WORK VALUES: EXAMINING OPPORTUNITIES FOR INTEGRATION AND DIFFERENCES ACROSS GENERATION, RACE, AND BETWEEN GENDER

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by

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Abstract

In this study, the relation between John Holland’s (1997) career interests and Donald Super’s (1990) work values were examined in order to extend the integrative framework known as the Atlas Model of Individual Differences (Armstrong et al., 2008). Additionally, in order to update outdated and contradictory literature, differences in work values across generation, race, and between genders were examined. A secondary data set including 1,960 respondents was obtained from Kuder, Inc. Canonical correlation analysis was used to examine work value and career interest relations, while MANOVA was conducted to investigate work value differences across demographic identities. Results showed there were multiple small to moderate relations between career interests and work values. Results also showed there were overall differences in work values across generation, race, and between genders; though some differences are minimal (generation) and some differences are contrary to previous research (race). Implications for career counselors, counselor educators, and professionals in industry are discussed, as well as areas for future research.

Keywords: Atlas Model, Work Values, Generation, Race, Gender
# Table of Contents

List of Tables ........................................................................................................... vi

List of Figures .......................................................................................................... vii

Acknowledgments ................................................................................................... viii

Chapter One: Introduction ......................................................................................... 1
  Statement of the Problem ......................................................................................... 6
  Research Questions ................................................................................................. 9
  Significance of the Study .........................................................................................10
  Limitations ...............................................................................................................12
  Definitions...............................................................................................................12

Chapter Two: Review of the Literature .....................................................................15
  Career Interests .......................................................................................................17
  Importance of Interests in Career Development ......................................................19
  Atlas Model of Individual Differences ....................................................................19
  Holland’s Theory of Interests ..................................................................................20
  Holland’s RIASEC and the Atlas Model of Individual Differences .........................24
  Work Values ..........................................................................................................26
  History of Work Values ............................................................................................27
  Work Values and Personal Values ...........................................................................28
  Values and Needs .....................................................................................................28
  Gender Differences in Work Values ......................................................................29
  Racial Differences in Work Values ..........................................................................31
  Generations and Work Values ...............................................................................32
  Research on Work Values across Generations .......................................................37
  Work Values and Donald Super’s Life-Span, Life-Space Theory ............................43
  Applying Super’s Theory .........................................................................................49
  Super’s Work Values Inventory ...............................................................................51
  Life-Span, Life Space Theory and Culture ..............................................................53
  Integrating Work Interests and Work Values ........................................................54
  The Present Study ...................................................................................................55

Chapter Three: Methodology ....................................................................................57
  Research Questions ..................................................................................................57
  Research Design ......................................................................................................57
  Method ....................................................................................................................59
  Participants ..............................................................................................................59
  Instruments .............................................................................................................60
Procedures .......................................................... 63
Data Analysis .......................................................... 63

Chapter 4: Results ......................................................... 69
  Preliminary Analysis ................................................. 69
  Data Cleaning .......................................................... 69
  Missing Data .......................................................... 69
  Univariate Analysis .................................................. 69
  Bivariate Analysis .................................................... 73
  Canonical Correlation Analysis ................................. 85
  Two Way MANOVA .................................................. 90

Chapter 5: Discussion ................................................... 97
  Discussion of Research Question 1 ............................ 97
  Discussion Research Question 2 ................................. 101
  Discussion of Research Question 3 ............................ 107
  Implications for Professionals ................................. 109
  Strengths of the Study ............................................. 118
  Limitations .......................................................... 120
  Recommendations for Future Research .................... 121
  Conclusion .......................................................... 124

References ............................................................. 126

Appendix A: IRB Approval Letter .................................. 148

Appendix B: Kuder Career Interests Assessment-Likert ........ 149

Appendix C: Super Work Values Inventory-Revised ............. 150
List of Tables

Table 1: Correlations of Work Values .................................................................71
Table 2: Correlations for Career Interests (IV) and Work Values (DV) for RQ 1 ..........74
Table 3: Correlations for Gender and Generation (IVs) and Work Values (DVs) for RQ2 ....74
Table 4: Correlations for Race and Generation (IVs) and Work Values (DVs) for RQ3 .......75
Table 5: Independent Samples Test with Gender (IV) and Work Values (DV) ...............79
Table 6: Welch’s ANOVA for Work Values across Ethnicity .....................................79
Table 7: One Way ANOVA Results for Race (IV) and Work Values (DV) ...................81
Table 8: Summary of Results for Canonical Correlation Analysis .................................86
Table 9: Results from a Two-Way MANOVA with Gender and Generation (IVs) and Work
     Values (DVs) ........................................................................................................90
Table 10: Results of Test of Between Subjects Effects for Gender (IV) on Work Values (DV)..91
Table 11: Results of Test of Between Subjects Effects for Generation on Work Values ........92
Table 12: Results from a Two-Way MANOVA with Race and Generation (IVs) and Work
     Values (DVs) ........................................................................................................94
Table 13: Results of Test of Between Subjects Effects for Race (IV) on Work Values (DV).....95
List of Figures

Figure 1 .........................................................................................................................25
Figure 2 .........................................................................................................................26
Figure 3 .........................................................................................................................88
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CHAPTER ONE: INTRODUCTION

One of the philosophical underpinnings of the counseling profession is holism; attention to the importance and functioning of the ‘whole person’ (see Betz, 1990; Gysbers, Heppner, Johnston, 2014). The ‘whole person’ can be understood as a constellation of many roles and activities, such as work, love, and relationships to name a few. Early in the counseling profession’s history, Erikson (1963) wrote about humans’ need for both work and love in their lives. Since then, the collective ‘voice’ in the career counseling literature emphasizing holism, particularly in opposition to the idea that ‘personal’ and ‘career’ counseling are somehow distinct entities, has been overwhelming (e.g., Blustein, 1990; Fouad, 1990; Hackett, 1991; Harmon, 1990; Hinkelman & Luzzo, 2007; Krumboltz, 1993; Lee & Johnston, 2001; Niles, Anderson, & Cover, 2000; Savickas, 1991, 2009; Pace & Quinn, 2000, Tracey, 1990).

While early approaches and theories within career counseling have not always employed a holistic focus, career counseling has a strong tradition of being responsive to the evolving needs of people in a changing society. This includes development and revision of theories, techniques, and assessments for research and practice. This responsiveness also spans legislative advocacy, educational reform, and more (Tang, 2003). Various career development theories provide a solid ground for practical guidance and effective strategies for assisting clients with career concerns. This includes an outpouring of theories and techniques that attend to the experiences of the whole person, such as Social Cognitive Career Theory (Lent, Brown, & Hackett, 2002), The Psychology of Working (Blustein, 2013), and Career Construction Counseling (Savickas, 2005), to name a few.

In particular, Betz and Corning (1993) note that the holistic emphasis has been exemplified by the work of Donald Super (1980, 1990). Super describes the integration of developmental life stages, career stages, and multiple life roles in his “life career rainbow.”
Additionally, “Life Space,” a theoretical component of Super’s theory is a constellation of the different roles enacted by an individual, how these roles vary in salience, and how these roles and their salience interact with career development (Super, 1990). Super’s theory also includes discussion of work values and how these integrate with life roles, self-concept, and career development.

Additionally, the work values component of Donald Super’s theory, is a holism-driven concept. Work values are tied to self-concept; how people picture themselves in various roles and performing various functions (Super, 1990). Work values is also a concept tied to the life-space component of Super’s theory and influences the salience of various roles, as well as feelings of motivation and fulfillment (Super, 1963). Work values are a crucial component of career development and are one of the most researched concepts in the career counseling literature (e.g., Brown, 2002; Keller, Bouchard, Arvey, Segal, Dawis, 1992; Shapira & Griffith, 1990; Sortheix, Chow, Salmela-Aro, 2015; Super, 1990; Zhang, Tang, & Tang, 2016).

Further, work values has the benefit of cross-cultural validity (Niles & Goodnough, 1996), therefore vastly expanding this concept’s utility.

However, a challenge related to work values is that there is a lack of clarity regarding their salience to various populations. For example, there is conflicting research in relation to whether or not there are differences in work values between men and women. Some research indicates there are few, if any, differences (e.g., Walker, Tausky, & Oliver, 1982; Rowe & Snizek, 1995), and other research asserts that there are vast differences (Bartol & Manhardt, 1979; Harris & Earle, 1986). Similar contradictory research exists in examining work value differences across race, with most research asserting differences yet disagreeing on where the differences lie (e.g., Brenner, Blazini, & Greenhaus, 1988; Brenner & Tomkiewicz, 1982;
Milutinovich, 1977; Ovadia, 2001; Weaver, 1980). Last, one of the most topical questions in both research and popular media asks if there are differences in work values across generations (e.g., Baby Boomers, Generation X, Generation Y). This question is also answered by contradicting research indicating that there are few, if any, differences (e.g., Appelbaum et al., 2005; Jurkiewicz & Brown, 1998), and other research indicating there are multiple differences (e.g., Cennamo & Gardner, 2008; Gursoy et al., 2008) While there are various challenges across all of the aforementioned research, one glaring challenge across these research lines (work values for different genders, races, and generations) is their fairly outdated nature, which makes it unclear if the differences, or lack thereof, apply to more modern populations.

In addition to the development and revision of theories, the career counseling profession has a long-standing history of using assessments to support the career development process (Tang, 2003). The profession benefits from a richness in career assessments based on theoretical constructs and empirical data; such as measures of career decision making, career interests, career values, career maturity, career identity, and career self-efficacy (Walsh & Srsic, 1995). These assessments allow career counselors to understand their client’s vocational needs and behaviors, in order to improve and personalize the career development process.

Similar to career counseling theories and approaches, career assessments have not always reflected a holistic emphasis. While the career counseling profession has flourished with the range of theoretical constructs and assessment tools, there is often a lack of cohesion in the way in which information gained from multiple assessments can be synthesized for the client’s benefit. Career counseling has long identified the profession’s need to organize, and integrate, various information regarding personal variables and characteristics. The current lack of integration results in many researchers and counselors attempting to understand an individual’s
career development, career choices, career satisfaction, and so on, by focusing on just one personal characteristic; such as interests or personality. Early on, Borgen (1986) noted that vocational and personality psychologists have “sliced up the world of individual differences with their unique concepts, but they are looking at the same world” (p. 108). By attending to only one type of characteristic, researchers and practitioners across, and within, counseling professions are unnaturally partitioning the human experience. Lubinski (2000) argued that a much richer picture of humanity emerges when constellations of individual difference variables, such as personality, interests, and abilities, are organized for research and practice. Additionally, Rottinghaus and Zytowski (2006) contend that knowledge of various work-related characteristics and their interrelationships strengthens understanding of career decision making and overall development.

Recent attempts, through systematic research, have begun to organize a framework for integrating personal variables toward the goal of more effective and holistic career counseling. Particularly, the Atlas Model of Individual Differences (Armstrong, Day, McVay, & Rounds, 2008) offers a robust framework for integrating a wide array of individual difference variables that is accessible to both researchers and practitioners. The Atlas Model uses Holland’s (1997) career interest structure (i.e., the six interest types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional; RIASEC) as the organizing framework in a format that, visually, almost forms a compass with the six points organized like cardinal directions.

One of the strengths of the Atlas Model is the use of multidimensional scaling (MDS) to integrate various individual difference variables and form a constellation of traits based on the strength of relation to the six Holland career interest types. The use of MDS as the statistical method enables the representation of complex relationships in a visual and relatively intuitive
manner, which may increase the potential effectiveness of integrating individual differences measurements in such applied settings as counseling (Jaworska & Chupetlovska-Anastasova, 2009). Another strength is that, presently, the Atlas Model has been successfully used to integrate multiple individual difference variables into constellations using the Holland (1997) career interest framework. Currently, the Atlas Model has successfully integrated the individual difference variables of skills, abilities, personality, work environment demands, and occupational reinforcers (Anthoney & Armstrong, 2010; Armstrong, Day, McVay, & Rounds, 2008).

Despite the vast success of the Atlas Model, one crucial individual difference variables has not yet been included in this structure: work values. As mentioned above, work values is an influential variable in career development and one of the most researched concepts in the profession (e.g., Brown, 2002; Keller, Bouchard, Arvey, Segal, Dawis, 1992; Shapira & Griffith, 1990; Sortheix, Chow, Salmela-Aro, 2015; Super, 1990; Zhang, Tang, & Tang, 2016). While occupational reinforcers share some similarities with career values, and are a useful concept in career development research and practice, career values is more prevalent in research and, likely, practice. What’s more, the 12 work values identified by Donald Super represent a substantial component of the literature on career values, and are assessed by a variety of instruments common to research and practice (e.g. Sortheix, Chow, & Salmela-Aro, 2015; Zytowski, 1970; Zytowski, 1994).

In consideration of many needs within the profession—the need for integration of individual difference variables, the profession’s call for holism, the importance of Super’s work values, and the long term success of the Atlas Model of Individual Difference—it is clear that there is a need for an examination of the integration of Holland’s career interests with Donald Super’s identified work values, through the Atlas Model framework. In addition, I conducted an
examination into the differences in work values across generation, race, and between genders in order to update previous literature. Through this study, I added to the literature by incorporating Super’s work values into the Atlas Model framework, by increasing the profession’s understanding of work values across various populations, and by supporting the career counseling profession’s drive toward holistic integration of individual difference variables.

**Statement of the Problem**

While holism is an underpinning of counseling generally, and extends to career counseling particularly, a substantial challenge career counselors face when using career-related assessments is helping their clients manage the density of information and construct a coherent picture from the results (Armstrong & Rounds, 2010). Not only that, clients then need to be able to organize and apply how these assessment results link to potential education and career opportunities that might be rewarding. Traditionally, a career counselor might begin the process with an interest inventory, and then augment that information with other assessments of traits or discussions of self-efficacy and ability (Armstrong & Rounds). The method of organizing all of this information is typically left up to the judgment of the individual counselor. While the feedback provided by individual counselors is a crucial component of the career counseling process (Brown et al., 2003), it has long been recognized that counselor synthesis of this vast array of information is inefficient and, often, less accurate than statistical methods (Dawes, Faust, & Meehl, 1989; Grove & Meehl, 1996). Therefore, a substantial strength of using an integrated model of individual differences, such as the Atlas Model of Individual Differences, is a more robust empirical foundation for the work of career counselors and augmented outcomes for clients.
The Atlas Model of Individual Differences (Armstrong et al., 2008) has answered a clear need in career counseling toward systematically integrating individual difference variables into a framework that is accessible to both researchers and practitioners. However, while The Atlas Model has successfully integrated numerous individual difference variables, such as personality variables, abilities, and occupational reinforcers, there is more work to be done to increase the utility and applicability of this model.

As noted above, in their 2008 study, Armstrong and colleagues successfully integrated occupational reinforcers into their model; an important concept understood as work-related values being reinforced in a given occupation. The 21 occupational reinforcers are widely available via O*Net (O*Net Content Model) and were modified from the 21 occupational reinforcer scales found in the Minnesota Job Description Questionnaire (MJDQ, Borgen, Weiss, Tinsley, Dawis, & Lofquist, 1968). While occupational reinforcers are an important concept to examine, a related concept, work values, is substantially more prevalent in career counseling research and, likely, career counseling practice.

Donald Super (1957) wrote a book expanding a thesis from Hoppock and Super (1950) regarding work attributes that held different levels of importance, a concept he termed “work values.” Super went on to develop the Work Values Inventory (WVI; Super, 1970), the first formal assessment of work values in career development research. Since then, work values have been shown to be a crucial component in career counseling practice and an influential variable in career counseling research. Early on, Sverko (1989) found that the importance of work is related to individuals' perceptions that work will satisfy their most important work values. Work values have been linked with a variety of individual behaviors, including labor market participation (Feather, 1990; Lobodzinska, 1996), career choice (Kalleberg & Stark, 1993; Young, 1984;
Zytowski, 1994) and work performance (Swenson & Herche, 1994). Additionally, work values have been found to be a key piece in predicting job satisfaction (Rounds, 1990) and intentions to stay in a job (Hesketh, McLachlan, & Gardner, 1992).

Super’s Life-Span, Life-Space Theory, from which the concept of work values is based, also has strong multicultural applicability. According to Leong (1997), values as an environmental variable takes on substantial applicability in a multicultural context, in addition to the significance of values as an individual difference variable. Super’s theory contains constructs that are more pertinent to women, as well as minority cultural groups (Hartung, 2002). In addition, Arbona (1995) found Super’s theory to be related to the developmental task of cultural identity formation for individuals from racial and ethnic minority groups (Arbona, 1995).

Further, multicultural career literature frequently indicates that the conventional emphasis within career counseling on person variables (e.g., interests) to the neglect of environmental and contextual variables (e.g., values) reduces relevance to various cultural groups (Brown & Brooks, 1991; Hartung, 2002; Leong, 1991). While instruments utilizing Holland’s RIASEC theory have been updated to support the validity of score interpretations in different cultural contexts (Lattimore & Borgen, 1999; Hansen & Campbell, 1994), several studies have supported the cross-cultural validity of work values. Work values are prominent environmentally related variables with fundamental cultural dimensions that augment theory and practice (Hartung, 2002; Leong, 1997).

The primary problem I sought to address in this study is the absence of an integrative framework that includes the crucial individual difference variable of work values. As mentioned above, the Atlas Model of Individual Differences has successfully integrated multiple individual
difference variables in an accessible format that allows practitioners to face the challenge of helping their clients organize a wealth of information into a coherent picture (Armstrong & Rounds, 2010). Despite this, the Atlas Model has not yet included work values into their integrative framework.

Additionally, a secondary goal I sought to achieve with this study is to update and clarify previous literature regarding the differences in work values that may or may not exist across generations, races, and between genders. As mentioned previously, the literature is inconsistent on whether or not differences exist, and where those differences lie. In order to support the utility of the Atlas Model with the inclusion of work values, it will be beneficial to investigate the differences in work value salience across demographic variables so that this can be a consideration in using this model.

Work values are a critical career development variable that has been found to be culturally competent and related to multiple important outcomes such as career choice and career satisfaction. Thus, examining differences in work values across demographic variables and incorporating work values into the Atlas Model framework furthers the profession of career counseling’s call for systematic integration of individual difference variables, as well as the commitment to multiculturalism and holism.

**Research Questions**

The following research questions were addressed in this study. Research question one focused on extending the Atlas Model of Individual Differences to include work values. In order to update the previous literature, research questions two and three were intended to explore any differences in work values across generation, race, and between genders.
Research Question 1: What is the relation between career interests as measured by the KCIA-L (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) and work values as measured by the SWVI-R (Achievement, Creativity, Coworkers, Income, Independence, Lifestyle, Challenge, Prestige, Security, Supervision, Variety, and Workplace)?

Research Question 2: Do differences exist in work values (as measured by the SWVI-r) between men and women, and across the generations Baby Boomers, Generation X, and Generation Y?

Research Question 3: Do differences exist in work values (as measured by the SWVI-r) across races (White, Black or African American, Hispanic, Multiracial, and Other races), and across the generations Baby Boomers, Generation X, and Generation Y?

Significance of the Study

Career counseling has been clear in its call for a systematic framework to coherently organize individual difference variables (Armstrong & Rounds, 2010; Dobson, Gardner, Metz, & Gore, 2014; Sullivan & Hansen, 2004) and this research advances the movement toward a model that is useful for both practitioner and client. The Atlas Model of Individual Differences has begun the process of establishing a framework by successfully integrating the individual difference variables of interests, personality, skills, and abilities.

Through this study, I contributed to the literature, and to applied practice, examining the relation of career interests and work values, thereby marking a first step toward extending the Atlas Model of Individual Differences to include work values in its framework. Including work values increases the multicultural competency of the Atlas Model and provides the profession with a systematic framework that is applicable to a larger amount of people. Additionally, Donald Super’s work values are widely assessed in career counseling practice, therefore including this variable in the Atlas Model will increase the utility of this framework. Career
counselors can then examine more clearly how work values align with various other individual characteristics and use this information to synthesize recommendations and interventions for clients.

An additional contribution I made to the literature with this study was to clarify and update the literature on the differences in work values across generation, race, and between genders. As mentioned above, there is contradiction in the literature regarding whether or not differences exist across these populations. Not only that, the majority of studies on work values are outdated when examining differences across generation (e.g., Appelbaum et al., 2005; Cennamo & Gardner, 2008), race (e.g., Brenner, Blazini, & Greenhaus, 1988; Ovadia, 2001), and between genders (e.g., Harris & Earle, 1986; Walker, Tausky, & Oliver, 1982). Further, a gap in the literature particular to the information on generations relates to a paucity of research on the work values of Generation Y. This is the most recent generation, the fastest growing, and has generated the most popular literature regarding its characteristics, needs, and values. Therefore, I also contributed to the literature by filling the research literature gap on the work values of Generation Y in comparison to other generations.

In sum, through this study, I contributed to the literature in three central ways. First, I heed the career counseling profession’s call for systematic integration by making a first step toward extending the Atlas Model of Individual Differences to include the crucial career development variable work values. Second, I added to and updated the literature on the differences in work values across generations, races, and between genders. Finally, because the present sample consisted primarily of Generation Y and there is, currently, a paucity of research on the work values of Generation Y, I contributed to this gap in the literature. This information
provides valuable information and tools to career counselors for structuring interventions and recommendations.

Limitations

Although I address a clear need in the literature toward integration of individual difference variables in career counseling, it is important to note some limitations. One limitation in the use of archival data, which is data originally collected for a purpose separate from the current research study and, therefore, the survey questions were not specifically designed to answer the present research questions (Boslaugh, 2007).

A second limitation, through use of archival data, is that the author was not a participant in the data collection process and, therefore, it is unclear how well that process was carried out, if the data might be affected by low response rate or respondent misunderstanding of survey questions, and so on.

Definitions

For the purposes of this study, it was important to define a number of terms that are used. 

Individual difference variables. Individual difference variables are characteristics of a person that naturally varies across the population and cannot be assigned by the researcher. Some examples of individual difference variables are race, gender, personality, abilities, interests, and values.

Career interests. Career Interests are defined as trait like preferences for activities, contexts in which activities occur, or outcomes associated with preferred activities that motivate goal-oriented behaviors and orient individuals toward certain environments (Rounds & Su, 2014; Rounds 1995; Su, Rounds, & Armstrong, 2009).
Work values. Donald Super, articulated work values specifically as “an objective, either a psychological state, a relationship, or material condition, that one seeks to attain” (1980, p. 130).

Occupational reinforcers. Occupational reinforcers describe patterns of conditions available in the work environment that satisfy particular worker needs (McCloy, Waugh, Medsker, Wall, Rivkin, & Lewis, 1999).

