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# We can do it, but I wouldn't like it: Gender, interests, and occupational perceptions

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**We can do it, but I wouldn't like it: Gender, interests, and occupational perceptions**

by

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## ABSTRACT

The present study sought to investigate whether individuals continue to view occupations as sex-typed and to examine the relationship between gender traits and perceptions of occupations. Participants assigned Bem Sex Role Inventory (BSRI) adjectives to job descriptions representative of Holland's six RIASEC types and also completed measures of vocational interests, gender identity, and attitudes toward women. Chi-square analyses were utilized to determine the extent to which participants assigned the BSRI adjectives to RIASEC types, while property vector fitting was used to examine whether the order predictions of the RIASEC model were met by the assignment of BSRI adjectives. Multivariate analyses of variance and covariance were utilized to evaluate gender differences and differences by condition in perceptions of the masculinity and femininity of RIASEC types and to examine the contributions of vocational interests, gender identity, and attitudes toward women in accounting for gender differences and differences by condition in perceptions of masculinity and femininity of RIASEC types. The results provided evidence that sex-typing of occupations continues to be prevalent. The findings also demonstrated that differences in perceptions of the RIASEC types were not consistent with the past literature on sex differences in interests of the RIASEC types. Implications for career counseling models and practice, limitations of the current study, and future directions are discussed.

# CHAPTER 1. INTRODUCTION

Career choices are viewed by many as some of the most important choices individuals make in their lives. Careers often represent a significant aspect of one's identity. From an early age, children begin to hear the question, "What do you want to be when you grow up?" and as adults, one of the first questions people ask one another is some variant of "What do you do for a living?" Despite political and social changes over time, women and men are still likely to answer these questions quite differently. Disparities in the types of careers chosen by women and men continue to persist. Although the reasons for this continued discrepancy are currently unclear, potential answers might emerge from an investigation of factors related to gender and the perceptions of occupations. The present study will explore the relationship between gender traits and vocational constructs in an attempt to investigate potential reasons for the discrepancy between men and women in the world of work.

The history of women's career development is certainly different than that of men in the world of work. Fitzgerald, Fassinger, and Betz (1995) emphasized that the role of family was the most significant factor in the differential expectations of men and women regarding careers. Traditionally, men were expected to work outside the home to provide financially for the family while women were expected to care for the family and home. Even when women began to enter the world of work outside the home, they were perceived and treated differently than men. Women who entered the world of work outside the home were overrepresented in service and clerical fields (Fitzgerald, Fassinger, & Betz, 1995). The jobs in which women were most likely to work were lower in pay, lower in prestige, and lacked the benefits available in male-dominated career fields (Lorber, 1994). The 1943 *Guide to Hiring Women* (Sanders) provides a striking example of attitudes toward women and work that were embraced in the past. This guide

provided tips for male supervisors of women regarding how to get efficient work out of female employees. For instance, “general experience indicates that ‘husky’ girls—those who are just a little on the heavy side—are likely to be more even-tempered and efficient than their underweight sisters” was a vital piece of advice for choosing the best female employee. In addition, the guide suggested, “…you have to make some allowances for feminine psychology. A girl has more confidence and consequently is more efficient if she can keep her hair tidied, apply fresh lipstick and wash her hands several times a day” (p. 244, 257).

It is extremely unlikely that such statements about women and work would be acceptable today. Women in today’s society are likely to receive messages that encourage them to pursue employment outside of the home as well as messages that they have the same range of career opportunities as men. However, the continued discrepancy between men and women in the types of jobs chosen leads one to wonder whether these more progressive messages are effective. If the messages have been effective, then it would be assumed that women view the entire range of occupations in the world of work as viable options for them to pursue. In addition, this might suggest that a true change has occurred over time in society’s view on women and work.

In the book *Careers For Our Daughters*, Hughes (1936) wrote in the introduction that women’s activities in the world of work were currently unevenly distributed. Hughes also wrote, “…or whether she inclines to architecture, accountancy, science, engineering, surveying, the law or other occupations, in which women at present number only a few hundreds and in some occupations…less than one hundred, she will find that, given the right abilities and temperamental aptitudes for the work she chooses, she has, despite all difficulties and disadvantages, a greater chance to exercise her abilities to her own satisfaction and in the service of the community than at any time in history” (p. viii). Hughes’ awareness of the disparity in

career opportunities for men and women seemed advanced for the time, but even more surprising is the concern that Hughes demonstrated about this disparity. Unfortunately, although the range of career opportunities are now assumed to be equally accessible to men and women, there is still disparity in the types of works chosen by men and women.

It is certain there has been a great increase in the number of women in the workforce. In the 2013 report on "Women in the Labor Force," the U.S. Bureau of Labor Statistics noted that women's activity in the work force has changed considerably in the past few decades, particularly since the 1970s. Some changes listed included the increased number of women in the work force, the higher levels of education attained by women, and a decrease in the gap in earnings between men and women. In comparison to 1970, in 2011 there were three times as many women in the workforce who held college degrees (37% in 2011 as compared to 11% in 1970). Additionally, the Women in the Labor Force report (U.S. Bureau of Labor Statistics, 2013) stated that in 1979, women who worked full time only earned 62% of that earned by men, but in 2011, women earned 82% of the amount of money earned by men. The report also noted that there are significantly more women that work full time than there were in the past.

Based upon these numbers, one can see that women have made strides in obtaining higher education levels and in entrance into the world of work outside of the home. However, although the United States workforce is now made up of 47% women (U.S. Bureau of Labor Statistics, 2013), female employees are still underrepresented in many traditionally male-dominated fields, including those involving math, science, and technology. Women are also over-represented in traditionally female occupations. For instance, women make up the majority of employees finance, education, and health services (U. S. Bureau of Labor Statistics, 2013). However, women made up 91.1% of registered nurses, while only 33.8% of physicians and

surgeons were women. A similar discrepancy can be found in the percentage of women who were employed as dental assistants and dentists. Women made up just 22.2% of dentists but made up 97.5% of dental hygienists. A sample of additional discrepancies between men and women in traditionally gender-typed occupations can be seen in Table 1.

Women make up more of the workforce as a whole than they did in the past, so a reasonable conclusion based upon this evidence might be that, as they became more integrated into the world of work, women would have begun making up greater numbers of the employees in traditionally male-dominated occupations. However, the lasting discrepancies by sex in employment in certain occupations illustrates that the stereotypic ideas of "women's work" or a "man's job" seem to be present even today. Not only are the ideas present in society but can be directly observed in the form of occupations women enter versus those entered by men. Bystydzienski (2009) noted that even though efforts have been made to increase the number of women in science, technology, engineering, and mathematics (STEM) fields through research, outreach, and even legal measures, women are still greatly outnumbered by men in these fields.

In a meta-analysis of attitudes toward women from 1970 to 1995, Twenge (1997) found that women in college in the 1990s endorsed more feminist attitudes than 87% of the women studied in the 1970s. Additionally, she found that men in college in the 1990s endorsed more feminist attitudes than 82% of the men in the samples from the early 1970s. This provided quantitative evidence that attitudes toward women, for both males and females, were becoming less gender-stereotyped over time. Over a decade later, in 2011, Twenge wrote that those who were in college in the 2000s were more accepting and supportive of gender equality than those of previous generations. She did provide a mild caution that "there is still a long way to go…" but

then concluded her statement, "…but the exuberance I felt in reporting progress toward gender equality still surges through me" (p. 194).

