vernick, & Reed, 2004). Interestingly, however, the female expression of occupation over time

differs from reports on interest measures in both high school and adulthood. Females are more likely to be employed in jobs that are described as Conventional (>30%) over four decades (Reardon, Vernick, & Reed, 2004), even though interest inventories indicate strong preference for social themes. Nonetheless, significant differences between specific area of employment and expressed interest, significant differences across both area of employment and interest are apparent across multiple RIASEC domains with the greatest differences reported among Realistic and Social codes.

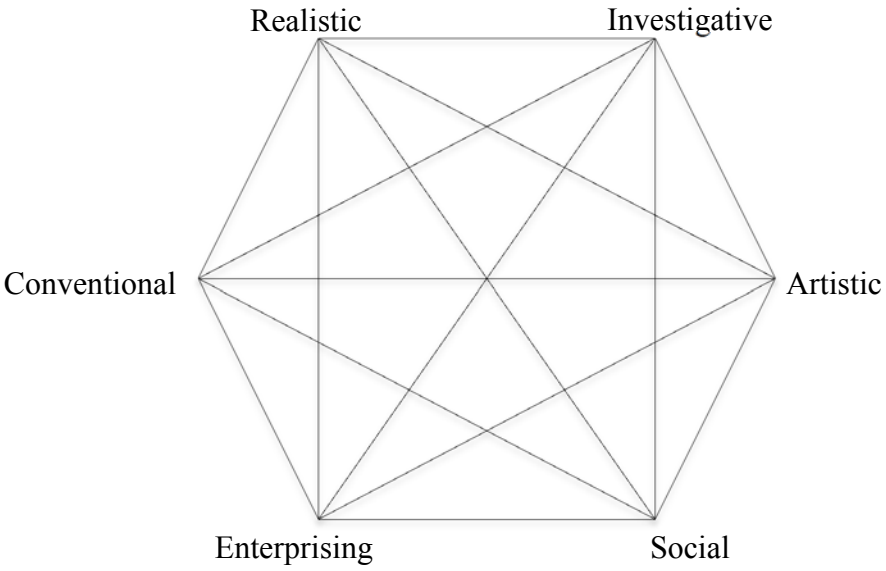


Figure 1. RIASEC Hexagonal model of vocational personalities and work environment. Adapted from Holland, J.L. & Messer, M.A. (2013). *John Holland's SDS: Self-Directed Search Professional Manual,* p.3.

Calculus

In addition to specific RIASEC type, each type has more in common with some types than others. When examining patterns of relationships among RIASEC scores on specific instruments, Holland and colleagues (Holland, Whitney, Cole & Richards, 1969) found a roughly

circular ordering of the types, which later became known as the Holland hexagon (see figure 1). The hexagonal structure of interrelationships among RIASEC types in known as *calculus* (Holland, 1997). As shown in figure 1, when the RIASEC types are placed in order on the points around the hexagon, those that are more distant (e.g. A and C) share the least in common, while those that are adjacent (e.g. A and S) are more similar. The distances between personality types or environments, as ordered on the hexagon, are presumed to be equidistant and are inversely proportional to the relationships between them (Holland, 1997). The hypothesized hexagonal structure of the RIASEC types is an important determination because this structure forms the basis for score interpretations for measures using this theory (e.g. SDS and SII).

While research has indicated few ethnic differences regarding the presence of basic types in the United States, studies have shown that there are significant cultural differences regarding the proposed structure of the Holland hexagon (e.g. Tracey & Gore, 2008; Fouad, Harmon & Burgan, 1997). For example, research shows that the RIASEC ordering of variables tends to maintain itself across ethnic groups, but that the hexagonal structure retains a more circular or misshapen polygon shape than a hexagon (Gupta, Tracey & Gore, 2008; Fouad, Harmon & Burgan, 1997). In addition to ethnic differences, studies have also demonstrated significant gender differences regarding the proposed hexagonal structure. Caucasian males have the closest fit to the proposed hexagonal structure when compared with African American, Asian American, and Hispanic-Latino American populations (Fouad, Harmon & Burgan, 1997). The differences in shape are especially important when considering the interpretation of RIASEC profiles across different cultural groups. If the relationships among RIASEC scores are not the same across groups, then it can be concluded that the groups are not responding to the scales in the same manner (Lent, Tracey, Brown, Soresi & Nota, 2006). Further, in working with individual career

counseling clients, it may be important to know the degree to which he or she perceives occupations to be related that may be different from the proposed structure (Fouad, Harmon & Borgen, 1997).

Despite the structural differences across groups, Holland (1997) proposed that given the hypothesized presence of a dominant type, there must be some dominance of this type over others. Differentiation refers to the clear dominance of one RIASEC interest area over others, or the degree to which a person or environment is well defined (Holland & Messer, 2013; Holland, 1997). People with high levels of differentiation show a strong resemblance or preference to one personality or environment type, while people with low levels of differentiation have similar degrees of resemblance to many personality and environment types. Differentiation is specifically concerned with the range of scores on of a whole personality profile such as scores on the SDS (Holland & Messer, 2013). Differentiation can be measured by the Iachan Index, relating the difference of scores between the dominant type and the second and fourth highest scores across the six RIASEC summary scores measured by a specific interest inventory (Holland, Powell & Fritzsche, 1997; Holland & Messer, 2013).

By contrast, consistency is defined as the degree to which a personality pattern is related to common elements and characteristics (Holland, 1997). For example, the Social and Enterprising types, while distinct in many ways, share the element of involving work with people (Nauta, 2013). Holland argued that a personality pattern may be high in consistency or low in consistency based on the location of the letters on the hexagon. A high level of consistency is present when the letters of a person's Holland code are adjacent on the hexagon (e.g. A and S), while a low level of consistency is present when the letters of a person's Holland code are diametrically (e.g. A and C).

In the 1994 normalization sample of the Self Directed Search Form R, the majority (54-59%) of male and female high school-aged student's profiles yielded code types with high degrees of consistency (Holland, Powell & Fritzsche, 1997). Similarly in the adult sample, the majority (48-59%) of males and females scores yielded code types with high degrees of consistency. In addition, both groups had average differentiation scores (Holland, Powell & Fritzsche, 1997). These scores indicate that both high school students and adults have significant distinctiveness among personal preferences.

Taken as a whole, Differentiation and Consistency can describe the predictability of a person or the status of vocational salience for a cross sectional period of time. For example, a person with low levels of differentiation and low levels of consistency likely do not yet have clearly defined goals or plans to attain goals. Understanding the degrees of consistency and differentiation can help career counselors to work with clients to define their interests and narrow their job searches.

Applications of Personality-Environment Fit in Justice Settings

Little research has examined applications of Holland's theory within criminal and juvenile justice populations. In a literature search using PsychInfo, Criminal Justice Abstracts, and Sociological Collection databases with search terms including corrections, inmate, vocation, Holland, career, RIASEC, delinquency, justice, criminal, *Self-Directed Search*, Strong Interest Inventory, Vocational Preference Inventory, only two research studies were found. First, in a pilot study with 28 detained male juvenile offenders, Glaser and colleagues (2003) demonstrated using Holland's *Self-Directed Search* form R fourth edition (SDS-R) that adjudicated males reported elevated Artistic and Realistic domains as compared to normative populations. Second, a study with 92 female adult offenders including first time offenders, probationers, and repeat

offenders using Holland's *Self-Directed Search* form R (SDS-R) found significantly higher frequency of Social theme across the groups of offenders as compared to the other themes, with Enterprising and Conventional themes (Railey & Peterson, 2000). These results are similar to normative estimates that indicate females demonstrate stronger preferences for Social themes and male preference toward Realistic and themes (Holland, 1997; Holland, Powell & Fritzsche, 1997). However, the researchers across both studies cautioned that analyses did not yield causal explanations, and that elevations on certain themes may be related to limited or overexposure to other types of occupations, lack of competence in certain occupational fields, cognitive deficits, or overall low-self efficacy and/or outcome expectations (Glaser et al., 2000; Railey & Peterson, 2000).

Additionally, Glaser and colleagues (2003) demonstrated that detained male offenders had less differentiated profile scores on the SDS than the normative SDS sample, indicating lack of clear definition of future goals when compared to same-aged peers (Glaser at al, 2003). These results indicate that influences such as parental modeling of career behavior, peer influence, and barriers related to involvement in the juvenile justice system may have significant impact on career specification for these adolescents above and beyond age. In a study with adult female offenders, Railey and Peterson (2000) found no significant differences in consistency and differentiation among different types of offenders including first time offenders, probationers, and repeat offenders, indicating that female offenders compared to each other demonstrated specifically defined interests. However, these results do not explore the differences between offenders and the normative population. Further, neither study examined differences in consistency and differentiation between genders. Overall, these studies provide information

regarding the definition of specific career interests with juvenile and adult offenders, but tell us little about the pathway to defining specified interests.

Holland (1997) created his theory to be parsimonious so that it could be utilized in multiple settings with multiple populations, supporting the use of utilizing this theory with juvenile offenders who often have short-attention spans, difficulty concentrating, and cognitive difficulties (Quinn et al., 2005). Understanding domain-specific (RIASEC specific) personalities and related constructs can be extremely useful in career assessment, counseling, and program development. Further, many assessments currently used in career counseling are based on constructs from Holland's theory (e.g. SII, SDS). Therefore, accurate assessments of interests, abilities, and skills can be accomplished within the confines of this theory to help juvenile offenders begin to identify interests and narrow career pathways Because many assessments currently used in career counseling a based on constructs from Holland's theory, accurate assessments of interests, abilities, and skills can be completed within the confines of this theory to help juvenile offenders begin to identify interests and narrow career pathways.

Social Cognitive Career Theory

While Holland postulated that each person is a product of an interaction between a variety of interrelated forces, and out of these experiences learns to prefer some activities to others, the model of person-environment fit does not fully explain these interactions. The social cognitive model was intended to broaden and compliment Holland's (1997) theory by focusing on the antecedents of interests on vocational choice (Lent & Brown, 2013; Lent, Brown, & Hackett, 1994). The primary foundation for the Social Cognitive model lies in Bandura's general social cognitive theory (Bandura, 1986), which emphasizes the complex ways which behavior and social environments mutually influence each other (Lent, 2013; Lent, Brown, & Hackett,

1994, 2000). The self-management model of Social Cognitive theory postulates that the path to interest development and choice goals is preceded by development of skills and abilities as well as a person's sense of agency over those skills all within the context of the environment (Lent, Brown, & Hackett, 1994, 2000). The self-management model is specifically designed to predict choice of domain specific options (e.g. academic major or occupation), and is not intended to explore the process dimensions of career decision-making such as indecision (Lent & Brown, 2013). Taken as a whole the Social Cognitive model of self-management postulates a complex interaction of person, context, learning, and self-efficacy variables that taken together predict interest and choice actions related to domain-specific career behaviors. See Figure 2 for the complete Social Cognitive Self-Management Model.

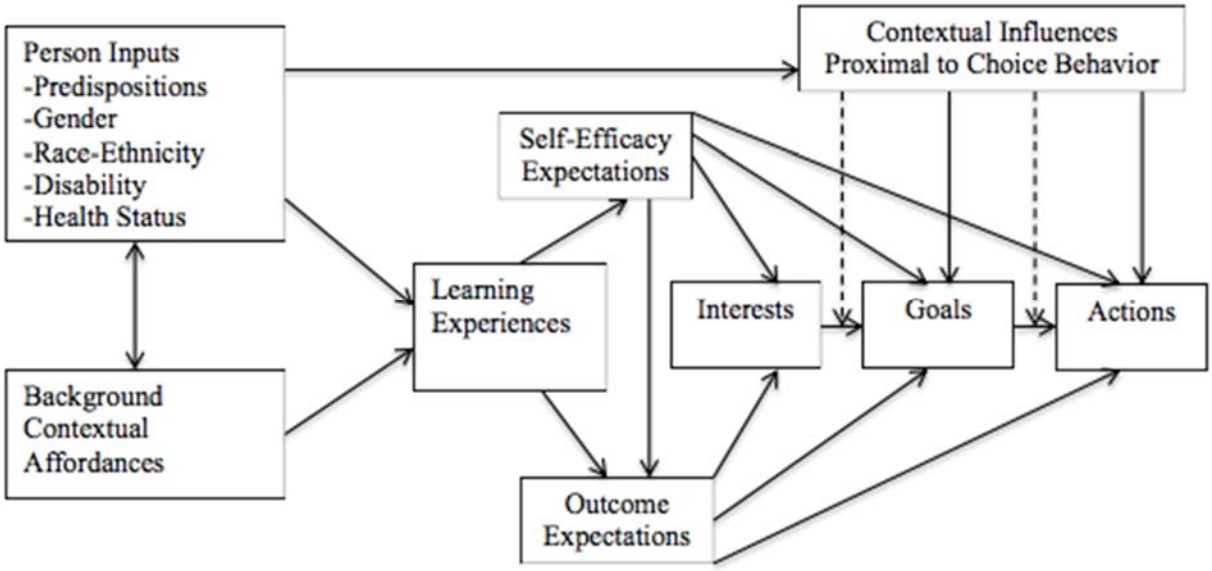


Figure 2. Model of career self-management. Adapted from "Toward a unifying social cognitive theory of career, interest, choice and performance" by R.W. Lent, S.D. Brown, and G. Hackett (1994) *Journal of Vocational Behavior*, 45, p. 93.

Person Inputs

Social Cognitive Career Theory (Lent, Brown & Hackett, 1994) emphasizes the role of context in influencing a person's career development. Person inputs refer to innate characteristics of a person while contextual affordances are considered external characteristics of a person's environment. Person inputs refer to innate characteristics of a person including gender, race, ethnicity, age, and ability. While race and gender are considered to be biological attributes, they have a profound psychological influence on career development (Lent, Brown, Hackett, 1994). The sociocultural environment intertwined with specific gender and racial archetypes and stereotypes transcend the biological properties of these constructs, often resulting in selective exposure to career-relevant experiences (Lent, Brown, Hackett, 1994). Further, career resources or affordances are often differentially expressed to children/adolescents on the basis of person inputs such as gender (Lent & Brown, 2013). Similarly, race and ethnicity can be viewed as socially constructed aspects of experience (APA, 2003), resulting in corresponding selective exposure to career-relevant experiences. Research has shown that both gender and ethnic background significantly affect educational and career expectations of youth (McWhirter, Hackett, and Bandalos, 1998; McWhirter, 1997; Fouad & Smith, 1996). Additionally, age has been shown to be an important factor in determining career expectations of youth (Fouad & Smith, 1996). McWhirter (1997) suggests that the larger social forces of available opportunity, glass ceiling, racism, and sexism form a context in which the interest development and self-efficacy of women and people of color can be understood, which needs to be taken into account when examining career development.

Contextual Influences, Supports and Barriers

Contextual affordances are considered external characteristics of a person's environment such as educational quality and socioeconomic resources that also affect career development. Within SCCT, background contextual affordances co-vary with person inputs (Lent, Brown, Hackett, 1994, 2000). Person inputs can affect the context one is exposed to and can then affect experiences throughout the process of career development (Lent, Brown, Hackett, 1994, 2000). One specific example of contextual influence is socio-economic status (SES). Because SES is not considered to be an innate characteristic, it is contextual rather than person centered, as with person inputs. SES influences the ways individuals previewed their opportunities and affects their access to educational and vocational resources (Ali, McWhirter, Chronister, 2005). SES has also been shown to be predictive of higher levels of support from parents, lower perceived barriers, and stronger family commitment to developing career goals (McWhirter, Hackett, and Bandalos, 1998).

Contextual influences can also refer to available supports and barriers. Within the SCCT model, supports and barriers influence choices that are both proximal and distal from the time that a career decision being made. SCCT further hypothesizes that barriers and supports may assert a direct or indirect effect on career choice or implementation (Lent, Brown, Hackett, 2000). The hypothesized indirect effect of barriers has been more difficult to examine with current statistical procedures, and the majority of research has focused on direct effects implementation (Lent, Brown, Hackett, 2000). Vocational researchers have been particularly interested in understanding the career development of marginalized populations have noted the particularly strong influence of perceived opportunities and barriers in the formulation of career interest and goals (Lent, Brown & Hackett, 1994; 2000; McWhirter, 1997). The larger social

forces of available opportunity, glass ceiling, racism, and sexism form a context in which the interest development of women and people of color can be understood (McWhiter, 1997), indicating the importance of examining supports and barriers.

Research indicates that perception of barriers is a negative predictor of educational and vocational attitudes, while perceived support is a protective factor (Kenny, Bluestein, Chaves, Grossman & Gallagher, 2003; McWhirter, Hackett, & Bandalos, 1998). However, results from studies related to barriers have been mixed. For example Choi and colleagues (2012) found in their meta-analysis that barriers are inversely related to career interests, while Ali, McWhirter and Chronister (2005) found that barriers do not account for any additional portions of variance in interest development. Further, Rollins and Valdez (2006) found that higher degrees of perceived racism for African American high school students yielded lower decision-making self-efficacy, indicating that stereotype threat can be a protective factor in career decision-making. Despite mixed results, the majority of research tends to demonstrate that barriers and supports can have direct influence on specific career interests prior to career selection or career choice action.

Highlighting the significance of the barriers construct within a social model, the National Employment Counseling Association (NECA, 2001) competencies specifically call for the ability to recognize special needs and barriers of minorities, women seeking nontraditional occupations, culturally different immigrants, the disabled, older workers, and persons with AIDS. Adolescent's future career options depend on achieving educational success, and students who understand the connection between school and their career paths are better prepared to succeed in school (Kenny, et al., 2006). Therefore, researchers and program developers have stated that teaching prospective employees to overcome barriers including preparation for bias

and specific objectives for dealing with discrimination may help improve outcome (Jackson et al., 2008, Fouad & Bingham, 1995; Byars-Winston & Fouad, 2006).

It is important to note that supports, opportunities, and barriers within the context of SCCT are both objective and subjective constructs. For example, objective factors include quality of educational experience to which one has been exposed can affect one's career development (Lent, Brown & Hackett, 2000). However, consistent with the importance the social cognitive theory places on appraisal, the effect of an objective factor often depends on the manner in which a person appraises that factor (Lent, Brown, Hackett, 1994, 2000). For example, the extent to which youth experience socioeconomic status as a disadvantage will affect career development in addition to the construct of low socioeconomic status itself, with both restricting opportunity. The importance of perception and appraisal make the construct of contextual affordances amenable to study utilizing paper and pencil measures within the context of SCCT, allowing a greater understanding of the socio-cognitive processes involved in career development.

Learning Experiences

Learning experiences are defined by opportunity for skill development and range of available role models (Bandura, 1986, Lent, Brown & Hackett, 1994, 2000). In SCCT person inputs and contextual affordances shape learning experiences, which then in turn influence career development through self-efficacy and outcome expectations. Learning experiences can be broken down into vicarious learning (available role-models, imitation, observation, and modeling), past performance, psychological states, and social persuasion (Bandura, 1986; Lent, Brown & Hackett, 1994, 2000). Bandura (1986) suggested that observational/vicarious learning is of the utmost importance in the development of future behavior such that the capacity to learn

vicariously by observing others enables people to acquire guidelines for future behavior including new behavior patterns, judgmental standards, cognitive competencies, and heuristics.

Most notably for adolescents, family influence appears to be associated with future occupational choice. For example, family structural variables such as parent achievement influence adolescent's career direction, specifically in terms of aspirations and expectations (Whiston & Keller, 2004). Parent achievement may increase a child or adolescent's own achievement leading to future career interest or behaviors. When controlling for factors such a disability, similar results were found in that parent career influences adolescent career direction (Morningstar, 1997). In a qualitative study with adolescents with disabilities, Morningstar (1997) found that secondary students with disabilities were prone to selecting identical careers to their parents or immediate extended family members without a seemingly well-reasoned decision-making approach, but based on familiarity. Given the salience of parent presence in an adolescent's life and overrepresentation of adolescents with disabilities in detention, it is important to consider the process by which families influence the career development of adolescents.