Generation. The term generation is described as a set of individuals that share common life experiences, such as politics, popular culture, natural disasters, economic conditions, and work events (Smith & Clurman, 1998). There is some disagreement on exactly which years of birth mark each generation. For the purposes of this study, the years indicated by Lancaster and Stillman (2002) are adopted.

The Silent Generation. While this generation is sometimes referred to as Traditionalists or The Greatest Generation, the term Silent Generation will be used throughout this study. This is the generation born between 1925 and 1945 (Lancaster & Stillman, 2002) and is not present in the sample used for analysis.

Baby Boomers. This generation includes those who were born between 1946 and 1964 (Lancaster & Stillman, 2002). This generation is the largest in American history and is often characterized as ‘workaholics,’ optimistic, results-driven, and competitive (Strauss & Howe, 1991).

Generation X. This generation includes those who were born between 1965 and 1980 (Lancaster & Stillman, 2002). This generation is typically characterized as independent, adaptable, resourceful, interest in work-life balance, and motivated by feedback (Beutell & Wittig-Berman, 2008; Strauss & Howe, 1991).
*Generation Y.* This is the youngest generation in the work force and is identified in this study as anyone born in 1981 and after. This generation is often characterized as ‘tech savvy,’ quick learners, preferring informality, and interested in work-life balance (Society of Human Research Management, 2004).
CHAPTER TWO: LITERATURE REVIEW

Since its beginnings, career counseling has been intertwined with assessment. At the time of Frank Parsons (1909) and career counseling’s origins, then called vocational guidance, psychological testing was a popular and well-reputed endeavor. Therefore, including assessment in career counseling lent the profession legitimacy (Pope, 2000; Super & Crites, 1962). From there, career counseling and development slowly gained footholds in elementary, secondary, and postsecondary education. Throughout this time period and into modern day, a multitude of assessments for various career-related constructs, such as interests, self-efficacy, personality, needs, and values were developed and revised.

There is also a long history in career counseling of integrating information about an individual, from life and work history data to assessment results and self-descriptions (Armstrong & Rounds, 2010). The wide array of assessments for multiple constructs has helped to advance career counseling; however, it also presents a challenge to researchers and practitioners regarding synthesizing the information gained from multiple assessments. Researchers often circumvent this concern by choosing one particular construct to examine; such as career interests.

However, focusing on just one variable may overlook valuable information and limits the holistic understanding of the client. For example, Sullivan and Hansen (2004) note that knowing the patterns of association between the different Holland types, and to what degree clients identify with each type, can aid career counselors in understanding the complexity and sources of career-related challenges for an individual. Still, Sullivan and Hansen explain that adding an understanding of associations between personality traits and Holland types can present counselors with a much deeper understanding of their client and how interests, preferences,
tendencies, and motivations may influence or conflict with one another. The added understanding of personality components creates a more holistic and unique picture of the individual and their needs.

In contrast to researchers, it is common for career practitioners to examine two, three, or more individual difference variables, using a different assessment for each one. For example, a career counselor may begin the counseling process by administering a career interest assessment, then later in the process supplement this with a personality assessment, and still later may request the client complete a career values assessment. Research suggests that practitioners struggle to integrate all of the information provided by these different assessments, and to present it to clients in a cohesive manner that can then be used to make informed decisions (Armstrong & Rounds, 2010).

Prior to examining a framework for synthesizing individual difference variables, it is useful to define and discuss particular career-related individual difference variables that substantially influence career decision making and outcomes. Specifically, the individual difference variable career interests, which is central to the Atlas Model of Individual Differences, and the individual difference variable work values, which is central to Donald Super’s Life Span, Life Space Theory, are explained further. There is a substantial amount of research examining both career interests and work values, as well as their impact on career development. In career counseling practice and research, these variables are primarily examined independently of one another, therefore it is important to understand the unique impact of each variable. I begin with an examination of career interests, as well as their relation to the Atlas Model of Individual Differences. This is followed by a discussion of work values, the conflicting reports in the literature regarding their salience across various populations, and the role of work values in
Super’s Life Span, Life Space Theory, and. Finally, I conclude with a discussion of integrating career interests and work values within the Atlas Model framework and the values of this integration.

**Career Interests**

Interests are commonly defined as trait like preferences for activities, contexts in which activities occur, or outcomes associated with preferred activities that motivate goal-oriented behaviors and orient individuals toward certain environments (Rounds & Su, 2014; Rounds 1995; Su, Rounds, & Armstrong, 2009). Several key features of interests are highlighted by this definition.

The first central feature of interests is that they are fairly stable and trait like preferences. Historically, interests have been conceptualized in two ways; either as situational states (Silvia, 2008) or as relatively stable dispositions (Low, Yoon, Roberts, & Rounds, 2005). Evidence supports that latter; the understanding that interests as relatively stable and trait like in nature (Holland, 1997). The appropriateness of interest inventories is contingent on interest stability. It is important to note that stability does not mean interests are permanently fixed, rather, it indicates that the relative standing of any individual in a population remains consistent to a certain degree (Rounds & Su, 2014). Low and colleagues (2005) organized a powerful meta-analysis consisting of 66 longitudinal studies on interest stability. This meta-analysis represented a total of 23,665 participants, across 107 samples, which ranged in age from about 12 years old to age 40. Low and colleagues used rank order stability, which is the relative placement of an individual in a group expressed as a correlation between two time points, to estimate interest stability at different life stages. Low and colleagues found that the rank order stability of interests was in the upper .50s during adolescence and increased markedly to .70 during the college years,
before plateauing for two decades. Importantly, these researchers also compared the rank order stability of interests with personality traits and found interests to be more stable across all ages before middle adulthood. These findings support the assumption that interests are relatively stable and, therefore, suitable for guidance and prediction.

Additionally, as the earlier definition suggests, interests are contextual. This contextualization sets interests apart from other individual difference variables such as personality or cognitive ability because interests directly capture the fit between a person and certain environments (Su, Murdock, & Rounds, 2015). Individuals cannot be defined as ‘interested’ the way they might be defined as ‘introverted.’ Instead, interests always have an object; individuals are interested in a certain activity or a kind of environment (Rounds & Su, 2014). Therefore, items from interest inventories allow respondents to indicate how much they like or dislike activities and environments and, by doing so, reveal their preferences for the shared properties of activities (e.g., teaching or building). These items can be organized into basic interest scales that capture interest in overarching domains, such as mathematics or technology (Liao, Armstrong, & Rounds, 2008), and then these interest scales can be further classified into Holland (1997) type interest scales that distinguish types of people and environments. Therefore, interests have contextual qualities and reflect environmental preferences.

The last feature of interests is their motivational power. Interests direct activities and goals toward specific domains, energize goal achievement efforts, and provide a context that promotes persistence until a goal is achieved (Nye, Su, Rounds, & Drasgow, 2012). Due to the influence of interests on the direction, intensity, and tenacity of goal-oriented behavior, it is
expected that interests will predict goal attainment in work and educational settings (Rounds & Su, 2014).

**Importance of Interests in Career Development**

The influence of interests on choice is one of the most researched interactions in counseling generally, and career counseling specifically (Rounds & Su, 2014). Early research efforts by Kuder (1977) and Strong (1943) found interest robustly predictive of college major choice and occupation choice. Interest measures have become an indispensable tool in the career counselor’s arsenal.

Additionally, a meta-analysis by Rounds and Su (2014) indicated that interests also predict post-choice outcomes; showing that students interested in their major are more likely to perform better, persist longer in their major and persist longer in school overall when compared to disinterested peers. Not only that, employees interested in their occupations perform better, persist longer in their jobs, and contribute more to their coworkers and organizations.

Interests also appear to contribute to long-term outcomes such as educational attainment and career success. Using a large, longitudinal data set with over 400,000 high school students from over 1,300 schools across the country, Su (2012) showed that interests predict academic and career success above cognitive ability and personality. Su also found that interests were the most significant predictor of income, accounting for 83.3% of total variance, and exceeded the contributions of personality, which accounted for 4.7% total variance, and ability, which accounted for 12.0% total variance. While ability mattered the most for occupational prestige and educational-success outcomes, interests were found to be more important than personality in every case.

**Atlas Model of Individual Differences**
The Atlas Model of Individual Differences was developed by Armstrong, Day, McVay and Rounds (2008) toward the career counseling profession’s need for an integrated model to synthesize individual difference variables. This theoretical framework is a career interest based model that uses Holland’s (1959, 1997) RIASEC career interests structure to assemble constellations of individual differences to produce an integrated model for both research and practice. The Atlas Model of Individual Differences draws its name from the history of map making. The cartographer Gerardus Mercator published a series of maps as the first atlas in the 16th century. In this atlas, Mercator recognized the power of integration by including unified pictures of topography and physical distances, as well as political borders (Armstrong, Day, McVay, & Rounds).

Following Mercator’s example, Armstrong, Day, McVay, and Rounds (2008) sought to generate an integrated picture of the world of work through “joint illustration of individual difference domains” (p. 1). The Atlas Model of Individual Differences seeks to ‘map’ the distances (similarities and dissimilarities) between various individual difference variables. Toward the development of this integrated map, Armstrong and colleagues (2008) used the multidimensional scaling technique of property vector fitting, which produces an output that is visually intuitive, and ‘map-like’ in nature.

Holland’s Theory of Interests

The Atlas Model of Individual Differences is rooted in Holland’s RIASEC theory of career interests, therefore, it is important to understand Holland’s theory. Beginning in the 1950s, John L. Holland organized and refined a theory of individual career development. Holland believed that people sought academic and work environments that allowed them to express their individual interests, talents, and abilities; and that various environments would
reinforce these patterns of behavior and thinking (Holland, 1997). Holland’s (1959, 1997) interest-based theory is organized around six personality traits and six parallel environments. These six traits and environments are identified as Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C); referred to collectively as RIASEC.

While Holland argued that personality types and the interest types he describes are functionally equivalent (Holland 1997, 1999), personality and interests are generally considered to be distinct psychological constructs that share notable connections (Hogan & Blake, 1999; Savickas, 1999). In Holland’s model, there is a direct link between an individual’s personality and the environmental context. Work environments are described in terms of the people who work there and the activities they perform, and personality is described as preferences for particular work activities performed in certain environments (Holland, 1997). RIASEC personality types are defined by both preferences and aversions that guide work environment choice, and the environments are defined by typical work activities and the demands placed on individuals. In order to understand the Atlas Model of Individual differences, it is useful to understand the six Holland RIASEC types.

Realistic. According to Holland (1997), the Realistic type is defined by people who prefer activities that involve the ordered and systematic manipulation of objects, tools, machines, or animals. People within this type tend to avoid educational and interpersonal activities. The behavioral tendencies of Realistic types lead to acquisition of manual, mechanical, or technical competencies. Realistic types tend to describe themselves as practical and conservative, with strong mechanical, technical, and athletic abilities. This type of person tends to value material rewards, such as money, and tangible accomplishments. Similarly, Realistic environments emphasize practical activities and the use of machines, tools, and materials. These environments
tend not to emphasize social and relational skills. Realistic environments reinforce conforming behavior and practical accomplishment.

**Investigative.** The Investigative type, as described by Holland (1997) are people who prefer activities that involve observational, symbolic, and creative investigation of physical, biological, or cultural phenomena. These types of individuals have behavioral tendencies that lead to scientific and mathematical competencies, and they tend to avoid social or repetitive activities. Investigative type people often describe themselves as cautious, curious, independent, rational, and precise. Investigative environments emphasize analytical and intellectual activities aimed at knowledge creation and application. Investigative environments reinforce skepticism and persistence in problem solving, documentation of new knowledge, and solutions for common or complex problems.

**Artistic.** Holland (1997) describes the Artistic type as people who prefer free and unstructured activities that involve physical, verbal, or human materials to create art forms or products. This kind of person tends to avoid routine activities and conformity. The behavioral tendencies of Artistic types lead to the acquisition of artistic competencies, such as language, art, music, drama, and writing, with a deficit in clerical or business system competencies. Artistic people tend to describe themselves as expressive, original, sensitive, intuitive, and nonconforming. Meanwhile, Artistic environments emphasize ambiguous and unstructured activities that involve expressive interactions with others. These environments include little ordered activities and reinforce imagination in literary, artistic, or musical accomplishments.

**Social.** The fourth type, Social, is described by Holland (1997) as people who prefer working with others in the capacity of informing, training, or curing. The behavioral tendencies of a Social type lead to strong skills in human relations and competencies, with a deficit in
manual or technical abilities. Social types tend to perceive themselves as cooperative, empathetic, generous, helpful, understanding, and warm. This type values the welfare of others and social service. Similarly, Social environments emphasize activities such as mentoring, treating, or teaching others, and deemphasize tools, machines, and systematic activities. Social environments reinforce displays of empathy, humanitarianism, sociability, and friendliness.

Enterprising. Holland (1997) describes the fifth type, Enterprising, as people who prefer activities that involve manipulating others in order to attain organizational or economic goals. These types of people tend to avoid scientific or ambiguous activities. The behavioral tendencies of Enterprising types make them strong in leadership, interpersonal skills, and persuasion. People in this type tend to perceive themselves as ambitious, energetic, extroverted, optimistic, self-confident, and sociable. The values of Enterprising types are often related to material accomplishment and social status.

Conventional. Finally, the Conventional type, according to Holland (1997), is described as preferring activities with ordered and systematic manipulation of data. This might include keeping records, filing, and organizing data. This particular type tends to avoid ambiguous and unstructured assignments. The behavioral tendencies of Conventional types lead to strong skills in clerical, computational, and business system competencies, to the deficit of artistic competencies. Conventional types tend to describe themselves as careful, orderly, and strong in clerical abilities. Values of the Conventional type often relate to financial or material accomplishment. Similarly, Conventional environments emphasize activities concerning ordered and clear manipulation of data to meet predictable organizational demands. Conventional environments reinforce a concern for rules, orderliness, routine, dependability, and organization.
Holland’s theory has been used to develop several career choice inventories, most notably the Strong Interest Inventory (Harmon, Hansen, Borgen, & Hammer, 1994) and the Kuder Career Interest Assessment-Likert used in this study. The RIASEC types, according to Holland (1959, 1997), are best expressed graphically and are arranged in a hexagonal ordering, with distances between types inversely proportional to the degree of similarity between them. For example, Social and Enterprising types are next to each other on the hexagon and share a similar preference for working with people and a similar disinterest for the manual and scientific focus of the types on the opposite side of the hexagon; Realistic and Investigative. It is worth noting that, while Holland referred to the RIASEC structure as a hexagon, some researchers have argued that the underlying structure is truly a circumplex (Hogan, 1983; Rounds, Tracey, & Hubert, 1992).

Holland’s RIASEC and the Atlas Model of Individual Differences

The Atlas Model of Individual Differences utilizes Holland’s (1997) interest types as standard reference points to represent the structure of interests and ground the framework for integrating additional individual differences. In other words, following the ‘map’ theme of the Atlas Model, the six Holland types are equivalent to the four cardinal directions on a map; they are the reference points around which the distance of (similarity or dissimilarity of) other individual difference variables are evaluated. Figure one illustrates the circumplex structure of Holland’s career interests.
Holland’s model was chosen as the logical groundwork for the Atlas Model of Individual Differences for several reasons. First, Holland’s RIASEC model was chosen due to its dominant position in the vocational interest literature (Campbell & Borgen, 1999; G. D. Gottfredson, 1999; Rounds & Day, 1999). The effectiveness of interest-based measures for matching persons and environments is evidenced by their long-standing use in career counseling settings (Clark, 1961; Dawis, 1992; Fryer, 1931). Also, interests reflect preferences for particular activities and the contexts in which these activities occur (Rounds, 1995). Due to this, interests are formed through an individual’s experiences interacting with the environment. This inclusion of the environment allows Holland’s RIASEC to provide a more culturally competent contextual framework for mapping interrelations between individual differences. Finally, through a series of property vector analyses, Armstrong and colleagues (2008) found support for Holland’s interest structure as a framework for integrating a wide range of individual difference variables. Figure two illustrates the output from Armstrong and colleagues (2008) of integrating personality characteristics (from the MBTI, 16-PF, and Jackson Vocational Inventory) onto Holland’s RIASEC circumplex.
Work Values

This section, and the following sections, now shift toward a discussion of work values and the conflicting research on work value salience across various populations. In addition, Donald Super’s Life-Span, Life-Space Theory is discussed, along with its multicultural applicability.

Among the various individual differences that are considered, work values have come to attain a status in career development literature and practice equaling that of abilities and interests (Zytowski, 1994). Despite this, work values are a foundational construct in few vocational theories. Three vocational theories that do include work values as a central construct are the
Space Theory (Super, 1953). Prior to discussing Super’s theory in further detail, the following sections aim to illuminate the concept of work values and their history in the literature.

**History of Work Values**

Spranger (1928) outlined an early conceptualization of six basic values; theoretical, economic, aesthetic, social, political, and religious. The first empirical study of work values attempted to measure Spranger’s six values (Allport & Vernon, 1931). Allport (1961) went on to define values as beliefs that cause individuals to act on their preferences. Rokeach (1973) later noted that values are important to understanding behavior, and expanded the understanding of values to include also cognitive, affective, and behavioral components. One of the foremost researchers on values, Donald Super, articulated work values specifically as “an objective, either a psychological state, a relationship, or material condition, that one seeks to attain” (1980, p. 130). Values are often structured hierarchically based on their relative important to an individual and this structure forms an organization of an individual’s needs, desires, and goals (Sverko & Vizek-Vidovic, 1995). This organization assists individuals in decision making, integrating activities, and directs behavior.

Work values cannot be directly observed, but become recognizable through examining the goals an individual considers important and strives to attain. An individual attempts to fulfill various goals and values through their work, such as social status or material rewards. Researchers often organize values into categories identified as *intrinsic* and *extrinsic* and attempt to compare the relative importance. Intrinsic values refer to motivations or goals that are fulfilled by the work itself or job content, such as altruism. On the other hand, extrinsic values refer to goals or motivations that are fulfilled by systemic factors outside of the job content itself, such as prestige or salary (Sverko & Vizek-Vidovic, 1995).
Work Values and Personal Values. While there is widespread assumption that work values are a subset of personal values (e.g., Elizur, Borg, Hunt, & Beck, 1991), research focusing on the relationship between these concepts has been sparse. Early work by Kinnane and Gaubinger (1963) on the personal and work values of college students provides support for some overlap between work values and personal values. A later study by Ros, Schwartz, and Surkiss (1999) on adults in Israel also demonstrates some overlap between work and personal values, with personal variables accounting for about 8% of overall variance in work values. Recently, Leuty and Hansen (2012) examined personal and work values, along with relationships between personality and interest variables, in a sample of college students. The results indicated that work values are more akin to personal values than to any of the other constructs assessed. Still, Leuty and Hansen note that the relationship is still modest and most of the variance in work values is not explained by personal values. The limited literature on the relations between work and personal values suggests that personal values and work values are related, yet distinct concepts.

Values and Needs. The discussion of values often includes a discussion of physical and psychological needs, as these concepts appear to be inextricably linked. Rounds and Armstrong (2005) indicate that current understanding of needs can be traced to Murray’s (1938) need-press theory, which hypothesizes that individuals’ behaviors and feelings are a result of their needs. Press refers to environmental stimuli that facilitates or impedes the achievement of needs (Murray). According to the theory, the way in which needs and press interact explains behaviors, such as job tenure (Dawis, 2002) and job performance (Singh & Kumari, 1998).

Similar to values, needs direct behavior, yet Rokeach (1973) clarified that needs are rooted in biology, whereas values are the cognitive representations of those needs. In addition,
Brown (1996) delineates needs as situation specific, whereas values are more broadly applied. Despite some nuanced differences in how needs and values are conceptualized, most theorists regard them as overlapping and some apply the terms interchangeably to some extent (Leuty, 2010).

**Gender Differences in Work Values**

Much of the initial interest in gender differences in work values stems back to World War II and the rapid expansion of the female labor force (Rowe & Snizek, 1995). Early on, Crosby (1982) described that women may place less importance on salary than other aspects of work, such as working conditions or relationships with coworkers and bosses. In another study done early on, Walker, Tausky, and Oliver (1982) examined differences between male and female labor force participants and found that, out of five job value dimensions considered, there was only a significant difference on the dimension of convenience (e.g., a satisfactory amount of hours and low overall job pressure).

As noted by Elizur (1994), the literature on work values and related gender differences provides contradictory results. Early studies (Brief & Aldag; Brief & Oliver, 1976) indicate there are no substantial differences. In their vast study of 7,436 male and female full-time employees, Rowe and Snizek (1995) found a lack of gender differences. However, other researchers (Bartol & Manhardt, 1979; Harris & Earle, 1986) suggest there are a number of gender differences. For example, men tend to be more concerned with income, independence, security, and career advancement, whereas women value good coworker relationships and a comfortable environment (Pryor, 1983). Additionally, while Neil and Snizek (1987) found no differences between men and women on the value of job security, there were differences indicating men found ‘job status’ and ‘prestige in the community’ more important than women,
and that women found ‘good personal relationships at work’ and ‘competence to do the job’ more important than men.

Some researchers have attributed the differences to the limitations of the studies (e.g., assessment tools or study design), while others question if there is an underlying difference in the structure of work values between genders. Explanations of work value differences between men and women also begin to include discussion of the effect of gender role socialization (Cinamon & Rich, 2002) and the challenge of ‘juggling’ motherhood and career aspirations (Lips & Lawson, 2009).

Recent examinations of gender differences in work values have expanded internationally with research in China (Nie, Luo, Wentworth, & Sturkie, 2014), Taiwan (Cheung & Scherling, 1999), Germany (Huttges & Fay, 2015), Israel (Abu-Saad, & Isralowitz, 1997; Mannheim, 1993) and in Arab nationals (Whiteoak, Crawford, & Mapstone, 2006). Despite this, the reader may note from previous citations that much of the research of gender differences in work values within the United States is fairly dated. The world of work has changed drastically since the early investigations of gender difference on work values.

For instance, in terms of sheer numbers, women’s presence in the workforce has dramatically increased, from about 45 million in 1980 to about 73 million in 2015 (United States Department of Labor, 2015). Fifty-seven percent of women participated in the labor force in 2015, compared to only 51.5 percent in 1980 (United States Department of Labor, 2015). In addition, there also appears to be a noticeable shift regarding the balance of work and family for the American family and for women. For example, the U.S. Department of Labor (2015) indicates that over 65 percent of first time mothers worked either full or part time during their pregnancy in 2006-2008 as compared to 44.4 percent in 1961-1965. Related to that, more women
are working sooner after their first birth. In 2005-2007 more women returned to work within three months after their first birth (44.2%) compared to women returning within three months in 1961-1965 (9.9%). Similarly, in 2005-2007 more women returned to work within a year after their first birth (63.8%) compared to women in 1961-1965 (16.8%). In light of these changes and the likely effect on work values, it is essential to re-examine the question or whether or not there are gender differences in work values.