This statement by Twenge (2011), though admirable in its concern for gender equity, is illustrative of the assumption many have about current favorable and equitable attitudes toward women. However, there seems to be incongruence between the shifting attitudes toward women and the sex differences that continue to persist in many occupations. One potential reason there might be decreased concern in society about the lack of women in certain types of occupations could be because the barriers that now exist regarding pursuit of, or success in, traditionally male-dominated occupations are less obvious and explicit than they were in the past. For example, Hughes (1936) wrote that women in the field of engineering "are distinctly handicapped" (p. 235) as compared to men in the field. Hughes was not referring to a lack of ability in women, but to the structural barriers in place that kept women from obtaining practical experience in engineering. Namely, Hughes was referring to the fact that apprenticeships in engineering were rarely available for women but were open and available to men. At that time, there were no legislative safeguards to prevent discrimination against women in hiring, and prejudicial attitudes toward women's abilities and "proper" life roles were common.

Because of social and legislative changes, such blatant barriers to keeping women out of certain occupational areas are much less likely to exist in current society. If the structural barriers are no longer present, this leads to the question of what serves to perpetuate the continued gender segregation in the world of work. In theory, women now have the opportunity to pursue those careers that were "off-limits" to them in the past. It is possible that now that women have the opportunity to enter traditionally male-dominated occupations, they simply choose not to. However, as Lorber (1994) noted, "there are women and men workers in most occupations, but

the extent of clustering is such that 60 to 70 percent of men (or women) workers in the United States would have to change occupations to desegregate them" (p. 195). Although a change in attitudes would likely be considered progress for women's rights and opportunities in the world of work, unquestioning acceptance of the reality of this change could serve to hinder these rights and opportunities. In other words, the perception that gender barriers are obsolete may serve to obscure the gender barriers that are still present. Thus, the purpose of the present study is to investigate whether individuals continue to view occupations as sex-typed and to examine the relationship between gender traits and perceptions of occupations.

The present study attempts to examine these questions by investigating gender-related psychological factors that might influence career choice. The literature review will highlight the conceptualization of gender as a psychological construct, gender identity and gender roles, the socioanalytic model of personality, vocational interests, and career choice as related to gender. The relationship between gender traits and vocational constructs will be explored along with the ways in which perceptions of occupations are related to the perceived gender of the employee in the occupation. Attitudes toward women, vocational interests, evaluation of one's own gender identity, and evaluations of the gender traits in general will be assessed as well to gather more information about the nuances of the relationships that emerge.

# CHAPTER 2. LITERATURE REVIEW

## Gender as a Psychological Construct

Gender is one of the most common characteristics by which individuals are differentiated. Gender differences include both biological and learned differences, but most of the distinctions examined in the gender literature are those which could be perceived as socially-derived (Bandura, 1986; Beall, Eagly, & Sternberg, 2004). Not surprisingly, gender is one of the most widely researched topics in the field of psychology (Egan & Perry, 2001; Hyde, 1990; Petersen & Hyde, 2010; Rosenberg, 1990). As Egan and Perry (2001) observed, gender is a facet of human identity that seems to preside over a variety of areas of life, including relationships, career choices, and educational and leisure activities. In other words, gender is a factor that influences how we interact with others, what we do with our time, and who we do it with. It is also an important influence on our experiences in school and at work. Societal perspectives on gender influence a great number of diverse aspects of one's life. For instance, the gender-typing of society affects occupational choices, skills developed, and self-concept, in addition to other important facets of life (Bussey & Bandura, 1999). Thus, a society's attitudes toward gender could be thought to affect an individual's life choices above and beyond the biological sex into which he or she was born.

Although a substantial body of research and literature spanning numerous disciplines exists on gender differences, it is only in the past few decades that the psychological construct of gender that is not synonymous with biological sex has emerged as a topic of investigation. This distinction between gender and biological sex began in the 1950s as a result of growing knowledge and awareness that biological sex does not necessarily determine one's gender identity (Money, Hampson, & Hampson, 1955, a, b; 1957), and opened up a range of

possibilities for research on gender. For example, Crawford and Kaufman (2006) reflected that the ability to study gender as a construct separate from sex allowed for the investigation of the ways in which differences between men and women might be socially constructed, rather than a result of biology alone. Similarly, Beall, Eagly, & Sternberg (2004) wrote that the ability to study differences and similarities between men and women in terms of gender "…is crucial for answering the question of why women and men so often lead different lives. If men and women were the same except for genitalia and some details of secondary sex characteristics, women would not end up being positioned differently in society, generally with less access to resources than men" (p. 2). Accordingly, the different characteristics exhibited by men and women began to be explored by those investigating the topic of gender.

As the notion of gender as separate from biological sex grew in popularity, research began to focus on sex roles (also referred to as gender roles). As early as the 1950s and 1960s, gender roles began to be formally investigated, and the perceptions of gender were assessed. The terms *masculinity* and *femininity* were often used to describe whether one's gender was more male (possessing mostly masculine traits) or more female (possessing mostly feminine traits), a distinction that continues to be used to this day. However, as the study of gender progressed into more complex theoretical investigations, the constructs of masculinity and femininity were soon scrutinized more closely. With this increased focus on gender as a psychological construct, a number of different perspectives were offered that moved beyond the simple dichotomous process of labeling traits and characteristics as being either masculine or feminine.

Various hypotheses have been proposed regarding what exactly is being tapped into by the constructs of masculinity and femininity. For instance, Parsons and Bales (1955) proposed that the constructs of masculinity and femininity could better be thought of as instrumental and

expressive traits, respectively. Instrumentality involved a focus on task completion, problem solving, and a focus on the self. Expressivity, on the other hand, involved group harmony, concern for the well being of others, and a focus on the relationship between self and others (Bem, Martyna, & Watson, 1976). Parsons and Bales (1955) then discussed instrumentality and expressivity in the context of external and internal functions of a family system. However, they clarified that this differentiation of sex roles "tends to appear in all systems of social interaction regardless of their composition" (p.22). Instrumentality was related to the external functions in the system, while expressivity was related to the internal aspect of the system. The internal facets of the system included maintaining equilibrium within relationships and regulation of tension.

The *instrumental leader* of the family was responsible for coming up with solutions to tasks, making managerial decisions, and discipline of the children in the family. Conversely, the *expressive leader* of the family acted as a mediator to solve disputes in the family; the expressive leader was defined as warm, affectionate, and emotionally expressive with the children of the family. Parsons and Bales (1955) suggested that men tend to take a more instrumental role while women tend to take a more expressive role in their interactions in social systems. This distinction in roles led to the terms *instrumental* and *expressive* to become nearly synonymous with the constructs of masculinity and femininity, respectively. Bem (1974) described instrumentality as "getting the job done" and expressivity as an emotional concern for the well-being of others (p. 156). The characteristics individuals believed to be possessed by the "ideal woman" and "ideal man" were found to be congruent with characteristics of instrumentality (competitive, active, independent) and expressivity (emotional, sensitive, concerned with others) (Spence & Helmreich, 1978).