In addition to parent influences, physiological state when performing a task may also inform future behavior (Lent, Brown & Hackett, 1994). For example, negative or anxious mood states may diminish perceived ability to complete a task, as is common in clients with depression who often develop negative cognitions about daily tasks. Similarly, past performance may be filtered through various cognitive processes (e.g. "I performed really well on that test") affecting the way that tasks are perceived and subsequently affecting future behaviors. Comparably, third-person accounts of task performance can become reinforcement contingents for specific tasks (e.g. "you sang really well today and you should try out for chorus"). Researchers have yet to

examine the influence of psychological state on specific career behaviors. However, research within other fields has demonstrated decreased behavioral activity during depressive states (Beck, 2011).

Furthermore, past performance can also affect self-efficacy. Specifically, achievement in individual areas can increase belief in one's ability to achieve in that area in the future (Lent, Brown, Hackett, 1994). For example, Wang (2012) found that middle school math achievement predicted high school math achievement, which subsequently predicted future performance in math-related tasks and interest in mathematics related careers. Similarly, Athanasou (2011) found that reading and mathematics achievement scores were greater for professionals than for laborers. In addition, achievement in reading can predict the likelihood that one will return to work following an injury or incident on the job (Athanasou, 2011). Research also indicates that achievement predicts domain-specific future career interest (Lent & Brown, 2013). For example, high achieving males and females report greater interest in Investigative theme occupations, and lower achieving males report greater interest in Realistic theme occupations (Vock, Koller & Nagy, 2013). In general, achievement can have a profound influence on available educational opportunities for students as well as future career opportunities for adults, which in turn affects self-efficacy and future career interest.

Self-Efficacy and Outcome Expectations

Taken as a whole, learning experience is a social process, by which experiences and tasks are observed, assessed, and processed leading to specific self-efficacy beliefs and outcome expectations about later task performance. Within SCCT, learning experiences affect both self-efficacy and vocational outcome expectations, which in turn directly influence a person's career interest and later choice goals. Bandura (1986) hypothesized that individual's judgments about

their ability to perform a task successfully increases the probability that a person will attempt and persist in a task. Self-efficacy beliefs refer to people's judgments of their capabilities to execute specific actions (Bandura, 1986, Lent, 2013), while outcome expectations refer to beliefs about the consequences of particular courses of action (Bandura, 1986, Lent, Brown & Hackett, 1994, 2000). Stated different, self-efficacy asks the question "can I do this?" whereas, outcome expectations asks the question "what will be the outcome, or how well can I do this?" Self-efficacy beliefs and outcome expectations are identified separate as constructs because an individual can believe that a particular course of action will produce a specific outcome, but a person may not believe in his or her ability perform the skills necessary to execute the activity (Bandura, 1886). Research has shown that perceived supports, barriers, financial strain, and attachment are predictive of self-efficacy (Ali, McWhirter, Chronster, 2005; Wright, Perrone-McGovern, Boo, & White, 2014; Dashling, Melloy, & Thomspon, 2013). These results indicate that a variety of personal and contextual factors influence a person's perception of ability to complete a task.

The relationship between self-efficacy and interest/choice development has been demonstrated through considerable bodies of literature (e.g. Lent et al., 2001). A recent meta-analysis indicated that career decision self-efficacy is inversely related to career indecision and career behaviors, and positively related to career support and outcome expectations (Choi et al., 2012). These results indicate that a person's attribution of success or perception of future success significantly predicts future career behavior toward or away from a specific option. Further, meta-analytic studies have demonstrated that self-efficacy significantly predicts the interest across Realistic, Artistic, and Investigative Holland themes (Sheu et al., 2009). In addition to

meta-analyses, cross-sectional study results also indicate that self-efficacy is predictive of each RIASEC theme (Sheu et al., 2009).

Applications of SCCT in Justice Settings

Given the disproportionate number of minorities involved in the justice system, the growing number of females involved in the justice system, and lower socioeconomic status of many youth involved in the justice system, SCCT's focus on person inputs and contextual affordances has much relevance for the juvenile offender population. Notably, minority youth are overrepresented in detention and community placements across both males and females in the juvenile offender population. In 2010, Black youth were arrested ten times the rate of White youth, and minority youth accounted for 68 percent of total youth in secure placement (Puzzanchera, 2012). Additionally, there is an increasing number of incarcerated female offenders, which further contributes to the inequity adjudicated youth experience. Therefore, it is important to examine the influence that person inputs have on specific interests in order to further understand the career development process for these youth.

Adjudicated youth tend to have reported more barriers associated with obtaining jobs or careers, more difficulty identifying interests, and more difficulty exploring career options (Barclay, 2004), making this an important construct for further inquiry. Additionally, because youth involved in the juvenile court system are often predisposed to have disadvantages prior to entry into the system, they may perceive themselves as trapped in a system that feels oppressive and restricting. Further, ethnic minorities who have criminal records as adults face race-related barriers to employment that significantly hinder employment opportunities as compared to European American counterparts (Pager, 2003). Additionally, female adolescents in the general population are more likely to experience employment barriers and report barriers than same-aged

males (McWhirter, 1997). Minority youth are often further disadvantaged prior to entry into as a result of language barriers, prejudice, and intolerance. Because a significant proportion of delinquent youth come from lower socioeconomic backgrounds, which prior to entry to the system may place these youth at a disadvantage (Barcaly, 2004), it is important to consider SES when examining interest development. Emphasis on barriers and supports in career choice is particularly important for juvenile offenders who face significant barriers to vocational and educational attainment (Varghese & Cummings, 2013; Barclay, 2004). In addition, self-efficacy is also especially important for juvenile offenders who more likely to report lower self-regulatory efficacy and lower goal commitment (Carroll, Gordon, Haynes & Houghton, 2013), which may lead to poorer educational and career outcomes. Setting clear achievable goals that enhance self-efficacy and reputational status directs the energies of adolescents into specific delinquent or pro-social activities (Carroll, et al., 2013), denoting the importance of understanding self-efficacy and outcome expectations in designing future interventions and targeting these areas for modification in future programs. Taken as a whole, contextual factors experienced within the juvenile offender population are important to understanding self-efficacy for these youth.

A pilot study completed by Mann, Glaser, and Calhoun (2013) examining SCCT variables indicated that mother's education, gender, age, and barriers were predictive of domain-specific RIASEC self-efficacy. Specifically, For Realistic (R) and Social (S) themes, only gender was a significant predictor of self-efficacy on these domains. For all other themes Investigative (I), Artistic (A), Enterprising (E), and Conventional (C), mother's education was a significant predictor of domain-specific self-efficacy, but father's education was not a predictor of efficacy on any of the study variables. On the Conventional Themes only, age and gender added significant unique portions of variance to the model, and perceived barriers on gender

significantly moderate the effect between mother's education and self-efficacy on conventional themes. Barriers did not specifically predict efficacy on any other task. These results support the application of SCCT and Personality-Environment Fit theories with adjudicated youth, but calls into question the construct of barriers. Larger samples may further extend the results of this study across all RIASEC domains. Results further indicate that parent education restricts the range of available career options; thus, adolescents likely experience a lack of exposure to careers oriented toward science, mathematics, entrepreneurship, and office work.

While no specific published research has examined SCCT with juvenile offenders, scholars within criminal justice settings have taken steps to apply SCCT within the adult corrections system by creating a group vocational preparation release program grounded in SCCT (Fitzgerald et al., 2013). Initial analyses yielded significant increases on self-efficacy and future hope scales for offenders enrolled in the group preparation program as compared to adult offenders who were not enrolled (Fitzgerald et al., 2013). These results not only provide support for use of SCCT targeted interventions for adult offenders, but also provide implications for use of SCCT interventions with juvenile offenders. However, little research has examined the effectiveness of the theoretical constructs of SCCT with adolescent offenders; thus, it is important to first examine the theoretical model prior to developing specifically targeted interventions.

Intersections Between Personality-Environment and SCCT

While Holland may be most known for the development of the RIASEC model, he is lesser known for his model of how interests develop. Holland (1997) proposed that a child's heredity initially leads to some preference in activates. He further proposed that later these interests become more developed and refined over time through social processes of completing

tasks, receiving reinforcement from the environment, and development of coping styles and personal traits. Similar to SCCT, Holland believed that experience shapes a person to develop specific interests. However, unlike SCCT's focus on cognitions and attributions, Holland (1997) proposed that the activities themselves lead to long-term interests and competencies, and that environment creates an individual who is predisposed to exhibit a characteristic disposition and outlook.

Further, Gottfredon (2002) outlined specific intersections between Holland's theory of personality-environment fit and SCCT utilizing the *Self-Directed Search* (SDS: Holland, Fritzsche, & Powell, 1994; Holland and Messer, 2013). Specifically, Gottfredson (2002) noted that the SDS provides information not only about a person's interests but also about other aspects of vocational personality, including self-beliefs and aspirations. Integrating core concepts of SCCT within the SDS, self-beliefs may be viewed as products of learning experiences that have led to preferences and aversions for different activities. Then, these self-beliefs appear to correspond to what Bandura (1987) and later Lent, Brown, and Hackett (1994) called self-efficacy expectations. Competency beliefs bear conceptual similarities to ability self-estimates and self-efficacy (Lent, Tracey, Brown, Soresi, & Nota, 2006). Results of predictive analyses indicated that separate measures of self-efficacy do not add additional portions of variance to this construct above and beyond that of the self-ratings and competencies scales as measured by the SDS (Gottfredson, 2002). Further, because of children's and adolescent's limited experience with domains and limited exposures to occupational tasks, competency and self-beliefs have been used as developmentally appropriate analogues to self-efficacy (Lent, et al. 2006). Although Holland's theory and the SDS developed independently of social-cognitive theory and

goal theory, the tools implementing Holland's theory provide measures that appear useful in implementing these cognitive perspectives

Because disparities exist in individual perceptions of the RIASEC structure, it is important to consider how the roles of race, gender, and culture as well as other contextual factors influence occupations interests. Further, given that the majority of adolescent offenders experience difficulty with school engagement and learning problems (Quinn et al., 2005) it is also important to consider how these factors contribute to career interest development for this population. Additionally, the overrepresentation of minority populations within the juvenile justice system merits the examination of specific ethnic factors that contribute to career interests. Interest development is a significant task of adolescence (Super, 1963), and understanding the variables that affect interest development in the formative adolescent years can provide juvenile offenders with important information regarding future plans. By allowing adolescents time to consider the influences of contextual variables, they can determine the importance given to these influences within career decision-making processes, and modify the weight of these influences over time with intervention if needed.

Conclusions

Overall, Holland's Theory of Vocational Personality and Work Environments (Holland, 1997) provides a concise framework to explain interrelationships among personality and career interest, while Lent, Brown, and Hackett's (1994, 2000) Social Cognitive Career Theory concurrently explains that career choice is a complex interaction between contextual supports, barriers, skills, abilities, and learning experiences. Together, these two models can account for the unique challenges and barriers that affect youth involved in the juvenile justice system in addition to career-related tasks of adolescence within a domain-specific framework. Utilizing

multiple theories as well as assessment instruments can provide maximum information needed for career counseling and future vocational programs with juvenile offenders.

Chapter 3

METHODS

This study used a cross-sectional design with a detained juvenile offender sample to explore the psychometric properties of the *Self-Directed Search* fifth edition (Holland & Messer, 2013), differences in reported career interest between juvenile offenders and the normative sample, barriers for career exploration for juvenile offenders, and a predictive model of career-interest development for juvenile offenders. This chapter begins with a brief introduction to the study and outline of the specific research questions as well as hypotheses. The chapter then delineates the specific research procedure, and gives a detailed description of the participants. In addition, this chapter discusses the instruments used to measure study variables. Finally, this chapter concludes with the analysis plan for each of the four proposed research questions.

Introduction

A number of theories can be useful to conceptualize the career development of youth. However, the unique challenges and barriers that affect youth involved in the juvenile justice system in addition to career-related tasks of adolescence must also be taken into account in building theoretical models. Currently, career development theories tell us little about utilization with at-risk populations, specifically those with criminal records (Chartrand & Rose, 1996). The purpose of the present study was to examine the use of the *Self-Directed Search* with juvenile justice populations by testing the psychometric properties of the instrument with this population

and examining within groups differences. In addition, the purpose of this study was to utilize the social cognitive career theory to examine barriers and to develop regression models to account for domain specific career related self-efficacy with juvenile justice populations.

Summary of Research Questions

Research Question 1

The primary purpose of this study was to understand how male and female juvenile offenders describe their career interests. A pilot study indicated that male juvenile offenders reported dominant Realistic (R) and Artistic (A) code types on the *Self-Directed Search* Fourth Edition (Holland, Powell & Fritzsche, 1997). The current study is an extension of that earlier work utilizing the *Self Directed Search* Fifth Edition (Holland & Messer, 2013). Because this initial research question is exploratory and concerns frequency, there is no specific null hypothesis; rather, dominant code-types for males and females will be reported and explained.

Research Question 2

The secondary purpose of this study was to examine the psychometric properties of the *Self-Directed Search* Fifth Edition (Holland & Messer, 2013) for male and female juvenile offenders as compared to the normative sample. The null hypothesis for this question is that there will be no significant differences between the normative population and the juvenile offender population in terms of interests. The alternative hypothesis is that there will be significant differences between the normative population and the juvenile offender population on domain-specific interest variables.

Research Question 3

The tertiary purpose of this study was to examine self-reported barriers for juvenile offenders across self-reported sex and racial categories. The null hypothesis is that juvenile

offenders will not report significantly barriers across categories. The alternative hypothesis is that juvenile offenders will report significantly different barriers across categories.

Research Question 4

The final purpose of this study was to examine a predictive model of career self-efficacy for juvenile offenders utilizing constructs from the social cognitive career theory (Lent, Brown & Hackett, 1994; 2000). The null hypothesis is that the Social Cognitive Career theory (SCCT) model will not predict domain-specific RIASEC self-efficacy for juvenile offenders. The alternative hypothesis is that the Social Cognitive Career theory (SCCT) model will not predict domain-specific RIASEC self-efficacy for juvenile offenders.

Procedure

The University of Georgia Juvenile Counseling and Assessment Program (JCAP) is comprised of counselors and psychologists in training who work with juveniles involved in the juvenile justice system of Georgia and provide various clinical services such as individual counseling, group counseling, in-home family counseling, and psychological evaluations. JCAP provides a multifaceted approach, using the juvenile justice, school, and community systems in collaboration with the mental health services provided (Calhoun, Glaser & Bartolomucci, 2001). The purpose of the project is to provide juvenile offenders with access to mental health services, psychoeducation, knowledge regarding possible resources, and ultimately a decrease in delinquent behavior (Kadish, Glaser, Calhoun, & Risler, 1999). Data for the current study was collected at a short-term Regional Youth Detention Center within the Southeast United States. Before conducting this study, pre-approval was received from the Director at the Regional Youth Detention Center. Then, approval was received from The University of Georgia's Internal

Review Board. This study is a part of a larger ongoing study with the Juvenile Counseling Assessment Program.

Questionnaires were administered in the classroom as group sessions at the Detention Center during the school day. Data was obtained in 8 sessions over a two-year period. All students in participating classes were invited to attend. There were four to eight students in each classroom during each administration. Each participant received a packet containing a demographic form and two research instruments. All instruments were given in the same order so that the items could be read aloud to the group, as needed. Participants were asked to complete the forms independently and answer all questions. Researchers and staff at the facility walked around the classroom to assist with reading of individual items and repeat directions as needed. Students, who seemed to be having difficulty reading or understanding the material, were given special help. This consisted of having questions read to the student and helping the students identify the response choices that they were given.

When the students were finished, the researcher debriefed participants on the purpose of the study and how results would be used. Then the researcher gave a presentation on the results related to personality-environment fit. Specifically, the researcher explained the RIASEC personality-environment types and provided individualized verbal feedback to each student. In addition, the researcher, gave a worksheet to each student, created by the researcher for the purposes of career development, for the students to look up career information online based on their dominant code-type (See Appendix C for this worksheet). Finally the researcher answered questions about participant career interests. The researcher also gave information on where participants could research further information about career interests online (https://www.onetonline.org). Students involved in the study were not provided with incentives

to participate in this study, other than the feedback that was offered to them at the completion of tabulating the results of their individual surveys

Participants

Participants were 100 adolescents, who were detained at a short-term Youth Detention Center in the Southeastern United States at the time of the study. The range of time in detention for youth ranged from three days up to one year. Three participants did not complete all measures, leaving a total sample size of 97 participants. The participant's ages ranged 12-19 (*M*= 15.40, *SD*. = 1.24). The majority of the participants (67%) were between the ages of 15 and 16. There were 75 males (77%) and 22 females (23%) included in this sample. Participants included five different self-identified racial/ethnic groups: Black/African American (*n* = 69, 71%), White/Caucasian (*n* = 26, 27%), Latina/o (*n* =1, 1%), Biracial (*n* =3, 3%), or Other (*n* =1, 1%); none of the participants self-identified as Asian American or Native American. The minimum level of school completed by participants was 6th grade, while the maximum level of education complete was 11th grade or GED. The majority of participants (45.4%) had last completed 7th or 8th grade.

Table 1

Descriptive Statistics for Continuous Demographic Variables

Variable	Range	Mean (*SD*)
Age	12-19	15.40 *(1.24)*
Grade	6-13	8.57 *(1.37)*
GPA	1.0-4.0	2.86 *(.81)*

Table 2

Descriptive Statistics for Categorical Demographical Variables

Variable	N	Percentage
Gender		
Male	75	77%
Female	22	23%
Race		
Black/African American	66	68%
White/Caucasian	26	27%
Latina/o	1	1%
Biracial	3	3%
Other	1	1%
Individualized Education Plan		
Yes	35	36%
No	34	35%
Unsure	26	26%
No Answer	2	2%

Measures

Demographic Form

A demographic questionnaire was created by the researcher for the purpose of this study to measure person inputs. Demographic data collected in included participant's age, gender, grade level, race/ethnicity, grade level, and Individualized Education Plan (IEP) status. The questionnaire also included questions related to primary and secondary caregiver education level. The demographic questionnaire included questions related to primary and secondary caregiver education level used to assess learning experiences. These were qualitative statements that included the following categories: Elementary School or Middle School, Some High School, Graduated High School or GED, Some College, Finished College, Technical School, Graduate Degree.

Person Inputs. Social Cognitive Career Theory (SCCT; Lent, Brown, Hackett, 1994) emphasizes the role of context in influencing a person's career development. Person inputs refer to innate characteristics of a person including sex, race, ethnicity, and age (Lent, Brown, Hackett, 1994). The demographic questionnaire asked participants to report age, sex, grade level, age, and IEP status. Grade level and IEP status were considered to be ability variables for the purposes of this study.

Contextual Affordances. Contextual affordances are considered external characteristics of a person's environment such as educational quality and socioeconomic resources that also affect career development. (Lent, Brown, Hackett, 1994, 2000). Participants were also asked to provide their street address and number of people living in the home, as well as number of persons over 18 living and working in the home in order to create a proxy variable for socioeconomic status.

Learning Experiences. Learning experiences are defined by opportunity for skill development and range of available role models (Bandura, 1986, Lent, Brown & Hackett, 1994, 2000). Most notably for adolescents, family influence appears to be associated with future occupational choice. The demographic questionnaire included questions related to primary and secondary caregiver education level used to assess learning experiences. These qualitative statements were then coded quantitatively and split into three groups: Did not complete high school, High School or GED, and Education Beyond High School. In addition, youth were asked to report their grade-point average on the standard four-point grade scale. Youth were also asked to report the last grade they had completed to serve as a measure of achievement.

Perception of Barriers

The Perception of Barriers Scale (POB; McWhirter, 1997) is a 24-item self-report Likert-scale measure ranging from Strongly Agree to Strongly Disagree with 1= Strongly Agree, 2= Agree, 3= Unsure, 4= Disagree, and 5= Strongly Disagree. The items grouped across five factors: job discrimination based on gender (e.g. "In my future job I will probably be treated differently because of my sex"), job discrimination based on race (e.g. "In my future job I will probably experience discrimination because of my racial/ethnic backgrounds"), barriers to attending college (e.g. "If I didn't go to college it would be because of not being smart enough"), barriers anticipated in college (If I do go to college, I will probably experience money problems"), and general perception of barriers (e.g. "In general I think that there are many barriers that will make it difficult to achieve my career goals").