**Racial Differences in Work Values**

Exploration of the relationship between race and work values appears to date back to 1967 when Bloom and Barry tested Herzberg’s “motivator-hygiene” theory and reported that hygiene factors (extrinsic rewards) were more important to individuals who identified as Black than to those who identified as White. Later on, Shapiro (1977) reached similar results, concluding that Black workers were more likely than White workers to value extrinsic rewards such as income or job security rather than the intrinsic rewards of a job such as a feeling of accomplishment. The assertion that the primary difference between Whites and Blacks in terms of work values is that Blacks value extrinsic rewards more and Whites value intrinsic rewards more is a consistent theme in the extant literature (Brenner, Blazini, & Greenhaus, 1998; Cotton, Bynum, & Madhere, 1997; Martin & Tuch, 1993; Milutinovich, 1997; Weaver, 1980).

In their study of workers in middle management roles, Brenner, Blazini, and Greenhaus (1988) found that Blacks placed more importance on independence than Whites. Because independence is typically categorized as an intrinsic value, this is the one research study within my literature review that deviated from the narrative of Blacks placing more importance on extrinsic values as compared to Whites. Additionally, in the most recent research found by my literature review, Kashefi (2011) finds that individuals who identify as Black attach significantly
higher value to extrinsic, relational (e.g., importance of helping others) and enhancement (e.g., chances for advancement) work values. This research is partially consistent with previous research regarding the high value of extrinsic rewards for those who identify as Black, however this extends the literature in indicating that relational and enhancement work values are also significantly more important to Blacks than to Whites. Consistent with prior literature, Kashefi (2011) found that Whites endorsed more importance of intrinsic rewards than Blacks. This study has the benefit of being more recent and includes a strong methodology, however it is not without some flaws. This study does not use an established measure of work values and only examines racial differences between those who identify as White or Black.

Overall, the majority of studies examining race and work values are consistent in their results indicating differences in work values across race (e.g., Brenner, Blazini, & Greenhaus, 1988; Brenner & Tomkiewicz, 1982; Milutinovich, 1977; Ovadia, 2001; Weaver, 1980). However, there is a paucity of research overall, particularly for those who identify as Hispanic or Multiracial. Almost all prior studies examine the differences by comparing only individuals who identify as Black or White. Further, similar to the discussion of work values and gender above, there have been vast changes in the world of work that may effect changes in work values across races. For example, Black communities have experienced substantial improvement in areas such as education, occupational attainment, socioeconomic status, and antidiscrimination legislation (Kashefi, 2011). Thus, it is important for practice and research to, not only update findings, but to use an empirically validated measure of work values and examine work value differences across multiple races.

**Generations and Work Values**
A cursory examination of any management magazine or national newspaper in recent years likely reveals a reference to the different generations within the population, and much attention has been paid to the differences between these generations. For the first time, four generations are working side by side in the United States (Hansen & Leuty, 2012). The four generations are the Silent Generation (the oldest and sometimes called Traditionalists), followed by Baby Boomers (the largest), then Generation X, and finally Generation Y (also often referred to as Generation Me or Millennials). Anecdotal stories from both workers and organizations have highlighted differences in the way in which these various generations function and interact in the workplace.

The drive to understand these generations has resulted in numerous books and publications seeking to explain the differences between workers in different generations; often centering the discussion on the belief that work values differ between younger and older workers. Practitioner literature suggests generational differences in work values have broad influences, including organizational recruitment (Charrier, 2000), training and development (Berl, 2006), career development (Ansoorian et al., 2003; McDonald and Hite, 2008), rewards and working arrangements (Carlson, 2004), and management style (Losyk, 1997). Additionally, Karp and Sirias (2001), suggest vast generational differences in values have the potential to cause substantial workplace conflicts.

Popular press coverage in outlets such as Business Week, and The Wall Street Journal has noted that organizational practices are often altered in order to adapt to the supposed work values of Generation Y (Twenge, Campbell, Hoffman, Lance, 2010; Alsop, 2008; Gloeckler, 2008). Additionally, in an effort to appeal to the suspected values of Generation Y, companies have added amenities that appeal to a work-life balance, leisure, and relaxation. For example, Google
offers onsite laundry and massages, eBay has rooms set aside for meditation, and KPMG offers workers 5 weeks of paid vacation during the first year (Twenge et al., 2010). Yet, despite the interest and the vast changes across many companies, there is little empirical evidence of a difference in work values across generations (Hansen & Leuty, 2010; Twenge et al., 2010).

**Generations**

Smith and Clurman (1998) describe the term *generation* as a set of individuals who share common life experiences such as politics, world events, popular culture, natural disasters, and economic conditions. Broad sources influence each generation, such as peers, parents, media, and critical economic or social events, and this generates shared value systems that distinguish the individuals in each generation from those who grew up at different times. The precise definition of these groups, qualities of these groups, and years in which these groups span varies across the literature. The information that follows is a description of each of the four generations that are currently sharing the workforce.

**The Silent Generation.** The Silent Generation is also sometimes referred to as Traditionalists or the Greatest Generation and is one of the smaller generations by population. The Silent Generation received its name from a 1951 article in *Time* magazine that was intended to identify this generation’s cautious, withdrawn, and silent characteristics (Strauss & Howe, 1991). This generation was raised during the Great Depression and World War II, therefore enduring difficult times. Strauss and Howe note that this generation was the youngest generation ever to marry and have children. Lancaster and Stillman (2002) describe individuals in this generation as being very loyal, having substantial faith in institutions, and often planning to work for one company overall. This generation tends to value earning and saving money, leading this
generation to be overall wealthy (Kupperschmidt, 2000; Strauss & Howe, 1991). Individuals in the Silent Generation tend to see work as an obligation and a duty (Kupperschmidt, 2000).

**Baby Boomers.** After World War II and the Great Depression, the American economy began to recover and a surge in births made the Baby Boomer generation the largest in American history (Hansen & Leuty, 2012). Baby Boomers experienced the civil rights and women’s movements, the Vietnam War, the assassinations of John F. Kennedy and Martin Luther King, Jr., as well as the Watergate scandal during the Richard Nixon presidential administration. Lancaster and Stillman (2002) note that, because of this generation’s large size, Boomers are seen as being forced to be competitive for resources and opportunities. Potentially as a result of this competition, Baby Boomers value striving to get ahead, material success, and desire being seen as individuals (Kupperschmidt, 2000; Strauss & Howe, 1991). Boomers are often described as workaholics and seek meaning in life through their work (Strauss & Howe, 1991). Additionally, Baby Boomers have attributed to qualities such as being ‘results driven’ and being willing to ‘give maximum effort’ (Society of Human Research Management, 2004). Baby Boomers have also been categorized as very optimistic, possibly due to growing up in a time of great prosperity as compared to the prior generation, and responsible for many social movements (Lancaster & Stillman, 2002).

**Generation X.** Generation X is most often described as skeptical or cynical (Lancaster & Stillman, 2002) in contrast to the optimism of Baby Boomers and the loyalty of the Silent Generation. It’s possible that this cynicism stems from witnessing numerous negative events during formative years, such as the Persian Gulf War, increases in the crime and divorce rate, and the rapid spread of AIDS (Losyk, 1997). Television and media revolutionized Generation X and provided this generation with more exposure to world events and popular culture than the
previous generations (Lancaster & Stillman, 2002). Generation X is the first generation to experience the majority of parents working outside the home, causing most individuals in this generation to become ‘latchkey kids,’ responsible of taking care of themselves for hours each day while their parents worked (Kupperschmidt, 2000; Strauss & Howe, 1991). Potentially, this caused individuals in Generation X to develop skills of independence, adaptability, and resilience (Thiefoldt & Scheef, 2004). Evidence exists that Gen Xers are motivated to achieve (Arnett, 2000) and that they are viewed as resourceful and ‘self-starters’ (Strauss & Howe, 1991; Lancaster & Stillman, 2002). Individuals in Generation X appear motivated at work through feedback, developmental opportunities, and challenges (Cohen, 2002).

Some describe Generation X as being ‘lost’ (Strauss & Howe, 1991) and less loyal to organizations than their parents, though still committed to work despite changing jobs more often (Cohen, 2002). Generation X tends to value family and flexible work arrangements that would allow them to balance the demands of work and family (Beutell & Wittig-Berman, 2008; Losyk, 1997).

**Generation Y.** Generation Y is the youngest generation in the workforce and members of this generation have been ‘wired’ since they were very young (Twenge et al., 2010). Because this generation grew up with the internet, it is likely this has made them accustomed to getting information quickly (Twenge et al., 2010). This generation has seen the rapid development of technology and the collapse of several companies (e.g., Enron, TYCO) due to unethical leadership. For Generation Y, the boundary between work and other life roles is often described as fluid or nonexistent. This fluidity is often attributed to advances in communication technology (e.g., cell phones, email, and text messaging), as well as increased geographic mobility that allows work to take place around the clock. Gerson (2010) conducted interviews with 120 men
and women between the ages of 18 to 32 and found that most in Generation Y preferred to avoid the extremes of too much time either at home or at work. Generation Y is often described as ‘tech savvy,’ quick learners, willing to embrace diversity, and as showing a preference for informality (Society of Human Research Management, 2004).

Generation Y has received little, if any empirical examination with most previous research focusing on generational differences in Generation X and Baby Boomers. However, Generation Y is the youngest and fastest growing generation in today’s workforce; representing the majority of employees in their 20s (Twenge et al., 2010). Because Generation Y is the largest group of young professionals in the workforce, appeal to and recruitment of this generation is a top priority for human resource departments. Despite the interest in understanding this generation, there is less empirical evidence about this generation than about any other generation.

**Research on Work Values across Generations**

Consideration of generational differences can be traced back to the 1950s and has its origins in sociology, notably, with the work of Karl Mannheim. In 1952, Mannheim articulated the importance of generations as a guide to understanding the structure of social and intellectual movements. According to Mannheim, and those who follow in his work, there are two important components to the term ‘generation.’ First, a common location in historical time, such as a year of birth that limits one to a particular range of social, political, and historical experiences.

Second, a distinct consciousness of that historical position influenced by the events and experiences of that time (Gilleard, 2004). This second component suggests that individuals who are in their formative years, such as adolescence, during particular national or international events, form a shared memory of those events that shape future attitudes and behaviors.
Modern-day sociologists have expanded Mannheim’s approach to considering other components of popular culture, such as music, rather than just historical events. Particularly, Holdbrook and Schindler (1994) suggest that popular culture has a great impact on generational differences with people being most prone to the influence of music, film starts, and clothes. Generations, therefore, build solidarity around cultural symbols such as music or fashion. McMullin and colleagues (2007) again extended this idea to include computer technology as a marker of culture that impacts generational formation.

As mentioned above, an investigation of the literature on generational differences in work values is fraught with conflicting information. The bulk of studies on this topic are cross sectional, although a few are qualitative. It is also worth noting that, despite current popular interest in the topic, very little empirical research on generational differences in work values exists. The following is a review of the extant literature on generational differences in work values.

**Quantitative Studies.** Using the Schwartz Values Survey (Swartz, 1991), Lyons and colleagues (2007) assessed differences in values across the four generations and found significant differences. Generation X scored higher on openness to change values and lower on conservation values, which supports generational stereotypes. Generation Y, in contrast to hypotheses and general stereotypes, did not differ significantly from Baby Boomers or the Silent Generation on these scales and, surprisingly, scored lower than Generation X on openness to change and higher on conservation values. Lyons and colleagues did find that Generation X and Y scored higher on self-enhancement values than Baby Boomers and the Silent Generation.

With a similar approach, Cennamo and Gardner (2008) found that younger generations endorsed more importance on status than the older generations, which Cennamo and Gardner noted that
might be related to the career stage of the older generations. It is possible those in later
generations may be at a stage where they no longer feel it is necessary to earn status. Generation
Y reported more value on freedom-related items than Generation X or Baby Boomers, which
supports the common view of Generation Y as valuing autonomy and a work-life balance.

In a study by Wong and colleagues (2008), the researchers compared scores of different
generations on the Motivation Questionnaire and found differences in the degree to which
generations were motivated by affiliation, power, and progression. Generation X and Y were
found to be more motivated by progression than were Baby Boomers. Additionally, Generation
Y was more motivated than Baby Boomers by being in an ‘affiliative workplace,’ or cooperative
workplace. Wong and colleagues also found that Generation Y was less motivated by power
than Generation X, which, in turn, was less motivated by power than Baby Boomers. Similar to
Cennamo and Gardner (2008), Wong and colleagues recognized the challenges in differentiating
generation from other effects and indicated that the differences found might be better explained
by career stage rather than generational differences.

In 2008, Chen and Choi used a cross-sectional design to examine generational differences
in work values within the hospitality industry. These researchers found that Baby Boomers
viewed altruism and intellectual stimulation more than either Generation X or Generation Y.
Generation X endorsed security and independence more than Baby Boomers or Generation Y,
and Generation Y rated economic returns more highly than Baby Boomers of Generation X.
Overall, Chen and Choi’s results indicated that Baby Boomers value personal growth more than
younger generations, whereas Generation Y valued the work environment more than either Baby
Boomers or Generation X. Additionally, Generation Y was less interested in personal growth,
such as intellectual stimulation or achievement, than Baby Boomers or Generation X.
In, perhaps, one of the best studies to provide evidence of generational differences, Smola and Sutton (2002) conducted a study of generational differences in work values and whether or not these changed as workers aged. Smola and Sutton investigated levels of desirability of work outcomes, moral importance of work, and pride in craftsmanship in 1999 Generation X and Baby Boomers and compared levels with those found in 1974. The study results indicated that Generation X was significantly more likely to have a strong desire for quick advancement and did not believe work should be the most important part of a person’s life when compared to Baby Boomers. This supports the stereotypes of Generation X, however Smola and Sutton also found Generation X believed working hard was an indication of one’s worth and that it was important to work hard even when a supervisor is not present. The study findings did indicate that worker’s attitudes changed as they matured, but Smola and Sutton concluded that work values were more influenced by generational experiences than by age or maturation. While this study appears to be strong support of generational differences in work values, it is important to note that it is not without its flaws. For example, different samples of respondents were used in 1974 and in 1999, thus it is difficult to be sure that differences were not due to sample differences.

While the studies above found differences across generations, there are a number of studies that failed to find differences. In a study of 278 public employees, Jurkiewicz and Brown (1998) examined the relative importance of 15 work-related factors and found that the values deemed important by the Silent Generation, Baby Boomers, and Generation X were similar. The employees were generally found to want to progress in regard to income, responsibility, and influence within the company. The researchers suggested that, while the generations may vary outside the work place, it appears that they are similar in what they want from their jobs. In a second study of employees in the public sector, Jurkiewicz (2000) investigated the work-related
differences between Generation X and Baby Boomers and, again, found the generations more alike than different. Using the same 15 work-related factors as the previous study, Jurkiewicz asked participants to rate these factors by degree of importance and found only two significant differences. Baby Boomers endorsed ‘chance to learn new things’ and ‘freedom from pressures to conform’ significantly higher than Generation X, which is contrary to common stereotypes about these generations. Additionally, Generation X rated ‘freedom from supervision’ significantly higher than Baby Boomers did, which does support the common stereotype of Generation X.

Additionally, Appelbaum and colleagues (2005) found few differences between Baby Boomers and Generation X in their study of the factors that are stereotypically understood to motivate these two generations. Both generations ranked a high salary and secure future as the most important motivational factors. Finally, Parker and Chusmir (1990) were able to find some differences in work values across generations, with significant results on five of the eighteen work values they examined. However, Parker and Chusmir failed to find significant differences between generations on work values that they found the most and least important.

**Qualitative Studies.** Some researchers have undertaken a more in depth analysis of generations through qualitative research. Gursoy and colleagues (2008) held in depth focus groups with 91 employees to investigate the characteristics that defined each generation and found the biggest differences to be regarding attitudes toward authority and the perceived importance of work in one’s life. Baby Boomers were found to respect hierarchy and were found to live to work, but were resistant to using technology or learning new things. Generation X placed more importance on working to live and was motivated by instant gratification; expecting to be rewarded quickly for good work. Generation X generally enjoyed independence,
flexible work schedules, and a fun office environment. Last, Generation Y was found to believe in teamwork, be optimistic, take technology for granted, and trust authority. Like Generation X, Generation Y preferred to keep their career options open rather than pledge allegiance to one company for long periods of time. These findings support generational differences and the general stereotypes about these generations, however the generalizability is unclear due to the small sample size.

In another qualitative study, Kunreuther (2003) interviewed three age cohorts of employees in non-profit organizations and found that both older and younger workers had many similar qualities. While there were some differences between Baby Boomers and Generation X in motivation to work, concerns about work-life balance, and views about the future, the overall results refute the idea of generational differences. Again, however, there is a caution in the generalizability of this information because it is a small sample size.

Some researchers have chosen to examine Generation Y and their work-related values in isolation. Although the results of these studies do not inform generational differences, they can provide some helpful insights into the values of this generation. Broadbridge and colleagues (2007) conducted interviews with potential employees in the retail sector and found that they reported values regarding working for personal enjoyment and career success, working in a supportive environment, and having access to training. This is similar to stereotypes of Generation Y. Additionally, Terjesen and colleagues (2007) interviewed university students and found that Generation Y individuals were interested in organizations that invested in training, that cared about their employees, and that provided clear opportunities for career advancement. In this study, Generation Y members also endorsed valuing an organization that allowed variety in daily work and had a forward-looking approach. As with studies mentioned above, the studies
of Terjesen and colleagues (2007) and Broadbridge and colleagues (2007) only include about 30 participants and are difficult to generalize to a larger population.

**Work Values and Donald Super’s Life-Span, Life-Space Theory**

Donald Super’s Life-Span, Life-Space Theory impressively pulls together the content, processes, and outcomes of career choice and development throughout the human life course. This theory has ranked among the dominant theories of career choice and development for over 60 years (Hartung, 2013). This model is applicable for counselors working with children, adolescents, and adults in order to learn attitude, beliefs, and competencies necessary for successful career planning, exploration, decision-making and choice (Savickas, 2005; Super, 1983). Super’s Life-Span, Life-Space Theory is, within itself, an exercise in integration and attention to the whole person. Its preeminent influence within the career counseling profession is evident in the number of concepts that also pervade later theoretical and applied work, most notably the theory and practice of career construction (Savickas, 2005). The importance and centrality of this theory cannot be understated and Hartung (2013) asserts that “…without question, the theory [Life-Span, Life-Space Theory] ranks, along with the theory of vocational personalities and work environments (Holland, 1997)…as one of the two most influential, empirically supported, and widely applied career theories in the history of vocational psychology and career development” (p.84).

Super’s theory was sparked from the Career Pattern Study (Super, 1985); a momentous study that followed the career development of eighth and ninth-grade boys for over twenty years. From there, Super’s theory evolved over a 40 year time period and is a vast synthesis of several other influential theories of his time, incorporated with Super’s own unique vocational observations and research (Niles & Harris-Bowlsbey, 2013). For Donald Super, it was clear that
describing a process as complex as career development required integrating and extending the existing work of scholars from various disciplines (Niles & Harris-Bowlsbey). Super’s theory is differential, developmental, social, and phenomenological (Super, 1969). In other words, Super’s theory seeks to account for the individual differences in individuals, changes over life span career development, the influence of an individual’s environment, and the lived experience of career development.

Rather than develop a unified theory, Donald Super developed his theory segmentally (Niles & Harris-Bowlsbey, 2013). Super (1990) notes that, in one sense, there is no ‘Super’s theory,’ but rather an assemblage of theories he has attempted to synthesize, yet in another sense, the synthesis is the theory. Still, the resulting theory is segmental in nature and includes three key aspects of career development: (a) life span, (b) life space, and (c) self-concept. The theory culminates in an intervention model known as the Career Development Assessment and Counseling (C-DAC) model (Super, Osborne, Walsh, Brown, & Niles, 1992). The C-DAC model translates the various segments into career practice in order to best assist clients.

Prior to discussing the three key segments of Super’s theory, it is important to review the core assumptions proposed by Super (1953, 1990). Super contends that individuals differ in their important self-characteristics and self-concepts, and that these characteristics make them eligible for various occupations. Additionally, Super (1990) assumes that an individual’s career pattern is influenced by context, such as socioeconomic status or community, and by personal factors, such as skills, values, or personality. The Life-Span, Life-Space theory assumes that the change process for each person can be described by specific life stages and that an individual’s readiness to cope with career development tasks is influenced by the level of success they have experienced in coping with previous tasks from earlier stages of career development.
Donald Super’s theory (1990) also builds on the idea that a person’s career development is facilitated by providing developmentally appropriate career interventions, and that career choice involves exploring, developing, and implementing one’s self-concept. According to Niles and Harris-Bowlsbey (2013), the Life-Span, Life-Space theory argues that life satisfaction is dependent on finding life-role opportunities that are consistent with a person’s important characteristics and that reflect his or her preferences, values, and self-concepts. Stated another way, the Life-Span, Life-Space theory places importance on examining how individuals understand themselves and how the importance of different life roles impact their career development.

Super’s assumptions and propositions introduced some fairly novel concepts into the career development literature of the time. Particularly, Super (1990) encouraged the profession to consider the idea that multiple life-role development is important to consider in career development. For example, an individual may be navigating life-role development as a mother, daughter, and worker and experiences in one or all of these roles have the potential to influence career choices or patterns. Additionally, Super’s theory introduced the idea that self-concepts change over time and that making choice and adjustment is a continuous process. The Trait-Factor approach, the predominant theory before Donald Super, described career choice as a single point in time event and was primarily concerned only with individual traits and occupational requirements. Niles and Harris-Bowlsbey (2013) contend that Donald Super can be credited as “the impetus for shifting the paradigm within the field from one that focuses on ‘vocation’ to one that focuses on ‘career’; from one that focuses exclusively on the content of career choice to one that highlights the process of career development over the life span” (p.49).
**Life-Span.** The developmental component of Donald Super’s theory, Life-Span, refers to the career development of the individual over her lifetime and outlines five stages that occur (Super, Savickas, & Super, 1996). Stage one is *Growth*, which typically occurs between ages 4-13, is marked by a beginning sense of self and a basic understanding of the world-of-work. Ideally, children are increasingly able to learn about themselves and work, and use this information to explore educational and occupational-related opportunities. The central goal of the growth stage is the development of autonomy and self-esteem in making decisions.