In comparison to the instrumentality and expressiveness traits proposed by Parsons and Bales (1955), Bakan (1966) applied the constructs of *agency* and *communion* to describe two organizing principles of human existence. Agency was described as a focus on the self as an individual, while communion was described as a focus on connection with others and being a part of a larger system. Helgeson and Fritz (1999) equated the construct of agency to a focus on the self to achieve one's individual goals and equated communion with the actions of helping others to achieve their goals. Bakan (1966) compared agency and communion to the concepts of masculinity and femininity, and wrote, "I propose for consideration that what we have been referring to as agency is more characteristically masculine, and what we have been referring to as communion is more characteristically feminine" (1966, p. 110). This differentiation between agency and communion seemed to parallel the constructs of instrumentality and expressivity that Parsons and Bales (1955) used to characterize masculinity and femininity.

In addition to the ongoing debate regarding the definitions of masculinity and femininity, the underlying dimensionality of the sex role construct also became an oft-studied phenomenon. Early studies of sex differences proposed that masculinity and femininity existed on opposite ends of a single bipolar dimension (Gough, 1964; Terman & Miles, 1936). This suggested that possessing a high level of masculine traits would preclude possession of feminine traits, and vice versa. However, as the study of masculinity and femininity progressed, this idea of a bipolar dimension of sex roles began to be questioned by researchers. For example, Spence, Helmreich, and Holahan (1979) disagreed with the conventional and limiting view of masculinity and femininity and discussed the possibility that the variables of masculinity and femininity might vary independently of one another. In other words, an individual could possess both masculine and feminine traits; the presence of one type of trait did not negate presence of the other type.

Constantinople's (1973) article on masculinity and femininity served to be influential in raising many questions about the way in which these gender constructs were being defined and measured. She outlined the assumptions about masculinity and femininity that did not have empirical support. These assumptions included the tendency for researchers to treat these constructs as single ends of a bipolar dimension and to consider the constructs as unidimensional. This article prompted researchers to investigate the empirical evidence for whether the constructs were "opposites" of one another or whether they "are separate and essentially orthogonal dimensions" (Spence & Helmreich, 1978, p. 3). If the constructs were found to be separate (dualistic) dimensions, this would mean an individual could possess varying levels of both masculine and feminine traits simultaneously. Constantinople (1973) concluded in her findings that there was enough evidence to support further testing of the hypothesis that masculinity and femininity were two separate dimensions. This led other researchers to develop new instruments with which to assess the constructs.

The Bem Sex Role Inventory (BSRI; Bem, 1974) was one of the first measures of sex roles developed that considered masculinity and femininity as independent dimensions. The BSRI served as a major catalyst for the study of masculinity and femininity as two separate dimensions. Bem reasoned that if masculinity and femininity were found to exist on separate dimensions, then this would provide evidence for the existence of androgyny. Bem defined androgyny as the simultaneous possession of both masculine and feminine traits (1974). The existence of androgyny would thereby nullify the assumption that masculinity and femininity were opposite ends of a single continuum. The concept of androgyny, and particularly Bem's hypothesis that androgyny was a psychologically-healthy quality, introduced a new and unconventional viewpoint on sex roles.

The BSRI (Bem, 1974) was novel in its assessment of masculinity and femininity in a number of ways. Rather than the items being based upon men and women's differential endorsement of characteristics, Bem instead determined which characteristics were perceived as socially desirable for men and women, respectively, in United States society. The BSRI included three subscales: "Masculine Items," "Feminine Items," and "Neutral Items." The Neutral Items subscale consisted of characteristics that were found to be socially desirable but were not found to be specifically associated with either men or women. Bem posited that, based on their scores on the three scales, individuals could be found to be sex-typed (either masculine sex-typed or feminine sex-typed) if there were large differences in their scores on the Masculine Items and the Feminine Items scales. In addition, individuals could also be found to be "androgynous" if there was little difference in scores between the Masculine and Feminine subscales.

As the topic of the dimensionality of masculinity and femininity was investigated further, many researchers shifted their perspective from support of a single bipolar dimension to one of two separate dimensions, each with its own continuum (Bem, 1974, 1977; Bem & Lewis, 1975, Spence, Helmreich, & Stapp, 1975). Thus, individuals could be categorized into four groups based on where they "landed" on each of the two continuums. The four groups were masculine (high masculinity and low femininity), feminine (high femininity and low masculinity), androgynous (high in both masculinity and femininity), and undifferentiated (low in both masculinity and femininity). Bem (1974) encouraged researchers to explore the notion that androgyny, in contrast to less flexible masculine or feminine sex-typed self-concepts, might be associated with increased psychological adjustment.

Traditional views on the relationship between sex type and psychological health suggested that individuals were more well-adjusted if their traits matched their gender (i.e.,

feminine women and masculine men would be the most psychologically healthy) (Kagan, 1964; Mussen, 1969). Other researchers, however, suggested that androgyny, a combination of masculine and feminine traits, would lead to greater psychological health (Block, Von der Lippe, & Block, 1973; Heilbrun, 1968). The development of the Bem Sex Role Inventory (BSRI, 1974) led to a surge of research that explored the differing hypotheses about androgyny.

*Research on Gender Dimensions*

Research findings seemed to demonstrate that individuals who were androgynous were more well-adjusted and psychologically healthy (Bem & Lewis, 1975; Bem & Lenney, 1976; Block, von der Lippe, & Block, 1973; Spence, Helmreich, & Stapp, 1975). The findings supporting this viewpoint were limited, however. As research on androgyny progressed, it was discovered that there was a greater link between masculine traits and psychological health than there was for the feminine traits; this suggested that it was not the possession of both masculine and feminine traits that led to better adjustment, but, rather, it was mostly a product of the masculine traits.

For example, Bassoff and Glass (1982) and Whitley (1983, 1985) found that individuals high in masculinity were less depressed, less anxious, and demonstrated higher self-esteem, regardless of their level of femininity. An inverse relationship of the construct of agency to depression and anxiety as well as a positive relationship between agency and physical health and self-esteem has been found in a number of studies (Carlson & Baxter, 1984; Robbins, Spence, & Clark, 1991; Roos & Cohen, 1987). More recent studies have also supported the relationship between masculine traits and greater psychological adjustment, including an inverse relationship between masculine traits and depressive symptoms (Barrett & White, 2002) and a positive

relationship between instrumentality and self-esteem as well as instrumentality and positive emotionality (DiDonato & Berenbaum, 2011).

Cook (1985) discussed the greater predictive power of masculinity for variables that measure psychological health. She wrote that the "masculine supremacy effect" (p. 96) could explain the difference between the predictive power of masculinity and femininity. The masculine supremacy effect suggests that this difference is a result of the greater value that a society places on masculine characteristics. In fact, research findings have suggested that the traits more associated with masculinity are those traits that are more valued by societies (Egan & Perry, 2001), particularly those societies in which men have more power and status than women.

Although great strides have been made over time regarding equality for women in the United States, there is evidence that men continue to possess more status and more power than women in this nation. Through the catalysts of the women's rights and women's liberation movements, it is believed that the structural barriers that have historically prevented women from attaining the status and power of men have been broken down. The question remains, then, of why women are still underrepresented in traditionally-masculine occupations, particularly those that are higher in prestige level. If the structural barriers no longer exist, it stands to reason that there exists a variable (or multiple variables) that serves to perpetuate the differences in occupational attainment and career choice between men and women. Taking a closer look at ways in which gender identity and gender role socialization might be related to vocational interests helps to generate ideas to explore regarding potential answers to this question.