Barriers. Barriers were assessed using the Perception of Barriers Scale (POB; McWhirter, 1997). A previous study found Chronbach's alpha reliability estimates of .87 and .86 for samples of Mexican American adolescent females and males, and European American females, respectively across the gender barriers and racial barriers items (McWhirter, Hackett& Bandalos, 1998). For the gender barriers items (4 items) internal consistency for this sample was .865. For the racial barriers items (4 items) internal consistency for this ample was .922. For the attending college barriers items (7 items) internal consistency for this sample was .594. Due to low reliability, this scale was eliminated from further analyses. Reliability for the anticipated college barriers was .738. General perception of barriers was not used in this study. A copy of this instrument can be found in Appendix B.

Self-Directed Search

The *Self-Directed Search* Form R Fifth Edition (Holland & Messer, 2013) is a self-report questionnaire, which includes 266 items from 4 numerically driven scales (i.e., Activities, Competencies, Occupations, and Self-Estimates). The SDS is suitable for people aged eleven years and older, with a seventh grade reading level. The Activities Scale is broken into six domain specific RIASEC subscales, each containing fourteen activity statements. The respondent is asked to check "like" or "dislike" for each of the statements (e.g. "Repair electrical things"). The total Activity score for each RIASEC category is summed. The summary score is utilized as a continuous variable with a range from 0-14. The Competencies scale is broken into six domain specific RIASEC subscales, each containing fourteen self-efficacy statements. The responded is asked to check "yes" for those activities that can he/she believes to perform well, and "no" for those activities that he/she cannot perform well or performs poorly (e.g. "I am good at explaining things to others"). The total Competency score for each RIASEC category is summed. The Competency summary score is utilized as a continuous variable with a range from 0-14.

The Occupations scale is broken into six domain specific RIASEC subscales, each containing fourteen domain-specific occupations (e.g. "Illustrator"). The respondent is asked to check "yes" or "no" for each statement indicating whether the occupation appeals to him/her. The total Occupations score for each RIASEC category is summed. The Occupations score is utilized as a continuous variable with a range from 0-14. Finally, the self-estimates scales are continuous scales ranging from 1-7 in which the respondent is asked to rate himself/herself in comparison to his/her peers on two sets of RIASEC self-efficacy abilities and skills (e.g. "clerical ability"). These scales are continuous and are not summed. Finally, domain-specific summary scales are also included. These scales sum each of the subscale scores (E.g. Activities,

Competencies, Occupations, and Self-Estimates) for each domain-specific RIASEC personality type. This provides six total interest scores, one for each RIASEC category. The highest total score is considered to be the dominant type score and was used to discuss dominant code-types.

For the normalization sample reliability coefficients for the Activities, Competencies, and Occupations subscales range from .71 to .94 across RIASEC types and age groups. Additionally, summary scale reliability coefficients range from .88 to .94. For the current sample for the Activities, Competencies, and Occupations subscales range from .57 to .92. For the current sample, summary scale reliability coefficients range from .85 to .94. Internal consistency for this sample across all scales and gender is provided in Chapter 4. Reliabilities were divided by gender as indicated in the *Self-Directed Search Professional Manual Fifth Edition* (Holland & Messer, 2013).

Domain-Specific Career Interest and Self-Efficacy. For the purposes of this study, the total scores were used to determine the dominant code type and to examine specific gender and racial differences among code types. The Occupations Scales were used to measure domain-specific interests in social cognitive analyses, as this scale provides a comprehensive list of specific future career interests, and relates most closely to the social cognitive construct of interest (Gottfredson, 2002). The Competencies scale was used as measures of self-efficacy given the comprehensiveness of this scale in measuring self-reported domain-specific ability in each RIASEC area consistent with the definition of self-efficacy in social cognitive career theory (Lent, Brown & Hackett, 1994). The Competencies and Self-Estimates scales on the *Self-Directed Search* are theoretically linked to social-cognitive measures of self-efficacy expectations (Gottfredson, 2002), making use of this scale appropriate in this context.

Data Analysis Steps

Research Question 1

In order to answer research question one, examining the psychometric properties of the *Self-Directed Search* with juvenile offenders, several analyses were conducted. The analyses are consistent with validity and reliability, correlation, differentiation, and consistency analyses outlined in the *Self-Directed Search Professional Manual Fifth Edition* (Holland & Messer, 2013). Correlations between all scales and subscales were completed. These analyses were separate across gender, as gender is a known covariate in RIASEC typology (Holland & Messer, 2013). Next, the differentiation index was calculated using the Iachan Index formula for differentiation (Holland & Messer, 2013). Dominant code-types for males and females were also calculated and frequencies of types are presented.

In addition to initial descriptive statistics testing, between-groups effects within the juvenile offender sample were tested. Specifically, given the disproportionate number of minority youth involved in the juvenile justice system, and the relationship between person inputs in the social cognitive model, a Multiple Analyses of Covariance (MANCOVA) examined differences between RIASEC subtypes between racial groups. Multivariate analysis of covariance (MANCOVA) tests means between two or more groups with multiple dependent variables, while controlling for known covariates (Timm, 2002). In this case the group variable or independent variable is self-reported racial category and the dependent variables are the six domain-specific RIASEC categories. Gender will be held constant as a covariate, as gender is a known factor to contribute to variance across RIASEC types. Power analysis indicated that in order to achieve power $\beta = .80$, there should be at least 17 participants per group. Thus, the

sample size in this study (n = 97) and the normative sample (n = 222) was considered adequate for analysis.

The overall sample size was adequate for the statistical analyses conducted. However, a larger sample was needed to adequately compare all of the racial groups for inclusion in analyses. Specifically, the sample sizes for self-reported Latina/o juvenile offenders, Asian juvenile offenders, Biracial juvenile offenders were too small for inclusion in some statistical analyses. Therefore, analyses were conducted by splitting the racial groups into two categories. African American juvenile offenders were grouped in together, representing the largest group. White participants were grouped in the second group. All other participants identifying as Latina/o, biracial, or other (n=5) were excluded from analyses due to low sample size.

Research Question 2

In order to answer research question two, comparing the juvenile offender sample against the normative sample, several analyses were conducted. First, data normality distribution tests were conducted to measure skewness and kurtosis. Data were normally distributed, with minimal skewness and kurtosis, meeting normality assumptions. Therefore an independent sample t-test procedure was sufficient to examine differences between the two groups. Independent-sample t-tests were conducted to compare the differences between the juvenile offender sample and the normative high school sample across the total subscale scores for males, females, and the total sample. An independent sample t-test is used to test the null hypothesis that the juvenile sample is significantly different from the normative sample (Aron, Coups, & Aron, 2006). These analyses were split by gender, as gender is a known covariate in RIASEC typology (Holland & Messer, 2013; Holland, Powell & Fritzsche, 1997). In addition, z-tests were also completed to examine the differences in correlations on the total RIASEC summary scales between the male

and female juvenile offender sample and the male and female normative high school aged sample (Cohen & Cohen, 1983). Power analysis indicated that in order to achieve power β = .80, there should be at least 17 participants per group. Thus, the sample size in this study (*n* = 97) and the normative sample (n = 222) was considered adequate for analysis.

Research Question 3

Third, in order to examine to examine the role of barriers two, one-way factorial Analyses of Variance were used to test the null hypothesis that there are no significant differences between groups of juvenile offenders on self-reported barriers to future career. The first analysis examined the difference in self-reported barriers for male and female offenders on gender, race, and college barriers. The second analysis examined the differences in self-reported barriers for African American and White juvenile offenders gender, race, and college barriers. Power analysis indicated that in order to achieve power β = .80, there should be at least 17 participants per group. Thus, the sample size in this study (males = 75, females= 22) was considered adequate for analysis.

Research Question 4

Finally, in order to examine the predictive capacity of the Social Cognitive Career Theory Model variables on self-efficacy, additional analyses were conducted. Model variables on self-efficacy, additional analyses were conducted. First, two-tailed Pearson correlation analyses were completed to examine the relationships between person inputs, contextual affordances on competencies and occupations to examine what may account for differences between the normative and sample populations. Finally, to examine the effects of specific Social Cognitive Variables on RIASEC a path model was used for the highest code-type, determined during the initial stages of the analyses (See figure 3 below). Path analysis is considered and extension of

multiple regression, which provides estimates of the magnitude and significance of hypothesized causal connections between variables (Kline, 2011). The path will be evaluated using maximum likelihood (ML) estimation. Maximum Likelihood estimation, suggests a ratio of 10:1 for sample size to number of model permanents as the minimum sample size (Kline, 2011). This model will include 10 parameters, and would require a minimum sample size of over 100 participants to detect effect of greater than .80 (Kline, 2011). Thus, the sample size of 97 participants in this study is low and represents a limitation of this study.

Nested Social Cognitive Model For Analysis

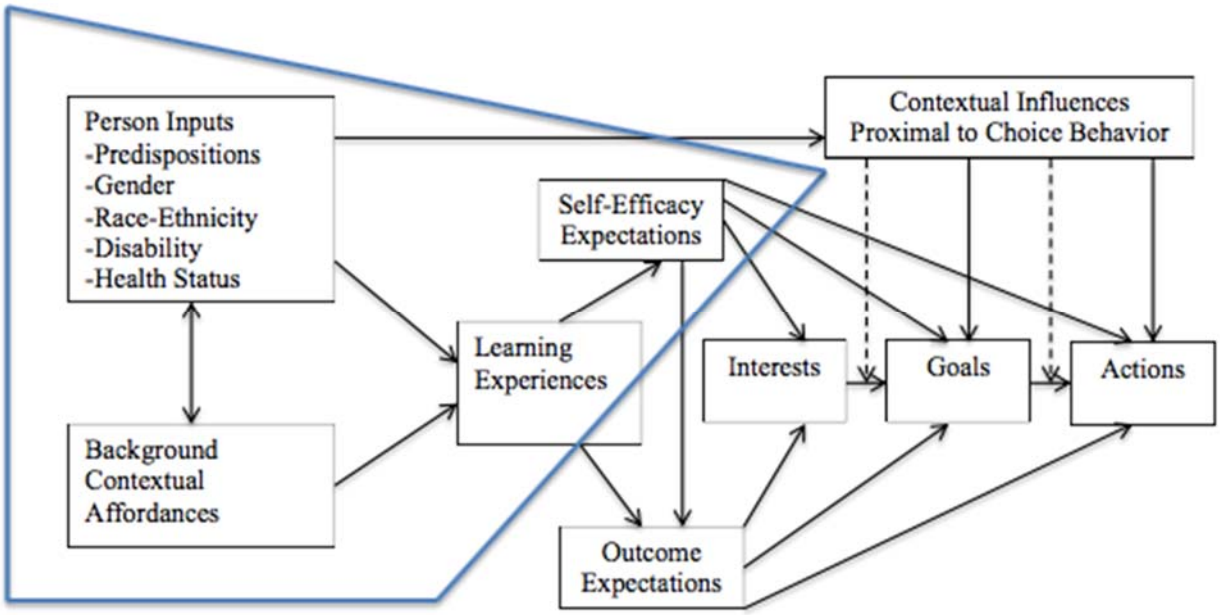


Figure 3. Nested model of career self-efficacy. Adapted from "Toward a unifying social cognitive theory of career, interest, choice and performance" by R.W. Lent, S.D. Brown, and G. Hackett (1994) *Journal of Vocational Behavior*, 45, p. 93.

Proposed Social Cognitive Model for Analysis

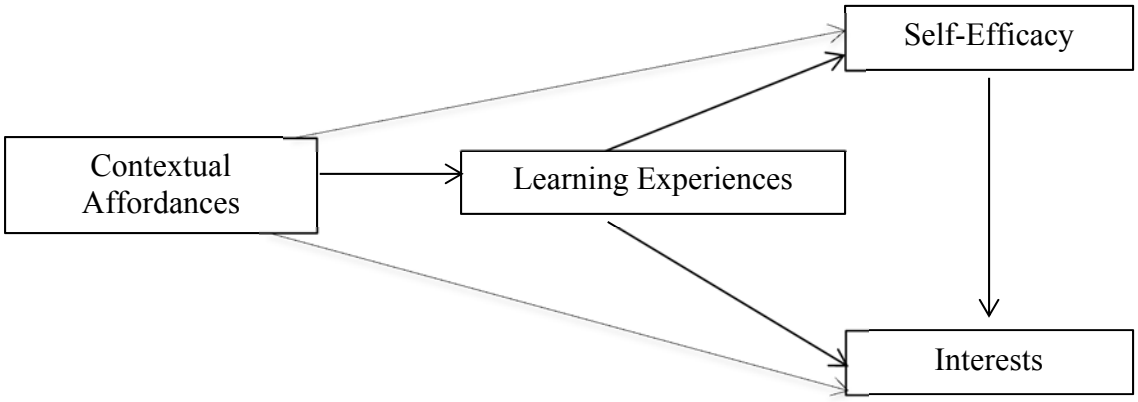


Figure 4. Proposed social-cognitive model of career self-efficacy. Adapted from "Toward a unifying social cognitive theory of career, interest, choice and performance" by R.W. Lent, S.D. Brown, and G. Hackett (1994) *Journal of Vocational Behavior*, 45, p. 93.

Chapter 4

RESULTS

The primary purpose of the present study was to examine the use of the *Self-Directed Search* Fifth Edition (Holland & Messer, 2013) with a sample of detained juvenile offenders by testing the psychometric properties of the instrument. This study also sought to examine group differences within the juvenile offender sample, and group differences between the juvenile offender sample and the normative sample. The secondary purpose of this study was to utilize the social cognitive career theory (Lent, Brown & Hackett, 1994; 2000) to develop a predictive model to account for self-efficacy in career choice with the juvenile offender sample. This chapter begins with a description of the data analysis steps followed in the study. Following the analysis description, the study results are presented for each study hypothesis. Finally, the chapter concludes with a brief summary of the results.

Introduction to Data Analysis

First, descriptive statistics, intercorrelations, and reliability were calculated for the juvenile offender sample on the main scales of the *Self-Directed Search* (Holland & Messer, 2013). Subsequently, a Multivariate Analysis of Covariance (MANCOVA) was completed to examine RIASEC subtypes between different self-identified racial groups for the juvenile offender sample. Following initial analyses with the juvenile offender sample, mean scores and correlations on the *Self-Directed Search* were compared between the normative sample (Holland

& Messer, 2013) and the juvenile offender sample using an independent-sample t-test procedure and *z*-test procedure. Finally, a predictive path-model of domain-specific RIASEC self-efficacy was examined using the Maximum Likelihood Estimation. Data were analyzed using IBM SPSS Version 2, GraphPad ©2015, QuantPsy (Preacher, 2002), and M-plus Version 7.31.

Research Question 1

The *Self-Directed Search* is a career-counseling instrument that provides valuable information regarding a person's likeness to each of the RIASEC Code types. The goal of initial analyses was to determine the specific descriptive characteristics of the Activities, Occupations, and Competencies subscales, as well as the Summary Scales with a juvenile offender sample. Descriptive statistics for each scale and subscale on the *Self-Directed Search* were calculated for male, female, and total participants. For total summary score, males scored highest on the Realistic theme (M = 32.44, *S.D.* = 11.01), while females scored highest on the Social theme (M = 33.73, *S.D.* = 12.90). For the total sample on the total summary score, juvenile offenders scored highest on the Enterprising theme (M = 29.40, *S.D.* =11.73). Means and standard deviations for each scale across gender and total sample are presented in table 3.

In addition to means and standard deviations, percentages for dominant code types were calculated for the juvenile offender sample. A dominant code type is the highest ranked RIASEC theme as determined by the summary scale. For male juvenile offenders, 32 of 75 (42.7%) had a Realistic dominant theme. For female juvenile offenders 11 of 22 (50%) had a Social dominant theme. For the total juvenile offender sample, 33 of 97 (34%) participants had a Realistic dominant theme. Percentages of dominant code-types for juvenile offenders are presented in table 4.

The standard error of measurement (SEM) for each RIASEC summary scale was also calculated. The standard error of measurement ranged from 1.19 on the Enterprising Summary scale to 1.37 on the Realistic Summary scale. These differences are regarded as "trivial" because they are within the limits of the inventory's standard error of measurement (Holland & Messer, 2013, p. 38). This indicates that the juvenile offender sample mean is likely close to the population mean (Shadish, Cook, and Campbell, 2002). The standard error of measurement for the summary scales is presented in table 5.

In addition to scale score means and standard deviations, differentiation scores were calculated. Differentiation refers to the level of distinctiveness of an occupational profile (Holland & Messer, 2013). The Iachan differentiation index (L_1; Iachan, 1948) was used to calculate differentiation for the juvenile offender sample. The following formula was used: $L_1 = ½[X_1 - (X_2+X_4)/2)]$; where X_1 is the highest summary score in a profile, X_2 is the second highest summary score in a profile, and X_4 is the fourth highest score in a summary profile (Iachan, 1948). This index also includes categories of high, medium, or low based on percentile rankings, where high scores are between the 87th and 99th percentile; average scores are between the 16th to 86th percentiles, and low scores are between 1st and 15th percentiles (Holland & Messer, 2013). For male juvenile offenders, differentiation scores ranged from 0.5 (low) to 18.0 (high) with M = 5.89, *S.D.* = 3.95. For female juvenile offenders, differentiation scores ranged from 1.5 (low) to 11.5 (high) with M = 6.09, *S.D.* = 3.11. Cumulative percent and percentile ranks for the Iachan Differentiation Index (L_1) score for juvenile offenders are presented in table 6.

Finally, profile elevations scores were calculated. Profile elevation is the degree of openness to or positive responses endorsed on the total *Self-Directed Search*, and speaks to the hexagonal shape of the respondent's profile (Holland & Messer, 2013). This score is obtained by

adding the six total summary scores, indicating the total number of positive or "yes" responses plus the two self-estimates scores (Holland & Messer, 2013). Scores can range from 14 to 336. The mean score for the standardization sample was 151 (*S.D.* = 54) (Holland & Messer, 2013). For the total juvenile offender sample the mean profile elevation score was 149.33 (*S.D.* = 53.14). This score indicates that the juvenile offender sample profile elevation fell in the average range.

Reliability refers to an instrument's ability to measure consistent results (Shadish, Cook, and Campbell, 2002). Specifically, this analysis sought to examine internal consistency of the Self Directed Search subscales with juvenile offenders. Internal consistency is the extent to which scale items measure the same general construct and produce similar scores (Shadish, Cook, and Campbell, 2002). Internal consistency was analyzed through correlations between different items on each of the RIASEC subscales: Activities, Competencies, Occupations, and Summary scale. Internal consistency ranged from r (73) = .57 for males on the Realistic Activities to r (73) = .93 on the Social Summary total scale for females. For the total sample, internal consistently ranged from r (95) = .75 to r (95) = .92, indicating scores were consistent across the items measured and relatively free from measurement error (Kline, 2010). Internal consistency correlations for the Activities, Competencies, Activities, and Summary Scale coefficients are presented in table 7.

In addition to internal consistency analysis, correlations between the two self-estimates rating scales were calculated in order to determine the specific variance each of these scale contributes to the overall self-estimate total. Table 8 presents the correlations on the two-self-estimates scales. For both the Conventional and Enterprising self-estimates scales for females only, the correlations were small (Cohen, 1988) and insignificant. Correlations on all other self-

estimates scales were significant ($p < .05$) and ranged from r (73) = .30 to r (73) = .49 for males and r (20) = .49 to r (20) = .76 for females. These significant results indicate the two self-ratings scales contain shared variance, but each scale contributes some unique variance (Holland & Messer, 2013).