The second stage of Life-Span is *Exploration*, which typically takes place between ages 14-24. The primary task during this stage is continuing to build upon occupational and self-information that leads to solidifying one's vocational identity and choosing a career. Accurate self-understanding is critical for identifying appropriate occupational preferences, particularly because some options may require further training or education to gain entry. This stage also calls upon developed decision-making skills, in order to choose between occupations, and a willingness to take action toward one’s goals.

Once a career is chosen, individuals move into the third stage, *Establishment*, which is typically between ages 25-45. One task of this stage is stabilizing, which begins immediately after entering an occupation as the person evaluates if the choice is a good fit and allows for adequate self-concept expression. This might include analyzing the organizational culture and the skills demanded. As stabilization increases, the focus shifts toward the task of cultivating a positive reputation and becoming a dependable producer, as called consolidating. Again, as this consolidation increases, the individual may shift their focus to tasks that will improve their chances of advancing. It is important to mention that Super’s theory notes that a person may decide that the occupational choice they made is no longer a good one at any point within this
stage. Should this occur, that person would cycle back to exploration to repeat those tasks toward a more appropriate occupational choice.

The fourth stage, which is typically between the ages of 45-65, is Maintenance. In this stage, workers are often faced with the option of keeping up with advancements in their profession or opting for a change in occupational fields. As mentioned before, should an individual choose to make a change, they would cycle back to exploration or engagement type tasks. Individuals who choose to stay in their chosen occupation but choose not to keep up with advancements or update their skills often stagnate, referred to as holding. On the other hand, individuals who chose to continue updating and innovating often become good mentors to less experienced workers.

The final stage, Disengagement, is marked by an individual’s efforts to reduce work responsibilities and exit the workforce. Workers begin shifting their focus toward physical or financial considerations. Retirement planning is one of the main tasks. The typical age range for this stage is from about age 65 onward.

Super’s theory indicates that, as individuals develop in career awareness and engagement, they move through these stages. Although, it is again important to note that in the case of career change, indecision, or unexpected unemployment, Super believed it is possible to re-cycle back through earlier stages. Therefore, while relative age ranges can be helpful and this process could be a linear one, in all likelihood this will not be the case for most people. Additionally, Niles and Harris-Bowlsbey (2013) suggest considering that individuals can be concerned with multiple career development task and multiple stages simultaneous. For example, a person could be concerned about deciding what they will do need (i.e., exploration) while also being concerned about whether or not they will have the resources to survive financially in retirement (i.e.,
disengagement). These various concerns may lead a person to explore differently than someone who is only concerned with exploration tasks. Understanding the tasks of these stages and considering how individuals may cross multiple stages in their career development informs career practitioners on the kind of support and resources a client with find useful.

**Life-Space.** Life-Space, according to Super, refers to the roles one enacts in the different facets of life. While workers are earning a living they are also living their lives (Super et al., 1996). Super defines eight major life roles: parent, child, student, worker, leisurite, spouse, citizen, and homemaker. These life roles interact so that the same job holds different meanings for two individuals who live in different situations. For example, someone who is a doctor is influenced by the previous roles they have played, such as child, student, worker in previous occupations) and is also influenced by current roles, such as partner, parent, or friend). Due to the various constellation of roles, the way in which the doctor defines work or finds meaning in work may differ from another doctor. The life-space section of Super’s theory acknowledges that people differ in the degree of importance they attach to work and their work identity.

There are various personal and situational factors that influence role choice, developing, coping, and relinquishment of roles. At various times, priority is given to different life roles and it can sometimes be challenging to determine which role requires priority. The Life-Space component of Super’s theory recognizes the pervasive influence of age and life stage on roles and subsequent career development (Gouws, 1995). The Life-Space theory posits that these roles, along with culture, environment, and personal factors, interact in positive, negative, and neutral ways to influence career development and choice.

**Self-Concept.** According to Super (1963) self-concept is a “picture of the self in some role, situation, or position, performing some set of functions, or in some web of relationships”
(p.18). Super (1985) argues that individuals make vocational choices based on their self-concepts; which is defined as the personal understanding of one’s abilities, interests, values, and choices. Self-concept contains both objective and subjective components. Objectively, individuals develop self-understanding by comparing themselves with others. Whereas, subjectively, individuals develop understanding from the life stories they construct and from focusing on their uniqueness. Both the objective and subjective understanding are used to identify appropriate career goals and guides use as we make choices. Additionally, because self-concepts develop and evolve over time, the process of making choices and adjusting to choices is a lifelong task.

**Applying Super’s Theory.** Later in his career, Super increasingly focused on practical application of his theory (Super et al., 1992). As mentioned earlier, Super’s approach is named the Career Development Assessment and Counseling (C-DAC) model. Super translated his theory into practice, in part, through systematic application of career assessments related to each segment of his theory. While these assessments are key elements of the C-DAC model, they are not required for addressing the segments of Super’s theory in career counseling.

The primary emphasis of the C-DAC model is on helping clients handle issues that arise during the exploration stage of the life-span theory segment (Super et al., 1996). While many people associate exploration only with adolescents, Super argued that exploration continues throughout the life-span. Phillips (1982) notes that exploration can be expected in adults who are changing career direction, as well as in adults who are encountering the demands of advancing in the career they have chosen and in which they wish to remain.

For those encountering the exploration stage for the first time, the focus is on clarifying their values, skills, and interests, and connecting these attributes to potential occupations.
Assessments can be very valuable in providing initial career explorers with foundational self-information (Niles & Harris-Bowlsbey, 2013). On the other hand, persons recycling through the exploration stage often use exploratory behaviors to resolve a variety of career issues (Niles et al., 1998) and conversations that help the person learn more about their situation, about themselves, and about what still needs to be learning is valuable (Super, 1983).

**Work values.** Donald Super was one of the first vocational theorists to articulate a compelling argument for including work value assessment into examination of an individual’s vocational characteristics (Super, 1953). Super indicated that work values were an influential component of career choice and later incorporated a discussion of work value impact into his Life-Span, Life-Space theory of career development.

Although work values is not a named segment of Donald Super’s theory, it is an integral component that is woven throughout, and is particularly connected to the application of the theory within the life-space and self-concept segments. For example, one of the common application exercises related to the life-space segment of Donald Super’s theory, called the “Pie of Life,” asks clients to reflect on their life activities within a typical week. Clients are then asked to identify the values that are reflected in this activity and, after listing these values, a conversation ensues regarding how the client feels about the values reflected in this “pie” and where they would like to make changes based on important values that may not have an outlet. The counselor focuses on reinforcing time spent in activities that are congruent with values and explores changes the client can make in activities that do not reflect the client’s value structure.

Additionally, understanding of work values is a central task that fuels the self-concept exploration and crystallization process. Identifying values and the structure of their relative importance can help clients focus their exploration and articulate satisfying life roles.
Super’s Work Values Inventory

Super’s theory also includes one of the first formal assessments of work values with the Work Values Inventory (WVI, Super, 1970), assembled for the Career Pattern Study. This study, undertaken in Middletown, New York, was organized in 1951 to test various hypotheses of Super and his colleagues, including the tasks and activities of different career development stages, work values, and what was later identified as vocational maturity (Patton & Lokan, 2001). The Career Pattern Study, followed 138 eighth grade and 142 ninth grade boys through life stages with follow ups at age 21, age 25, and age 36 (Gysbers, Heppner, & Johnston, 2014).

In its first iteration, this assessment consisted of 210 paired-comparisons of 15 work values: altruism, aesthetics, creativity, intellectual stimulation, independence, achievement, prestige, management, economic returns, security, surroundings, supervisory relations, associates, way of life, and variety. Later, these work values were cast in a Likert-scaled rating format, which proved to be the most reliable (Super, 1973). His instrument was later revised again to update population norms and to rename the values to make them more relatable.


**Achievement.** The achievement value refers to having a job where a worker can see or know that they have accomplished something. An individual who values achievement seeks to have a feeling of success in their workplace or career.
Co-workers. The co-workers value refers to the importance of supportive coworkers that could potentially be friends outside of the workplace. An individual who values co-workers seeks work with co-workers that are enjoyable to work with, helpful, and trustworthy.

Creativity. The creativity value refers to having a job in which the worker can be resourceful and inventive in their work. An individual who values creativity feels fulfilled when they are called upon to come up with new ideas or are able to take a unique approach to their tasks.

Income. The income value refers to having a job that will pay the worker top wage and allow the worker to live the way they want.

Independence. The independence value means that workers on the job prefer to do their work and make decisions on their own. This also includes valuing a job where an individual can be their own boss or where they do not have to report to a boss on a regular basis.

Lifestyle. The lifestyle value refers to having a job that allows the worker to have time for family or friends and provides enough time off for leisure activities. This value highlights the importance of a job that does not compete with the worker’s free time or leisure activities.

Challenge. The challenge value refers to a job that tests what a worker already knows and keeps the worker learning. Individuals who value challenge seek jobs that are not routine and that keep them mentally stimulated.

Prestige. The prestige value means having a job that is important and respected by most people. An individual who values prestige typically seeks to be ‘looked up to’ or admired in the work setting or in social settings.
Security. The security value refers to working for a company that is stable. Additionally, it refers to the importance of having a job where the worker can be confident they will not be laid off.

Supervision. The supervision value involves a job where the supervisor is fair and recognizes the value of the worker. In addition, this value encompasses having a supervisor who demonstrates concern for the worker, who is easy to talk to, and who respects the opinions of the worker.

Variety. The variety value refers to a job that is not routine. Workers who value variety seek a job with a wide range of duties and where they may not be doing the same tasks every day.

Workplace. The workplace value involves being able to have a job where safety is not a concern. Individuals who value workplace seek work environments that are clean, comfortable, and does not risk physical safety.

Super’s theory has strong empirical support and is one of the foundational theories in the career counseling profession. Work values have been found to be a key piece in predicting job satisfaction (Rounds, 1990) and intentions to stay in a job (Hesketh, McLachlan, & Gardner, 1992). Work values have been found to account for significant portions of job satisfaction (Rounds, 1990).

Life-Span, Life-Space Theory and Culture

In addition to strong empirical support, Super’s Life-Span, Life-Space Theory has strong multicultural applicability. Multiple studies have demonstrated the cross-cultural validity of work values (e.g., Brown, 1996; Niles & Goodnough 1996). Multicultural career literature identifies values as a culturally influenced variable that is critical for fully understanding the
meaning of work in the context of people’s lives (Carter, Gushue, & Weitzman, 1994; Fouad & Arbona, 1994). Super’s theory contains constructs found to be more relevant to women and diverse cultural and ethnic groups (Hartung, 2002). It has also been examined to include cultural identity formation as a developmental task for individuals from racial and ethnic minority groups (Arbona, 1995).

**Integrating Work Interests and Work Values**

The relationship between work values and work interests has long been debated. While many have debated whether values inform interests or vice versa (Strong, 1955; Katz, 1993; Thorndike, Weiss, & Dawis, 1968; Leong, Hardin, & Gaylor, 2005), it is widely demonstrated and accepted that the two concepts share a relationship. Career interests and values are two of the most frequently assessed individual difference variables within career counseling (Watkins, Campbell, & Nieberding, 1993). Despite this, there are limitations to evaluating these two variables in isolation and the call for integration of individual differences has been a sustained demand in both career development literature and practice.

Dobson, Gardner, Metz, and Gore (2014) note that a systematic approach to career counseling, which combines information from multiple sources simultaneously, helps clients gain a more complete picture of themselves. For example, in a sample of over 400 adult career counseling clients, Rounds (1990) found that work values added incremental validity to the predicted job satisfaction above what was accounted for by interests alone. Rounds concluded that, since both values and interests play an important role in job satisfaction, both measures should be integrated in career counseling with adults. While many researchers who study individual differences tend to focus on one particular domain, such as personality or abilities, there is broad realization that a more effective understanding of individuals emerges when
multiple areas are examined concurrently (Armstrong & Rounds, 2010; Ackerman & Heggestad, 1997; Lubinski, 2000).

Additionally, multicultural career literature consistently indicates that the traditional emphasis within career counseling on person variables (e.g., interests), to the neglect of environmental variables and contextual variables impedes relevance to various cultural groups. Instruments utilizing Holland’s RIASEC theory have been updated to support the validity of score interpretations in different cultural contexts (Lattimore & Borgen, 1999; Hansen & Campbell, 1994). In addition, a number of studies have supported the cross-cultural validity of work values, since these are prominent environmentally related variables with inherent cultural dimensions that enrich theory and practice (Hartung, 2002; Leong, 1997). The inclusion of values, particularly with Super’s Life-Span, Life-Space Theory as mentioned previously, contains constructs more relevant to women and diverse cultural and ethnic groups (Hartung, 2002). Therefore, the integration of work values with the Atlas Model’s career interest based framework provides for a richer picture of client needs, motivations, and cultural influences.

The Present Study

The Atlas Model of Individual Differences provides an innovative and much needed foundation for integrating individual differences, as well as a cohesive structure for career counseling research and practice. Still, there is more work to do in order to include more individual difference variables. Armstrong and colleagues (2008) were aware of this by concluding their landmark study with a clear call for more research; stating that “...our results represent a starting point for integration. It will be important to expand the range of characteristics incorporated into the atlas...” (p. 15).
Toward answering this call for further research I included work values, particularly through the lens of Super’s theory, into the Atlas theoretical framework with the present study. Work values are a crucial component in predicting job satisfaction (Rounds, 1992), as well as job tenure and intentions to remain in a job (Hesketh, McLachlan, & Gardner, 1992). Additionally, due to contradictory and fairly outdated literature examining potential differences in work values across generations, races, and between genders, I reexamined and updated this information. Due to the widespread emphasis on work values, as well as their crucial nature in career development, both examining work value differences across various demographics and extending the Atlas Model of Individual Differences strengthened the research literature, improved the utility of the Atlas Model for practice, and answered the profession’s call for holism and systematic integration.
CHAPTER THREE: METHODOLOGY

The purpose of this study was to increase the utility of the Atlas Model of Individual Differences (Armstrong, Day, McVay, & Rounds, 2008) by examining the relation of Donald Super’s work values, as assessed by the Super Work Values Inventory - Revised (SWV-r, Zytowski, 2006). I pose three research questions. The first research question highlighted the primary goal of investigating the relationship between Holland’s career interests, which is the basis of the Atlas Model of Individual Differences, and Donald Super’s work values. Additionally, based on a review of the literature, research questions two and three were intended to explore differences in work values across generations, races, and between genders, as well as any potential interaction effects.

**Research Questions**

Research Question 1: What is the relation between career interests as measured by the KCIA-L (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) and work values as measured by the SWVI-R (Achievement, Creativity, Coworkers, Income, Independence, Lifestyle, Challenge, Prestige, Security, Supervision, Variety, and Workplace)?

Research Question 2: Do differences exist in work values across generations (Baby Boomers, Generation X, and Generation Y) and between genders?

Research Question 3: Do differences exist in work values across generations and across races (White, Black or African American, Multiracial, and Other races)?

**Research Design**

Creswell (2014) notes that quantitative methods are the best approach for testing a theory, which is a component of what this study sought to address, therefore a qualitative method was ruled out. Additionally, qualitative research is particularly useful for topics that are new or for a
concept that needs to be explored because little research has been done on it (Creswell, 2014). This is not the case with work values and work interests; both of which have been studied at length since at least the 1970s, thus also eliminating qualitative research as a practical research design for this study. As such, I used a quantitative research approach for this study.

The design of this study was an ex post facto design because it examined relation with non-manipulated independent variable, and because groups have been formed prior to the beginning of this study. Ex post facto, which literally translates to “after the fact” (Heppner, Wampold, & Kivlighan Jr., 2008), is a research design that uses information that already exists and looks backward to attempt to explain how particular independent variables affected dependent variables. The research questions were formed on the basis of the research literature.

In addition, I used a secondary data analysis for this study. Secondary analysis is a methodology for conducting research using pre-existing statistical data (Heaton, 2004). Secondary analysis allows researchers to put data, previously collected for administrative or other research purposes, to additional use (Heaton, 2004). Many government and private organizations collect data as a matter of routine or for their own research purposes and these vast quantities of data provide valuable, though often unexamined information.

There are a number of benefits to secondary data analysis. According to Kiecolt and Nathan (1985), one of the primary advantages is the potential for resource savings by reducing the amount of time, money, or personnel needed to complete research. Using secondary data analysis increases researcher efficiency. Additionally, many data sets span numerous topics and locations, and contain nationally representative samples (Kiecolt & Nathan, 1985). Using existing data allows researchers to build on what is available and gather useful information from existing resources.
Method

Participants

This dataset included a total of 1,965 participants’ data for analysis in this study. Among the participants, 1,133 were female (57.7%) and 832 were male (42.3%). The age range was 13-69 with the majority of the participants (61%) between the ages of 14-19. In terms of ethnicity, 1,550 participants self-identified as non-Hispanic (79.7%), 181 identified as Hispanic (9.2%), 156 participants responded that their ethnicity is unknown (7.9%) and 20 respondents did not answer the question. In terms of race, 1,167 participants self-identified as White (59.4%), 310 identified as Black or African American (15.8%), 44 participants identified as Asian (2.2%), 43 participants indicated they identified as Native Indian or Native Alaskan (2.2%), 116 participants identified as multiple races (5.9%), 5 respondents indicated that they identified as Native Hawaiian or other Pacific Islander, and another 5 respondents indicated that they preferred not to answer the question.

In terms of user type, 992 respondents, which is just over half the sample at 50.5%, identified as a high school student. The next most endorsed category, with 567 respondents, was thinking about going to a postsecondary institution or already attending. Two hundred and fifty-one participants endorsed that they are exploring a change to an entirely different occupation, 66 respondents indicated they are just out of school and looking for their first full time job, 62 respondents indicated they are laid off and/or seeking a job in the same occupation. Eleven respondents identified their user type as veteran or active military, 7 respondents indicated they are an ex-offender, 8 respondents identified their user type as an adult with a disability, and 1 respondent indicated they are a retired person seeking another job or volunteer opportunity.

For educational goals, 573 participants (29.2%) endorsed a bachelor’s degree and their
highest educational goal. After that, the next highest endorsed educational goal was a high school diploma or equivalent with 429 respondents (21.8%) indicating this was their highest educational goal. One hundred and eleven participants indicated that on the job training in a specific occupation or some coursework after high was their highest educational goal, 89 participants indicated a less than 2 year postsecondary degree was their highest educational goal, and 267 endorsed a two to three year associates degree as their highest educational goal. Two hundred and fifty-five participants endorsed a master’s degree as their highest educational goal and 166 participants indicated that a doctorate or professional degree is their highest educational goal. Only two participants indicated that less than a high school graduation was their highest educational goal.

**Instruments**

**Demographic Data.** Demographic information was included in the data set and included gender, birth date, graduation year, ethnicity, race, educational goal, and user type. Demographics also included the zip code, state, and country that the respondent considers their home. While respondent zip codes and states varied, all data was from participants in the United States. Further information for each of these variables is available in the following sections.

**Gender.** This is a nominal variable that the user is able to mark as either male or female.

**Birth date.** Birth date is a continuous variable used to identify participant age and was received in the form of MM/DD/YYYY. From this variable, participant age was calculated as a whole number and age was used for all further analysis rather than birth date.

**Ethnicity.** This is a nominal variable that the user is able to mark as either Hispanic, Non-Hispanic or Unknown.

**Race.** This is a nominal variable that the participant can select based on the race with
which that participant most closely identifies. The respondents’ options for this category are; White, Black or African American, Asian, American Indian or Alaska Native, Hawaiian or Pacific Islander, Multiple Races, or Prefer not to Answer.

**Educational Goal.** This variable indicates the highest level of education the respondent seeks to achieve by the end of their academic career. The responses available for this item include; less than high school graduation, high school graduation or equivalent, on the job training for a specific occupation or some coursework after high school, less than two year postsecondary degree, two to three year associates degree, bachelor’s degree, master’s degree, or doctorate or professional degree.

**User type.** This is a nominal variable that is primarily used by Kuder, Inc. to organize additional content for their program users. Responses for this item are high school student, just out of school and looking for first job, thinking about going to postsecondary institution or already attending, exploring a change to an entirely different occupation, laid off and/or seeking a job in the same occupation, veteran or active military member, ex-offender, a retired person seeking another job or volunteer work, an adult with a disability.

**ZIP code.** This variable is used to identify the location the participant considers their current home. It is a nominal variable reported with a five digit code.

**Kuder Career Interests Assessment- Likert 2015 (KCIA-L).** The KCIA-L aims to determine the level of interest a respondent has in each of the six Holland areas of career interest; realistic, investigative, artistic, social, enterprising, and conventional (Suen, 2015a). These Holland scores can then be used to identify career pathways and could be matched with careers or career clusters in the O*NET database.

Psychometric research for the development of this instrument included numerous steps in
order to ensure reliability, validity, efficiency, and removal of bias. The initial pool of items for the KCIA-L was 168 and was subjected to a panel of 5 career counseling leaders for various judgmental exercises (Suen, 2015a). Next, item-by-item response data from a nationally representative sample of 5,871 United States respondents was examined. Following these analyses, the KCIA-L was narrowed to 60 items; its current amount. Suen notes that these 60 items measure the respondent’s interest in the six Holland areas with high levels of reliability and validity.

Reliability coefficients for the KCIA-L are reported from .89 to .94 (Suen, 2015a). Discrimination values range from .49 to .82. Factor analyses showed that factors accounted for 60.3% of item variance. Differential item functioning (DIF) analyses (polytomous logistic regression, Zumbo-Thomas criterion) were conducted to detect potential gender and race/ethnic biases, with all final items meeting the Zumbo-Thomas criterion of fairness. Formal sensitivity reviews were also conducted to detect possible biases. Items with 20% responses indicating potential concerns were flagged for modification or deletion (Suen, 2015a).

**Super Work Values Inventory Revised (SWVI-r).** The SWVI-r (Zytowski, 2006) measures the relative importance of 12 work values thought to be critical in career development. SWVI-r is a revised version of the original measure (Super, 1970). While the 1970 version presented 15 values, it was later determined that the values Altruism, Aesthetics, and Management substantially overlapped with other values and were therefore dropped from the instrument. The 12 values now assessed by the instrument include; Achievement, Co-workers, Creativity, Income, Independence, Life Style, Challenge, Prestige, Security, Supervision, Variety, and Workplace (Suen, 2015b). The SWVI-r measures each value through a scale of 6 items, for a total of 72 items. Items are scored according to a 5-option Likert type with
descriptive statements ranging from 1 (not important at all, not a factor in my job selection) to 5 (crucial, I would not consider a job without it). Mean scores are obtained by summing the items in each scale and dividing by the number of items (6). Higher scores indicate the participant places greater importance on that particular value. Scale scores are expressed by percentile ranks and norm-referenced. Norms are based on a national proportional stratified sample of 8,785 respondents representative of gender, state, and age (Suen, 2015b).