## Gender Identity and Gender Roles

Bem (1981) discussed the importance society places on dichotomizing individuals on the basis of sex. Zosuls, Miller, Ruble, Martin, and Fabes (2011) noted that this process of making

distinctions on the basis of sex begins even before children are born. Parents have the choice of finding out the biological sex of the baby while in utero, and Zosuls et al. posed the question, "does knowing this information make a difference in how parents think about their unborn child?" (p. 826). Much evidence exists that parents have great influence on the development of psychological differences between male and female children (Pomerantz, Ng, & Wang, 2004).

Bem (1981) pointed out that males and females learn that they are expected to display behavior that meets their culture's definition of masculinity and femininity. Meeting this expectation would involve possessing or developing sex-specific skills and personality traits. Further, males and females are expected to define themselves in terms of their masculinity and femininity. Bem (1981) proposed that not only do children learn information about what is masculine and what is feminine, but they learn to view the world through a gendered lens. Children learn to process information in terms of their gender schemas. Gender schema theory proposed that the sex-typed behaviors rewarded in a society as well as cognitive development of a gender-based value system serve to influence one's behaviors and choices throughout the lifespan (Bem, 1983).

Bem (1981) defined a schema as "a network of associations that organizes and guides an individual's perception" (p. 355). Thus, gender schemas refer to the phenomenon of processing information based upon the associations one has about sex-types (i.e., masculinity and femininity). Children's gender schemas develop as a product of their society's gender schema. Children receive messages (both explicit and implicit) from their environments about which traits and characteristics belong to which sex, and thus, they also learn which traits and characteristics "match" their own gender. Gender identity has been defined as "the private experience of gender role" (Money & Ehrhardt, 1972, p. 4). Bem (1981) pointed out that gender

schemas also serve as guidelines for gender-acceptable behavior within the culture. This leads to what Bem terms the “sex-typed individual.” Sex-typed individuals are those who organize information in terms of their gender schemas. Although they affect external behavior, gender schemas are frameworks that assist in the development and maintenance of internal gender identity.

In contrast to the construct of gender identity, the concept of “gender role” has been defined as the “socially defined, outward manifestations of gender” (Zosuls et al., 2011, p. 827). Thus, gender identity is within the individual, while gender role is outside of the individual. Gender identity is first evident in children when they demonstrate awareness of belonging in a gender category (Slaby & Frey, 1975). This involves first being able to identify the gender category in which he or she belongs, and then progresses to an understanding that gender is constant and does not change over time (Egan & Perry, 2001).

Egan and Perry (2001) investigated three aspects of gender identity in a sample of fourth- through eighth-graders. The average age of the sample was 11 years and 9 months. The first aspect explored was the degree to which children perceived congruence between themselves and their gender category; the authors explored this with the purpose of developing a measure of gender compatibility. The second gender identity measure Egan and Perry (2001) developed was a measure of children’s felt pressure to engage in gender-congruent behavior. The third measure of gender identity developed in this study was a measure of bias for one’s own gender group, which Egan and Perry referred to as “same-sex favoritism” (2001, p. 454).

The results of this study found that greater self-perceived gender typicality was associated with greater ratings of global self-worth, acceptance from both male and female peers, and self-perceived peer social competence. The variable of gender contentedness was found to be

significantly related to global self-worth. Further, the authors found that felt pressure for gender conformity was directly related to the degree to which gender contentedness predicted global self-worth. Thus, findings suggested that children who felt they possessed characteristics typical of their gender experienced a healthy sense of self unless they indicated that they experienced pressure to conform to sex-typed expectations (Egan & Perry, 2001).

In addition, felt pressure for gender conformity was found to have a significant negative relationship with global self-esteem. The negative relationship between felt pressure for gender conformity and self-perceived peer social competence was greater for the girls in the sample than for the boys. Egan and Perry (2001) concluded that various aspects of gender identity do affect the psychosocial adjustment and well-being of children. They specified that perceiving oneself as gender-typical was not associated with negative aspects of adjustment, but felt pressure to conform to gender norms was the variable associated with psychosocial maladjustment. Further, the felt pressure to conform to gender norms was demonstrated to be stronger for girls than boys. This finding suggests that girls differ from boys in the way that they perceive and respond to pressure to conform to gender roles.

Tobin, Menon, Menon, Spatta, Hodges, and Perry (2010) proposed a model of gender socialization in children, which they named the gender self-socialization model (GSSM). This model takes into account a developmental-cognitive perspective on gender, gender schema theory, and multifactorial gender theory. These authors noted Kohlberg's (1966, 1969) proposition that after children achieve gender constancy (knowledge that gender is constant even if there are outward changes in appearance), they are motivated to "match" gender stereotypes so that a state of internal consistency is achieved.

Gender schema theory (Martin & Halverson, 1981; Martin, Ruble, & Szkrybalo, 2002) proposed that in order to maintain consistency with one's own gender identity, children will assume that the characteristics that they, themselves, possess will also be possessed by others of the same gender. However, they cautioned that the less one sees him or herself as typical of his or her gender, the less the individual will engage in this projection of gender identity.

Gender identity has been conceptualized in a variety of ways by different researchers (Bem, 1981; Kagan, 1964; Kohlberg, 1966; Spence, 1985), but Tobin et al. (2010) asserted that the general theme underlying all of these conceptualizations is that gender identity involves a motivation to exhibit gender-congruent behavior. Cognitive theorists have proposed that the ability that children acquire to identify males and females facilitates the expression of gender-congruent behavior (Campbell, Shirley, & Candy, 2004).

Sanchez and Crocker (2005) investigated the relationship between investment in gender ideals and psychological well-being. They defined investment in gender ideals as "the extent to which an individual believes it is important to be similar to the ideal for their gender" (p.63). They found that, for both men and women, as investment in gender ideals increased, self-esteem decreased. These authors concluded that those who invest less in traditional gender ideals will be more psychologically healthy. This finding suggests that adherence to traditional gender ideals could be detrimental to both men and women's self-esteem. Thus, exploration of the construction of gender identity and gender roles through gender role socialization is important to consider in understanding the development of gender identity.

*Gender Role Socialization*

Gender role socialization refers to the influence of society on the gender roles with which males and females identify or for which they endorse. Maccoby and Jacklin (1974) described

gender roles as the expectations of society regarding behaviors and activities that are appropriate for males and females, respectively. Betz (1994) has written that the feminine gender role orientation of women serves as a limit to their career development. Specifically, society sends messages to women that they should develop the more expressive personality traits, such as nurturance, emotional sensitivity and expressiveness, and interpersonal skills while men are encouraged to develop instrumental traits, such as achievement and competence. Women's identification with and internalization of society's definitions of femininity results in women being less focused than men on the search for a successful career. Further, this gender role socialization results in a limiting of occupational choices to those that are congruent with a feminine orientation, which eliminates stereotypically- or traditionally-male occupations (Coogan & Chen, 2007).

Recent research that has been conducted on the influence of gender in women's attitudes toward various occupations demonstrates the influence of gender role orientation. Oswald (2008) studied the effect of gender priming on female college students' liking of and self-efficacy for performance in stereotypically male (e.g., architect, pilot, building contractor) and stereotypically female (e.g., social worker, nurse, teacher) occupations. Gender stereotypes were activated by having the participants in the stereotype activation group complete a survey that assessed gender identification. Those whose female gender was activated and made salient were significantly more interested in the stereotypically female occupations than were the participants who did not complete the gender priming survey. Those who were primed were also significantly more confident in their ability to be successful in the stereotypically female fields than were those who were not primed. The results of this study indicate that the gender role activation that

occurs often in the real world and in everyday life could play a role in women's preference for traditionally feminine fields of study and occupations (Oswald, 2008).