Finally, another method for examining the internal structure of an instrument is by examining the intercorrelations between the scales. Correlations ranged from r (73) = .01, $p > .05$ to r (73) = .86, $p > .001$ for males, and r (20) = -.05, $p > .05$ to r (20) = .88, $p > .001$ for females. Table 9 presents the intercorrelations for the juvenile offender sample for males and females. In addition, figures 5 and 6 illustrate the hexagonal model for the summary scale intercorrelations with the male and female juvenile offender samples. These intercorrelations indicate that the relationships between the scales range from strong to weak (Cohen, 1988).

To determine if self-reported racial category affected domain-specific RIASEC type a One-Way Multivariate Analysis of Covariance (MANCOVA) was conducted. Multivariate analysis of covariance (MANCOVA) examines the means between two or more groups with multiple dependent variables (Timm, 2002). In addition to the dependent variables for each subject, an additional vector of covariates, which are related to the dependent variable, are controlled for by the study design to represent a source of variation that has not been controlled in the study (Timm, 2002). In this case the group variable or independent variable is self-reported racial category and the dependent variables are the six domain-specific RIASEC categories. Gender will be held constant as a covariate, as gender is a known factor to contribute to variance across RIASEC types (Holland & Messer, 2013; Holland, Powell & Fritzsche, 1997).

The overall sample size was adequate for the statistical analyses conducted. However, a larger sample was needed to adequately compare all of the identified racial groups for inclusion

in analyses. Therefore, analyses were conducted by splitting the racial groups into two categories with participants identifying as Latina/o, biracial, or other (n = 5) excluded from analyses due to low sample size. Participants identifying as African American or Black (n = 66) were grouped together, and participants identifying as Caucasian or White (n = 26) were grouped together.

Box's M was not significant (p = .601), indicating that there were no violations of the homogeneity of variance-covariance matrix assumption. Further, Leven's Test of Equality of Error Variances was not significant for any of the Summary Score RIASEC dependent variables (p > .05), indicating equal error variances across dependent variable groups. *Self-Directed Search* Summary Score scale means for the African-American/Black and Caucasian/White groups, controlling for gender, are presented in Table 11.

No significant main effect was found between percipient self-identified racial category and RIASEC domain-specific Summary Total interest score when controlling for gender, Pillai-Bartlett trace V = .052, F (6, 84) = .767, p = .598, η_p^2 = .052. Power to detect the effect was .228. Because only two racial groups were included in analyses, no univariate analyses were conducted. The covariate of gender was significant Pillai-Bartlett trace V = .551, F (6, 84) = 17.213, p = .000, η_p^2 = .551. Power to detect the effect was 1.000, indicating a large effect (Cohen, 1992). Examining between-subjects effects for domain-specific RIASEC dependent variables indicated the covariate of gender was significant only for Realistic F (1, 89) = 47.537, p = .000, η_p^2 = .348 and Social F (1, 89) = 9.047, p = .003, η_p^2 = .092 themes. This result is consistent with research indicating specific gender differences in on Realistic and Social themes (Holland & Messer, 2013; Holland, Powell & Fritzsche, 1997). Statistics for the MANCOVA are presented in Table 12.

Research Question 2

In order to determine if there is a significant difference for dominant code-type between the juvenile offender sample and the normative sample, a chi-square test of independence was used. A chi-square test of independence applied for two categorical variables from a single population, testing null the hypothesis that the samples are from the same population. It is used to determine whether there is a significant association between the two variables (Dane, 2011). This test is analogous to an omnibus test, meaning that the test demonstrates that a significant difference exists, but does not determine where that specific difference occurs. Table 10 illustrates the significant differences between the total juvenile offender sample and the total normative sample, as well as for male and female offenders and male and female normative samples separately. For the total sample comparisons, the chi-square test of indifference was significant, χ^2 (5) = 87.045, $p < .001$. For the male sample comparisons, the chi-square test of indifference was significant, χ^2 (5) = 49.660, $p < .001$. For the female sample comparisons, the chi-square test of indifference was significant, χ^2 (5) = 58.067, $p < .001$. These results indicated that juvenile offenders generally differ significantly from the normative population of high school adolescents across the RIASEC variables.

In order to determine on which domain-specific RIASEC variables the juvenile offender sample differed from the normative sample population, independent sample *t*-tests were used (Aron, Coups, & Aron, 2006). Prior to analysis, skewness and kurtosis for all summary score RIASEC dependent variables were calculated. All variables fell within the acceptable range of ±2 to assume normal univariate distribution (George & Mallery, 2010). Because univariate normal distribution assumptions of the *t*-test were met, a *t*-test was determined to be an appropriate analysis. Thus, an independent sample *t*-test was used to compare the juvenile

offender sample and normative sample values for each specific RIASEC summary score dependent variable. Two-tailed *t*-tests were used, as no specific hypothesis was made regarding directionality.

T-tests were conducted for the total sample juvenile offender sample ($n = 97$) and normative sample ($n = 222$). Means and standard deviations for the total sample comparisons are presented in table 11. Comparisons were significant for Realistic t (317) = 5.11, $p = .000$, Investigative t (317) = 3.86, $p = .000$, Social t (317) = 2.73, $p = .006$, Enterprising t (317) = 2.43, $p = .016$, and Conventional t (317) = 2.71, $p = .007$, themes. Comparisons were not significant for Artistic theme t (317) = 0.672, $p = .502$, and therefore no further comparisons were examined for the Artistic theme.

Following initial total sample analyses, additional *t*-tests were conducted to examine differences between male ($n = 75$) and female juvenile ($n = 22$) offenders and male ($n = 111$) and female ($n = 111$) normative samples, respectively. For the male juvenile offenders and male normative sample groups, comparisons were significant for Realistic t (184) = 3.82, $p = .000$, Investigative t (184) = 3.40, $p = .001$, and Conventional t (184) = 2.63, $p = .009$ themes. All other themes examined were not significant. See table 14 for means and standard deviations for the male sample comparisons. For the female juvenile offenders and female normative sample groups comparisons were significant only for the Investigative t (184) = 2.35, $p = .02$ theme. All other themes examined were not significant. See table 12 for means and standard deviations for the female sample comparisons.

In addition to examining mean score differences on domain-specific RIASEC dependent variables, differentiation (L_1) scores were also compared to examine differences between the juvenile offender sample and the normative sample. Total sample differentiation scores are not

provided for the normative sample, and therefore only gender comparisons were calculated. Table 13 shows means and standard deviations for Iachan differentiation index (L_1) scores for juvenile offender and normative samples. Comparisons for males were not significant t (184) = 0.30, p = .76. Comparisons for females were also not significant t (131) = 0.44, p = .66. These results indicated that male and female juvenile offenders do not differ significantly from the normative sample population on differentiation.

In addition to the Iacahn differentiation index (L_1), correlations between scales are also used to explore differentiation among specific RIASEC variables (i.e. amount of variations between scores on each of the six RIASEC total summary scales). The correlations between the six RIASEC total summary scales for both juvenile offender and normative samples were converted to z scores, using Fisher's Z transformation (Ferguson, 1981; Glaser et al., 2003). Fisher's Z transformation converts Pearson r correlation coefficients to the normally distributed variable z (M = 0, $S.D.$ = 1) in order to analyze the difference between correlations (Fisher, 1921). Z-scores ranged from .15 to .89 (M = .51, $S.D.$ = .26) for males, and .27 to .83 for females (M = .54, $S.D.$ = .15). These z-scores were then used for subsequent z-test calculations in order to examine specific differences between the juvenile offender and normative samples on each of the six RIASEC total summary scales. Then, making use of the sample size employed to obtain each coefficient, these z-scores are compared to test the null hypothesis that the two correlation coefficients are equal (Cohen & Cohen, 1983). As there were no assumptions regarding directionality, two-tailed significance tests were conducted.

For the male juvenile offenders, significant differences were found between the juvenile offender and normative male high school sample for seven of the RIASEC summary scale intercorrelations. Significant differences were found between the male juvenile offender and

normative male high school sample for the correlation between Realistic and Artistic summary scores z = -2.54, p = .01. In addition, significant differences were found between the male juvenile offender and normative male high school sample for the correlation between Realistic and Enterprising summary scores z = -3.30, p = .001. Significant differences were also found between the male juvenile offender and normative male high school sample for the correlation between Realistic and Conventional summary scores z = -3.70, p = .000. These scores indicate that male juvenile offenders are less differentiated than the male high school normative sample in regards to relationships between Realistic themes,

Additionally, significant differences were found between the male juvenile offender and normative male high school sample for the correlation between Investigative and Social summary scores z = 2.27, p = .02. Further, significant differences were found between the male juvenile offender and normative male high school sample for the correlation between Social and Enterprising summary scores z = 3.04, p = .002. Significant differences were also found between the male juvenile offender and normative male high school sample for the correlation between Social and Conventional summary scores z = 2.56, p = .011. Finally, significant differences were found between the male juvenile offender and normative male high school sample for the correlation between Enterprising and Conventional summary scores z = 3.30, p = .001. These scores indicate that male juvenile offenders are more differentiated than the male high school normative sample in regards to relationships Social and Enterprising themes. Figure 7 illustrates the hexagonal model for the differences in correlations for male juvenile offender and male normative high school samples for summary scale intercorrelations.

For the female juvenile offenders, significant differences were found between the female juvenile offender and normative male high school sample only for the correlation between

Investigative and Conventional summary scores $z = .231$, $p = .03$. These findings indicate that the distance between Investigative and Conventional themes for female juvenile offenders is greater than the distance on these themes for the female normative high school sample, and therefore less differentiated. Figure 8 illustrates the hexagonal model for the differences in correlations for the female juvenile offender and female normative high school samples for summary scale intercorrelations.

Research Question 3

In order to analyze research question three, self-reported barriers for juvenile offenders as measured by the Perception of Barriers scale (POB, McWhirter, 1997) were examined in several ways. While no normative information was available for the Perception of Barriers scale (POB, McWhirter, 1997), means and standard deviations were calculated for male and female juvenile offenders and are presented in Table 16. In order to examine the potential effect that barriers may have for juvenile offenders on self-efficacy, correlation analyses were conducted. Correlations between the three barriers scales (gender barriers, race barriers, and college barriers) and domain specific-RIASEC competencies scales are presented in Table 17. Results indicated that only the relationship between self-reported barriers in college and Conventional competency was significant r (95) = .228, $p < .05$. However, this correlation is considered small (Cohen, 1988), and thus was not considered for further path analyses. All other correlations were small and insignificant and therefore variables were eliminated from future path analysis models.

Despite lack of significant correlations, it is still important to examine between groups differences on barriers variables for the juvenile offender population. Therefore two separate one-way analyses of variance (ANOVA) were conducted to examine self-reported barriers for juvenile offenders. Power analysis indicated that in order to achieve power $\beta = .80$, there should

be at least 17 participants per group. Thus, the sample size in this study (males = 75, females= 22) was considered adequate for analysis.

The first one-way ANOVA examined the differences between males and female juvenile offenders on the self-reported gender barriers, race barriers, and college barriers scales. Prior to the analysis, the assumptions of the ANOVA were examined using the Lavene Statistic. Results indicated that for each of the three dependent variables (gender barriers, race barriers, and college barriers) variables the Lavene Statistic was not significant, indicating homogeneity of variances. A one-way ANOVA was then conducted. Results indicated that female offenders reported more future expected barriers in college than did males F (1, 96) = 10.207, p = .002. There were no significant differences between genders on the self-reported gender barriers or racial barriers scales. The full analysis of variance results are presented in Table 18.

The second one-way ANOVA examined differences between African American/Black and White/Caucasian juvenile offenders. As with the MANCOVA completed previously, participants identifying as Latina/o, biracial, or other (n = 5) excluded from analyses due to low sample size. Participants identifying as African American or Black (n = 66) were grouped together, and participating identifying as Caucasian or White (n = 26) were grouped together. Prior to the analysis, the assumptions of the ANOVA were examined using the Lavene Statistic. Results indicated that for each of the three dependent variables (gender barriers, race barriers, and college barriers) variables the Lavene Statistic was not significant, indicating homogeneity of variances. Results of the one-way ANOVA indicated that there were no significant differences on self-reported gender, racial, or college barriers between African American/Black and White/Caucasian juvenile offenders. The full analysis of variance results are presented in Table 19.

Research Question 4

Due to significant differences on the Investigative theme for both male and female juvenile offenders when compared to the normative high school male and female samples, only this theme was tested in the predictive model. Using demographic data, a predictive path model based in the social cognitive career theory was developed. Because initial analyses showed no differences between males and female juvenile offenders for Investigative occupations, gender was not included in the analysis. Additionally, because barriers and parent education were found to be unrelated to any of the specific RIASEC variables in initial correlational analyses, these variables were not used in the path model. Thus, this predictive analysis focused specifically on the learning experiences of grade level and self-reported grade-point average.

Path analysis is considered and extension of multiple regression, which provides estimates of the magnitude and significance of hypothesized causal connections between variables (Kline, 2011). The path model was evaluated using maximum likelihood (ML) estimation, which estimates and maximizes the likelihood that the observed covariances were drawn from the population (Kline, 2011). In ML estimation, Kline (2011) suggests a ratio of 10:1 for sample size to number of model permanents as the minimum sample size. This model included 10 parameters. A sample size of 97 participants is low and yields power to detect effect less than .80 (Kline, 2011).

In order to test the utility of the predictive model, correlations between all model variables were calculated, and correlations for predictive model variables are presented in Table 18. Specific variables used in the path model were self-reported grade level, grade-point average, Investigative Occupations totals, and Investigative competencies totals. Subsequently the model was tested using the maximum likelihood (ML) estimation. Prior to assessing model fit, the

admissibility of the model was evaluated. Improper model solutions can result whenever negative variances are present or when path coefficients are greater than 1.0 (Kline, 2011; Bandalos, 2014). Because the model solution resulted in a path coefficient greater than 1.0, the model is considered inadmissible. See Table 21 for initial model results.

This initial solution indicates that extraneous factors such as small sample size, outliers, or model misspecification are contributing to improper solutions; therefore, model modification is indicated (Bandalos, 2014). Due to small sample size, the most appropriate solution is to remove variables that do not contribute significantly to the model (Bandalos, 2014). The Investigative occupations variable was removed from the analysis, and the subsequent analysis tested the prediction of GPA and grade level on Investigative Competency. Results indicated that the chi-square statistic yielded a significant value ($\chi^2 = 2.74$, $p = 0.00$). A chi-square value indicates the model is inconsistent with the covariance data, and that the sample data is significantly different from the estimated population mean (Kline, 2010). In addition, these results indicated that path coefficients were insignificant ($p > .05$), also indicating poor model fit. Goodness-of-fit indices are not reported due to model saturation, which leads to perfect fit-indices regardless of model results (Bandalos, 2014). Full models results and illustration of the path model are presented in table 22 and figure 9, respectively. These results indicate that for juvenile offenders self-reported GPA and grade-level are not significant predictors of self-efficacy on investigative occupations as measured by the *Self-Directed Search*.

Summary

In examining between-groups differences within the juvenile offender sample, there were no differences between self-identified African-American/Black and Caucasian/white juvenile offenders on domain-specific RIASEC total summary interest score. However, significant gender

differences exist between males and females on the Realistic and Social occupations. In examining differences between the juvenile offender sample and the normative high school sample, significant differences were found between groups on the Realistic, Investigative, Social, Enterprising, and Conventional themes for males. However, these results differed by gender. Specifically, for the female sample, only the Investigative theme significantly differed between the female offender and normative sample groups with female offenders expressing less interest for the Investigative occupations. In addition, female offenders reported greater barriers in future college pursuits than did their male peers. The predictive model of domain-specific interest was not significant, indicating that additional factors not accounted for in this study predict self-efficacy in domain-specific career interest for juvenile offenders. In general, these results provide support for the use of the *Self-Directed Search* fifth edition (Holland & Messer, 2013) with a juvenile offender population with specific implications regarding interpretation of the *Self-Directed Search* fifth edition (Holland & Messer, 2013) with this population. This study further provides implications regarding predictive models accounting for domain-specific self-efficacy for juvenile offenders.

Table 3

Means and Standard Deviations SDS Scales for the 5th Edition with Juvenile Offender Sample

	Male (*n* = 75)	Female (*n* = 22)	Total (*n* = 97)
	Mean *(SD)*	Mean *(SD)*	Mean *(SD)*
Summary			
R	32.44 *(11.01)*	13.23 *(9.11)*	28.08 *(13.30)*
I	22.51 *(12.50)*	19.91 *(11.88)*	21.92 *(12.35)*
A	23.41 *(12.76)*	29.36 *(15.32)*	24.76 *(13.53)*
S	23.64 *(11.71)*	33.73 *(12.90)*	25.93 *(12.66)*
E	30.21 *(11.33)*	26.64 *(12.91)*	29.40 *(11.73)*
C	17.83 *(12.01)*	24.05 *(11.22)*	19.24 *(12.06)*
Activities			
R	9.21 *(3.87)*	2.68 *(1.67)*	7.73 *(4.65)*
I	5.64 *(4.41)*	4.09 *(3.39)*	5.29 *(4.44)*
A	5.13 *(3.88)*	6.14 *(4.44)*	5.36 *(3.94)*
S	5.29 *(4.39)*	8.27 *(4.11)*	5.97 *(4.65)*
E	8.27 *(4.10)*	7.32 *(4.86)*	8.05 *(4.16)*
C	4.29 *(4.21)*	4.41 *(4.38)*	4.32 *(4.27)*
Competencies			
R	8.12 *(3.76)*	4.00 *(3.24)*	7.19 *(4.03)*
I	6.05 *(4.03)*	6.27 *(4.48)*	6.10 *(4.11)*
A	5.27 *(3.95)*	7.77 *(4.44)*	5.84 *(4.18)*
S	7.09 *(4.30)*	9.18 *(4.36)*	7.57 *(4.38)*
E	8.57 *(3.84)*	8.00 *(4.28)*	8.44 *(3.93)*
C	5.47 *(4.42)*	7.82 *(4.31)*	6.00 *(4.48)*
Occupations			
R	5.40 *(3.45)*	1.18 *(1.92)*	4.44 *(3.62)*
I	3.24 *(4.10)*	2.55 *(2.70)*	3.08 *(3.82)*
A	4.55 *(3.65)*	5.68 *(4.87)*	4.80 *(3.96)*
S	2.67 *(3.27)*	5.82 *(4.42)*	3.38 *(3.77)*
E	4.56 *(4.07)*	3.50 *(3.99)*	4.32 *(4.06)*
C	1.80 *(2.89)*	3.95 *(3.61)*	2.29 *(3.18)*

Table 4

Percentages of Dominant Code-Types for Juvenile Offender Sample

Summary Scale	Male (%) *n*=75	Female (%) *n*=22	Total (%) *n*=97
R	42.7	4.5	34.0
I	8.0	0.0	6.2
A	13.3	31.8	17.5
S	5.3	50.0	15.5
E	29.3	9.1	24.7
C	1.3	4.5	2.1

Table 5

Standard Error of Measurement (SEM) by Summary Scale for Juvenile Offender Sample

Summary Scale	SEM
R	1.35
I	1.25
A	1.37
S	1.29
E	1.19
C	1.23

Table 6

Percentile Ranks for Iachan Differentiation Index (L_1) Scores for Juvenile Offender Sample

Male (*n*=75)			Female (*n*=22)		
L_1 Score	Cumulative Percent	Percentile Ranks	L_1 Score	Cumulative Percent	Percentile Ranks
18	100	99	11.5	100	94
17.75	98	99	10.5	90	93
16.75	97	99	9.5	86	87
14.5	96	99	9.25	81	87
13	94	97	7.5	77	71
12.75	93	97	7	72	66
12.5	92	97	6.5	63	61
12	90	99	6.25	59	60
10.5	89	87	6	50	55
9.75	88	87	5.75	40	51
9.5	82	85	5.5	36	45
9	80	88	3.5	27	15
8.5	78	81	2.25	22	6
8.25	77	79	1.5	13	4
7.5	76	73			
7	74	69			
6.75	73	73	Mean	6.09	
6.25	70	60	SD	3.11	
6	66	60			
5.75	60	59			
5.5	58	55			
5.25	56	53			
5	52	51			
4.5	46	41			
4.25	40	40			
4	38	37			
3.75	34	37			
3.5	30	29			
3	28	23			
2.75	25	21			
2.5	22	20			
2.25	20	16			
2	14	14			
1.75	8	11			
1.25	2	5			
0.5	1	2			
Mean	5.89				
SD	3.95				

Note. Percentile ranks for high school sample as reported by Holland and Messer (2013).