Reliability coefficients for the SWVI-r are reported from .72 to .88 (Suen, 2015b). Content validity for the SWVI-r has been compiled through numerous sources (Allport, Vernon, & Lindsey, 1970; Hoppock, 1935; Centers, 1948; Darley & Hagenah, 1955; Fryer, 1931; Ginzberg, 1951; and Dawis & Lofquist, 1984). A negative skew is observed for substantive validity but the use of a norm-referenced approach essentially negated this concern. To address structural validity, a principal components analysis was conducted from 2,000 high school students’ response data and two principal components were shown. Generalizability is concluded based on previous research (Super, 1964; Ivy, 1963; Super, 1970).

Procedures

I analyzed a secondary data set from the Kuder, Inc. research database for this study. Prior to receiving data, a protocol was submitted to the Institutional Review Board (IRB) and, because the data contains no identifying information or master code sheet that would allow identities to be determined, a designation of ‘not human subjects’ was made.

Data Analysis

In order to answer research question one and analyze the relations between work interests and work values, canonical correlation analysis (CCA) was used. Canonical analysis is one of the most general of the multivariate techniques and many other procedures, such as multiple
regression, discriminant analysis, and MANOVA, are special cases of it. (Tabachnick & Fidell, 2013). Tabachnick & Fidell (2013) succinctly note that the goal of CCA is to analyze the relationship between two sets of variables. The two sets of variables used in this study were career interests and work values.

Canonical correlation is useful when the underlying dimensions representing the combinations of variables is unknown (Tabachnick & Fidell, 2013). Additionally, Sherry and Henson (2005) note that CCA is most appropriate when a researcher desires to examine the relation between two variables sets, as was the case in this study with work values and work interests. Canonical correlation is often seen as an exploratory technique while Statistical Equation Modeling used as a parallel confirmatory technique (Tabachnick & Fidell, 2013).

There are several advantages to CCA, often due to the fact that it is a multivariate technique. Multivariate techniques, such as CCA, reduce the probability of commitment a Type I error (Thompson, 1991). Increased risk of this error arises when too many statistical tests are performed on the same variables in a data set, with each test possessing its own Type I error risk. Multivariate tests minimize Type I error risk by allowing for simultaneous comparison among variables rather than conducting several statistical tests (Sherry & Henson, 2005).

Another strength of a multivariate technique such as CCA is that it might best honor the reality of psychological research (Sherry & Hensen, 2005). Important relationships can be missed through univariate methods since most variables have multiple causes and multiple effects. A multivariate approach avoids distorting the complex reality of the world and allows various relationships to be analyzed simultaneously.

A third strength worth mentioning, and one particular to CCA, is its comprehensive nature. CCA can be used instead of other parametric tests in many instances. Henson (2000) and
Thompson (1991) demonstrated that almost all parametric tests more often used (e.g., ANOVA, MANOVA, multiple regression, Pearson correlation, \( t \) test, discriminant analysis) can be subsumed by CCA as special cases in the general linear model. This should not be understood to indicate that CCA should always be used rather than these other methods, rather, this indicates that these techniques are related and CCA may be more appropriate than some of these analytic techniques in some cases.

Last, Tabachnick and Fidell (2013) note that much of the benefit in canonical correlation analysis lies in its introduction to the notion of dimensionality. I consider the use of canonical correlation a first step in exploring the appropriateness of an analysis akin to the multidimensional scaling techniques used by Armstrong and colleagues (2008) to generate the Atlas Model of Individual Differences.

There are some limitations of canonical correlation that are worth noting. Tabachnick and Fidell (2013) note that interpretability is sometimes a crucial one because procedures that maximize correlation, as canonical does, do not necessarily maximize interpretation of pairs of canonical variates. While some analyses, such as factor analysis, circumvent this challenge by rotating solutions to improve interpretation, rotation of canonical variates is not common and is not possible in many computer programs (Tabachnick & Fidell, 2013).

Another limitation is that canonical correlation maximizes the linear relationship between two sets of variables and, if the relationship is nonlinear, the analysis can miss most of it (Tabachnick & Fidell, 2013). This was not a limitation with this particular data set because relationships were shown to be linear during initial analyses. Also, there is a challenge with canonical correlation in terms of the sensitivity of the solution in on set of variables to the variables in the other set. The solution depends on correlations among and between variables in
the sets. Changing variables in one set may drastically alter the composition of canonical variates in the other set (Tabachnick & Fidell, 2013). This is expected to some extent, yet the sensitivity of the procedure to seemingly minor changes can be cause for concern. This was not a concern with this particular analysis as no changes were made to the sets.

For research question two and three, a MANOVA was conducted through SPSS. The primary approach for handling missing data is listwise deletion, however missing data were handled differently for each research question and is discussed in more detail in Chapter 4. Listwise deletion means that cases that are missing key variables in the proposed model were dropped from the analysis and only complete cases are analyzed (Pigott, 2001). In using listwise deletion, researchers assume that complete cases are a random sample of the targeted sample (Pigott, 2001). This assumption was made for this study because the sample size was very large and, even with listwise deletion, the results had sufficient power and represented the targeted population.

For research question two and three, I used MANOVA, which allows for the testing of multiple independent and dependent variables. Post hoc tests were conducted to collect more information in cases where significant was found. MANOVA has several advantages over ANOVA. First, it can protect against Type I errors that may occur if many ANOVAs were conducted independently. Second, studying various factors increases the model’s efficiency and eases the researcher’s ability to determine which factors are important.

It is important to note that, though the present research design was an appropriate choice for this study, there were disadvantages. One drawback is that, MANOVA and multidimensional scaling can illuminate significant relationships and differences; however they cannot indicate causation (Cohen, Cohen, & West, 2010; Kruskal & Wish, 1978). Also, MANOVA is a more
complicated design than ANOVA, and can therefore increase the ambiguity about which independent variable affects each dependent variable. This causes the researcher to make potentially subjective assumptions (Tabachnik & Fidell, 2012). Additionally, one degree of freedom is lost for each dependent variable that is added. It is important for the dependent variables to be largely uncorrelated. If the dependent variables are highly correlated, there is little advantage in including more than one in the test given the resulting loss in degrees of freedom (Tabachnik & Fidell, 2012).

Additionally, a qualitative method often generates detailed and personalized information about lived experiences that is not captured by quantitative methods. Despite these limitations, use of multidimensional scaling and MANOVA was the best fit for this study based on a review of the literature, the type of data available to be analyzed, and as an initial test of a contemporary theory.

There are some threats to internal and external validity that are important to note. Some confounding variables that could have affected internal validity included truthfulness of responses given by participants, participant’s motives or secondary gains, and administration issues with the assessments. Another limit to internal validity is the issue of method variance, since the variables of work values and work interests are both measured by the same means; self-report assessments. A threat to external validity is that the majority of participants in the data set are from Midwestern states. This issue of participant location may limit generalizability to participants in alternate geolocations.

Despite the threats mentioned above, there are a number of strengths in this study related to internal and external validity. The sample size was very large, which allows for robust statistical analyses and for appropriate population representation. Additionally, widely used
instruments (SWVI-r and KCLA-L) that have strong psychometric properties were used in this study. Occupational reinforcers, a concept closely tied to values, has previously been examined in relation to the Atlas Model. However, in this study I integrated Super’s work values into the Atlas Model; a concept that is more prevalently applied and researched, therefore increasing the ability to generalize the results and the model.
CHAPTER FOUR: RESULTS

This chapter contains information on the results of preliminary data analysis, descriptive statistics, bivariate analysis, canonical correlation, and MANOVA analysis.

Preliminary Analysis

Data Cleaning

Data were received from Kuder, Inc. While data from Kuder, Inc. undergoes examination and cleaning by research employees, I still examined the data independently to ensure respondents had completed at least 70% of the survey. Additionally, I examined responses to the KCIA-L and SWVI-r to ensure that all responses were reported on a 1-5 Likert scale as indicated by these measures.

Missing Data

In the secondary data set that was provided for this study, all respondents had completed at least 70% of the survey items. Overall, there are few missing values. For the demographic variables, 58 respondents did not respond regarding their ethnicity (Hispanic, Non-Hispanic, or Unknown). Two hundred and eighty respondents did not respond regarding their racial ethnicity (White, Black, Asian, Native Indian or Native Alaskan, Native Hawaiian or Other Pacific Islander, Multiple Races). Finally, 73 respondents did not respond to the question about their educational goals. All respondents in the data set responded to demographic questions regarding their gender, age, and user type. There were no missing responses for any of the items on the KCIA-L or the SWVI-r.

Univariate Analysis

The distribution and normality of each variable was examined to ensure that assumptions for the MANOVA and canonical correlation analysis were met. For MANOVA and canonical
correlation analysis, Tabachnick and Fidell (2013) suggest examining for normality, linearity, and homoscedasticity to determine if each variable is normally distributed, if the relationships between pairs of variables are linear, and if the variance of each variable is the same at all levels of independent variables. However, Tabachnick and Fidell (2013) note that there is no requirement that variables be normally distributed in a canonical analysis but the procedure is enhanced when they are. Linearity is particularly important in canonical analysis because this analysis maximizes the linear relationship between a variate from one set of variables and a variate from another set, thus canonical analysis does not capture potential nonlinear elements of relationships between variates (Tabachnick & Fidell, 2013). Finally, it is beneficial for both analyses that variables are not too highly correlated (i.e., multicollinearity).

**Testing Assumptions**

It is important for both analyses that the data should not have extreme outliers, the dependent variable should be approximately normally distributed, and there should be homogeneity of variances (Kirk, 2013). Histograms and boxplots were produced to check the outliers for each group. Four responses were found to be substantial outliers and original survey responses were examined. It appeared that these four respondents may have had disingenuous responses because all responses on both the KCIA-L and the SWVI-r were a 1 on the Likert scale (i.e. ‘strongly disagree’). A two-way MANOVA was run with and without these four outliers and some differences in significant results were found, therefore these four outliers were not included in any further analysis.

As suggested by Tabachnick and Fidell (2013), this sample was examined for linearity, normality, and homoscedasticity. In order to determine if the relationships between pairs of variables are linear (i.e., linearity) a matrix scatterplot was examined and a linear relationship
was found between the dependent variables. In order to assess homoscedasticity, which is the
principle where the variance of each variable is the same at all levels of other independent
variables, bivariate correlation was conducted. As shown in Table 1, dependent variables were
moderately correlated, which is ideal for a MANOVA analysis, as well as a canonical correlation
analysis, and there was no evidence of multicollinearity because no correlations were high (at 0.9
or greater) (Tabachnick & Fidell, 2013).

Table 1

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<th>Variables</th>
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<td>11. Variety</td>
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Note. ** Correlation is significant at the 0.01 level (2-tailed).

To assess normality, a Shapiro-Wilk test was conducted on the scales for each of the
twelve work values (i.e., the dependent variables). The following scales were found to be
normally distributed; Creativity, Coworkers, Independence, Prestige and Variety, as assessed by
the Shapiro-Wilk’s test (p > .05). The remaining seven scales; Achievement, Income, Lifestyle, Challenge, Security, Supervision, Workplace, were found to violate normality as assessed by the Shapiro-Wilk’s test (p < .05). The values for these scales were examined and it is worth noting that four of these scales (Income, Challenge, Supervision, and Workplace) were just below a significant level. I determined that no transformation was needed because MANOVA is fairly robust to deviations in normality with respect to Type I error (Bray & Maxwell, 1985).

Univariate outliers were examined through box plots and it was found that there were some outliers found on a few of the scales. Through this examination of outliers four extreme outliers were found and these responses were examined in more detail. I found that these four respondents selected a 1 on the Likert scale across all items on both the KCIA-L and SWVI-r, appearing to indicate that they strongly did not resonate with any interest item or value item. I determined that these four respondents be removed from further analysis because their responses were such extreme deviations and appeared to be disingenuous. The remaining outliers were not extreme, were examined further, and I deemed it inappropriate to exclude them from analysis as they appeared to be genuine responses and important data to examine. This left a sample size of 1,960 participants for all further analyses.

Finally, MANOVA assumes that the variances and covariances of the dependent variables in each cell of the design are equal in the population, therefore a Box’s M test was conducted to test if this assumption was met or violated. The homogeneity of covariance matrices was violated as assessed by Box’s M test (p < .001). Box’s M test is known to be very sensitive when there is a violation of multivariate normality, resulting in statistical significance due to non-normality rather than due to unequal covariance matrices (Rencher & Christensen, 2012). Because respondents who violated multivariate normality tests were included in the
analyzed sample, their scores could be affecting Box’s M and causing significance rather than true unequal covariance matrices. Additionally, Rencher and Christensen (2012) note that Box’s M test is sensitive to flagging covariance matrices as unequal with large sample sizes when they are not actually unequal. The sample used in this study is a large size and could also be affecting Box’s M test. MANOVA is considered robust to violation of the assumption of equal variance and covariance as long as sample sizes are fairly balanced within each group. The sample sizes for each of the generation groups is not well balanced, therefore Pillai’s Trace criterion will be reported for significance values, rather than the more common Wilks’ Lambda, because Pillai’s Trace is more robust to equal covariance matrices and is more conservative in situations where sample sizes are unequal across groups (Olsen, 1976).

Homogeneity of variance was assessed using Levene’s Test of Homogeneity of Variance. No dependent variables violated this assumption, as all scales had a significance level greater than .05. Therefore, the assumption of homogeneity of variance was met for all dependent variable scales.

**Bivariate Analysis**

Bivariate correlations were calculated for demographic variables, the independent variables of generation with its three levels, and the dependent variable with its twelve subscales. Table 2 presents the correlation matrix for all the variables analyzed in this study, including demographic variables, independent variables, and dependent variables. Table 3 shows the correlation matrix for the independent variables and dependent variables in research question one. Table 4 shows the correlation matrix for the independent and dependent variables in research question two, and Table 5 shows the correlation matrix for the independent and dependent variables in research question three.
### Table 2

**Correlations for Career Interests (IV) and Work Values (DV) for Research Question 1**

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*Note.* *. Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed).

### Table 3

**Correlations for Gender and Generation (IVs) and Work Values (DV) for Research Question 2**

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**Note.** *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).
The correlation coefficients for demographic variables, independent variables, and dependent variables were examined. There are several high correlations, particularly among scales on the SWVI-r, among scales on the KCIA-L, and between these two scales. For example, the Realistic scale, Artistic scale, and Social scale are all moderately to highly correlated, but not correlated with the Investigative, Enterprising, and Conventional scale. This is appropriate in relation to the theory behind this scale (Holland, 1997). Additionally, with the scales on the SWVI-r, there are moderate to strong correlations between all of the scales, again, which fit appropriately with the theory behind the measure (Super, 1990). Last, between most scales of the KCIA-L and the SWVI-r there are strong to moderate correlations.

Analysis was also conducted to test for multivariate outliers. Multivariate outliers are data points that have unusual combinations of values on the dependent variables. According to Tabachncik and Fidell (2013), MANOVA is sensitive to both univariate and multivariate outliers, therefore it is important to examine these cases. A Mahalanobis distance was used to determine whether any particular cases might be a multivariate outlier. The resulting Mahalanobis distance was compared against the value of chi square distribution with degrees of freedom equal to the number of dependent variables (12) and an alpha level of .001 (Tabachnick and Fidell, 2013). For twelve dependent variables, the cutoff value for a Mahalanobis distance for this alpha level is 32.91. Seventy-eight cases were found to be higher than the 32.91 cut-off score. These seventy-eight cases were further examined and there was no evidence of data entry error or measurement error. These seventy-eight cases appear to be genuine unusual responses and, after deliberation, I determined that these cases would remain in the analysis.

**Correlations between Independent and Dependent Variables**

I examined correlations between independent variables (generation and gender) and
dependent variables (12 work value scales) for the first MANOVA analysis (See Table 4).

Gender was found to have strong significant correlations with the dependent variable Income scale ($r = .082$), Independence scale ($r = .100$), Supervision scale ($r = .119$), and Workplace scale ($r = .174$) with a significance level of $p < .001$. Gender also had moderate correlations with the dependent variables Achievement ($r = .58, p = .010$) and Creativity ($r = .057, p = .011$).

There was no significant correlation between gender and the dependent variables Coworkers scale, Lifestyle scale, Challenge scale, Prestige scale, Security scale, and Variety scale. For the independent variable generation, there was a strong significant correlation with the dependent variables Achievement scale ($r = .074, p = .001$), Coworkers scale ($r = .061, p = .007$), Independence scale ($r = .085, p < .001$), Challenge scale ($r = .063, p = .005$), Prestige scale ($r = .142, p < .001$), Variety scale ($r = .067, p = .003$), and Workplace scale ($r = .064, p = .004$).

Additionally, there was a moderate correlation found between generation and the dependent variables Creativity scale ($r = .045, p = .046$) and Lifestyle Scale ($r = .047, p = .038$) There was no significant correlation found between generation and the dependent variables Supervision scale, Variety scale, and Income scale.

In regard to the second MANOVA analysis, I examined the correlations between the independent variables (generation and race) and the dependent variables (12 work value scales) (See Table 5). Generation remained correlated at the levels indicated in the previous paragraph. Race was found to have a significant strong correlation with the dependent variables Creativity scale ($r = .116, p < .001$), Challenge scale ($r = .068, p = .004$), and Workplace ($r = .065, p = .006$). Significant moderate correlations were also found for the dependent variables Income scale ($r = .061, p = .011$) and Independence scale ($r = .061, p = .011$). No significant correlations were found for the dependent variables Achievement scale, Coworkers scale,
Lifestyle scale, Prestige scale, Supervision scale, and Workplace scale.

**Analysis of Work Values between Genders**

As discussed in the literature review, contradictory research, and outdated research, exists regarding gender differences in work values. Due to the inconsistency of findings concerning gender and work values, initial analyses were performed to examine gender differences across work values in the current sample. Twelve separate independent samples t-tests were run to determine if there were differences in work values between men (n = 827) and women (n = 1133), which can be viewed in Table 6. No statistically significant differences were found between men and women for the values Lifestyle, Challenge, Prestige, Variety, Coworkers, and Security. Results of the analysis supported statistically significant gender differences for the work values Achievement, Creativity, Income, Independence, Supervision, and Workplace. Women were found to endorse greater importance on Achievement than men, \( t(1958) = 2.563, p = .010 \). Men were found to place a greater importance on Creativity than women, \( t(1958) = 2.532, p = .011 \). Results showed that men placed greater importance on the Income as a work value than did women, \( t(1958) = 3.622, p < .001 \). A statistically significant difference was found between men and women on the work value of Independence, with men placing more importance on this value than women, \( t(1958) = 4.427, p < .001 \). Women endorsed the value of Supervision as more importance than did men, \( t(1958) = 5.228, p < .001 \). Finally, women placed greater importance on the Workplace value than did men, \( t(1958) = 7.818, p < .001 \).
Table 5

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<th>Independent Samples Test with Gender (IV) and Work Values (DV)</th>
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Analysis of Work Values across Races

As mentioned in the literature review, research is unclear on the racial difference in work values. Due to the inconsistency of finding, initial analyses were performed to examine race differences across work values in the current sample. Separate one way-ANOVAs were conducted to examine the differences in work values across different ethnicities (Hispanic, non-Hispanic, and Unknown), and across different races (White, Black or African American, Multiple Races, and Other races).

Table 6

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<td>Independence Scale</td>
<td>.894</td>
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<td>Lifestyle Scale</td>
<td>.113</td>
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<tr>
<td>Challenge Scale</td>
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<tr>
<td>Prestige Scale</td>
<td>1.590</td>
</tr>
<tr>
<td>Security Scale</td>
<td>2.655</td>
</tr>
<tr>
<td>Supervision Scale</td>
<td>1.452</td>
</tr>
<tr>
<td>Variety Scale</td>
<td>.842</td>
</tr>
<tr>
<td>Workplace Scale</td>
<td>.386</td>
</tr>
</tbody>
</table>

For the one-way ANOVA examining differences in work values across Hispanic (n = 179), Non-Hispanic (n = 1549), and Unknown (155) ethnicities, the Welch ANOVA was used because the assumption of homogeneity of variances was violated, (see Table 7). No statistically significant differences between Hispanic, non-Hispanic, and Unknown ethnicity participants was found in the Welch ANOVA for the work values Achievement, Coworkers, Income, Independence, Lifestyle, Challenge, Prestige, Security, Supervision, Variety, and Workplace. However, the work value Creativity was found to be statistically significantly different across Hispanic, non-Hispanic, and Unknown ethnicity participant groups, Welch’s $F(3, 184.814) = 4.863$, $p = .003$. The Games-Howell post hoc test was used to evaluate differences more specifically. The mean score in the Hispanic ethnicity group is 1.327 higher than the mean score of the non-Hispanic ethnicity group (95% CI .4 – 2.3), which was statistically significant ($p =$...
Next a one-way ANOVA examining the differences in work values across White (n = 1165), Black or African American (310), Multiple Races (116), and Other (364) racial groups was conducted (See Table 8). The ‘Other’ racial group includes participants who identified as Asian, Native Hawaiian or Other Pacific Islander, and Native Indian or Native Alaskan. The 6 participants that selected ‘Prefer not to Answer’ when asked for their racial identity were excluded from this particular analysis. No statistically significant differences were found across White, Black or African American, Multiple Races, or Other racial groups for the work values Coworkers, Lifestyle, and Supervision. The standard ANOVA results were analyzed for the Creativity, Coworkers, Income, Independence, Lifestyle, Variety, and Workplace scale because the assumption of homogeneity of variance was met. When statistically significant results were found in the standard ANOVA results, the Tukey-Kramer post hoc test was used to further evaluate these differences.