Steele and Ambady (2006) also performed a series of studies to investigate the effect of gender priming on women's attitudes toward fields of study that were either stereotypically male or female. Results found that when female gender was made salient, stereotypically feminine activities (art-related activities) became more preferable to the female participants than stereotypically male activities (math-related activities), whereas when gender was not made salient, preference for the activities did not differ. These authors also found that when their gender identity was made salient, women showed more gender-stereotypical attitudes toward arts and math.

The results of both Oswald (2008) and Steele and Ambady's (2006) research demonstrate the relationship between one's gender and awareness of one's gender in the preferences that women have toward occupations. Traditionally female occupations were viewed by women as more preferable than traditionally male occupations. In Oswald's (2008) study, though, preference was not the only variable affected by gender priming. The participants who had been in the female prime condition not only preferred stereotypically-female occupations, but they also felt that they would be more capable of succeeding in the stereotypically-female occupations. It seems, then, that self-efficacy could also be involved in women's preference for traditionally feminine fields of work as well as in the lesser preference for fields of study that are more traditionally masculine, such as math and science. A relationship between self-efficacy beliefs and preference for certain subject areas could result from the long-held assumption that men have greater ability than women in certain academic areas, including mathematical ability (Hyde, 2005).

Stereotype threat has been studied with regard to the self-efficacy of females in certain academic subjects, especially in math and science. Nguyen and Ryan (2008) describe stereotype threat theory as "the prediction that stereotyped individuals perform worse on an evaluative task…in a stereotype-threatening context than they would in a nonthreatening condition" (p. 1314-1315). Stereotype threat has been found to have an effect on women's mathematical test performance. Specifically, when women were told that a math test shows or can detect sex differences, women performed more poorly than men on the test. However, when women were told that the test was gender fair, women performed just as well as men (Halpern, Benbow, Geary, Gur, Hyde, & Gernsbache, 2007). Thus, it seemed that simply priming women to consider sex differences in academic skills could decrease their performance on academic tests.

The effect of stereotype threat indicates that performance can be affected by self-efficacy beliefs. Research also shows that beliefs about self-efficacy regarding careers is associated with interest in those careers. Individuals eliminate occupations from their consideration if they believe they are not capable for those jobs (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). In a study of children that ranged in age from 11 to 15, it was found that males had greater perceived self-efficacy for traditionally masculine jobs such as military, science, and technology occupations. Females demonstrated greater perceived self-efficacy for jobs that were more traditionally feminine, such as in social services, office management, and education. How well individuals believed they would perform in certain areas was associated with how interested they were in those areas. Specifically, if one perceived they could succeed in an occupational area, they were more interested in that area, irrespective of one's actual academic achievement in that subject area (Bandura et al., 2001).

Further evidence demonstrated that women have less self-efficacy for traditionally masculine occupations and areas of study. Female college students demonstrated less perceived ability to perform well in science and math, and these individuals also demonstrated less interest than men in mathematics and were less likely to enter the mathematics field of study (Byars-Winston & Fouad, 2008; Lapan, Shaughnessy, & Boggs, 1996; Turner & Lapan, 2005).

If gender-stereotyped messages are reflected in the associations that men and women have regarding occupations, this provides an explanation of the difficulty in increasing the number of women working in the STEM fields. Further, it can also provide a basis for working with women and men in career counseling to understand their attitudes toward certain occupations. Researching associations between concepts, then, could provide important information about attitudes regarding the masculinity and femininity of occupations. Gender role stereotypes still exist and are still being communicated to men and women (Betz, 1994). However, it is likely that as the social acceptability of these messages has decreased over time, the expression of these stereotypes will be less direct and explicit than it was in the past. Changes in the way that gender role stereotypes are communicated add an additional layer of complexity in identifying the stereotypes that are present in regard to gender and occupations.

In a meta-analysis of gender roles in advertising, Eisend (2010) concluded that there has been a decrease in the stereotyping of gender in advertisements over time. However, he clarified that most of this effect is due to changes in "high masculinity countries" (p. 436) rather than a universal change in advertisements. He also noted that his findings suggest that stereotyping in advertisements is related to the degree of gender equity in the society rather than the society's equity being based upon the stereotyping in advertisements. Results of Eisend's meta-analysis also indicated that the category with the most stereotyping in advertising is occupational status.

Eisend highlighted that occupational status can be considered a measure of gender equality because the social environment has a direct impact on occupational status. The magnitude of occupational stereotyping (operationally defined in this study as dependent versus autonomous role in life and whether the characters were located in a home/domestic environment or a work/occupational environment) in advertisements according to gender was significantly greater than the other stereotyping components assessed, including age, credibility, and product type.

Although there has been some decrease in gender-stereotyped advertisements, occupational stereotyping in the media is still present (Eisend, 2010). The continued gender stereotyping in advertisements could be one piece of evidence that society continues to communicate messages about stereotyped gender roles. Social role theory would suggest that as stereotypic beliefs about the characteristics of males and females change, then the roles played by males and females should also change (Bubany & Hansen, 2011). Further, Bubany and Hansen (2011) asserted that changes in the roles of males and females should result in changes in the interests demonstrated by males and females across birth cohorts. By this reasoning, if gender stereotypes continue to exist in regard to occupations, then sex differences in interests will be maintained.

In a review of studies that examined various facets of sex-role socialization, Maccoby and Jacklin (1974) concluded that some of the greatest differences in sex-role socialization of boys and girls involved support for sex-typed activities. They made particular mention of a study by Lansky (1967), in which parents responded to hypothetical situations involving their son or daughter in either a masculine or feminine activity. The parents were not distressed at the idea of a daughter being involved in masculine activities; however, parents were quite concerned with the idea of a son being involved in feminine activities. Although both parents reacted negatively

to this hypothetical situation, fathers were found to react more negatively than the mothers. Fling and Manosevitz (1972) also found that parents discouraged cross-sex behaviors to a greater degree for sons than for daughters. Goodenough (1957) reported that one father, when asked if he would be disturbed if his son were to behave in a "feminine" manner was, "Yes, I would be, very very much. Terrifically disturbed—couldn't tell you the extent of my disturbance. I can't bear female characteristics in a man. I abhor them" (p. 310).

It stands to reason that such messages from parents can greatly impact a child's felt pressure to conform to gender roles. Not only might the messages influence the amount of pressure children feel, but the messages can shape the gendered lens through which children interpret the world around them. Considering the broader context of the way in which gender is shaped by society can provide a novel perspective on the specific relationship of gender and occupational choice. The socioanalytic model of personality (Hogan & Roberts, 2000) provides a framework from which to consider gender roles and occupational choice from a perspective that takes into account both internal and external factors.

## Socioanalytic Model of Personality

The socioanalytic model of personality provides a context in which both internal and external gender-related factors can be examined regarding their influence on occupational interests and choices. Considering occupational choices from the perspective of this model is a way to address the "pervasive individualistic bias of American psychology" (p. 14) that Hogan and Roberts (2000) pointed out. The socioanalytic model of personality provides a framework for consideration of the roles that both the individual and that society play in shaping one's interests and choices. That is, to understand the role of gender in the career development process, it is important to consider both individual difference factors such as interests, self-efficacy

beliefs, and personality and external factors, such as cultural messages about gender roles and the ways in which society implicitly and explicitly encourages individuals to pursue traditionally sex-typed career paths.