Table 7

Internal Consistency of the SDS Scales for the 5th Edition with Juvenile Offender Sample

	Juvenile Offender Sample		
Scale	Male	Female	Total
n	75	22	97
Summary			
R	.850	.819	.900
I	.928	.905	.922
A	.911	.939	.920
S	.898	.911	.912
E	.890	.903	.893
C	.889	.923	.917
Activities			
R	.586	.872	.746
I	.887	.907	.893
A	.856	.853	.854
S	.888	.920	.902
E	.878	.888	.879
C	.897	.919	.901
Competencies			
R	.844	.799	.867
I	.876	.909	.881
A	.871	.898	883
S	.876	.900	.885
E	.855	.897	.863
C	.899	.884	
Occupations			
R	.759	.792	.836
I	.924	.794	.906
A	.838	.923	.867
S	.859	.900	.886
E	.882	.898	.886
C	.880	.870	.884

Table 8

Correlations Between Corresponding Self-Estimates Subscales with Juvenile Offender Sample

		Self-Estimates 1						Self-Estimates 2					
		R	I	A	S	E	C	R	I	A	S	E	C
Self-Estimates 1	R	---	.15	.33	.17	.16	.07	.53*	-.05	.34	.31	.36	-.04
	I	.09	---	.54**	.35	.18	.36	.17	.59**	.33	.53*	.16	.11
	A	.07	.15	---	.45*	.25	.11	.11	.22	.49*	.49*	.10	.09
	S	.08	.43**	.27*	---	.46*	-.03	-.15	-.01	.31	.76**	.27	.59**
	E	-.11	.04	.26*	.19	---	.06	-.10	.12	.24	.55**	.07	.32
	C	-.01	.24*	.11	.32**	.14	---	.51*	.54**	.05	.31	.35	.00
Self-Estimates 2	R	.44**	.38**	.16	.37**	.02	.12	---	.34	.34	.14	.18	-.26
	I	.16	.33**	.02	.10	-.02	.22	.26*	---	.28	.31	-.05	-.16
	A	-.12	-.05	.49**	.15	.07	.07	.12	.04	---	.58**	.08	-.08
	S	.09	.29**	.23	.32**	.04	.09	.44**	.38**	.35**	---	.41	.52*
	E	.05	.30**	.09	.24*	.30**	.15	.25*	.40**	.01	.21	---	.32
	C	.04	.47**	.10	.30**	.28*	.39**	.29*	.33**	-.04	.31**	.49**	---

Note. Females (n= 22) are on the above diagonal; males (n= 75) are below the diagonal.
*$p < 0.05$ **$p < 0.05$

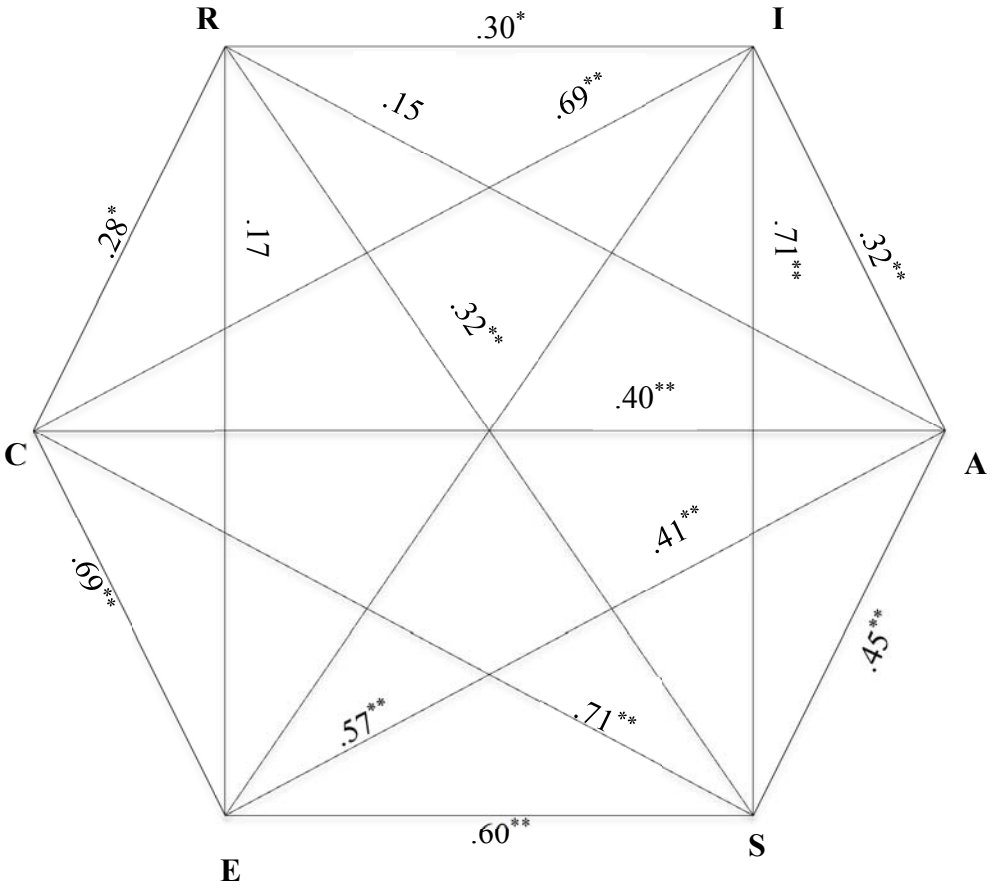
Table 9

Intercorrelations Among SDS Main Variables for Juvenile Offender Sample

		Activities						Competencies						Occupations						Summary Total					
		R	I	A	S	E	C	R	I	A	S	E	C	R	I	A	S	E	C	R	I	A	S	E	C
Activities	R	---	.49*	.48*	.43*	.47*	.53*	.59**	.51*	.45*	-.02	.10	-.04	.71**	.19	.57**	.18	.20	.24	.87**	.51*	.57**	.22	.30	.31
	I	.28*	---	.65**	.56**	.47*	.61**	.34	.59**	.38	.16	.27	.23	.34	.51*	.51*	.46*	.25	.26	.41	.86**	.54**	.54**	.35	.45*
	A	.14	.29**	---	.62**	.48*	.59**	.51*	.60**	.76**	.07	.40	.12	.31	.36	.89**	.43*	.26	.29	.47*	.67**	.92**	.49*	.39	.37
	S	.36**	.68**	.37**	---	.56**	.38	.52*	.42	.68**	.41	.42*	.01	.17	.36	.66**	.72**	.34	.38	.37	.53*	.67**	.87**	.53*	.31
	E	.32**	.45**	.22	.52**	---	.68**	.63**	.49*	.65**	0.36	.71**	.41	.16	0.42	.48*	.47*	.47*	.39	.49*	.50*	.51*	.53*	.85**	.60**
	C	.28*	.54**	.36**	.66**	.48**	---	.66**	.63**	.52*	.08	.39	.37	.09	.38	.51*	.46*	.28	.52*	.54*	.63**	.57**	.37	.51*	.70**
Competencies	R	.53**	.27*	.09	.24*	.17	.20	---	.69**	.71**	.21	.46*	.48*	.36	.22	.49*	.48*	.17	.58**	.78**	.47*	.63**	.56**	.55**	.69**
	I	.11	.59**	.20	.45**	.43**	.48**	.23*	---	.53*	.30	.29	.63**	.28	.39	.51*	.36	.09	.65**	.55**	.85**	.56**	.48*	.36	.79**
	A	.23*	.29**	.76**	.43**	.34**	.48**	.27*	.31**	---	.19	.62**	.27	.17	.19	.83**	.66**	.51*	.55**	.45*	.42*	.89**	.64**	.67**	.51*
	S	.19	.56**	.36**	.66**	.56**	.55**	.15	.58**	.44**	---	.39	.30	-.10	.13	.09	.24	.27	.23	-.05	.25	.06	.63**	.40	.25
	E	.01	.36**	.29*	.33**	.56**	.36**	.12	.48**	.30**	.54**	---	.49*	.09	.14	.35	.47*	.49*	.18	.15	.22	.43*	.57**	.88**	.46*
	C	.14	.56**	.32**	.56**	.54**	.69**	.19	.67**	.52**	.60**	.58**	---	-.06	.29	-.05	.29	.06	.60**	.10	.43*	.09	.33	.40	.84**
Occupations	R	.64**	.19	.15	.33**	.21	.31**	.51**	.15	.23*	.23*	.08	.21	---	.19	.27	-.05	-.05	-.18	.71**	.27	.30	.08	.12	.02
	I	.19	.69**	.43**	.50**	.41**	.61**	.24*	.56**	.44**	.54**	.41**	.59**	.38**	---	.18	.39	.31	.33	.24	.61**	.23	.35	.33	.44*
	A	.17	.35**	.74**	.41**	.46**	.47**	.11	.38**	.73**	.52**	.43**	.58**	.22	.49**	---	.46*	.43*	.35	.45*	.53*	.95**	.48*	.43*	.29
	S	.37**	.51**	.35**	.61**	.41**	.59**	.23*	.40**	.36**	.41**	.37**	.51**	.34**	.62**	.50**	---	.48*	.63**	.21	.41	.53*	.80**	.54**	.56**
	E	.24*	.35**	.37**	.35**	.44**	.62**	.12	.38**	.47**	.35**	.37**	.45**	.22	.47**	.52**	.56**	---	.35	.12	.22	.40	.41	.78**	.28
	C	.27*	.36**	.17	.43**	.36**	.61**	.22	.28*	.29*	.29*	.24*	.48**	.29*	.47**	.36**	.64**	.65**	---	.28	.51*	.41	.49*	.35	.83**
Summary Total	R	.81**	.29**	.09	.32**	.26*	.29*	.81**	.20	.22	.21	.10	.22	.81**	.28*	.20	.35**	.22	.29*	---	.48*	.54**	.27	.35	.41
	I	.22	.87**	.31**	.60**	.49**	.62**	.27*	.84**	.35**	.63**	.51**	.69**	.21	.82**	.45**	.59**	.45**	.41**	.29*	---	.58**	.54**	.37	.68**
	A	.16	.26*	.91**	.33**	.31**	.38**	.11	.23*	.85**	.38**	.33**	.42**	.16	.41**	.88**	.38**	.42**	.22	.15	.32**	---	.56**	.49*	.40
	S	.32**	.66**	.41**	.86**	.59**	.68**	.21	.57**	.46**	.83**	.52**	.66**	.29*	.60**	.56**	.75**	.45**	.49**	.32**	.71**	.45**	---	.63**	.51*
	E	.19	.42**	.33**	.42**	.79**	.59**	.09	.51**	.42**	.54**	.74**	.60**	.14	.50**	.55**	.54**	.78**	.49**	.17	.57**	.41**	.59**	---	.55**
	C	.22	.57**	.32**	.62**	.55**	.88**	.214	.58**	.49**	.55**	.50**	.87**	.28*	.64**	.55**	.64**	.66**	.74**	.28*	.69**	.40**	.71**	.69**	---

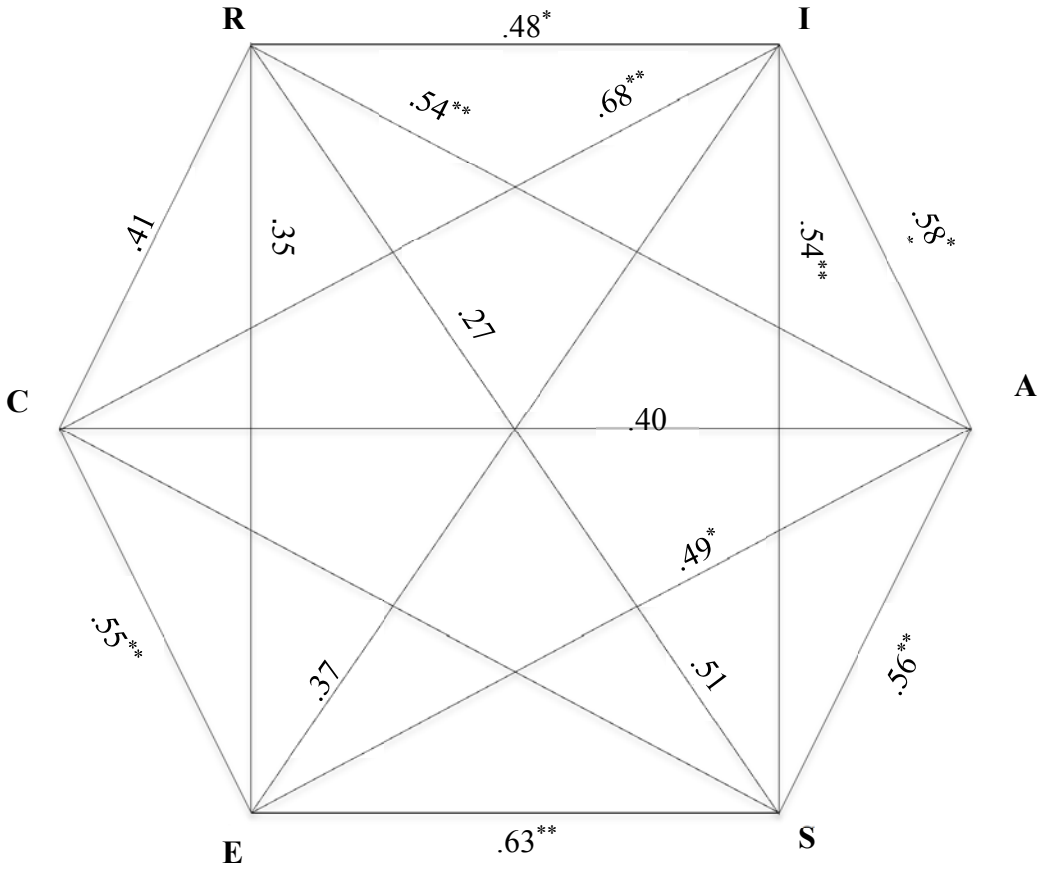
Note. Females (n= 22) are on the above diagonal; males (n= 75) are below the diagonal. $^{*}p < 0.05$ $^{**}p < 0.01$

Figure 5
A Hexagonal Model For Interpreting Inter- And Intra-Class Relationships For Male Juvenile Offender Sample



Note. Correlations are between summary scale scores for the male offender sample (n = 75)
$^{*}p < 0.05$ $^{**}p < 0.01$

Figure 6
A Hexagonal Model For Interpreting Inter- And Intra-Class Relationships For Female Juvenile Offender Sample



Note. Correlations are between summary scale scores for the female offender sample (n = 22)
$^{*}p < 0.05$ $^{**}p < 0.01$

Table 10

Mean Scores and Descriptive Statistics on the Self-Directed Search Summary Scores for African American and White Juvenile Offenders when Controlling for Gender

	African American/Black (n = 66)	Caucasian/White (n = 26)	Total (n = 92)
	Mean *(SD)*	Mean *(SD)*	Mean *(SD)*
Total Summary R	27.86 *(12.95)*	29.08 *(13.74)*	28.21 *(13.11)*
Total Summary I	21.91 *(12.55)*	22.38 *(12.656)*	22.04 *(12.51)*
Total Summary A	25.21 *(14.20)*	24.12 *(11.95)*	24.90 *(13.55)*
Total Summary S	25.52 *(12.34)*	25.58 *(13.81)*	25.53 *(12.57)*
Total Summary E	30.86 *(11.92)*	26.96 *(11.26)*	29.76 *(11.81)*
Total Summary C	19.29 *(11.73)*	19.04 *(12.72)*	19.22 *(11.95)*

Table 11

Multivariate Analysis of Covariance

	Pillai's Trace Value	F (6, 84)	P-Value	Partial Eta Squared	Observed Power
Race	.052	.767	.598	.052	.288
Gender	.551	17.213	.000	.551	1.000
Race*Gender	.661	27.247	.000	.661	1.000

Table 12

Percentages of Dominant Code-Types for Juvenile Offender and Normative Samples

	Male (%) *n*=75	Male (%) *n*=111	Female (%) *n*=22	Female (%) *n*=111	Total (%) *n*=97	Total (%) *n*=222
Summary						
R	42.7	18.9	4.5	2.7	34.0	10.8
I	8.0	29.7	0.0	13.5	6.2	21.6
A	13.3	9.9	31.8	25.2	17.5	17.6
S	5.3	15.3	50.0	39.6	15.5	27.5
E	29.3	18.0	9.1	4.5	24.7	11.3
C	1.3	8.1	4.5	14.4	2.1	11.3

Note. Male, Female, and total normative sample percentages for high school students as reported by Holland and Messer (2013).
χ^2 (5), p <.001

Table 13

Means and Standard Deviations of Domain-Specific RIASEC Summary Scores for Total Juvenile Offender Sample Compared with Total Normative High School Sample

	Total Juvenile Offender Sample (n=97)		Total Normative Sample (n=222)	
Summary Scale	Mean	*(SD)*	Mean	*(SD)*
R	28.08**	*(13.35)*	19.98	*(12.89)*
I	21.92**	*(*12.35)	28.01	*(13.22)*
A	24.76	*(13.53)*	25.87	*(13.60)*
S	25.93*	*(12.66)*	30.36	*(13.60)*
E	29.40*	*(11.73)*	25.70	*(12.85)*
C	19.24**	*(12.06)*	23.32	*(12.53)*

Note. Total normative sample means and standard deviations for high school students as reported by Holland and Messer (2013).
*$p < 0.05$ **$p < 0.01$

Table 14

Means and Standard Deviations of Domain-Specific RIASEC Summary Scores for Male and Female Juvenile Offender Sample Compared with Male and Female Normative High School Sample

	Male Offenders (n=75)		Normative Male Sample (n=111)		Female Offenders (n=22)		Normative Female Sample (n=111)	
Summary Scale	Mean	*(SD)*	Mean	*(SD)*	Mean	*(SD)*	Mean	*(SD)*
R	32.44**	*(11.01)*	25.31	*(13.40)*	13.23	*(14.65)*	14.65	*(9.85)*
I	22.51**	*(12.50)*	29.23	*(13.66)*	19.91*	*(11.88)*	26.80	*(12.71)*
A	23.41	*(12.76)*	12.98	*(12.98)*	29.36	*(15.32)*	29.53	*(13.28)*
S	23.64	*(11.71)*	14.16	*(14.16)*	33.73	*(12.89)*	33.69	*(12.20)*
E	30.21	*(11.33)*	27.76	*(14.43)*	26.64	*(12.91)*	24.64	*(11.01)*
C	17.83**	*(12.01)*	22.86	*(13.28)*	24.05	*(11.22)*	23.78	*(11.77)*