Table 7

*One Way ANOVA Results for Race (IV) and Work Values (DV)*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement Scale</td>
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<td>513.422</td>
<td>7</td>
<td>73.346</td>
<td>3.654</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>39178.434</td>
<td>1952</td>
<td>20.071</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>39691.857</td>
<td>1959</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creativity Scale</td>
<td>Between Groups</td>
<td>2257.091</td>
<td>7</td>
<td>322.442</td>
<td>11.394</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>55238.725</td>
<td>1952</td>
<td>28.299</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>57495.816</td>
<td>1959</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coworkers Scale</td>
<td>Between Groups</td>
<td>193.881</td>
<td>7</td>
<td>27.697</td>
<td>1.250</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>43240.792</td>
<td>1952</td>
<td>22.152</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43434.673</td>
<td>1959</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Scale</td>
<td>Between Groups</td>
<td>817.635</td>
<td>7</td>
<td>116.805</td>
<td>4.494</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>50734.650</td>
<td>1952</td>
<td>25.991</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>51552.285</td>
<td>1959</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independence Scale</td>
<td>Between Groups</td>
<td>1026.919</td>
<td>7</td>
<td>146.703</td>
<td>6.851</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>41799.691</td>
<td>1952</td>
<td>21.414</td>
<td></td>
</tr>
<tr>
<td>Scale</td>
<td>Total (1959)</td>
<td>Between Groups</td>
<td>Within Groups</td>
<td>Within Groups</td>
<td>Between Groups</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------</td>
<td>----------------</td>
<td>---------------</td>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Lifestyle Scale</td>
<td>42826.610</td>
<td>62.667</td>
<td>36955.471</td>
<td>37018.138</td>
<td>1959</td>
</tr>
<tr>
<td>Challenge Scale</td>
<td>1959</td>
<td>1027.926</td>
<td>41092.604</td>
<td>42120.530</td>
<td></td>
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<tr>
<td>Prestige Scale</td>
<td>37018.138</td>
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<td></td>
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</tr>
<tr>
<td>Security Scale</td>
<td>1959</td>
<td>643.633</td>
<td>48701.477</td>
<td>49345.110</td>
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<tr>
<td>Supervision Scale</td>
<td>1959</td>
<td>387.123</td>
<td>39739.835</td>
<td>40126.959</td>
<td></td>
</tr>
<tr>
<td>Variety Scale</td>
<td>1959</td>
<td>223.930</td>
<td>40816.966</td>
<td>41040.896</td>
<td></td>
</tr>
<tr>
<td>Workplace Scale</td>
<td>1959</td>
<td>735.605</td>
<td>45106.621</td>
<td>45842.227</td>
<td></td>
</tr>
</tbody>
</table>

Statistically significant differences in importance were found across races for the work value Creativity $F (3, 1951) = 24.579$, $p < .001$. The Other racial group placed more importance on Creativity than Whites with a mean difference of 1.540 that was statistically significant (CI 95%, 0.72 to 2.36, $p < .001$). Black or African Americans also placed significantly more importance on Creativity than Whites with a mean difference of 2.718 (CI 95%, 1.84 to 3.59, $p < .001$), significantly more importance than Multiple Races with a mean difference of 1.846 (CI 95% .36 to 3.33, $p = .008$), and significantly more importance than the Other racial group with a mean difference of 1.178 (CI 95%, .12 to 2.23, $p = .022$).

A statistically significant difference was also found across races for the work value Income, $F (3,1951) = 9.323$, $p < .001$. Similar to the value of creativity, Black or African
Americans were found to place significantly more importance on Income than all other races with a significant mean difference between Whites of 1.688 (CI 95% .85 to 2.52, p < .001), a significant mean difference between Multiple Races of 1.576 (CI 95% .15 to 3.00, p = .023), and a significant mean difference between Other races of 1.079 (CI 95% .07 to 2.09, p = .031).

Another statistically significant difference was found across races for the work value Independence, $F(3, 1951) = 14.857, p < .001$. Black or African Americans were found to value Independence more than Whites with a mean difference of 1.939 (CI 95% 1.18 to 2.70) that was statistically significant (p < .001). Black or African Americans were also found to value Independence more than the Other racial group with a mean difference of 1.233 (CI 95% .31 to 2.15) that was statistically significant (p = .003).

Additionally, a statistically significant difference was found across races for the work value Variety $F(3, 1951) = 9.573, p < .001$. Black or African Americans endorsed more importance of Variety than Whites with a mean difference of 1.622 (95% CI .83 to 2.41) that was statistically significant (p < .001). Black or African Americans also endorsed more importance of Variety than the Other racial group with a mean difference of 1.031 (CI 95% .08 to 1.99) that was statistically significant (p = .028).

A statistically significant difference was found across races for the work value Workplace $F(3, 1951) = 5.002, p = .002$. Similar to the value of Creativity and Income, Black or African Americans were found to place significantly more importance on Workplace than all other races with a significant mean difference between Whites of 1.060 (CI 95% .31 to 1.81, p = .002), a significant mean difference between Multiple Races of 1.316 (CI 95% .04 to 2.59, p = .040), and a significant mean difference between Other races of 1.065 (CI 95% .16 to 1.97, p = .013).

The Welch ANOVA was also used to analyze the Achievement, Challenge, Prestige,
Security, and Supervision scales because these violated the test of homogeneity of variances. When statistically significant results were found in the Welch’s ANOVA, the Games-Howell post hoc test was used to further evaluate the differences between specific groups. A significant difference was found across races for the work value Achievement, Welch’s $F(3, 415.714) = 9.365, p < .001$. Black or African Americans endorsed more importance of the value Achievement than any other racial groups with a mean difference of 1.339 (CI 95% .67 to 2.01) compared to Whites that was statistically significant ($p < .001$), a mean difference of 1.410 (CI 95% .12 to 2.70) compared to multiple races that was statistically significant ($p = .026$), and a mean difference of 1.321 (CI 95% .44 to 2.20) compared to the Other racial group that was statistically significant ($p = .001$).

A significant difference was also found across races for the work value Challenge, Welch’s $F(3, 423.899) = 18.246, p < .001$. Similar to the work value Achievement, Black or African Americans endorsed more importance of Challenge than any other racial group. Black or African Americans endorsed more importance of the value Challenge than Whites with a mean difference of 1.958 (CI 95% 1.28 to 2.64) that was statistically significant ($p < .001$), endorsed more importance of Challenge than Multiple Races with a mean difference of 1.369 (CI 95% .15 to 2.58) that was statistically significant ($p = .020$), and endorsed more importance of Challenge than the Other racial group with a mean difference of 1.580 (CI 95% 1.28 to 2.64) that was statistically significant ($p < .001$).

Additionally, a significant difference was found across races for the work value Prestige, Welch’s $F(3, 418.446) = 7.213, p < .001$. Black or African Americans reported higher importance of the value Prestige than Whites with a mean difference of 1.392 (CI 95% .62 to 2.16) that was statistically significant ($p < .001$). Black or African Americans also endorsed a
higher importance of Prestige than the Other racial group with a mean difference of 1.148 (CI 95% .16 to 2.14) that was statistically significant (p = .016).

Finally, a significant difference was found across races for the work value Security, Welch’s F(3, 405.171) = 4.200, p = .006. Whites reported more importance on the value Security than the Other racial group with a mean difference of .839 (CI 95% .10 to 1.58) that was statistically significant (p = .018). Black or African Americans also reported more importance of Security than the Other racial group with a mean difference of 1.198 (CI 95% .26 to 2.13) that was statistically significant (p = .005).

**Canonical Correlation Analysis**

**Research Question 1**

A canonical correlation analysis was conducted to examine the relationship between work interests (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) and work values (Achievement, Creativity, Coworkers, Income, Independence, Lifestyle, Challenge, Prestige, Security, Supervision, Variety, and Workplace). The six work interest variables were used as predictors of the 12 work values to evaluate the multivariate shared relationship between the two variable sets. The analysis yielded six functions with squared canonical correlations ($R^2_c$) of .178, .130, .099, .088, .037, and .016 for each successive function. Overall, the full model across all functions was statistically significant, Wilks $\lambda = .557$ criterion, $F(72, 10571.43) = 16.686, p < .001$. Wilk’s $\lambda$ represents the variance unexplained by the model, therefore $1-\lambda$ produces the full model effect size in an $r^2$ metric. Thus, for the set of six canonical functions, the $r^2$ type effect size was .443. This indicates that the model explained a substantial portion of the variance shared between the variable sets, about 44%.

The dimension reduction analysis allowed me to investigate the hierarchal arrangement
of functions for statistical significance. As noted above, the full model was statistically significant. In addition, each dimension reduction analysis was statistically significant. Function 1 to 6 was statistically significant, $F(72, 10571.43) = 16.686, p < .001$. Function 2 to 6 was statistically significant, $F(55, 8997.29) = 14.363, p < .001$. Function 3 to 6 was also statistically significant, $F(40, 7373.28) = 12.566, p < .001$. Function 4 to 6 was found to be statistically significant, $F(27, 5681.05) = 10.797, p < .001$. Function 5 to 6 was statistically significant, $F(16, 3892) = 6.662, p < .001$. Finally, Function 6, which was the only function that was tested in isolation, was statistically significant as well, $F(7, 1947) = 4.588, p < .001$.

Table 8

| Summary of Results for Canonical Correlation Analysis |
|-----------------------------------------------|--------|---------|--------|---------|
|                                | Function 1 |        | Function 2 |        |
| Variable                      | Coeff.    | $r_s$  | $r_s^2$ (%) | Coeff.    | $r_s$  | $r_s^2$ (%) | $h^2$ (%) |
| Realistic Scale               | -.638     | .796   | 63.36     | -.628     | -      | 11.29     | 74.6      |
| Investigative Scale           | -.074     | .353   | 12.46     | .440      | .464   | 21.53     | 34.0      |
| Artistic                      | .042      | .239   | 5.71      | -.257     | .139   | 1.93      | 7.64      |
| Social Scale                  | .349      | -.157  | 2.46      | .221      | .562   | 31.58     | 34.0      |
| Enterprising Scale            | -.721     | .656   | 43.03     | .521      | .646   | 41.73     | 84.8      |
| Conventional Scale            | .157      | .329   | 10.82     | .301      | .529   | 27.98     | 38.8      |
| $R^2_c$                       | .178      | .130   | . .       | . .       | . .    | . .       | . .       |
| Achievement Scale             | -.013     | .201   | 4.04      | .491      | .738   | 54.46     | 58.5      |
| Creativity Scale              | -.499     | .541   | 29.27     | .033      | .434   | 18.83     | 48.1      |
| Coworkers Scale               | .152      | -.030  | .09       | -.384     | .290   | 8.41      | 8.5       |
| Income Scale                  | -.467     | .312   | 9.73      | .055      | .391   | 15.29     | 25.0      |
| Independence Scale            | -.290     | .477   | 22.75     | -.549     | .261   | 6.81      | 29.6      |
| Lifestyle Scale               | .052      | .023   | .05       | -.213     | .319   | 10.18     | 10.2      |
| Challenge Scale               | -.479     | .504   | 25.40     | .776      | .691   | 47.75     | 73.1      |
| Prestige Scale                | .020      | .223   | 4.97      | .123      | .602   | 36.24     | 41.2      |
| Security Scale                | .099      | .072   | .52       | .137      | .545   | 29.70     | 30.2      |
| Supervision Scale             | -.106     | -.022  | .05       | .032      | .529   | 27.98     | 28.0      |
| Variety Scale                 | .135      | .312   | 9.73      | -.375     | .436   | 19.01     | 28.7      |
| Workplace Scale               | 1.033     | -.246  | 6.05      | .623      | .664   | 44.09     | 50.1      |
Considering the $R^2_c$ effects for each function noted above, only the first two functions (which account for about 17% and 13% of the variance respectively) were deemed noteworthy in the context of this study. The remaining functions only explained 9.9%, 8.8%, 3.7%, and 1.6%, respectively, of the remaining variance in the variable sets after the extraction of the first two functions.

Table 8 presents the standardized canonical function coefficients and structure coefficients for Functions 1 and 2. Squared structure coefficients and communalities ($h^2$) are also provided for the two functions. Additionally, Figure 3 provides standardized canonical function coefficients and structure coefficients for Functions 1 and 2 in a more visually intuitive presentation where the relations among latent variables can be more easily interpreted.
Figure 3. Canonical correlations for Functions 1 and 2 across Holland RIASEC career interests as measured by the KCIA-L and Super's work values as measured by the SWVI-r.

Examining Function 1 coefficients, the relevant criterion variables were primarily the Creativity scale, Independence scale, and Challenge scale. This conclusion is supported by the squared structure coefficients which indicate that the proportion of variance for the Creativity scale, Independence scale, and Challenge scale account for about 29%, 22%, and 25% respectively. Additionally, for the criterion variables in function 1, Achievement, Creativity, Income, Independence, Challenge, and Supervision had the same sign, indicating that they are all positively related. Coworkers, Lifestyle, Prestige, Security, Variety, and Workplace also shared
the same sign, indicating that these scales are positively related. Therefore, again noting the signs, there is a negative relation between Achievement, Creativity, Income, Independence, Challenge, and Supervision on the one hand, and Coworkers, Lifestyle, Prestige, Security, Variety, and Workplace on the other.

In examining the predictor variable set in Function 1, Realistic and Enterprising were the primary contributors to the predictor synthetic variable. Noting the signs of the coefficients, Realistic, Investigative, and Enterprising have the same sign, therefore they share a positive relation. Similarly, Artistic, Social, and Conventional share the same sign, therefore these scales are positively related. There is a negative relation between Realistic, Investigative, and Enterprising on the one hand, as compared to Artistic, Social, and Conventional on the other hand. Additionally, examining the relation between the predictor variables and criterion variables, the predictor variables Artistic, Social, and Conventional were positively related to Coworkers, Lifestyle, Prestige, Security, Variety, and Workplace, while negatively related to Achievement, Creativity, Income, Independence, Challenge, and Supervision.

Moving to an examination of Function 2, the coefficients in Table 9 suggest that the relevant criterion variables are Achievement, Challenge, Prestige, Security, Supervision, and Workplace. Observing the sign of the coefficients, Achievement, Income, Challenge, Prestige, Security, Supervision, and Workplace are positively related, while negatively related to Creativity, Coworkers, Independence, Lifestyle, and Variety. Shifting to examine the predictor variables in Function 2, Enterprising is now the dominant predictor, followed by Social, Conventional, and Investigative respectively. For the predictor variables in Function 2, with the exception of the Realistic scale, all of these variables’ structure coefficients had the same sign, indicating they are all positively related and negatively related to the Realistic scale.
Two-Way MANOVA

Research Question 2

A MANOVA was conducted to examine the differences across generations (Baby Boomers, Generation X, and Generation Y) and between genders (male and female) on work values (See Table #). For all results, Pillai’s trace is interpreted to report significance unless otherwise indicated. The MANOVA was statistically significant for the effect of generation on work values, $V = .047, F(24, 3886) = 3.864, p < .001$. The MANOVA was also statistically significant for the effect of gender on work values, $V = .042, F(23, 1942) = 7.167, p < .001$. However, the overall MANOVA was not statistically significant for an effect of the interaction of generation and gender on work values, $V = .017, F(24, 3886) = 1.417, p = .086$ (see Table 10).

Table 9

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Pillai’s Trace</th>
<th>$F$</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Partial Eta Squared</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3.864</td>
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<td>.023</td>
<td>.000*</td>
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<tr>
<td>Gender</td>
<td>.042</td>
<td>7.167</td>
<td>12</td>
<td>1942</td>
<td>.042</td>
<td>.000*</td>
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<td>Gender*Generation</td>
<td>.017</td>
<td>1.417</td>
<td>24</td>
<td>2886</td>
<td>.009</td>
<td>.086</td>
</tr>
</tbody>
</table>

* = Significant at the .01 level

The differences in work values were examined more specifically between genders and can be seen in Table 10. There was a statistically significant effect of gender on the Creativity work value, $F(1, 199.143) = 6.829, p = .009$, with men reporting higher scores. There was also a statistically significant effect of gender, with men reporting higher scores, on the Income work value, $F(1, 126.899) = 4.846, p = .028$. For the work value Independence, there was a statistically significant effect of gender, again with men reporting higher scores, $F(1, 263.338) =$
12.248, \( p < .001 \). Additionally, there was a statistically significant effect of gender, with men reporting higher scores, on the work value Challenge \( F(1, 128.646) = 6.016, p = .014 \), and with women reporting higher scores on the work value Supervision, \( F(1, 153.399) = 7.414, p = .007 \). Finally, for the work value Workplace, there was a significant effect of gender, \( F(1, 131.640) = 6.557, p = .011 \), with women reporting higher scores.

Table 10

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Sum of Squares</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement Scale</td>
<td>.874</td>
<td>.044</td>
<td>.835</td>
<td>.000</td>
</tr>
<tr>
<td>Creativity Scale</td>
<td>199.143</td>
<td>6.829</td>
<td>.009*</td>
<td>.003</td>
</tr>
<tr>
<td>Coworkers Scale</td>
<td>3.680</td>
<td>.167</td>
<td>.683</td>
<td>.000</td>
</tr>
<tr>
<td>Income Scale</td>
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<td>4.846</td>
<td>.028*</td>
<td>.002</td>
</tr>
<tr>
<td>Independence Scale</td>
<td>263.338</td>
<td>12.248</td>
<td>.000**</td>
<td>.006</td>
</tr>
<tr>
<td>Lifestyle Scale</td>
<td>1.572</td>
<td>.083</td>
<td>.773</td>
<td>.000</td>
</tr>
<tr>
<td>Challenge Scale</td>
<td>128.646</td>
<td>6.016</td>
<td>.014*</td>
<td>.003</td>
</tr>
<tr>
<td>Prestige Scale</td>
<td>83.610</td>
<td>3.395</td>
<td>.066</td>
<td>.002</td>
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<tr>
<td>Security Scale</td>
<td>30.178</td>
<td>1.477</td>
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<td>.001</td>
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<tr>
<td>Supervision Scale</td>
<td>153.399</td>
<td>7.414</td>
<td>.007</td>
<td>.004</td>
</tr>
<tr>
<td>Variety Scale</td>
<td>17.072</td>
<td>.733</td>
<td>.392</td>
<td>.000</td>
</tr>
<tr>
<td>Workplace Scale</td>
<td>131.640</td>
<td>6.557</td>
<td>.001*</td>
<td>.003</td>
</tr>
</tbody>
</table>

The differences were also examined in more detail across generations and can be seen in Table 11. Generation had a statistically significant effect on the work value Achievement, \( F(2, 102.104) = 5.083, p = .006 \). An examination of pairwise comparisons revealed that Generation Y places a greater importance on Achievement than Baby Boomers with a significant mean
difference of 2.005 (CI 95% .381 to 3.629, p = .009). Generation had a significant effect on the work value Independence, $F(2, 130.991) = 6.093, p = .002$, and pairwise comparisons indicate Generation Y placing more value on Independence than Generation X with a significant mean difference of 1.244 (CI 95% .328 to 2.159, p = .003). There was also a significant effect of generation on the work value Prestige, $F(2, 398.378) = 16.174, p < .001$, with Generation Y endorsing a statistically significantly higher level of importance on Prestige than both Generation X, with a mean difference of 1.735 (CI 95% .756 to 2.715, p < .001) and Baby Boomers, with a mean difference of 2.988 (CI 95% 1.190 to 4.786, p < .001) Finally, generation had a significant effect on the work value Workplace $F(2, 108.618) = 5.410, p = .005$, and pairwise comparisons indicated that Generation Y significantly endorsed Workplace as more important than Generation X with a mean difference of 1.131 (CI 95% .246 to 2.015, p = .007).

Table 11

Results of Test of Between Subjects Effects for Generation (IV) on Work Values (DV)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Sum of Squares</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
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<td>204.208</td>
<td>5.083</td>
<td>.006*</td>
<td>.005</td>
</tr>
<tr>
<td>Creativity Scale</td>
<td>83.451</td>
<td>1.431</td>
<td>.239</td>
<td>.001</td>
</tr>
<tr>
<td>Coworkers Scale</td>
<td>161.265</td>
<td>3.656</td>
<td>.026*</td>
<td>.004</td>
</tr>
<tr>
<td>Income Scale</td>
<td>37.652</td>
<td>.719</td>
<td>.487</td>
<td>.001</td>
</tr>
<tr>
<td>Independence Scale</td>
<td>261.981</td>
<td>6.093</td>
<td>.002*</td>
<td>.006</td>
</tr>
<tr>
<td>Lifestyle Scale</td>
<td>71.579</td>
<td>1.897</td>
<td>.150</td>
<td>.002</td>
</tr>
<tr>
<td>Challenge Scale</td>
<td>107.872</td>
<td>2.522</td>
<td>.081</td>
<td>.003</td>
</tr>
<tr>
<td>Prestige Scale</td>
<td>796.755</td>
<td>16.174</td>
<td>.000**</td>
<td>.016</td>
</tr>
<tr>
<td>Scale</td>
<td>41.099</td>
<td>1.006</td>
<td>.366</td>
<td>.001</td>
</tr>
<tr>
<td>----------------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Supervision</td>
<td>23.798</td>
<td>.575</td>
<td>.563</td>
<td>.001</td>
</tr>
<tr>
<td>Variety Scale</td>
<td>169.590</td>
<td>3.640</td>
<td>.026</td>
<td>.004</td>
</tr>
<tr>
<td>Workplace Scale</td>
<td>217.235</td>
<td>5.410</td>
<td>.005*</td>
<td>.006</td>
</tr>
</tbody>
</table>

It is worth noting that the effect of Generation on the work value Coworkers demonstrates overall significance, $F(2, 80.633) = 3.656$, $p = .026$, however further examination of the pairwise comparisons show Generation X’s higher scores on Coworkers as compared to Baby Boomers, while close to significance, do not quite meet the criteria ($p = .051$). There is a similar result for the effect of Generation on the work value Variety. While the effect has an overall statistically significant effect, $F(2, 84.795) = 3.640$, $p = .026$, pairwise comparisons revealed that the higher scores of Generation Y in comparison to Generation X do not meet criteria for significance ($p = .063$).

Upon further examining the interaction effect of both gender and generation, no significant values were found on any work value except Prestige. The effect of generation was significantly different for male and females in relation to the work value Prestige, $F(2, 90.578) = 3.677$, $p = .025$.

**Research Question 3**

A MANOVA was conducted to examine the differences across generations (Baby Boomers, Generation X, and Generation Y) and across race (White, Black or African American, Hispanic, Multiple Races, and Other races) on work values. For all reporting of results, Pillai’s trace is interpreted unless otherwise specified. As shown in Table 12, The MANOVA was statistically significant for the effect of generation,. The MANOVA was also statistically
significant for the effect of race. However, the overall MANOVA was not statistically significant for the interaction effect of generation and race on work values, $V = .035, F(60, 8740) = 1.038, p = .395$.