Hogan and Roberts (2000) operationalized the major variables in their socioanalytic model: identities, reputations, roles, and agendas. Identities were defined as the way in which individuals define themselves as well as the way in which they would like to be perceived by others. Three "domains" of identity were described. These categories included the definition of the self in relationships, goals and aspirations, and the values that guide the individual's decision-making (Hogan & Roberts, 2000). Reputations, on the other hand, were described as the way in which individuals are actually perceived by others as well as the ways in which individuals are likely to behave. Thus, in this model "identity" refers to the internal factors that influence individuals while "reputation" is representative of an external factor that can influence one's choices.

Hogan and Roberts (2000) then described interactions and the types of roles that are "played out" in interactions. They identified three categories of roles. These roles were categorized, respectively, as those defined by status, those defined by ingroup/outgroup distinctions, and those defined by degree of intimacy with another person. In summary, then, the roles involved those related to status, affiliation, and intimacy. In regard to the roles available for an interaction, Hogan and Roberts (2000) suggested that, when individuals are aware of the external expectations for the situation, they usually conform to those expectations. This conformity to expectations helps to ensure the quality of one's reputation.

Agendas refer to "schemas" of interactions. Hogan and Roberts (2000) posited that there are six possible public agendas for general interactions, and these can be categorized according

to Holland's (1959, 1997) theory of vocational personalities and work environments. Vocational interests provide information about the types of situations individuals prefer. Individuals prefer to engage in activities congruent with their identities and prefer to avoid activities that are incongruent with their identities. Not only is identity related to vocational interests, but reputation is associated with interests as well. Research has demonstrated that peers describe others in particular ways based upon those others' activity preferences (reputations). Private agendas involve those related to status, acceptance, and predictability. Thus, individuals will be motivated to exhibit characteristics and behavior that will demonstrate their desired level of status to others; this will serve to meet the private agenda of acceptance.

Hogan and Roberts (2000) asserted that individuals often behave in accordance with expectations in order to preserve their reputations. Thus, the more certain an individual is about the expectations, roles, and agendas of a given interaction, the more congruence he or she will experience and the less stress the individual will experience. However, if one is unsure of the expectations in a situation, he or she will experience greater stress. Although, in general, individuals will strive to conform to the expectations of others, there are individual differences in the degree to which they are sensitive and responsive to the expectations of others.

Therefore, according to the socioanalytic model, behavior is related to how individuals try to act congruently with their identities, how they try to fill role obligations and meet the agendas of interactions, and the impact that the actions will have on one's reputation. If an individual's behavior is incongruent with any of these factors (identity, roles, agendas, reputation), then the person will experience conflict. This model serves as a framework to consider the external, as well as the internal, factors related to gender than can influence career choice. In addition, the model highlights the conflict an individual might experience when his or

her occupational aspirations and choices are perceived to be incongruent with his or her identity and/or reputation.

Similar to Hogan and Roberts (2000) discussion of internal and external factors, Hyde (2007) encouraged those who research gender to consider gender as a social-stimulus variable as well as an individual-difference variable. Hyde reasoned that the gender of the individual is a social-stimulus variable because it influences how others respond to the individual. For instance, Eagly and Wood (1999) posited that gender differences in humans are a result of social-structural theory. That is, social structures (and particularly the division of labor between the genders) create gender differences between males and females because of the distinction in the roles of men and women. For example, these authors noted that cultural roles and beliefs serve to magnify the differences in size and strength between males and females. Thus, the nurturing roles of women magnified their relational skills, while the agentic activities of men led to their higher level of status than women.

In Gottfredson's Theory of Circumscription and Compromise (1981), Gottfredson advocated for a model of vocational choice that took into account both the internal factors of self-concept and personality as well as external factors, such as the social environment. She emphasized that psychological research on this topic largely ignored the social factors that could help explain career choices. One of the external factors Gottfredson suggested to be very influential on vocational choices was gender. Although gender is often considered an internal factor, an aspect of one's self-concept, Gottfredson wrote that gender is also related to occupational images that individuals possess. She defined an occupational image as, "a generalization a person makes about a particular occupation" (p. 547). Thus, she posited that individuals make generalizations about the masculinity and femininity of occupations.

Gottfredson (1981) purported that all individuals go through a developmental process in which they narrow the range of occupations they perceive as acceptable for them to pursue. She called the process of eliminating occupational alternatives "circumscription." She theorized that around the ages of 6 to 8 years, boys and girls experience increased awareness of sex roles, or the behaviors which are more socially desirable for each sex. Around this time, then, individuals circumscribe (eliminate) occupations from their zone of acceptable alternatives which they believe are "unacceptable" for his or her sex. For boys, occupations that are deemed "too feminine" are eliminated, and for girls, occupations deemed "too masculine" are eliminated.

Gottfredson (1981) then described the process of "compromise." This process involves giving up one's most preferred occupational alternatives in favor of those the individual perceives as more accessible to him or her. She noted that compromise can occur in anticipation of external barriers or after external barriers are experienced. When considering the factors of vocational interests, occupational prestige, and sextype of the occupation, interests will be compromised first, and then prestige. This means that individuals are more likely to enter occupations in which they are less interested, and even that are less prestigious, as long as the sextype of the occupation is congruent with his or her self-concept. This indicates considerable influence of the perceptions of masculinity and femininity on occupational choices.

Maccoby and Jacklin (1974) discussed the reciprocal nature of internal and external factors related to masculinity and femininity: "Individual male and female children, or sex-segregated groups of children, take an active role in forging environments that are compatible with their dispositions. It is also true that children of the two sexes have their dispositions shaped by socialization pressure from adults to act in sex-appropriate ways. Circular processes of influence and counterinfluence unfold over time; throughout childhood, individuals are engaged

in active construction of their own version of the acceptably masculine or feminine behavior patterns to which they attempt to adhere" (p. 237-238). The influence and counterinfluence processes are particularly salient to the concept of person-environment fit, vocational interests, and the differences that emerge between men and women in regard to vocational interests.

## Vocational Interests

Vocational interests have been studied extensively, and the foremost theory used to describe vocational interest types is Holland's RIASEC model (1959, 1997). This model posits that there are six vocational interest types that characterize individuals as well as work environments. These six types Realistic, Investigative, Artistic, Social, Enterprising, and Conventional, are also referred to by the acronym RIASEC. Holland (1997) described that each type possesses its own set of skills and attitudes for interacting with the world:

The *Realistic* type prefers practical, hands-on work activities that involve manipulation of tools, machines, and objects. Holland (1997) suggested that the Realistic person values tangible and concrete things as well as being practical-minded. This type of person would likely see him or herself as having technical, athletic, and mechanical abilities. Realistic activities and characteristics are representative of the traditional perspective on masculinity as instrumental and agentic.

The *Investigative* type of person favors activities that involve the investigation of biological, physical, and cultural facts and occurrences. Investigative persons value activities perceived of as scholarly and scientific, and value logic, intelligence, and ambition (Holland, 1997). This type of person sees him or herself as broadminded, analytical, and curious. Again, this area of interest is likely to be considered more masculine than feminine because goal-

directed behavior, analytical thinking, and intellect have been typically associated with men rather than women.