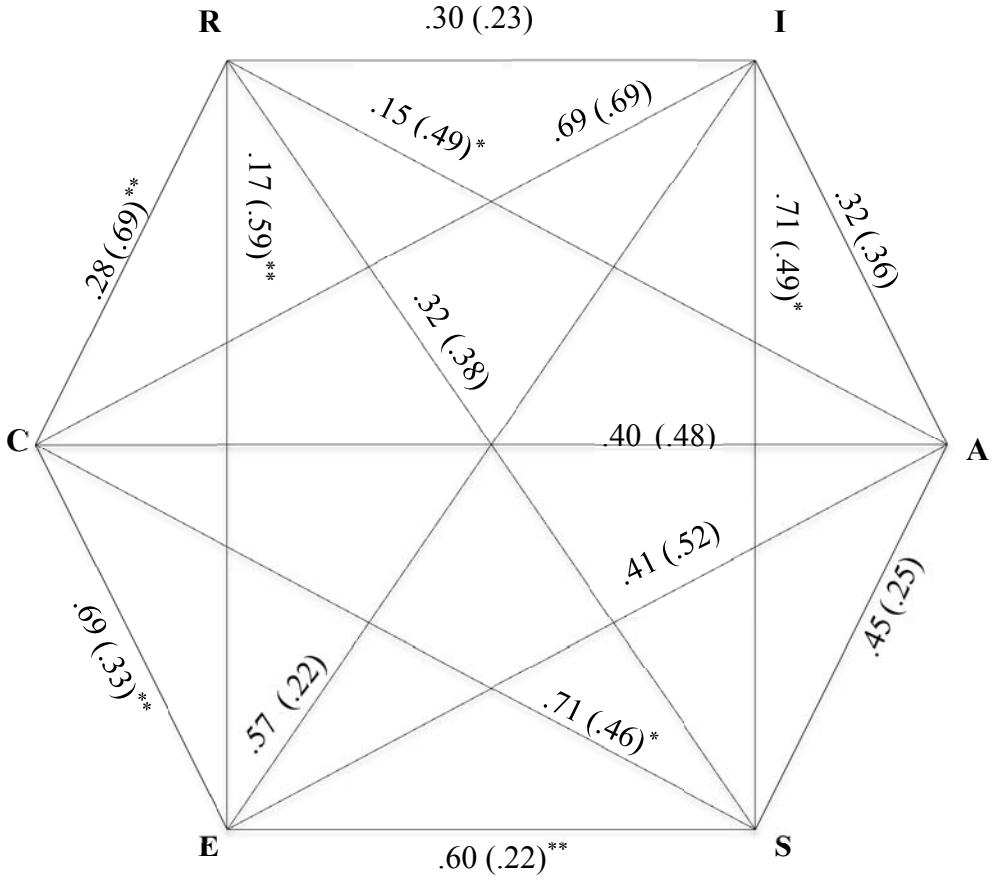
Note. Male and female normative sample means and standard deviations for high school students as reported by Holland and Messer (2013).
*$p < 0.05$ **$p < 0.01$

Table 15
Means and Standard Deviations for Iachan Differentiation Index (L_1) Scores for Juvenile Offender and Normative Samples

	Male Offenders	Male Normative Sample	Female Offenders	Female Normative Sample
Mean	5.89	5.73	6.09	6.4
SD	3.95	3.28	3.11	3.04
n	97	111	22	111

Note. Male, female, and total normative sample means and standard deviations for high school students as reported by Holland and Messer (2013).
$^{*}p < 0.05$ $^{**}p < 0.01$

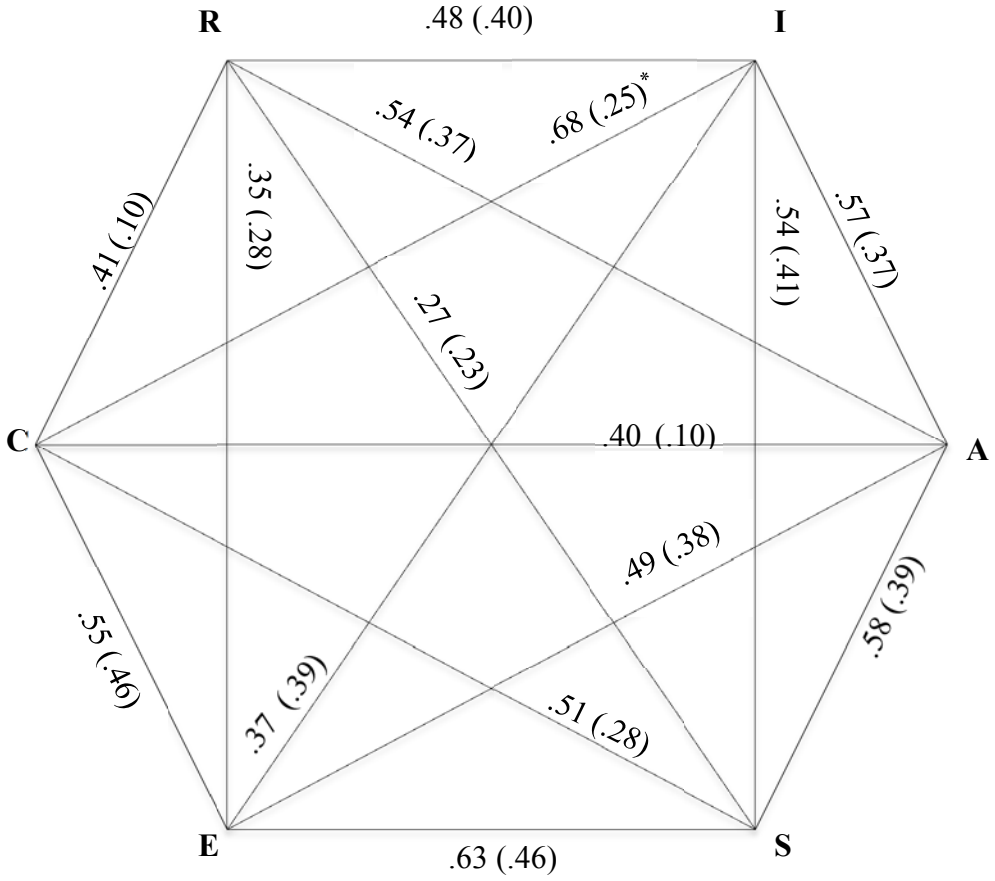
Figure 7
Correlations Between RIASEC Summary Scale Scores for Male Juvenile Offender and Male Normative High School Samples



Note. Male normative sample correlations for high school students as reported by Holland and Messer (2013). Male normative high school sample correlations are indicated in parentheses. $^{*}p < 0.05$ $^{**}p < 0.01$

Figure 8

Correlations Between RIASEC Summary Scale Scores for Female Juvenile Offender and Female Normative High School Samples



Note. Female normative sample correlations for high school students as reported by Holland and Messer (2013). Female normative high school sample correlations are indicated in parentheses. $^{*}p < 0.05$ $^{**}p < 0.01$

Table 16

Means and Standard Deviations for Perception of Barriers Scales for Juvenile Offenders

	Total Sample (*n*=97) M (*S.D.*)	Males (*n*=75) M (*S.D.*)	Females (*n*=22) M (*S.D.*)
BAR-GE	17.59 *(3.56)*	17.72 *(3.64)*	17.10 *(3.25)*
BAR-RA	15.30 *(4.43)*	15.36 *(4.36)*	15.05 *(4.76)*
BAR-COL	20.16 *(4.21)*	20.84 *(3.72)*	17.60 *(5.02)*

Note. BAR-GE = Gender Barriers Scale, BAR-RA = Race Barriers Scale, BAR-COL= College Barriers Scale

Table 17

Correlations Between Perception of Barriers and RIASEC Competencies Scales for Juvenile Offenders

	COMPR	COMPI	COMPA	COMPS	COMPE	COMPC	BAR-GE	BAR-RA	BAR-COL
COMPR	---								
COMPI	.341**	---							
COMPA	.225*	.342**	---						
COMPS	.070	.487**	.392**	---					
COMPE	.232*	.411**	.349**	.498**	---				
COMPC	.151	.636**	.476**	.550**	.532**	---			
BAR-GE	-.079	-.154	-.159	.109	.030	-.094	---		
BAR-RA	-.045	-.011	-.029	.047	-.051	.004	.382**	---	
BAR-COL	.228*	-.056	-.164	-.090	-.001	-.116	.025	.191	---

Note. COMPR= Realistic Competencies Total Scale, COMPI = Investigative Competencies Total Scale, COMPA = Artistic Competencies Total Scale, COMPS = Social Competencies Total Scale, COMPE = Enterprising Competencies Total Scale, COMPEC = Conventional Competencies Total Scale, BAR-GE = Gender Barriers Scale, BAR-RA = Race Barriers Scale, BAR-COL= College Barriers Scale

*$p < 0.05$ **$p < 0.01$

Table 18

Analysis of Variance Results: Differences Between Male and Female Juvenile Offenders on Self-Reported Barriers

		Sums of Squares	df	Mean Squares	*F*	*p*
BAR-GE	Between	7.073	1	7.073	.557	.457
	Within	1168.895	94	12.705		
BAR-RA	Between	1.561	1	1.561	.079	.780
	Within	1822.099	94	19.805		
BAR-COL	Between	166.442	1	166.442	10.207	.002
	Within	1500.165	94	16.306		

Note. BAR-GE = Gender Barriers Scale, BAR-RA = Race Barriers Scale, BAR-COL= College Barriers Scale

Table 19

Analysis of Variance Results: Differences African American and White Juvenile Offenders on Self-Reported Barriers

		Sums of Squares	df	Mean Squares	*F*	*p*
BAR-GE	Between	6.065	1	6.065	.477	.492
	Within	1169.903	92	12.716		
BAR-RA	Between	58.799	1	58.799	3.065	.083
	Within	1764.861	92	19.183		
BAR-COL	Between	32.835	1	32.835	1.849	.177
	Within	1633.771	92	17.758		

Note. BAR-GE = Gender Barriers Scale, BAR-RA = Race Barriers Scale, BAR-COL= College Barriers Scale

Table 20

Correlations for Investigative Dominant-Theme Code Predictive Model

	OCCI Total	COMPI Total	Gender	Grade Level	GPA
OCCI Total	---				
COMPI Total	.53**	---			
Gender	.09	.02	---		
Grade Level	.10	.13	-.04	---	
GPA	.06	.22**	.06	.08	---

Note. OCCI Total = Investigative Occupations Total Scale, COMPI Total = Investigative Competencies Total Scale, GPA= Grade Point Average

*$p < 0.05$ **$p < 0.01$

Table 21

Model Solution Results for Investigative Dominant-Theme Code

	Estimate	S.E.	*p*-value
GPA on Grade	-0.839	0.137	0.000
COMPI on Grade	0.494	0.311	0.111
COMPI on GPA	0.085	0.198	0.668
OCCI on COMPI	0.372	0.094	0.000
OCCI on Grade	-0.045	0.287	0.874
OCCI on GPA	1.320	0.181	0.000
Intercept GPA	10.259	1.177	0.000
Intercept COMPI	1.449	3.036	0.633
Intercept OCCI	-2.208	2.771	0.426
Residual Variance GPA	4.662	0.680	0.000
Residual Variance COMPI	17.161	2.503	0.000
Residual Variance OCCI	14.265	2.081	0.000

Note. OCCI = Investigative Occupations Total Scale, COMPI = Investigative Competencies Total Scale, GPA= Grade Point Average

Table 22

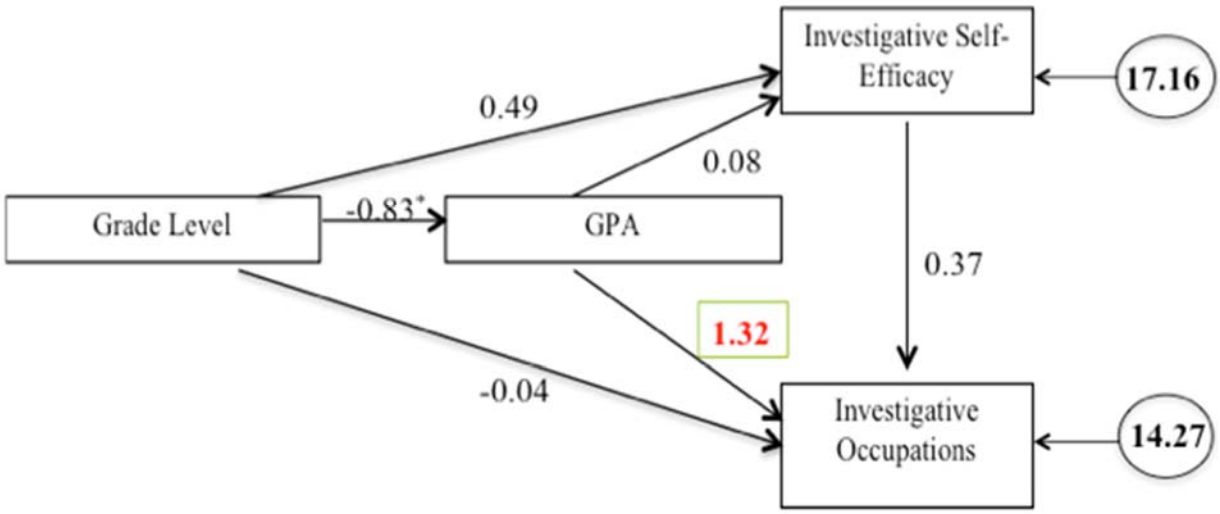
Model Modification Solution Results for Investigative Dominant-Theme Code
Model Solution Results for Investigative Dominant-Theme Code

	Estimate	S.E.	*p*-value
COMPI on GPA	0.085	0.198	0.668
COMPI on Grade	0.494	0.311	0.111
Intercept COMPI	1.448	3.036	0.633
Residual Variance COMPI	17.162	2.503	0.000

Note. OCCI Total = Investigative Occupations Total Scale, COMPI Total = Investigative Competencies Total Scale, GPA= Grade Point Average

Figure 9

Predictive Model for Investigative Dominant-Theme Code



Note. None of the model paths are significant

Chapter 5

DISCUSSION

Counseling psychology has a strong historical foundation in career and vocational development as well as roots in social justice (APA, 1999; Munley et al., 2006), providing a potential framework for understanding youth career development within unjust sociopolitical systems, such as the juvenile justice system. The present study examined the utility of the *Self-Directed Search* fifth edition (Holland & Messer, 2013) with a juvenile offender sample. In addition, this study examined theoretical models of Personality Environment Fit (Holland, 1997) and the Social Cognitive Career Theory (SCCT; Lent, Brown & Hackett, 1994; 2000) with a juvenile offender sample. This chapter will explore the meaning of the results of this study for each of the four research questions. In addition, this chapter will discuss theoretical and clinical implications of this study for career theory and for working with detained juvenile offender populations. Strengths and limitations of the study will also be discussed. Finally, the chapter concludes with future research directions and the role of counseling psychologists in promoting this research and its findings.

Research Question 1

The primary purpose of this study was to understand how male and female juvenile offenders describe their career interests as measured by the *Self-Directed Search* fifth edition (Holland & Messer, 2013. To answer this question, descriptive statistics, intercorrelations, and

reliability were calculated for the juvenile offender sample on the main scales of the *Self-Directed Search* fifth edition (Holland & Messer, 2013). In addition, a multivariate analysis of covariance was calculated to explore potential between-groups differences across self-reported racial categories for African American/Black and White/Caucasian participants in the juvenile offender sample.

Results demonstrated that the *Self-Directed Search* fifth edition (Holland & Messer, 2013) maintains strong internal consistency across all summary scales (i.e., Activities, Occupations, Competencies and Total) with this juvenile offender sample. The only total scale that showed poor internal consistency was the Activities scale for Realistic Occupations, and this issue was for the males only. This issue may indicate differences for specific items for individual male raters, or differences between males in general on this specific scale. Poor reliability for males on this subscale indicates that some caution should be taken when interpreting this subscale with male juvenile offenders. For all other summary scales for each specific RIASEC category across both males and females the internal consistency was considered good to excellent (Nunnally, 1978). In addition, the standard error of measurement for the juvenile offender sample was considered marginal, as all estimates are within the limits of the inventory's standard error of measurement. Small standard errors are an additional example of strong reliability properties of the scale (Nunnally, 1978).

An additional measure of internal consistency was calculated by the examination of correlations of scales and subscales. For both the Conventional and Enterprising self-estimates scales (for females only), the correlations were small and insignificant, indicating that these self-estimates for female offenders should be interpreted with caution. However, it is possible that this specific issue might be due to a small sample size (Nunnally, 1978). For all other self-

estimates scales across both males and females correlations were moderate and significant, with each scale contributing some unique variance to the overall self-estimate score (Holland & Messer, 2013). These relationships between scales indicate that these scales should be interpreted as separate scores, rather than one single score. For all other correlations between scales, each of the RIASEC categories were moderately to significantly correlated for both males and females. This indicates that each domain-specific construct is related and yet independently interpretable, falling within the format of domain-specific subscales that the SDS intends to measure.

In addition to strong internal consistency, the results also showed that the male and female offenders responded openly to the *Self-Directed Search* fifth edition (Holland & Messer, 2013), leading to well-differentiated profiles. Specifically, profile elevation (the degree of openness to or positive responses endorsed on the *Self-Directed Search*) for the total juvenile offender sample fell in the average range. This result indicates that, in general, juvenile offenders in this sample are open to new experiences and are likely to react to the results of their profiles in an open and accepting way (Holland & Messer, 2013). This is an especially promising finding given the stigma that offenders face as being typified as closed off or defiant (Sander et al., 2011; Celinska, 2000), and indicates that juvenile offenders in this sample are open to career exploration and career activities (Holland & Messer, 2013).

Similar to profile elevation and openness to the measure is the differentiation score. Differentiation refers to the clear dominance of one RIASEC interest area over others, or the degree to which a person or environment is well defined. For both male and female juvenile offenders, differentiation scores ranged from low to high, with the average differentiation score in the average range (Holland & Messer, 2013). This indicates that for male and female juvenile offenders, the average profile will be well differentiated with a two or three letter code-type

(Holland & Messer, 2013). Because there is a range in differentiation scores, some profiles may be more differentiated than others. A profile that is highly differentiated indicates that the person will have most of the personality characteristics associated with the specific code, while a profile that is flat or undifferentiated will have fewer of the personality characteristics associated with the dominant code (Holland & Messer, 2013). These initial study results provide support for the hypothesized range of differentiation scores proposed by Holland (1997), indicating these differentiation scores can be interpreted when working with a juvenile offender population.

John Holland (1997) asserted that most people can be categorized as one if the six RIASEC personality types, and that each RIASEC personality type is defined by a specific set of personality characteristics. Results indicated that both male and female juvenile offenders have definite preferences for domain-specific RIASEC interests. In this study, male juvenile offenders scored highest on the Realistic theme, with 32 of 75 males in the study sample had Realistic as a dominant theme. The general preference of male offenders for the Realistic dominant-code type indicates that these males are practical, hands-on, and choose to refrain from engaging socially (Holland, 1997). By contrast, female offenders scored highest on the Social theme, with 11 of 22 females reporting Social as a dominant theme. The general preference of female offenders for the Social theme indicates that these women may be cooperative, empathetic, sociable, but choose to refrain from engaging in hands-on tasks (Holland, 1997).

These results are consistent with the normalization samples on the *Self Directed Search* fourth and fifth edition, which has indicated that males score higher on Realistic themes, while females tend to score higher on Social themes (Holland, Powell & Fritzsche, 1997; Holland & Messer, 2013). These gender differences are also consistent with previous research for the *Self-Directed Search*. Specifically, previous research has also shown males scored higher on Realistic

themes, while females scored higher on Social themes (Osborn and Reardon, 2006). Additionally, research with a large sample of middle and high school students found that male students preferred occupations such as police officer, professional athlete, and auto body technician while female students preferred occupations such as psychologist or elementary school teacher (Howard et al., 2011), consistent with Realistic and Social theme differences found in this study. Further, meta-analytic research has found that men prefer working with things and women tend to prefer working with people (Su, Rounds & Armstrong, 2009). These findings together illustrate occupational interest is gendered in the general population and in the juvenile offender population.

While results are consistent with previous research regarding differences on dominant-code types vary by sex, it is important to note that additional factors may account for these differences. For example, Realistic type occupations (e.g. factory worker) and Social occupations (e.g. teacher) have a strong stereotypical gender-based categorization. Research suggests that that many occupations in the US are considered to be gendered and a difference exists in the occupations that women and men hold (Bradley, 2000). These gender-role stereotypes may also account for some of the differences in reported dominant codes for male and female juvenile offenders. Social Cognitive Career Theory suggests that sociocultural environment intertwined with specific gender stereotypes transcend the biological properties of sex, often resulting in selective exposure to career-relevant experiences (Lent, Brown, Hackett, 1994). Additionally, Lent & Brown (2013) suggest that career resources are often differentially expressed to children/adolescents on the basis of person inputs such as gender. Therefore, social mechanisms, which are inextricably linked to gender expression and sex characteristics, may affect self-

reported career interests for juvenile offenders in the same way that these mechanisms affect juveniles in US society in general.