Table 12

*Results from a Two-Way MANOVA with Race and Generation (IVs) and Work Values (DV$s)*

<table>
<thead>
<tr>
<th></th>
<th>Pillai’s Trace</th>
<th>$F$</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Partial Eta Squared</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>.021</td>
<td>1.570</td>
<td>24</td>
<td>3490</td>
<td>.011</td>
<td>.038*</td>
</tr>
<tr>
<td>Race</td>
<td>.04</td>
<td>1.768</td>
<td>48</td>
<td>6988</td>
<td>.012</td>
<td>.001**</td>
</tr>
<tr>
<td>Race*Generation</td>
<td>.035</td>
<td>1.038</td>
<td>60</td>
<td>8740</td>
<td>.395</td>
<td>.007</td>
</tr>
</tbody>
</table>

*Note. * = Significant at the .01 level*

The differences in work values across race were examined in more detail, as shown in Table 13. Race had a statistically significant effect on the work value Achievement, $F(4, 58.392) = 3.075, p = .015$. An examination of pairwise comparisons demonstrated that Blacks or African Americans place greater importance on Achievement than Whites with a significant mean difference of 1.999 (CI 95% .349 to 3.650, $p = .007$). Additionally, Hispanics also rated Achievement more important than Whites, but not more than Blacks or African Americans, with a significant mean difference of 1.795 (CI 95% .185 to 3.404, $p = .018$). Race also had a significant effect on the work value Creativity, $F(4, 104.083) = 3.797, p = .004$. Pairwise comparisons indicated that Blacks or African Americans endorsed higher importance of creativity than Whites with a significant mean difference of 2.321 (CI 95% .338 to 4.303, $p = .010$) and that Hispanics endorsed more importance of creativity than Whites with a significant mean difference of 2.615 (CI 95% .681 to 4.548, $p = .001$).
Table 13

*Results of Test of Between Subjects Effects for Race (IV) on Work Values (DV)*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Sum of Squares</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement Scale</td>
<td>233.570</td>
<td>3.075</td>
<td>.015*</td>
<td>.005</td>
</tr>
<tr>
<td>Creativity Scale</td>
<td>416.332</td>
<td>3.797</td>
<td>.044*</td>
<td>.001</td>
</tr>
<tr>
<td>Coworkers Scale</td>
<td>44.916</td>
<td>.522</td>
<td>.720</td>
<td>.004</td>
</tr>
<tr>
<td>Income Scale</td>
<td>151.181</td>
<td>1.482</td>
<td>.205</td>
<td>.001</td>
</tr>
<tr>
<td>Independence Scale</td>
<td>278.006</td>
<td>3.375</td>
<td>.009*</td>
<td>.006</td>
</tr>
<tr>
<td>Lifestyle Scale</td>
<td>33.248</td>
<td>.465</td>
<td>.768</td>
<td>.002</td>
</tr>
<tr>
<td>Challenge Scale</td>
<td>277.812</td>
<td>3.456</td>
<td>.008*</td>
<td>.003</td>
</tr>
<tr>
<td>Prestige Scale</td>
<td>26.799</td>
<td>3.079</td>
<td>.015*</td>
<td>.016</td>
</tr>
<tr>
<td>Security Scale</td>
<td>47.271</td>
<td>.611</td>
<td>.654</td>
<td>.001</td>
</tr>
<tr>
<td>Supervision Scale</td>
<td>66.421</td>
<td>.832</td>
<td>.505</td>
<td>.001</td>
</tr>
<tr>
<td>Variety Scale</td>
<td>138.268</td>
<td>1.541</td>
<td>.188</td>
<td>.004</td>
</tr>
<tr>
<td>Workplace Scale</td>
<td>155.912</td>
<td>1.952</td>
<td>.099</td>
<td>.006</td>
</tr>
</tbody>
</table>

Race had a significant effect on the work value Independence, \( F(4, 69.517) = 3.375, p = .009 \), and pairwise comparisons revealed Blacks or African Americans reported higher importance of Independence than White with a significant mean difference of (CI 95% .222 to 3.660, \( p = .015 \)), as well as Hispanic who significantly endorsed higher importance of Independence as shown by a mean difference of 1.957 (CI 95% .280 to 3.633). There was also a significant effect of race on the work value Prestige, \( F(4, 71.700) = 3.079, p = .015 \), with both
Hispanics and Blacks or African Americans endorsing a statistically significantly higher level of importance on Prestige than Whites, with a mean difference of 2.431 (CI 95% .649 to 4.214, $p = .001$) for Hispanics compared to Whites, and with a mean difference of 2.243 (CI 95% .415 to 4.071, $p = .006$) for Blacks or African Americans compared to Whites. Finally, race had a significant effect on the work value Challenge $F(4, 69.453) = 3.465$, $p = .008$, and pairwise comparisons indicated that Blacks or African Americans significantly endorsed Challenge as more important than Whites with a mean difference of 2.229 (CI 95% .533 to 3.925, $p = .002$). Additionally, Hispanics reported more importance of Challenge than Whites with a significant mean difference of 1.879 (CI 95% .226 to 3.533, $p = .014$).

The differences were also examined in more detail across generations. Generation had a statistically significant effect on the work value Achievement, $F(2, 100.452) = 5.290$, $p = .005$. Generation had a significant influence on the work value Challenge, $F(2, 70.917) = 3.538$, $p = .029$. Last, generation had a significant effect on the work value Prestige, $F(2, 143.688) = 6.170$, $p = .002$. A further examination of the interaction of race and generation on particular work values revealed no significant results.
CHAPTER 5: DISCUSSION

The major findings, as presented in chapter four, are discussed in this chapter. Three research questions and demographic variables are discussed along with significant findings and how these findings relate to previous research. Additionally, implications of the results are discussed, followed by limitations of the present study, strengths of the present study, and recommendations for future research.

The focus of this study was to increase the utility of the Atlas Model of Individual Differences, a framework rooted in Holland’s (1997) career interests by examining the relationship between career interests and Donald Super’s (1991) work values. While various individual difference variables have been included in the Atlas Model, the crucial variable work values has not. Additionally, I sought to update previous literature regarding the differences in work values that may or may not exist across generations, races, and between genders. At present, the literature inconsistent on whether or not differences exist, and where those differences lie. Increasing the functionality of the Atlas Model and investigating the differences in work value salience across demographic variables furthers the profession of career counseling’s call for systematic integration of individual difference variables, as well as the commitment to diverse cultural influences and a view of clients in context.

Discussion of Research Question 1

The first research question for this study was generated to explore the relation between career interests as measured by the KCIA-L (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) and work values as measured by the SWVI-R (Achievement, Creativity, Coworkers, Income, Independence, Lifestyle, Challenge, Prestige, Security, Supervision, Variety, and Workplace). The findings in this study assert that work values and
career interests have a significant relation. Few, if any, studies have directly examined the relation between Holland’s career interest domains and Super’s work values, therefore it is challenging to place results in context. Although, because a central goal of this study was to examine the relation between these concepts toward expanding the Atlas Model of Individual Differences, it is helpful to explore how these results fit with the research efforts of Armstrong and colleagues (2008).

More specifically, moderate relations are found for the career interest Enterprising and a number of work values. Enterprising is moderately positively related to the work values Achievement, Creativity, and Challenge. Additionally, the career interest Enterprising has a small positive relation to the work values Coworkers, Income, Lifestyle, Prestige, Security, Supervision, Variety, and Workplace. These relations among constructs make sense on the basis of Holland’s (1997) conceptualization of Enterprising, which is characterized by people who see themselves as ambitious and self-confident, as well being related to accomplishment, a desire for high social status, desiring to work with others, preferring leadership roles. Therefore, it is logical that Enterprising would be related to values such as Prestige, Income, Achievement, and Challenge. However, there is some discrepancy with this finding in the context of previous findings by Armstrong and colleagues (2008). In the study by Armstrong and colleagues, the researchers used a regression based analysis to integrate occupational reinforcers, a concept similar to work values, into the Atlas Model and found that no occupational reinforcer sufficiently loaded to Enterprising, thus, it is interesting to find that so many work values had small to moderate relations with the Enterprising interest.

For the career interest Investigative, there was a small positive relation to the work values Creativity and Challenge. This relation fits with Holland’s (1997) conceptualization of the
Investigative interest, which is characterized as preferences for creative investigation of physical or cultural phenomena, math and science competencies, an emphasis on intellectual or analytic activities, and an avoidance of repetition. However, this is in contrast to results by Armstrong and colleagues (2008) who, similar to what is described above, found no occupational reinforcer appropriately loaded to the Investigative interest type. Though, this is not a substantial difference as only two values were related in this study and the relation was small.

For the career interest Artistic, there was a small positive relation to the work values Creativity, Independence, Lifestyle, Challenge, Supervision, and Variety. This association fits with Holland’s (1997) description of the Artistic interest type, which is characterized as a preference for unstructured and varied work, the opportunity to be expressive, original, nonconforming, and interact with others. Additionally, these results also fit with results in the Atlas Model study by Armstrong and colleagues (2008), which found that the occupational reinforcers Creativity and Variety specifically loaded to the career interest Artistic.

For the career interest Social, there was a small positive relation to the work values Achievement, Creativity, Coworkers, Challenge, Prestige, Security, Supervision, Variety, and Workplace. Many of these work values make sense in the context of Holland’s (1997) description of the Social type, which includes preferences for working with others in the capacity of training, informing, or curing, as well as a perception of oneself as cooperative, helpful, and understanding. Particularly, this description appears to relate well to the work values Coworkers and Supervision. Anecdotally, it also seems logical that the work values Variety, Creativity, and Challenge because people in social-typed careers often ‘wear many hats,’ and may employ creative or challenging approaches to teaching, training, or curing. In relation to the Armstrong and colleagues (2008) Atlas Model study, they also found a relation with the occupational
reinforcer co-workers and the interest type social, however this was the only finding for this interest type. Therefore, it is interesting to find so many work values related to this type in the present study.

For the career interest Conventional there was a small positive relation to the work values Achievement, Creativity, Coworkers, Income, Independence, Challenge, Prestige, Security, Supervision, Variety, and Workplace. In the context of Holland’s (1997) conceptualization of the Conventional type, which includes preferences for rules, orderliness, routine, and strong skills in ordered or systematic manipulation of data, it is particularly logical to find a relation to the work values Security, Supervision, and Workplace. However, Holland’s description does not particularly appear to mesh with the work values Variety and Creativity that were found to have a small relation to the Conventional type in this study. In addition, some of the present results fit with the findings of Armstrong and colleagues (2008), who found the occupational reinforcers company policies, which is similar to the work value Workplace, and supervision to load to the interest type Conventional.

Finally, the work interest Realistic was related to the least work values. Realistic had a small positive relation with Creativity and a small negative relation with the work value Workplace. The positive relation with Creativity is a little unusual in the context of Holland’s (1997) conceptualization of this interest type, which is described as a preference for ordered and systematic manipulation of objects, tools or machines, as well as a preference for material rewards, practicality, and mechanical or technical abilities. There is also little fit of these findings in relation to the findings of Armstrong and colleagues (2008) which determined that only the occupational reinforcers moral values and independence was connected to the Realistic type interest.
Discussion of Research Question 2

Gender Differences in Work Values

The second research question was framed to answer whether differences exist in work values across the generations Baby Boomers, Generation X, and Generation Y and between men and women? Participant scores were analyzed through MANOVA and findings suggest that generation and gender, independently, have an influence on work values. However, the interaction of gender and generation has no significant effect. Said another way, being a member of a particular generation does not have a different effect on men and women with regard to work values.

In contrast to previous research that found no differences in work values between genders (Brief & Aldag, 1977; Brief & Oliver, 1976; Rowe and Snizek, 1995), the results of this study show that gender does appear to have an influence on work values. Particularly, there are gender differences on the work values Creativity, Income, Independence, Challenge, Supervision, and Workplace.

Males endorsed significantly higher importance of Income, Independence, and Challenge than did women. This is similar to previous research that indicates men tend to be more concerned with salary and independence at work (Beutell & Brenner, 1986; Duffy & Sedlacek, 2007; Pryor, 1983; Rottinghaus & Zytowski, 2006). Males also endorsed higher importance of the work value Creativity, which was not a significant finding of previous research throughout the literature review. These findings indicate that men are motivated and fulfilled by work that compensates them fairly or above average. Because this is consistent with the traditional male role of ‘breadwinner,’ it is possible this attitude may have contributed to these results. The present findings also indicate that men value work that allows them to make decisions
autonomously and tests or improves their skills. Again, it is possible that traditionally masculine attitudes of independence and competition contributed to this result. Men also value work that allows them to be resourceful and inventive, as well as initiate and follow through on new ideas.

Additionally, women place more importance than men on the value Workplace, which refers to a clean and comfortable environment where safety is not a concern. This is unsurprising because the previous literature has repeatedly found that women tend to endorse more importance on this value than men (Beutell & Brenner, 1986). Women also reported more importance of Supervision than did men, meaning that women value having a boss who recognizes their value, demonstrates concern for their well-being, and to whom it is easy to talk. This is also consistent with previous literature that, overall, highlights the importance of workplace relationships to women (Neil and Snizek, 1987; Duffy & Sedlacek, 2007; Rottinghaus & Zytowski 2006). This result also fits with traditional female gender roles, which emphasize the importance of relationships and communication, and it is possible these societal messages may have contributed to a reported high valuing of Supervision.

Just as interesting as the significant results, there were no significant differences between men and women on the work values of Prestige, Lifestyle, Coworkers, or Achievement. Past research has repeatedly found that women endorse more importance of Coworkers and Lifestyle than men (Duffy & Sedlacek, 2007; Pryor, 1983; Rottinghaus & Zytowski, 2006). As mentioned above, these two values are commonly considered to reflect stereotypical female gender socialization. In addition, there are contradictory results in the literature regarding gender differences on the work values Prestige and Achievement. Some studies report that these values are more salient to men (Pryor, 1983), whereas others assert that these values are more important to women (Neil & Snizek, 1987; Rottinghaus & Zytowski). It is possible that the lack of
differences in these work values between men and women demonstrates the changes in work
environment, and work goals, where women are striving for prestigious and achievement-
oriented careers at the same rate as men, meanwhile men have become just as concerned about
relationships with coworkers and work-life balance as women.

These findings update the previous research based understanding of gender differences
and supports the research that finds differences in work values between men and women.
Additionally, these findings demonstrate that, while the importance of some values have shifted,
the overall pattern appears to remain the same. Generally, men continue to endorse work values
that align with traditionally masculine traits while women endorse work values that align with
traditionally female traits (Beutell & Brenner, 1986; O’Neil, 1987). One way this might be
understood through the strong influence of gender socialization that dictates the ‘appropriate’
behavior of men and women and becomes incorporated into work values.

**Generational Differences in Work Values**

Overall, the results for this research question demonstrate that there are generational
differences across work values. These results join the literature by many researchers (e.g.,
Cennamo & Gardner, 2008; Gursoy et al., 2008; Lyons et al., 2007; Wong et al., 2008) who have
also found generational differences and is in contrast to several research efforts that found
minimal or no differences (e.g., Appelbaum et al., 2005; Jurkiewicz & Brown, 1998; Jurkiewicz,

Additionally, these results offer specific information regarding which work values
generations differ on and, particularly, the results highlight the differences of Generation Y in
comparison to previous generations. With the dearth of empirical literature on Generation Y, it
is challenging to place these results in context, however some studies provide valuable information.

The work value Achievement is significantly more important to members of Generation Y than it is to Baby Boomers. This indicates that, Generation Y seeks a feeling of success in their work and is more concerned with feeling a sense of accomplishment from their job than Baby Boomers. Research by Wong and colleagues (2008) showed some similarity to this result in their finding that both Generation X and Generation Y were more motivated by progression in their workplace than Baby Boomers.

The results of this study also demonstrate that the work value Prestige is significantly more important to Generation Y than to Generation X or Baby Boomers. Prestige is a value related to being respected or admired by most people, thus indicating that it is important for Generation Y members to be in an occupation that society deems valuable or impressive. These results have some similarity to Cennamo and Gardner (2008), who found that younger generations (Gen X and Gen Y) endorsed more importance on status than older generations. However, it has been argued that results on the work value Prestige are subject to career development stage effect because, as a worker ages and becomes more established in their career, the salience of the Prestige value diminishes (Cennamo & Gardner, 2008). Considering that the majority of this sample, particularly the sample of Generation Y, is young and the likelihood that may are not yet employed or newly employed it is possible that career development stage could have influenced this effect. It is also possible that prestigious careers are the most well known occupational choices for this particular sample, again considering the young age of the sample and, likely, the early stage of career development they may be in.
Generation Y was found to endorse significantly more importance of the work value Independence than Generation X. This demonstrates that Generation Y seeks work that allows them to make decisions on their own and gives them freedom from regularly reporting to authority. This fits with the literature that describes Generation Y as independent and entrepreneurial (Martin, 2005; Smith and Clurman, 1997). It is possible that the importance of independence is influenced by this generation’s dexterity with, and immersion in, technology. While technology in the form of social media platforms has created an environment of unprecedented social connection, engaging with technology is, typically, an independent venture.

Last, the work value Workplace was found to be significantly more important to Generation Y compared to Generation X. The value Workplace is related to having a job that is safe, comfortable, and clean. Chen and Choi (2008) also found that Generation Y valued the work environment more than either Baby Boomers or Generation X. Understanding what a ‘comfortable’ environment is for someone can be difficult to interpret, however it appears that this result may also validate research indicating that Generation Y is much more concerned with a fun office environment than other generations (Gursory et al., 2008).

Similar to the results for the differences between genders, the non-significant results in this study are as valuable as the significant results. It is surprising that no significant difference was found across generations for the work value Lifestyle, which is related to a job that does not compete with leisure or life activities. The common stereotype around Generation X, and particularly Generation Y, is that there is a stronger valuing of work-life balance than with Baby Boomers (e.g., Twenge et al., 2010). It is possible this result was non-significant for this sample because the prolific amount of communication technology (e.g., text messages and email) has blurred the lines between work and personal life, therefore Generation Y may not recognize a
need to balance work and social life because both are so easily accessible via technology. Additionally, considering the overall young age of the present sample, the vagueness of some of items on the Lifestyle value scale may make it difficult for participants to visualize how this value plays into their needs. For example, some items reference the importance of ‘leading the type of life I enjoy’ or ‘being the kind of person I want to be.’ These items may be too vague for participants without enough career and life experience to judge how this value relates to their worldview or needs.

Additionally, while the results of this study support the overall argument of differences in work values across generations, it is frankly surprising that more differences were not found. Given the common opinion that generations are vastly different, particularly in the differences of work values between both Generation X and Y as compared to Baby Boomers, I expected to find more significant results. Generations were only significantly different on four work values (Achievement, Independence, Prestige, and Workplace) out of twelve. This is consistent with previous research that has suggested, while the work values of different generations may vary, the degree of these differences is fairly small (Hansen & Leuty, 2012). Additionally, both Smola and Sutton (2002) and Hagstrom and Gamberle (1995) concluded there were differences in work values across generation but the effect sizes reported for both studies suggest small differences.

It is possible that anecdotal differences exist and then become magnified in the telling or re-telling of those experiences, leading to popular and strong beliefs in the vast differences across generations. It is also possible that ‘in-group’ and ‘out-group’ thinking may lead people to believe that those within their generation are more similar, while those in different generations are vastly different. Finally, as mentioned before, the differences that are commonly conflated with generation, may be better accounted for by developmental stage or related life milestones.
Discussion of Research Question 3

Race Differences in Work Values

The third research question was framed to explore if differences exist in work values across the generations Baby Boomers, Generation X, and Generation Y and across the races White, Black or African American, Hispanic, Multiracial, or Other races? The participant scores related to this question were analyzed through MANOVA and results of the current study suggest that generation and race, independently, have an influence on work values. However, the interaction of race and generation has no significant effect. In other words, being a member of a particular generation does not have an effect on race with regard to work values.

The results of this study join numerous articles that have found differences in values across race (e.g., Brenner, Blazini, & Greenhaus, 1988; Brenner & Tomkiewicz, 1982; Milutinovich, 1977; Ovadia, 2001; Weaver, 1980) and update these findings. Particularly, racial differences were found on the work values Achievement, Creativity, Independence, Challenge, and Prestige. Unfortunately, the paucity of research on racial differences across values, particularly for those who identify as Hispanic or Multiracial makes these results difficult to place in context. Despite this, there are a few studies that are useful in understanding the impact of these results.

African Americans and Hispanics consider Achievement, Creativity, Independence, and Challenge more important than do Whites. Although the literature on racial differences in work values is not extensive, this is in sharp contrast to the majority of findings in extant literature. Studies have repeatedly found that Blacks rate more importance of extrinsic values whereas Whites rate more importance of intrinsic values (Brenner, Blazini, & Greenhaus, 1998; Martin & Tuch, 1993; Milutinovich, 1997; Shapiro, 1977; Weaver, 1980). Achievement, Challenge,
Creativity, and Independence are considered to be intrinsic values (Dagenais, 1998). This result is consistent, however, with one result found by Brenner, Blazini, and Greenhaus in which Blacks indicated more importance of independence than did Whites. This sample primarily comes from Iowa, Indiana, and Oklahoma, and it worth noting that one of the major industries in all three states is technology (Bureau of Labor Statistics). Technology is a field that often requires creativity, innovation, and promotes stretching one’s skills; therefore, it is possible that culture of local industry may have contributed to participant responses. The values also coincide with traditional Western values (e.g., independence and competition), therefore it is possible that these cultural values had an impact on responses.

On the other hand, the finding that individuals that identify as Black and Hispanics value Prestige more than Whites is a finding that is consistent with the previous literature that has found Blacks to endorse extrinsic values more highly than Whites (Brenner, Blazini, & Greenhaus, 1998; Martin & Tuch, 1993; Milutinovich, 1997; Shapiro, 1977; Weaver, 1980). Prestige is broadly considered to be an extrinsic value (Dagenais, 1998). Because individuals that identify as Black or Hispanic are typically marginalized and underrepresented in prestigious positions, this result may indicate a desire among young minority students to change this situation.

As with previous research questions, it is important to consider the non-significant results of this study. Considering that research has so consistently found that Blacks endorse extrinsic values at higher rates than Whites, it is interesting to find that only one extrinsic value was significantly different in this study. It is possible that the finding in this particular study reflects the substantial changes in the nation and in the world of work since earlier studies. It is also possible that the life and career developmental stage of the present sample contributed to the
present finding. For example, adolescents and young adults tend to be going through a process of identity development and exploring their independence and skills. During this period of internal development and awareness, it is possible that intrinsic values may come to the forefront of their consciousness.

Finally, it is important to note that, in comparison to some of the vast differences found in previous research, there were relatively few differences found in this study. Racial differences were significant on only five work values (Achievement, Creativity, Independence, Prestige, and Challenge) out of twelve. Most previous studies examined value differences for participants in postsecondary institutions or in established careers, therefore, the lack of differences found in the present sample may be the result of a younger sample without enough career experience to influence diverse value development.

**Implications for Professionals**

On the basis of the present results, there are several implications that can be explored for professionals in various roles. The following sections outline the implications to consider across different roles. The following discussion represents general recommendations, informed by the present research, which may be helpful starting points, however it is crucial to remember that there are individual differences within all groups that will make interventions both applicable and not applicable to different people.

**Professionals within Organizations**

These implications are addressing professionals within organizations. Particularly, the implications within this section might apply to managers, CEOs, human resources professionals, and others who have a stake in employee satisfaction and company growth. To begin, while the results support that there are differences between genders and across races and generations, the
differences are minimal overall. For example, out of twelve work values, the most number of differences found was between genders with significant differences on six values (Income, Independence, Challenge, Creativity, Workplace, and Supervision).