The *Artistic* type prefers activities that are unmethodical and ambiguous, without a clear set of rules. These activities often involve the creation of art from verbal, physical, or human mediums. Holland (1997) suggested that those who are Artistic types value creativity, self-expression, and is often open and nonconforming. The expressive nature of the Artistic type would likely be more congruent with concept of femininity than masculinity.

The *Social* type of person favors activities that involve training, informing, curing, or helping others. Social persons value ethical activities and service to others. They are likely to see themselves as having social skills, the ability to understand others, and competency in interpersonal and educational activities (Holland, 1997). Activities of the Social type are representative of the traditional characterization of femininity as expressive and concerned with interpersonal harmony.

The *Enterprising* type prefers activities that involve leadership and management of others in order to meet organizational goals or economic attainment. Holland (1997) proposed that Enterprising types value economic and political achievement, controlling others, and holding positions of power. This type of person sees him or herself as aggressive, popular, and self-confident. Although these characteristics appear to be quite compatible with the traditional definition of masculinity, research findings have not found sex differences in interests in the Enterprising area (Su, Rounds, & Armstrong, 2009).

Finally, the *Conventional* type of person prefers ordered and systematic activities that involve working with data. Some preferred activities of this type were listed as filing materials, keeping records, and organizing data processing equipment (Holland, 1997). Conventional

persons value business and economic achievement as well as personal qualities of ambition and obedience. While the value of financial and goal attainment would likely be considered more traditionally masculine, the activities of organization and record-keeping and the characteristic of obedience would likely be considered more feminine.

These six types form a hexagonal structure, and this structure illustrates the conceptual similarities between the types. Armstrong, Hubert, and Rounds (2003) found support for Holland's structural model and specified that this type of circular model wherein distance represents degrees of similarity is referred to as a circumplex. Thus, in Holland's model, similarity of the types is inversely proportional to the distance between types on the hexagon. For instance, Realistic and Social types are opposite one another on the hexagon, or circumplex, so it is hypothesized that it is less likely for someone with great realistic interests to also have great social interest. This theory of vocational personality and work environments includes the principle that satisfaction in one's career is dependent upon the congruence between an individual's vocational personality type and the type of work environment in which he or she works (Holland, 1997). Holland's RIASEC types have informed vocational interest research, the development of vocational interest measures, and vocational counseling (Darcy & Tracey, 2007; Su et al., 2009).

In 1982, Prediger suggested that there are two bipolar dimensions underlying the circumplex structure of the RIASEC interests and named these dimensions Things-People and Data-Ideas. Prediger and Swaney (2004) described four work tasks that make up these bipolar dimensions. "Things" involves machines, tools, and materials and are nonpersonal. "People" involves helping, caring, leading and other activities that are interpersonal. "Data' involves working with numbers and facts and is impersonal in nature. "Ideas" involve theories and

abstractions and are intrapersonal processes. Research on these underlying dimensions has demonstrated that there are robust gender differences in interests, with the most empirical support for a gender difference on the Things-People dimension of interests.

Su et al. (2009) performed a meta-analysis examining gender differences in interests in RIASEC types and Prediger's two-dimensions of vocational interests. Data from 47 interest inventory technical manuals was analyzed, resulting in a total of 503,188 data points. Significant gender differences in interests were found. Men demonstrated stronger interests in the Realistic and Investigative areas while women demonstrated stronger interests in the Artistic, Social, and Conventional areas. No significant differences were found between men and women regarding their interest in the Enterprising area. Even more robust was the gender difference found between men and women on Things-People dimension. Women wore more interested in People, and men were more interested in Things. The difference between men and women on the Data-Ideas dimension was small.

These differences in interests are mirrored in the makeup of men and women in the world of work. As reflected in the statistics of the differences in occupation by gender noted previously, women are underrepresented in scientific fields of work and in STEM (science, technology, engineering, and mathematics) fields that have math concentrations (Ceci, Williams, & Barnett, 2009). Careers in the STEM fields are more Realistic and Investigative in nature than Artistic, Social, and Conventional. For instance, the top RIASEC interest types for some STEM jobs are: I (Investigative) for computer programmers and computer systems analysts, R (Realistic) for civil engineers, I for aerospace engineers, I for computer systems analysts, and I for surgeons and dentists. However, the top RIASEC types for some of the occupations in which women make up a greater percentage look quite different. The top RIASEC type for some of

these occupations are C (Conventional) for tax preparers, S (Social) for counseling psychologists, S for social workers, and A (Artistic) for designers (i.e., graphic, interior) (O*NET OnLine, 2012). Regarding the gender differences on the Things-People dimension, the STEM careers, which are made up of more men than women, involve working with things rather than people.

As outlined above, there is substantial evidence of sex differences in vocational interests. If one believes that United States society has shown a decrease in the communication of gender role stereotypes over the past few decades and if gender role socialization affects vocational interests, then it would follow that sex differences in career-related interests would be expected to decrease. Although there are some career fields in which women are increasing in numbers, such as psychology and veterinary medicine, there are still vast differences in the career choices made between men and women. There are a variety of possible reasons underlying this maintenance of sex differences in vocational interests. One of these possible explanations is that gender schemas continue to be influenced by gender role stereotypes, even though individuals might not admit that hold these types of beliefs about gender and careers.

## Gender and Career Choice

Cotter, Hermsen, and Vanneman (2011) examined changes in gender attitudes from 1977 to 2008. They found that there was an increase in liberal attitudes toward gender until the mid-1990s, but then attitudes stagnated and have not changed much since that time. The authors of the study acknowledged that increased liberal attitudes in birth cohorts accounts for some of the stagnation (i.e., the magnitude of changes between cohorts was greater through the 70s and 80s and so cohorts in the 90s were generally more liberal overall). However, they stated that there

were not cultural changes in ideology during that time that could account for the idling attitudes toward gender.

In addition, Charles and Grusky (2004) discussed a “separate but equal” philosophy in which men and women are essentially treated equally, but they have different aptitudes and skills sets, so sex segregation in the workforce is still present in an “equal opportunity” society. In the 1990s, the media themes of women’s career stress (i.e., increased time demands at work but insufficient child care resources) and a focus on intensive and involved mothering “supported some traditional gender roles by justifying women’s decisions to forgo careers and stay at home to raise their children” (Cotter et al., 2011, p. 285). Cotter et al. referred to this as an “egalitarian but traditional gender frame” (2011, p. 284).

Kuperberg and Stone (2008) examined media portrayals of the “opt-out revolution,” a term used by Belkin (2003) to describe the phenomena of women choosing to leave their careers to stay home and care for their children. The authors noted that in discussions of “opting-out,” women often framed their decision in terms of choice. Women often cited feminism and the women’s movement as having provided the opportunity for women to choose whether or not they want to work (Kuperberg & Stone, 2008). Might the disparities between men and women in the type of work they choose be a result of the opportunity to choose? Perhaps now that women perceive that they have equal career opportunities as men, they simply choose to enter more traditionally-female occupations?

Coronges, Stacy, and Valente (2007) asserted that investigating patterns of cognitive associations can help to explain human behavior. Thus, the pattern of associations between concepts and items related to the Things-People vocational dimension of interests could provide evidence regarding why women are drawn to certain vocations while men are drawn to others.