In addition to gender differences on Realistic and Social themes, results indicated that that total sample of juvenile offenders together had the highest mean score on the Enterprising theme. Most juvenile offenders in this sample had the Enterprising theme as a second or third theme code. The elevation on the Enterprising theme may indicate that both male and female offenders exhibit characteristics of or preference for ambition, extroversion, and leadership (Holland, 1997). This finding is inconsistent with previous research, in which no differences were found on the Enterprising theme as compared to the normative sample for juvenile offenders (Glaser et al, 2003). One possible reason for this elevation is the increase in technology and media usage since the initial study was completed. The advent of new technology over the last 15 years has made available more jobs in sales, customer service, and information technology (CareerBuilder; Graz, 2015), consistent with Enterprising themes. In addition, it is also possible that environmental influences in a secure detention environment (e.g. need to survive, industriousness) may also contribute to this particular personality pattern within the detention setting that would not be present in the outside world (Iselin et al., 2012). Time spent in secure detention placement may represent only a snapshot of a youth's development, and that it is possible for dominant-code types to change following time spent in a secure facility or regress to initial preferences as indicated prior to incarceration. While current longitudinal studies indicate that code type and personality-environment-fit is stable over time (Holland & Messer, 2013; Wille, Tracey, Feys & De Fruyt, 2014), additional longitudinal research is needed in this domain to demonstrate the longevity of code-type for a juvenile offender sample.

Although specific gender differences were noted, no significant difference was found between self-identified racial category and RIASEC domain-specific Summary Total interest score. This indicates that there are no differences on RIASEC themes between self-identified African American and White juvenile offenders in this sample. This result is consistent with the normalization sample on both the *Self Directed Search* fourth and fifth editions, which indicated no significant differences in the distribution of dominant codes across racial groups (Holland, Powell & Fritzsche, 1997; Holland & Messer, 2013). In addition, research on other instruments measuring personality environment fit (e.g. Unisex Edition of the ACT Interest Inventory) indicated no significant differences were found across African American, White, Latino/a, and Asian ethnicity groups in the United States (Gupta, Tracey & Gore Jr, 2008), which further supports the results found in this study.

While current research supports the assertion that self-reported racial category does not yield significant differences across domain-specific RISAEC interest themes, researchers have hypothesized that specific racial-ethnic groups differently endorse occupational and personality themes due to a secondary traits such as familial duty (Fouad & Walker 2005; Gupta & Tracey, 2005). Further, race and ethnicity can be viewed as socially constructed aspects of experience (APA, 2003), resulting in corresponding selective exposure to career-relevant experiences (Lent & Brown, 2013). Additional research has indicated that sociopolitical barriers such as racism have a negative impact on the occupational expectations of adolescents (Diemer & Hsieh, 2008). These sociopolitical factors above and beyond self-reported racial category may account for differences in future occupational choice for juvenile offenders, especially once a youth leaves a secure detention placement. Given that race is a multifaceted and complicated social construct (Delgado-Romero, Galvan, Maschino & Rowland, 2005), it is important to consider additional

sociopolitical factors that may affect occupational interest and future occupational choices of juvenile offenders (Diemer & Hsieh, 2008). Furthermore, the meaning of race and racism is not confined to the juveniles themselves, as these youth exist within a broader systemic framework (e.g. educational systems, local and federal government systems; Quinn, 2013). Therefore, self-reported racial category may significantly underestimate the complexity of race and its effect on juvenile offender's career interests and choices.

Research Question 2

The secondary purpose of this study was to examine the differences between male and female juvenile offenders and the normative high school sample on the *Self-Directed Search* Fifth Edition (Holland & Messer, 2013). To answer this question, mean scores and correlations on the *Self-Directed Search* were compared between the normative sample (Holland & Messer, 2013) and the juvenile offender sample using an independent-sample *t*-test procedure and *z*-test procedure. Results indicated that the juvenile offender sample and the normative high school significantly differed on Realistic, Investigative, Social, Enterprising, and Conventional themes. This result is consistent with previous research (Glaser et al., 2003) with male juvenile offenders, which indicated gender differences between male juvenile offenders and the high school normative sample on the *Self-Directed Search* fourth edition.

Further analyses indicated that specific differences between the juvenile offender sample and the high school normative sample differed by gender. Specifically, for the male offender sample and normative male high school sample, differences were found between on the Realistic, Investigative, and Conventional themes. Male offenders scored higher than the normative sample on Realistic themes and lower than the normative sample on Investigative and Conventional themes. For the female sample, only the Investigative theme significantly differed

from the normative sample. Because Realistic occupations (e.g. farming) historically require less formal education than Investigative occupations (e.g. doctor) or Conventional occupations (e.g. accountant), these differences between the juvenile offender samples and normative samples may reflect an overall trend of poor educational outcomes and high rates of learning disability for juvenile offenders (Platt, Casey, & Faessel, 2006; Quinn et al., 2005). It is estimated that up to 80 percent of juvenile offenders released from detention or other secure placements do not return to complete high school (Coffey & Gemignani, 1994), which may lead to foreclosure of occupations that require additional education.

Differences between the juvenile offender and normative samples may also be related to available role models within the secure detention setting who represent Realistic and Social occupations (e.g. corrections officers, social workers, and teachers) and underrepresentation of role models who represent Investigative and Conventional occupations (e.g. scientists, data manager, proofreader). Bandura (1986) suggested that observational/vicarious learning is of the utmost importance in the development of future behavior. Ameen and Lee (2011) further suggest that detention may be the only exposure to the idea of earning a non-criminal living. Therefore, role models in correctional facilities may significantly contribute to career interest development for juvenile offenders and those role models are predominantly of the Realistic and Social types.

In addition to examining code-type differences between the juvenile offender sample and normative samples, differences in differentiation scores were also examined. Results demonstrated that neither male nor female offenders scored differently from the normative male and female high school samples on the Iachan differentiation Index. These results indicate that the male and female juvenile offender profile hexagonal shape is similar to the hexagonal shape proposed by Holland (1997). Previous studies have been mixed regarding the hexagonal shape of

the RIASEC themes. Specifically, research has shown that the hexagonal structure of the RIASEC themes most closely fits for White males, but that a more circular or misshapen polygon shape is a better fit for different racial, ethnic, and gender groups (Gupta, Tracey & Gore, 2008; Fouad, Harmon & Burgan, 1997). Holland (1997) suggested that pursuing the hexagonal structure is a futile effort given that individual profiles will retain different shapes and distances. Nonetheless, the relationship between each RISAEC category as indicated by the hexagonal model remains an important part of profile interpretation in order to determine the strength of specific preferences and relationships among preferences (Holland & Messer, 2013). Therefore, overall shape should be taken into account in profile analysis. However, specific structural differences and distances between RIASEC points on the hexagon for juvenile offenders across race, ethnicity, and gender groups were not calculated in this study, as a much larger sample size is needed for structural analysis. It is important to note that differentiation is only one index of this hexagonal structure.

Research Question 3

The tertiary purpose of this study was to examine barriers to future career development for juvenile offender. In order to answer this research question, differences in barriers between groups of juvenile offenders were examined. Results indicated that female offenders reported more future expected barriers in college than did males, but that males and female offenders did not significantly differ in self-reported barriers on gender or race. This result is surprising given that females are more likely to attend college than their male counterparts, and females are more likely to report a desire to obtain jobs that require more education than their male counterparts (U.S. Department of Education, 2013; Howard et al., 2011). However, McWhirter (1997) noted that female adolescents in the general population are more likely to experience employment

barriers and report barriers than same-aged males. Female juvenile offenders are likely exposed social forces such as lack of available opportunity for females, glass ceiling, and sexism that may account for the reported difference on college barriers for juvenile offenders. However, given exposure to these social mechanisms, it would be expected that females would report more gender barriers than their male counterparts.

The results of this study with regards to gender should be interpreted with caution due to sample size. Nonetheless, lack of reported barriers between groups of male and female offenders in this sample is interesting. It may be that juvenile offenders do not see barriers in their future. Research has suggested that juvenile offenders are more likely to report inflated self-sufficiency than their same-aged peers (Hepper et al., 2013). It may be that these personality characteristics mediate the relationship between gender and self-reported barriers.

Additionally, results indicated that there were no significant differences between African American/Black and White/Caucasian juvenile offenders on self-reported gender, racial, or future college barriers. This result is also surprising given that previous studies have demonstrated that minority youth report significantly more barriers than White/Eurpoean American youth (Diemer & Hsieh, 2008; McWhirter, 1997). Further, research with adults has indicated that ethnic minorities with criminal records face more barriers to employment that their White counterparts (Varghese, Hadrin & Bauer, 2009). Juvenile offenders may be unaware of barriers in the workplace, especially if youth have not yet had an opportunity to work. Further, juvenile offenders may also experiences unique barriers related to corrections involvement (e.g. felony conviction) that were not accounted for by current measures of barriers. A rich area for further exploration may be to develop instruments that account for specific barriers to employment with youth involved in corrections. To date, one study (Barclay, 2004) has

examined specific barriers to employment for juvenile offenders. This research indicated that juvenile offenders in general tend to have reported more barriers associated with obtaining jobs or careers, more difficulty identifying interests, and more difficulty exploring career options (Barclay, 2004), bud did not examine specific differences between groups juvenile offenders such as males and females or self-identified racial groups.

In addition to difference analyses, correlations between barriers and all six RISAEC themes were calculated. There were no relationships between self-reported barriers RIASEC themes for juvenile offenders. In a previous study Ali, McWhirter and Chronister (2005) found that barriers in general do not account for any additional portions of variance in career interest development. Therefore the lack of significance in the relationship between in self-reported barriers and interest in this study are consistent with this finding. However, research studies in general are mixed regarding the effect that barriers have on vocational interest (e.g. Choi et al, 2006; Rollins & Valdez, 2006) with some research indicating that support is a more robust predictor of career interest and self-efficacy (McWhirter, Hackett, & Bandalos, 1998). As noted previously, juvenile offenders may be unaware of the specific effects that barriers may have on occupational preference. Juvenile offenders may also wish to avoid thinking about future barriers while in detention, and therefore underreport possible future issues.

Research Question 4

The final purpose of this study was to examine a predictive model of career self-efficacy for juvenile offenders utilizing constructs from the social cognitive career theory (Lent, Brown & Hackett, 1994; 2000), and a predictive path-model of Investigative self-efficacy was examined. The Investigative theme was chosen because both male and female offenders differed significantly from the normative sample. In addition, the Social Cognitive Career Theory is a

domain-specific theoretical model of interest development (Lent, Brown & Hackett, 1994; Lent & Brown, 2013), meaning that specific themes should be tested independently one another. Results indicated that self-reported grade level and grade point average are not significant predictors of self-efficacy on the Investigative theme for juvenile offenders. This result is surprising given the lower mean score of both male and female juvenile offenders on the Investigative theme when compared to the normative sample. Further, learning experiences are hypothesized to be a significant predictor of career interest in social cognitive career theory (Lent, Brown, Hackett, 1994) and have shown to be important predictors of self-efficacy in research (McWhirter, Hackett & Bandalos, 1998). Given the theoretical and research support for learning experiences in affecting self-efficacy, this result indicates that other factors outside of grade level and grade-point average, are predictive of Investigative self-efficacy for male and female juvenile offenders.

Lent and Brown (2013) suggest that interests and abilities may not be related to future decision making, as goal directed behavior is more likely affected by environmental influences and personality factors such as openness and affect. Given the results of this study, this may indicate that juvenile offenders see themselves as capable of completing tasks related to Investigative occupations (e.g. using a microscope), but do not take into account personal achievement in this area. Previous research on personality with juvenile offenders has indicated that juvenile offenders tend to have inflated levels of superiority and self-sufficiency when compared to their same-aged peers (Hepper et al, 2014). These personality variables may mediate the relationship between achievement and Investigative self-efficacy for juvenile offenders. Therefore personality factors may significantly contribute to self-efficacy above and beyond any effects of achievement for juvenile offenders.

In addition, research indicates that parent achievement influences adolescent's career choices (Whiston & Keller, 2004). Although parent achievement was measured in this study, no significant relationship was found between parent education and any of the RIASEC occupations or RIASEC self-efficacy variables. This result is inconsistent with the pilot study with indicated that parent achievement accounted for a significant portion of the variance in juvenile offender self-efficacy on Investigative theme tasks (Mann & Glaser, 2014). Because parents can be seen as role models and examples of vicarious learning (Bandura, 1987), it is expected that parent education would have a significant effect on juvenile offenders self-efficacy. It may be that parent occupation may be a better predictor of domain-specific self-efficacy rather than parent achievement.

Theoretical Implications

This study provided initial support for the presence of the six RIASEC personality types among male and female juvenile offenders, providing support for Holland's (1997) theory of work personality types. Further, results supported the proposed hexagonal model of RIASEC personality types (Holland, 1997). Taken as a whole, this research suggests that the theory of personality-environment fit can be a useful theoretical model when working with juvenile offenders.

Study results did not support the initial model domain-specific self-efficacy on the Investigative theme as postulated by the social cognitive career theory (Lent, Brown, and Hackett, 1994). However, results indicated that males and females juvenile offenders reported significantly different scores on Realistic and Social themes, indicating that gender is likely a significant predictor of interest on these two themes for juvenile offenders. Because the Social Cognitive career theory suggests that gender significantly predicts learning experiences across all

themes (Lent, Brown, Hackett, 1994), it may be that gender affects learning experiences for only Social and Realistic themes for juvenile offenders.

In addition, results indicated that males and females juvenile offenders reported significantly different scores from the normative sample on domain-specific occupations. Gottfredson (1981) suggests that career preferences begin developing in childhood due to a process of eliminating occupational alternatives that conflict with one's self concept, perceived power, and sex roles. Therefore, it may be important to consider the role that this theory can be applied when working with juvenile offenders. For example, sex roles may act as a specific type of social learning experience that accounts for gender differences in occupational preference for juvenile offenders. Similarly, interactions with the juvenile justice system may lead to changes in self-concept or awareness of limited power that engenders foreclosure of career options for juvenile offenders.

Savickas (1996) noted that any singular theory by itself is unlikely to completely conceptualize career development. Therefore it is useful to explore applications of multiple theories in understanding career development of juvenile offenders. While this study looked specifically at Holland's (1997) theory of Personality-Environment Fit and Social-Cognitive Career Theory (Lent, Brown & Hackett, 1994) additional theories such as Gottfredson's (1981) Theory of Circumscription may add to theoretical models of career development for juvenile offenders.

Clinical Implications

The results of this study support the use of the *Self-Directed Search* fifth edition (Holland & Messer, 2013) as part of career counseling with a juvenile offender population. Specifically, strong internal consistency, correlations between subscales, and low standard error of

measurement were found for the juvenile offender sample indicating that the subscales are good to excellent measure of RIASEC themes for juvenile offenders, and that psychologists and career counselors can be confident in interpreting subscale results. Offender profiles were well differentiated and represented a degree of openness to the measure, indicating that juvenile offenders are likely to respond to the use of this inventory with a degree of openness and honesty that will contribute to overall validity of the test results and ease of interpretations for practitioners. Further, dominant code-type themes emerged for both male and female offenders, indicating that the SDS is a good tool to for psychologists and career counselors to work with juvenile offenders in defining and narrowing career interests.

Different patterns of results across RISASEC occupations identified by the juvenile offenders in this sample have important clinical implications. Specifically, results indicated that there are some differences in reported code type for male and female offenders, which leads to inflated or minimized theme code scores as compared to the normative high school sample on Realistic, Investigative, and Conventional themes. Further, these results demonstrate that differences between male and female offenders and the normative sample vary by gender. These differences should be taken into account by practitioners when interpreting the overall SDS profiles for juvenile offenders, noting that inflation of mean scores as compared to the normative sample may yield only a single-point code type, rather than a two- or three-point code type.

Because the *Self-Directed Search* fifth edition (Holland & Messer, 2013) focuses on subjective self-report of the individual, it can allow the test taker a sense of agency in reporting interest, especially when the offender can score and aid in interpretation of report. This sense of agency is crucial for detained youth who reside in detention settings, and likely experience a sense of powerlessness (Blustein, McWhirter and Perry, 2005). In addition to allowing these

youth to develop a sense of agency, interest inventories allow youth to identify their own preferences as opposed to grouping in career activities just based availability of jobs such as the YouthBuild program that capitalizes on need for labor (Cohen & Piquero, 2010). By allowing youth to define their own interests, they may be able to use creativity to seek future programs and opportunities that will support their future goals. In this way, the *Self-Directed Search* can be seen as a strengths-based measure of personality and career interest to utilize with a juvenile offender population in a system that is often associated with deficit-based models. Psychologists and career counselors and correctional educators should seek to capitalize on developing youth sense of agency, which can help them prepare for employment in the outside world where they will be expected to seek jobs and opportunities on their own.

In addition, the *Self-Directed Search* fifth edition (Holland & Messer, 2013) is also useful for youth with disabilities due to ease of reading level. According to the Flesch-Kincaid readability formula, the assessment is written at a seventh grade level, and is suitable for persons aged 11 and older (Holland & Messer, 2013). Given that there are many youth in detention who struggle with learning disability (Quinn et al., 2005), this is an important strength when using this measure with juvenile offenders. Holland and Messer (2013) further suggest that the instrument can be administered in group settings for ease of administration. This would allow psychologists and career counselors to assist youth who may need additional help reading the items, as the questionnaire can be read aloud. Group administration may be ideal in a classroom environment embedded within the educational curriculum. Psychologists and career counselors often work alongside instructors and educators within juvenile corrections. This collaborative system, which is already in place in many dentation settings, naturally lends itself to cooperation between psychologists and career counselors and teachers. Teachers can provide information to

psychologists and career counselors regarding youth achievement, motivation in the classroom, and interests that can further aid psychologists and career counselors in creating specific interventions for youth once they have completed the *Self-Directed Search* as part of general classroom education.

Further, the *Self-Directed Search* fifth edition (Holland & Messer, 2013) can be utilized not only to examine specific occupations, but also as a personality tool. Specifically examining personality characteristics may be important to consider in helping youth succeed in developing a career plan or academically, in addition to looking at specific occupational interests. Capitalizing on personality characteristics such as practicality for males with a dominant Realistic theme or empathy for females with a dominant Social theme may lead to positive outcomes in career planning. For example, this may look like developing a hands-on work-study for youth with a dominant Realistic theme such as building a garden in the yard. Another example may be developing a peer-tutoring group for youth with a dominant Social code-type. Lent and Brown (2013) suggest that examining personality characteristics can lead to specified behavioral or cognitive-behavioral interventions such as developing emotional regulation strategies. For youth with undifferentiated profiles and low profile elevation, attention should be given to the client's emotional regulation that may suppress scores on these indices.

Given the differences reported on RIASEC occupations for male and female offenders in this sample, career counseling should also focus on foreclosed career options, as some options may be prematurely excluded due to sociopolitical factors such as sexism or classism (Diemer & Hsieh, 2008). It may be important to utilize the Occupational Daydreams section of the *Self-Directed Search* during career counseling interventions in order to help offenders identify foreclosed options. The Occupational Daydreams section can be used to discuss with

psychologists or career counselors in individual or group sessions the reasons behind foreclosed options. Psychologists or career counselors can also work with youth to determine the congruence between previous occupational aspirations and current occupations aspirations (Holland & Messer, 2013). This will help youth identify stable strength-based personality traits that will aid in developing tangible vocational skills.

The results of this study also indicate that neither grade-level nor grade point average is a predictor of domain-specific self-efficacy on Investigative themes. It is possible that juvenile offenders are not aware of specific educational pathways or educational requirements for specific jobs, and that many of these jobs vary in salary and time commitment (Howard et al., 2011). Therefore, it may important for psychologists, vocational counselors, and educators in correctional settings to include activities in their career education programming that teach youth how to explore labor market information, job training requirements, and necessary jobs skills as part of their career decision-making process (Howard et al., 2011). Specific skill building such as utilizing the Internet to search for jobs and labor market trends may significantly aid youth in narrowing down their options as they become more aware of skills needed for the real world.