Considering that women indicated that they significantly valued Supervision more than men, this is important for managers to consider in working with women. Efforts made to improve supervisory relationships could contribute to increased recruitment, retention, and satisfaction of female employees. Additionally, this may inform communication and team building exercises within the company; improving lines of communication and feelings of support between supervisors and the women they supervise will benefit their employees and the functioning of the company.

Women also endorsed higher valuing of Workplace than men, which indicates that companies actively seeking to recruit women may need to include references to workplace safety, comfort, or cleanliness in their recruitment materials. Similarly, those looking to retain women may need to expend effort in improving the comfort or safety of the office environment. Potentially, if this is not already allowed, increased comfort may be accomplished by allowing more flexibility for workers to decorate their spaces with personal items.

On a related note, prior research by Simon, Wagner, and Killion (2017) examines how differing values between men and women is connected to the gender gap in science, technology, engineering, and math (STEM) careers. Additionally, Diekman and colleagues (2010, 2011) provided evidence that gender differences in interest in STEM careers could be explained by gender difference in work values because those who valued altruism or community service were less likely to be interested in a science career, and those subjects were also more likely to be women.
The results of the present study may assist in reducing the gender gap in STEM because, as noted, women substantially valued supervision and workplace more than men. For women who persist through academics to careers in STEM fields, it is particularly important for managers, supervisors, and human resources professionals to be aware of the importance of supervision and a safe and comfortable workplace for women. In addition, some researchers speak write about the masculine culture of science as a “chilly climate” for women (e.g., Callister, 2006; Monroe et al., 2008). It is possible that this “chilly climate” could be related to females’ feelings of comfort within the environment, therefore efforts to reduce this experience will be valuable in the retention of female employees in STEM.

Shifting to the values of males, men were found to place higher importance on the work values Income, Independence, Challenge, and Creativity. This indicates that income incentives in recruitment or retention are valuable to men. In contrast to women, men may prefer less involvement from their supervisor and will experience supervisor support through opportunities for independence. It also seems that it is important to managers to check on the level to which their male employees feel challenged and feel opportunities to be creative. Communication or team building exercises that provide opportunities for men to express new ideas or stretch and expand their current skills may be valuable.

For companies that currently employ multiple generations, it is important to notice that, despite popular interest in the vast differences between generations, overall this study found few differences. Generations only significantly differed on four work values (Achievement, Prestige, Independence, and Workplace) out of twelve. In this study, Generation Y was found to value Independence and Workplace more than Generation X, indicating that providing opportunities to young workers to make decisions on their own is valuable and may increase worker satisfaction.
Additionally, while common stereotypes indicate that Generation Y values work-life balance and many top companies are making great strides to increase the work-life balance inherent in their company culture, the current results indicate this is not a significant value for Generation Y above and beyond previous generations. Therefore, company efforts to increase work-life balance opportunities may be beneficial, but may not be necessary to the level seen in other companies (e.g., Google offering onsite laundry and massages; Twenge et al., 2010).

Generation Y also endorsed more valuing of Achievement than Baby Boomers. Therefore, younger workers may, not only need more opportunities to feel successful than older workers, younger workers may also need to hear messages of support and success from their supervisors. Additionally, Generation Y endorsed higher valuing of Prestige than either Baby Boomers or Generation X. This may be difficult for those within companies to fulfill since there is a societal influence on which occupations are viewed as prestigious or not. For those industries that are already viewed, socially, as prestigious, this may be an important to convey in recruitment material to Generation Y individuals. For those industries that not be socially synonymous with prestige, a useful idea may be valuable to implement internal company awards, certifications, or ceremonies to recognize valuable or impressive employees. These actions may help to fulfill the prestige value for Generation Y individuals.

Last, there were differences found in five work values (Achievement, Creativity, Independence, Challenge, and Prestige) out of twelve work values across racially different groups. In regard to race, the primary finding of this study is that individuals who identify as Black do not substantially value extrinsic rewards more, with the exception of Prestige, than Whites. Instead, Blacks or African Americans and Hispanics significantly value the intrinsic values of Achievement, Creativity, Independence, and Challenge more than Whites. This
indicates that it is important for companies to foster opportunities for employees that identify as Black, African American, or Hispanic to expand their skills, make choices on their own, generate or implement new ideas, and achieve feelings of success. Particularly, these values appear to paint a picture of the substantial value that professional development and training programs can offer to minority individuals. Additionally, managers and human resources professionals can be mindful of the importance of these values and can make a point to communicate with Black, African American, and Hispanic individuals regarding their feelings of fulfillment around these particular values.

Finally, these results may help to inform company employee satisfaction and engagement surveys. Particularly, the work values Prestige, Independence, Creativity, Workplace, and Challenge are substantially important across various groups and may represent a good starting point for examining how a company is fulfilling these values.

**Career Counselors**

These results have a number of implications for career counselors. First, counselors are urged to continue to recognize the general importance of work values in counseling and career development. It is crucial to help clients articulate their values and understand how work values can be used in conjunction with other individual difference variables, such as interests or skills, throughout the career development process.

Additionally, results regarding the differences between genders and across races indicate that counselors need to seriously consider these identities when working with specific clients. It could be beneficial to explore with clients where they see their work values stemming from and attend to societal or cultural forces that were involved in work values development. It may also be helpful to specifically explore with clients how they see their gender and/or race playing in to
their decision making. Through recognizing and articulating any connections, this may allow counselors to explore if there factors are viewed as barriers or supports and their level of salience in comparison to other determinants.

Further, discussing with clients how they see their values playing out of being fulfilled presently could be beneficial. The way in which an individual seeks fulfillment of a particular work value can vary for different people. For example, for an individual who values prestige, it may be important for that person to have an occupation that is near universally recognized by society as valuable, whereas a different individual may seek to fulfill their prestige value through recognition by their personal social circle that an occupation is valuable.

As mentioned above, previous research has connected differing values between men and women to the gender gap in science, technology, engineering, and math (STEM) careers. Simon, Wagner, and Killion (2017) discuss how women are often overrepresented among those with intrinsic occupational values such as altruism, access to training, and supervisory support, whereas men are overrepresented among those this extrinsic values such as high pay, esteem, professional advancement, working with tool or objects, jobs with math and technical skills, or jobs with technology. Additionally, Diekman and colleagues (2010, 2011) provided evidence that gender differences in interest in STEM careers could be explained by gender difference in work values because those who valued altruism or community service were less likely to be interested in a science career, and those subjects were also more likely to be women.

The results of the present study are related to the challenges above of reducing the gender gap in STEM. Males in this study endorsed importance of values that tend to be aligned with STEM careers (e.g., income and challenge), at least with the manner in which STEM careers are often promoted to young people choosing a major or a career. On the other hand, women in this
study endorsed high importance on supervision and workplace, which are not values that are typically mentioned in connection with STEM careers; not to say that these values do not match, rather, they are not highlighted. Therefore, in order to reduce the gender gap in STEM careers, it may be beneficial for career counselors to highlight other values that can be fulfilled by a career in STEM, other than the commonly mentioned characteristics that tend to align with the values of prestige, challenge, and income. For example, while not a significant finding in this study, other research has shown that women value opportunities for altruism, community service, and express artistic skills (e.g., Duffy & Sedlacek, 2007; Halaby, 2003), therefore this indicates that a discussion of how STEM careers provide opportunities to be creative, help people, contribute to communities, or work in teams may encourage women to consider the STEM field as a career choice that aligns with their values.

Finally, this research supports the utility of working from the Atlas Model of Individual Differences and Super’s Life-Span, Life-Space theory to promote a holistic view of clients. In 1990, Rounds found that both career interests and work values play an important role in job satisfaction. Further, Rounds found that if an occupation is congruent with an individual’s work values, this congruency accounts for a significant portion of the satisfaction variance after controlling for interest congruency. Therefore, work values are a key career development variable and provide substantial understanding, in combination with career interests, of worker satisfaction. Additionally, this study supports the importance of examining client work values in relation to Donald Super’s Life-Span, Life-Space theory. Further, as discussed previously, there is some suggestion that differences in generation may be better accounted for by differences in developmental stages (Cennamo & Gardner, 2008; Wong et al., 2008). Considering that there is still some discrepancy in how generations are identified and what characteristics define a
generation, it may be beneficial for career counselors to work from a developmental theory as a starting point, and considering that Super’s theory is one of the foremost developmental theories in the profession, this may be a beneficial framework with which to begin. Additionally, because the Life-Span, Life-Space theory and practical application component of the theory (i.e., C-DAC), includes concepts and techniques that account for contextual, life role, and self-concept development, this is a beneficial theory to work from as a starting point for approaching and exploring the differences in values across races and between genders.

**Counselor Educators**

There are some important implications to consider for counselor educators. Similar to the discussion of the implications for career counselor previously, these results reinforce the importance of work values in counseling and career development. It is important for counselor educators to convey the importance of helping clients understand their work values, as well as the importance of the differences in work values that exist between genders and across races. Counselor educators can prepare those they train to explore where work values stem from, examine what societal or cultural forces are at work, and evaluate what strengths and barriers may be involved.

Additionally, it is important for counselor educators to consider the different motivating factors for their students across generation, race, and between genders, in pursuing a counseling career. Awareness of the differing values and the way in which those values manifest may influence recruitment, retention, and training. For example, this study found that women endorse higher importance on the value supervision than men. This indicates that the supervisor or advisor relationship in a counselor education program may be substantially important to female students. However, males in this study were found to place more importance on independence
and challenge. Therefore, a supervisor or advisor might consider shifting their style depending on whether or not they are working with a man or a woman. Women may be more motivated and fulfilled by spending some extra time on the supervisory relationship, whereas men may be more motivated or fulfilled by, instead, dedicating that extra time to allowing them to set the agenda for next time or engaging in challenging activities.

Similarly, individuals who identify as Black or African Americans and Hispanics were found to value Independence and Challenge more than Whites. Therefore, it may be beneficial for supervisors or advisors to encourage and support those that identify as Black or Hispanic to extend their skill development or give them some space to make independent decisions and follow up on these. Blacks and Hispanics also endorsed higher importance of Creativity and Achievement in this study. Therefore, counselor educators should be mindful of opportunities to support generating and following through on unique ideas. These opportunities may emerge in the classroom, in supervision, or in internship work. On a related note, supervisors may want to consider that the value of achievement, as with many of the values, can be fulfilled in different ways. Some supervisees may need indications support or praise from their supervisors, while others may not and experience achievement purely within themselves.

Consideration of the differences across generations is also valuable for counselor educators. In this study, Generation Y was found to value Achievement more than Baby Boomers, Prestige more than both Baby Boomers and Generation X, and Independence more than Generation X. This indicates that it could benefit members of Generation Y to have more opportunities in their program for independent learning or independent accomplishment. Collaboration and engagement in group learning is a valuable component of the counseling profession, therefore this is not to say that these components must be eliminated from the
curricula. Rather, some scattered and adjustments in experiential activities or coursework, supported by learning objectives, could resonate well with members of Generation Y.

Additionally, Generation Y and women both endorsed higher importance of the value Workplace, therefore, attention within counselor education programs to providing a safe, comfortable, and clean environment may be valuable for retention and recruitment. This might include making efforts to improve comfort and safety within the program specifically, as well as contributing to safety and comfort on the campus in which the program is located. Efforts to improve safety might include clear and easily accessible procedures for the reporting of wrongdoing (e.g., cheating, sexual misconduct) or providing offices that lock so valuables can be stored. Efforts to improve safety and comfort may also include efforts to fostering an environment of communication, collaboration, and support through department social activities and meet and greets with department professors.

Lastly, it is beneficial for counselor educators in various roles to be aware of the differences in work values across generations, races, and between genders. Like so many other individual difference variables, differences along work values between counselor and client, or even between colleagues in a counselor education program, can lead to strained or ruptured relationships if assumptions are made or if the differences are not handled well. Counselor educators might consider including discussions of work value differences in classroom discussions or course materials as appropriate to increase trainee awareness and, in a supervisory role, maintain awareness of where they see counselor trainees assuming or mishandling differences in work values.

**Strengths of the Study**

This study contains a number of strengths that are important to note. One strength is the
instruments used in this study. There is long standing and substantial empirical support for both the KCIA-L (Suen, 2015a) and the SWVI-r (e.g., Leuty & Hansen, 2011; Robinson & Betz, 2008). Another strength of this study is the substantial sample size which allows for robust analyses. This study also benefits from the use of a secondary data set which allows for the efficient use of resources and productive use of the vast amounts of data collected by companies, in this case Kuder, Inc.

Another strength of this study in the contribution to the literature in terms of updating results of fairly outdated studies on the differences in work values across generations. Additionally, there is a paucity of research on Generation Y specifically and because the majority of this sample was a member of Generation Y, this study contributes to the literature on their work values in comparison to previous generations. This study also contributes to the literature by updating fairly outdated and contradictory studies on the differences in values across races and between genders. Particularly, because there is a paucity of research including those who identify as Hispanic or Multiracial in studies of racial differences in work values, this study adds to this literature gap due to the robust number of individuals with this identity.

A particular strength of this study is also the wide applicability of the results. This study is applicable to career counselors working with individuals with various identities across all stages of career development. Information from this study can be useful to individuals within companies and organizations, such as human resources professionals, CEOs, or managers. This study informs how to improve cooperation, communication, satisfaction, and engagement across value differences in generation, races, and genders. This study is also applicable to counselor educators in training and supervising counselor trainees on the concept of work values, the differences across various identities and implications of these differences, and on encouraging a
holistic perspective that considers many aspects of the client’s experience.

Finally, a strength of this study is the support of integrative and holistic perspectives of client challenges, needs, and experiences. This study makes clear that there is a relation between Holland’s career interest domains and Super’s work values, which supports the use of systematic and integrative frameworks such as the Atlas Model of Individual Differences. Additionally, this study shows that various identities, such as generation, race, and gender, have an effect on work values. Therefore, it is not enough to consider only one aspect of human experience, rather consideration of various variables will offer a better picture of the individual and, likely, lead to improved outcomes.

**Limitations of the Study**

Although this research contributes to the literature in a number of ways, there are some limitations that are important to consider. One important limitation to note is that a substantial portion of the sample consisted of high school students or students just entering postsecondary schooling. It is possible that these students have had very little exposure to the world of work and it has been shown that work values can change over time as individuals gain more experience with the world of work (Parry & Urwin, 2011). Therefore, it is possible that responses to work value items might change for these respondents over time.

Additionally, the disagreement on what birth years constitute which generations (Hansen & Leuty, 2012) is a challenge in conducting research on generational differences. While the choice of birth years for this study was chosen after a literature review to be consistent with most research (e.g., Hansen & Leuty, 2012; Lancaster & Stillman, 2002) and based on the design of other studies (Hansen & Leuty, 2012), it is possible that the adoption of different birth years to mark generations may alter results. In addition, the generational perspective of the workplace is
not universally accepted (Cogin, 2012) and more empirical research on generations is needed.

Another limitation of this study is respondent truthfulness on assessment items. It was found during initial data examination that at least four participants had seemingly disingenuous responses by marking a 1 (e.g., strongly disagree) on all items of both assessment instruments. While these four cases were eliminated from further analysis, it is unclear if any other responses were inauthentic. Additional disingenuous responses may have influenced the results of the study.

It is important to note that the diversity in this sample, regarding race and ethnicity, was fairly low. There is also some limited representation because, while there were some scattered respondents from many different states, over twelve hundred respondents were from Indiana, followed by about three hundred from Oklahoma and about one hundred and fifty from Iowa. Additionally, because of the use of a secondary data set, it is unclear the diversity of participants in terms of additional demographic variables, such as socioeconomic status. A sample with increased diversity in terms of these variables would strengthen the study and improve generalizability.

Finally, while not a limitation per say, it is important to reiterate that an archival data set was examined in this study, therefore the data were compiled and the survey questions used were intended for different purposes than the present study. Additionally, there is no way for me to know how the process was carried out, the circumstances under which the data was collected, or if there were any participant misunderstandings of survey questions.

**Recommendations for Future Research**

Future research is warranted to continue expanding the Atlas Model of Individual Differences. For example, further research informed by the canonical correlations found in this
study could utilize the multidimensional scaling techniques of Armstrong and colleagues (2008) to integrate Super’s work values within the Holland RIASEC career interest framework. Additionally, echoing the call by Armstrong and colleagues, there is more to be done to continue improving the utility of the Atlas Model. More variables can be added to this framework, such as developmental stage, strengths, decision making style, or even demographic variables such as race, ethnicity, sexual orientation, socioeconomic status, and gender.

Additionally, future research that focuses on the applied uses of the Atlas Model of Individual Differences would be beneficial. Armstrong and colleagues (2008) are clear that that the model is meant to be beneficial and accessible to both counselors and clients, therefore research examining its ease of use and practical applications would substantially contribute to the literature and practice.

Future research should also continue to examine the generational differences in work values, particularly continued research to reach agreement on which birth years mark different generations would be valuable. Currently, there is disagreement in the literature as to what marks a generation and this, in part, leads to the contradictory description of generational characteristics. Further, research including Generation Y as a variable of interest would fulfill a substantial literature gap. There is a paucity of research on the work values of Generation Y individually, or in comparison to previous generations (Twenge et al., 2010). This one of the fastest growing generations in today’s workforce and it is crucial for both career practitioners and organizations to have a better understanding of the values that drive their choices, goals, and fulfillment.

Additionally, future research should give particular attention to research design and examine generational differences in alternate ways than used previously. For example, it has
been noted that studies that collect data at one time risk confounding age with generation (Hansen & Leuty, 2012; Parry & Urwin, 2011; Twenge et al., 2010). Research that is able to include large sample sizes of each generation would allow for more robust comparisons. Additionally, research that includes workers in a variety of disciplines and position level would be valuable in teasing out the influence of these differences. The ideal design for examining generational differences is a sequential cohort design (Schaie, 1965), which begins data collection at a young age and follows generations longitudinally as they move through their career development and work. While this was too extensive an undertaking for the resources of the present study, this would tremendously benefit the research on generational differences in work values and, perhaps, give more clarity to the contradictory results that exist in the literature.

Further research into the causes and consequences of these differences in values is also warranted. In terms of causes, researchers have offered hypotheses, such as the gender socialization model (Rowe & Snizek), but more research examining what influences the development of various work values would be helpful in shedding light on the differences that are found. In regard to causes of work values across race, Carter, Gushue, and Weitzman (1994) have argued that racial identity development impacts work value formation and salience. Additionally, the consequences of differences in work values are essential to understand. Lips & Lawson (2009) note that the differences in work values across genders relates to expectations for future pay and may contribute to the gender wage gap. In addition, Diekman and colleagues (2010, 2011) found that gender differences in STEM career interest could be accounted for by gender differences in occupational values. Given the social and academic concerns of the gender inequalities in both STEM and pay, these issues and related consequences require more investigation.
In regard to generational differences, a few authors (Cennamo & Gardner, 2008; Wong et al., 2008) note that these differences may be better accounted for by career development stage than by generation. The salience of different work values may shift as workers examine their options, enter first careers, stabilize in their profession, and transition to exiting the workplace. As discussed in the literature review, Donald’s Super’s theory represents one of the foremost career counseling developmental theory and could be a good starting place.

Finally, while the quantitative design of this study generated valuable information and was appropriate given the data and purpose of the study, a qualitative research design would be beneficial to illicit more in depth information. For example, a qualitative analysis may generate more detailed information on the unique qualities, if any, of each generation and provide more substantial information on Generation Y. Additionally, a qualitative design may offer more information on the influences or mechanisms by which differences in work values form across generations, genders, or races.

**Conclusion**

In conclusion, I sought to support the holistic underpinning of the counseling profession by extending the integrative framework the Atlas Model of Individual Differences through examining the relation between work values and career interests. The results of this study demonstrated numerous relations between these concepts, thus supporting the benefit of integration. Additionally, I sought to update outdated literature on, as well as clarify contradictory results of, the differences in work values across generations, races, and between genders. For generations, broadly, the results of this study support the findings of work value differences across generations, however they are minimal. Also, for differences in work values between genders, the results of this study also support findings of differences which, with the
exception of a few findings, are largely unchanged. Finally, in terms of racial differences in work values, this study found multiple differences and substantial changes from the findings of earlier literature.

While there are some limitations inherent in this study, overall design of this study has many strengths and makes numerous contributions to the literature. Additionally, the results of this study are applicable to professionals in multiple settings. There is still much research left to do, however this study represents additional support for a holistic and integrative perspective, as well as a beneficial starting point in strengthening the literature on work values differences across identities.
References


Norman, Geoff (2010). “Likert scales, levels of measurement and the “laws” of statistics”. *Advances in Health Science Education, 15*(5) 625-632


APPENDIX A

IRB Approval Letter

NOT HUMAN RESEARCH

Date: April 12, 2017
From: Courtney Whetzel, IRB Analyst
To: Kristen Carnevale

<table>
<thead>
<tr>
<th>Type of Submission</th>
<th>Initial Study</th>
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<tbody>
<tr>
<td>Title of Study</td>
<td>Extending the Atlas Model of Individual Differences to include work values and demographic variables</td>
</tr>
<tr>
<td>Principal Investigator</td>
<td>Kristen Carnevale</td>
</tr>
<tr>
<td>Study ID</td>
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<tr>
<td>Submission ID</td>
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</tr>
<tr>
<td>Funding</td>
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The Office for Research Protections determined that the proposed activity, as described in the above-referenced submission, does not meet the definition of human subject research as defined in 45 CFR 46.102(d) and/or (f). Institutional Review Board (IRB) review and approval is not required.

The IRB requires notification and review if there are any proposed changes to the activities described in the IRB submission that may affect this determination. If changes are being considered and there are questions about whether IRB review is needed, please contact the Office for Research Protections.

This correspondence should be maintained with your records.
APPENDIX B

KUDER CAREER INTERESTS ASSESSMENT – LIKERT

The Kuder Career Interests Assessment-Likert (KCIA-L) is protected by copyright so it is not reproduced in this document. This measure is available through Kuder, Inc. at www.kuder.com.
APPENDIX C

SUPER WORK VALUES INVENTORY – Revised

The Super Work Values Inventory-Revised (SWVI-r) is protected by copyright so it is not reproduced in this document. This measure is available through Kuder, Inc. at www.kuder.com.
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Indiana University of Pennsylvania Indiana, PA
Department of Counseling August 2016 – Present

The Pennsylvania State University University Park, PA
Summer College Opportunities in Education Program (SCOPE) Summer 2016

SELECTED PUBLICATIONS


SELECTED PRESENTATIONS