While specific differences were not found between self-reported racial category and RISAEC themes for juvenile offenders, additional sociopolitical forces such as classism, racism, may also affect career interest for youth (Diemer & Hsieh, 2008). Specifically in the juvenile justice system where there is a clear disproportionate number of minority youth in detention, psychologists and career counselors should have an awareness of specific social and political forces that may affect juvenile offender's success. It is suggested that personality-environment fit may be a less salient consideration in unfavorable conditions such as in detention settings (Lent & Brown, 2013). Therefore, efforts should be made to utilize interest inventories such as the

Self-Directed Search on an individual basis, keeping in mind the specific systemic and cultural strengths that affect youth. In developing vocational programming for juvenile offenders, attention should be paid to designing culturally appropriate career programs (Howard, Solberg, Kantamneni, & Smothers, 2008) that take into account these and other oppressive forces.

Finally, it is imperative for psychologists, career counselors, and educators to consider the impact of the post-release environment on youth when developing career counseling interventions (Fitzgerald et al, 2013), as the detention center setting can be an insular environment. While results of the study provide support for the use of interest inventories such as the *Self-Directed Search*, psychologists and career counselors need to be aware of the setting in which the inventory is completed and the access to resources which the youth may have post-release. Many youth will not be released to the community, but will instead be moved to longer-term placement or even adult corrections. It is important for psychologists and career counselors to tailor career interventions in accordance with the youth's immediate future environment.

Strengths of this Study

This study adds to the literature by specifically looking at a detention-based sample and a standardized assessment of vocational interest. Previous vocational psychology studies with an offender population have primarily focused on adult corrections (e.g. Fitzgerald et al, 2013) or at-risk youth in the community (e.g. Ali, McWhirter, Chronister). Few studies have specifically looked at career interest development with a detained juvenile offender population. Studies with a juvenile offender population have primarily used a male juvenile offender sample only (Glaser et al., 2003) or examined effectiveness of vocational programs (Cohen & Piquero, 2010), but no study to date has examined pathways for interest development for juvenile offenders. This study expands on the previous literature by including a larger sample of male juvenile offenders, as

well as including female juvenile offenders in the sample. This study also expands on previous literature by utilizing the updated fifth edition of the *Self-Directed Search*, and examining a predictive model for career interest of juvenile offenders.

Representativeness of the Sample

As there continues to be a significantly disproportionate number of minority youth, particularly Black and Latina/o youth, arrested and detained in the juvenile justice system, the extent to which the sample is representative of the true population can significantly affect the practicality of results. In 2011, in the state where data was collected, Black youth represented 74 percent of the total number of youth in secure detention placement or state commitment, Latina/o, youth represented five percent, and White youth represented 18 percent (Sickmund, Sladky, Kang & Puzzanchera, 2015). In this sample, Black youth represented 68 percent of the total sample of detained youth, White youth accounted for 27 percent, and Latina/o youth accounted for only one percent. This sample appears generally representative of the number of Black youth currently detained in the state where data was collected, but appears to be an underrepresentation of Latina/o youth currently in detention in this state and nationally. This discrepancy may be significant given that previous research (McWhirter, 1997) indicated that Latina/o youth in the community report different occupational preferences, self-efficacy, and barriers than their white peers. This sample appears to be an overrepresentation of detained White youth in the state where data was collected, but is representative of the number of White youth in secure detention placement nationally (Sickmund et. al, 2015)

In the state where data was collected, males accounted for 86 percent of detained offenders while females accounted for 13 percent of detained offenders in 2011(Sickmund, et al., 2015). In this sample, males represented 77 percent of the total sample, and females represented

23 percent of the total sample. This data is generally representative of the ratio to males and females housed in the facility where data was collected (Department of Juvenile Justice, 2015). Overall, this sample had a larger percentage of detained female offenders when compared to the percentage of female offenders in the state where data was collected and nationally.

Limitations

There were several important limitations to this study. First, instrumentation may limit internal validity or the extent to which specific conclusions can be drawn (Shadish, Cook & Campbell, 2002). Specifically, self-report of variables such as current grades, IEP, and parent education may have been impacted by the juvenile offender's lack of knowledge of parent education, true grade-point average, or IEP status. In addition, socially desirable responding when reporting current grades in school may have impacted the results. Further, juvenile offenders may experiences unique barriers or social learning experiences related to corrections involvement (e.g. available role models, felony conviction) that were not accounted for by current measures. Additionally, broad constructs were utilized to measure self-reported gender and racial categories. These broad categories may limit the generalizability of findings and minimize the impact of social, political, and economic levels of influence that are tied to these broad categories. For example, this research was conducted in a small southeastern county that has a mixed history with regards to racism and race relations (Shipp, 1981). Specific contextual factors with regards to race, gender and the juvenile justice system were not assessed in this study but may have affected the results.

A second limitation of this study is sample size. While it is often difficult to obtain large samples when working with the juvenile justice or corrections populations (Glaser et al., 2003), sample size may have significantly impacted the results of the MANCOVA, ANOVA, *t*-tests and path models. Specifically regarding the MANCOVA and ANOVA results, cell sizes were uneven

between groups, which can cause problems with statistical conclusion validity (Shadish, Cook & Campbell, 2002). Similarly, in examining gender differences cell sizes were unequal between male and female groups. With a larger sample sizes, yielding equal or near equal cell sizes for comparison groups, additional differences between groups may be detected if they exist (Shadish, Cook & Campbell, 2002). In addition, sample size for path analysis should include at least 10 participants per measured variable (Kline, 2012). This study included only 9.7 participants per parameter for the larger model, and this sample size may have contributed to the lack of model convergence. A larger sample size may allow for convergence of a larger factor model, and identification of additional factors (Kline, 2012).

Finally, a major limitation of this study is the use of cross sectional rather than longitudinal data. Placement in detention can be seen only as a snapshot of an adolescent's life, and may not be representative of youth's experiences or preferences outside detention (Iselin et al, 2012). Further, the study did not include any test-retest data. Therefore, no conclusions can be drawn regarding the test-retest reliability of the *Self-Directed Search* fifth edition (Holland & Messer, 2013) with juvenile offenders.

Future Directions

Best practices in correctional education indicate that cognitive assessment is the first step in developing a comprehensive career pathway (Platt, Casey, & Faessel, 2006). Future research should aim to include cognitive assessment in examining predictive models of career interest for juvenile offenders. Specifically, future research should seek to examine the extent to which educational attainment and cognitive capacity affect domain-specific self-efficacy and interest development. Additionally, researchers may wish to examine specific achievement in relation to domain-specific career self-efficacy. The addition of achievement measures may account for the

specific learning experiences proposed by Bandura (1987), and would likely account for a greater portion of the variance in self-efficacy for these adolescents. For example, looking at specific mathematics achievement may be a good predictor of Investigative or Enterprising occupations, which tend to have an analytical component (Holland, 1997). Taken together, research that examines specific cognitive and achievement skills may contribute to better understanding of career interest for juvenile offenders, yielding more specific guidelines for career counseling with this population.

In addition, future studies should examine outcome expectations, and the extent to which outcome expectations add additional variance to a predictive model. Unlike self-efficacy, which refers to people's judgments of their capabilities to execute specific actions, outcome expectations refer to beliefs about the consequences of particular courses of action (Bandura, 1986; Lent, 2013). Understanding the consequences of a particular career option may be important in understanding interest development for juvenile offenders, especially those who are weighing options of engaging in school, finding employment, or returning to criminal living. Some studies have suggested that outcome expectations are a more robust predictor of career interest and choice behavior than self-efficacy beliefs (e.g. Fouad & Smith, 1996), and therefore should be taken into account when building predictive models of interest.

Similarly, future studies should examine the extent to which support is predictive of career interest for juvenile offenders. Research has shown that contextual supports are a stronger predictor of self-efficacy than barriers (Ali, McWhirter & Chronister, 2005) and therefore are an important construct in understanding interest development. Additionally, there is much room for development of vocational measures with the juvenile justice population (Varghese &

Cummings, 2013). Development of new measures that are specific to the unique experience of juvenile offenders can attempt to address both barriers and supports in future research.

Furthermore, future studies should continue to examine the extent to which social, political, and economic factors contribute to occupational interest, self-efficacy and choice for juvenile offenders. Given the differences between sexes found in this and other studies on specific occupational themes, future research may wish to examine the role that stereotypes and social roles play in the formation of vocational interest for juvenile offenders.

While results of the current study indicated no differences between African American and White youth on occupational themes, additional factors such as racism, racial identify, and acculturation should be examined in future research. Due to the disproportionate number of minority youth represented in the juvenile justice system and the impact this may have on youth, future research with juvenile offenders should continue to examine the impact of sociopolitical factors and environmental factors that are inextricability tied to how racial categories in this country affect youth career development. Furthermore, the meaning of race and racism is not confined to the juveniles themselves, as they exist within broader systems (e.g. educational, local government, political; Quinn, 2013). Given that race is a multifaceted and complex social construct, but that the measurement of race in Counseling Psychology tends to employ discrete categorical variables (Delgado-Romero, Galvan, Maschino & Rowland, 2005), the meaning, centrality, ideology and salience (Sellers, Smith, Shelton, Rowley & Chavous, 1998) of race to the juvenile justice population should be examined in future research.

Future research should seek also examine ways in which parent or familial factors that may contribute to domain-specific self-efficacy and interest for juvenile offenders. Social cognitive theory suggests that parents and caregivers are important models for vicarious learning

(Bandura, 1987). Therefore it may be useful to examine parent or caregiver occupations. By looking at specific occupations, these occupations can be coded according to the RIASEC typology, and direct comparisons can be made for parent domain-specific occupation, and juvenile offender domain-specific interest and self-efficacy. In addition, it may be important to examine familial duty (Fouad & Walker 2005), and the extent to which juvenile offender's career interests are mediated by the needs of their families.

Future studies may also wish to examine career interests and career trajectory for juvenile offenders across different types of crime. Currently, the Office Of Juvenile Justice and Delinquency prevention categorizes crime into the following categories: person, property, drug, public order, technical violation, and status offenses (Sickmund et al., 2015). Person and property offenses are further broken down into the Violent Crime Index and Property Crime Index, respectively, indicating more serious types of these offenses (Sickmund et al., 2015). Research has indicated that violent offenders report lower levels of empathy (Owen & Fox, 2011), greater frequency of abuse history (Robertson & Burton, 2010), lower reading achievement, lower vocabulary, lower sense of inhibition, and a lower sense of inadequacy (Kennedy, 2011). These differences in juvenile offender's behavior, personality, achievement, and intelligence across type of crime committed may contribute differently to career interest and career development. Type of crime committed may act as a mediator between self-efficacy and interest. Given that different types of crime will also lead to different sentences and treatment planning, it may be important to examine how type of crime committed impacts vocational choice and self-efficacy.

Additionally, future studies should utilize qualitative methodology to examine career interest, barriers, and pathways to career interest with juvenile offenders. Specifically,

constructivist qualitative methodology can lend itself to well understand the subjective experience of youth involved in the justice system, as well as the researcher's involvement as part of the larger systems issues present in the juvenile justice system (Carter & Morrow, 2007; Ponterotto, 2010). Qualitative research can add a unique dimension to quantitative studies such as the current study by addressing researcher bias. Further, to advocate for social justice and facilitate change for vulnerable populations, such as juvenile offenders, it is critical to make disparities and individual differences overt in clinical practice and in research (Sander et al., 2011). A qualitative method that addresses subjective reality for both participants and researchers is one avenue to bring awareness to these disparities.

Finally, longitudinal studies, and post-release studies are needed to determine the stability of code-type over time, and to determine the effectiveness of any career-counseling program that utilizes the *Self Directed Search* as part of its program. While research has established personality-environment-fit is stable over time (Holland & Messer, 2013; Wille, Tracey, Feys & De Fruyt, 2014), additional longitudinal research is needed in this domain to demonstrate the longevity of code-type for a juvenile offender population. Mediating variables unique to the detention setting placement (e.g. restriction of movement, lack of resources) may contribute to foreclosure of options. Longitudinal studies of at-risk youth or youth on probation, rather than cross-sectional research of youth in detention, may further elucidate the relationship between school failure, career interest, and career self-efficacy. Further, longitudinal studies can examine the extent to which the detention center environment affects youth career interest and interest pathways.

Role of Counseling Psychologists

"One of the domains in which social injustices are often most evident is the world of work" (Speight & Vera, 2008, p. 56). Thus, counseling psychologists, who are leaders in vocational psychology and social justice can make significant contributions to understanding career development with juvenile offenders in dentation (Blustein et a., 2005). Specifically, counseling psychologists have strong understanding of vocational theory and environmental variables that affect vocational outcomes for underserved and marginalized populations (Varghese & Cummings, 2013). This unique combination of knowledge and skills can significantly improve vocational counseling, education, programs, and research within juvenile correctional settings.

Furthermore, counseling psychologists are well positioned to advocate for interventions and polices that will affect vocational outcomes for juvenile offenders (Speight & Vera, 2008). As advocates, counseling psychologists can work within a multisystem approach to reach communities, agencies, and politicians addressing the importance of multisystem interventions for juvenile offenders that includes vocational education. Blustein and colleagues (2005) state, "the concept of empowering disenfranchised people in their educational and working lives is limited as long as systems that reinforce and replicate their disempowerment remain untouched" (p. 152). By working to empower larger systems, counseling psychologists can help power holders understand the necessity of career counseling and programming for juvenile offenders and subsequently aid in decision-making policies that ultimately effect program changes for juvenile offenders in detention settings.

Conclusions

This study provides support for use of the *Self-Directed Search* fifth edition (Holland & Messer, 2013) with the juvenile offender population. In order to aid juvenile offenders in building a bridge between vocational options and practical skills, youth must have a tangible way to make this connection. One meaningful way to build this bridge is through use of career interest inventories such as the SDS. However, understanding vocational interest is only component of effective vocational intervention with juvenile populations. Additional vocational counseling including specific skill building (e.g. developing a résumé) and developing career knowledge (e.g. understanding the job market) are also needed. Evidence shows that best practices in offender rehabilitation include multiple level intervention including vocational counseling, individual therapy, family counseling, education, and skill building to reduce recidivism (Lipsey, 2009). Including a vocational component to multisystem interventions in corrections can likely improve post-release outcomes for youth (Ameen & Lee, 2011). The *Self-Directed Search* fifth edition (Holland & Messer, 2013) provides a tangible measure for juvenile offenders to identify career interests and for psychologists to build targeted interventions based on inventory results, contributing to a multidimensional model of rehabilitation for detained juvenile offenders.

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APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE

Directions:
Please fill in the blanks for all blanks
Please check the ONE box for the best answer to each question that fits you

1. What is your name? _____

2. What is your gender?
   - ☐ Male
   - ☐ Female
   - ☐ Other

3. What is your race/ethnicity?
   - ☐ African American/Black
   - ☐ Latino/a/Hispanic
   - ☐ Asian
   - ☐ Other_____
   - ☐ White/Caucasian
   - ☐ Biracial
   - ☐ Native American

4. How old are you? _____

5. What is your birth date? _____

6. Who is your primary guardian or caregiver?
   - ☐ Mom
   - ☐ Grandmom
   - ☐ Aunt
   - ☐ Stepmom
   - ☐ Older Sister
   - ☐ Foster Mom
   - ☐ Dad
   - ☐ Grandfather
   - ☐ Uncle
   - ☐ Stepdad
   - ☐ Older Brother
   - ☐ Foster Father
   - ☐ Other _____

7. What is your Mom (or primary care taker) highest level of education finished?
   - ☐ Elementary School or Middle School
   - ☐ Some High School
   - ☐ Graduated High School or GED
   - ☐ Some College
   - ☐ Finished College
   - ☐ Technical School
   - ☐ Graduate Degree (Master's, Doctor)
   - ☐ I don't know

8. Who is your secondary guardian or caregiver?
   - ☐ Mom
   - ☐ Grandmom
   - ☐ Aunt
   - ☐ Stepmom
   - ☐ Older Sister
   - ☐ Foster Mom
   - ☐ Dad
   - ☐ Grandfather
   - ☐ Uncle
   - ☐ Stepdad
   - ☐ Older Brother
   - ☐ Foster Father
   - ☐ Other _____

9. What is your Dad (or secondary care taker) highest level of education finished?
   - ☐ Elementary School or Middle School
   - ☐ Some High School
   - ☐ Graduated High School or GED
   - ☐ Some College
   - ☐ Finished College
   - ☐ Technical School
   - ☐ Graduate Degree (Master's, Doctor)
   - ☐ I don't know

10. What is your address _____

11. What is your zip code _____

12. How many people live in your house?
   - ☐ 1
   - ☐ 2
   - ☐ 3
   - ☐ 4
   - ☐ 5
   - ☐ 6
   - ☐ 7
   - ☐ 8
   - ☐ 9
   - ☐ 10
   - ☐ more than 10

13. How many people who live in your home are over 18 years old and work?
   - ☐ 0
   - ☐ 1
   - ☐ 2
   - ☐ 3
   - ☐ 4
   - ☐ 5
   - ☐ 6
   - ☐ 7
   - ☐ 8
   - ☐ 9
   - ☐ more than 9

14. What is the last grade you finished?
   - ☐ 1st
   - ☐ 2nd
   - ☐ 3rd
   - ☐ 4th
   - ☐ 5th
   - ☐ 6th
   - ☐ 7th
   - ☐ 8th
   - ☐ 9th
   - ☐ 10th
   - ☐ 11th
   - ☐ 12th
   - ☐ GED

15. Do you have an Individualized Education Plan or IEP?
   - ☐ Yes
   - ☐ No
   - ☐ Don't know

16. What are your grades currently in school?
   - ☐ Mostly As
   - ☐ As and Bs
   - ☐ Mostly Bs
   - ☐ Bs and Cs
   - ☐ Mostly Cs
   - ☐ Cs and Ds
   - ☐ Mostly Ds
   - ☐ Failing

APPENDIX B

PERCEPTION OF BARRIERS QUESTIONNAIRE

(POB; McWhirter, 1997)

Directions:
Circle the number that corresponds to how you feel about each of the following statements. Choose one for each.

Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
1	2	3	4	5

In my future job I will probably…

1.	Be treated differently because of my sex	1	2	3	4	5
2.	Experience negative comments about my sex (such as rude jokes)	1	2	3	4	5
3.	Have a harder time getting hired than people of the opposite sex	1	2	3	4	5
4.	Experience discrimination because of my sex	1	2	3	4	5
5.	Be treated differently because of my ethnic/racial background	1	2	3	4	5
6.	Experience negative comments about my ethnic/racial background	1	2	3	4	5
7.	Have a harder time getting hired than people of other racial/ethnic backgrounds	1	2	3	4	5
8.	Experience discrimination because of my racial/ethnic backgrounds	1	2	3	4	5

If I didn't go to college it would be because of…

1.	Money problems	1	2	3	4	5
2.	Family problems	1	2	3	4	5
3.	Not being smart enough	1	2	3	4	5
4.	Family attitudes about college	1	2	3	4	5
5.	Having a good job already	1	2	3	4	5

Strongly	Agree	Unsure	Disagree	Strongly

Agree					Disagree
1	2	3	4		5
6. I'm not interested	1	2	3	4	5
7. It wouldn't help my future	1	2	3	4	5
If I do go to college, I will probably experience…					
1. Money problems	1	2	3	4	5
2. Family Problems	1	2	3	4	5
3. Negative Family Attitudes	1	2	3	4	5
4. Not being smart enough	1	2	3	4	5
5. Not fitting in with others	1	2	3	4	5
In general, I think that…					
1. There are many barriers that will make it difficult for me to achieve my career goals	1	2	3	4	5
2. I will be able to overcome any barriers that stand in the way of achieving my career goals	1	2	3	4	5

APPENDIX C

CAREER SEARCH WORKSHEET

After Completing the *Self-Directed Search*, use the Occupations Finder or O*Net Online (http://www.onetonline.org/) to search careers that match your 3-point code, and then use O*Net Online to answer the following questions:

My RIASEC Code is_____

TOP CAREER CHOICES	$$ Average Salary $$	Projected Growth in the Field	Education needed	Short-Term Goals