Some vocational dimensions could be more closely associated with feminine traits while others are more closely associated with masculine traits.

Research on gender role socialization helps form the hypotheses for how associations might differ between the cognitive networks of men and women. Gender role socialization refers to the influence of society on the gender roles with which males and females identify or will endorse. Bussey and Bandura (1999) stated that children learn to differentiate between categories on the basis of sex early in life. Children also learn to engage in play activities that are differentiated by gender. (i.e., girls might be encouraged to play “house” or “kitchen” while boys might be encouraged to play with tools and trucks). The media also portrays men and women working in differentiated occupational fields. Differences have also been found in educational settings, where girls are provided with implicit (and perhaps explicit) messages that less is expected of girls academically than is expected of boys (Bussey & Bandura, 1999). These gender role orientation messages result in a limiting of occupational choices for women to those that are congruent with a feminine orientation, which eliminates stereotypically or traditionally male occupations (Coogan & Chen, 2007). These findings suggest that in the cognitive networks of both men and women, concepts related to the dimension of “People” will be more closely associated with the attribute of “feminine” while those related to “Things” will be more closely associated with “masculine.”

Lippa (1998, 2001) examined gender in relation to personality and the structure of vocational interests. Results of these studies demonstrated that Prediger’s (1982) Things-People dimension underlying Holland’s RIASEC model has strong empirical support as the facet of vocational interests most related to gender differences. Thus, Lippa (2001) argued that

masculinity and femininity can be thought of as a bipolar construct underlying the Things-People dimension (Prediger, 1982) of vocational interests.

Bubany and Hansen (2011) performed a cross-temporal meta-analysis of vocational interests to explore whether gender differences in interests have changed over time. These authors collected samples of interest scores on the Holland RIASEC types (as measured by the Strong Interest Inventory and the Strong-Campbell Interest Inventory) from dissertations and published journal articles. The samples spanned a 28-year time period (from 1976 to 2004), and the total sample size was 33,520. The authors used weighted regressions with z-scores to examine cohort differences in the data on gender for each Holland type. The largest effect demonstrated by the results was a significant increase in Enterprising interests in females over time. For men, significant decreases over time in Realistic, Investigative, and Artistic interests were found.

Bubany and Hansen (2011) concluded that these results demonstrated movement toward a more egalitarian perspective on gender in the United States and less focus on gender stereotypes. However, the only significant difference in interests found for women in this study was in the Enterprising area, and although this could demonstrate some greater acceptance by women of the more agentic activities and values of the Enterprising type, no significant differences were found related to the Things-People dimension of interests, where the greatest disparity of gender differences in interests is found. It was found that men were significantly less interested in the Realistic and Investigative types over time, but women's interests in these types did not increase, nor did men's interest in the Social type increase.

Lapan, Adams, Turner, and Hinkelman (2000) explored the perceptions of gender differences in occupations held by a sample of seventh graders. They also explored the interests

and efficacy ratings of the students themselves. The results demonstrated that boys expressed both more interest and more confidence in their skills in the Realistic area. Girls expressed greater interest and confidence in the Artistic, Social, and Conventional areas. These gender differences in interests and efficacy ratings mirrored the way in which the students estimated the gender makeup of these occupations in the world of work.

The results of Johnson and Stokes' (2002) study on gender differences in the breadth of vocational interests (i.e., range, or diversity, of interests) revealed that different factors influenced the development of and breadth of men's and women's vocational interests. These researchers found that cognitive ability was more predictive of breadth of interests in men, but life history information was more predictive of breadth of interests in women. Specifically, men with higher GPAs and higher SAT scores were more likely to have a greater diversity of vocational interests. For women, greater academic achievement, more positive attitudes toward their high school education and teachers, high grades in science classes, and those who demonstrated greater enjoyment in discussions and desire for others to see their points of view during class discussions were predictive of a greater range of vocational interests.

Holland (1997) wrote, "The choice of a vocation is an expression of personality" (p. 7). In addition to, and sometimes in conjunction with, vocational interests, personality has also been extensively studied in regards to its relationship to gender. The Big Five model of personality defines personality in terms of five trait dimensions. These five bipolar trait dimensions are Extraversion, Agreeableness, Neuroticism, Openness, and Conscientiousness (Goldberg, 1990; John & Srivastava, 1999; McCrae & Costa, 1997). The relationship between the Big Five and Holland's six vocational interest types has been examined. Larson, Rottinghaus, and Borgen (2002) found the most robust evidence for associations between the Big Five factor of Openness

with Holland's Investigative, Artistic, and Social types and the factor of Extraversion with the Enterprising and Social types. Larson et al. (2002) also found associations between the factor of Agreeableness and the Social, between Conscientiousness and the Enterprising and Conventional types, and between Neuroticism and the Enterprising type.

Sullivan and Hansen (2004) explored associations between Holland's RIASEC types and the lower-order personality traits that make up the "Big Five" factors of personality. A significant negative correlation was found between the Investigative type and Openness to Feelings ($r$ = -.24, $p$<.01). Higher scores on the Openness to Feelings trait would indicate greater intensity in emotions experienced as well as a higher degree of importance placed on emotions. These authors also found that the trait of Warmth could account for a significant degree of the association between the Social type and Extraversion. Although Sullivan and Hansen (2004) did not find gender differences in associations between interests and personality (e.g., there were not significantly different correlations between Altruism and the Social type between men and women), they did not assess for gender differences on the lower-order personality traits. However, hypotheses can be made about possible gender differences in the lower-order traits.

Notably, the lower-order traits associated with the Social and Artistic types (Warmth, and Openness to Feelings, respectively) would likely be traits that are perceived as more feminine than masculine. This could help explain why women are more interested in the Social area, even though the personality factor it has been found to associate with (Extraversion) is not usually thought of as "feminine" trait. The Warmth factor could be what is drawing women to the Social type of activities. Further, the trait of Openness to Feelings is likely seen as more desirable for women to possess, thus, if women do possess this trait, then the Investigative type might be less likely to be an area of interest for them.

Mahalik, Perry, Coonerty-Femiano, Catraio and Land (2006) examined the relationship between conformity to traditional masculine norms and men's vocational interests. They sought to extend previous findings that men who endorsed more anti-feminine attitudes had greater interests on the Things end of the Things-People dimension of interests; greater anti-feminine attitudes were also associated with less interest in the Artistic, Social, and Enterprising Holland types (Tokar & Jome, 1998). In addition, Jome and Tokar (1998) had demonstrated that men in traditionally-masculine careers endorsed more "toughness" and anti-feminine norms. In Mahalik et al.'s sample of male participants (2006), it was found that the men with greater endorsement of traditionally-masculine norms were significantly more likely to have Realistic and Enterprising interests than interests in the other Holland areas. These results indicate that attitudes toward women might be a factor in career choice. One belief about women that has been traditionally accepted as a true sex difference regards the abilities of women versus those of men.

A factor once believed by many and still believed by some to contribute to the differences in occupational choices between men and women was that men and women differ in abilities. Specifically, it has been posited that women are not as talented in science and mathematics as men, and thus they are underrepresented in science, engineering and mathematics. However, in her examination of the theories regarding differences in ability between men and women, Spelke (2005) did not find evidence to support the vast differences between men and women that have been hypothesized. She reported that no evidence has been found for a significant difference between men and women in mathematical ability. However, results of the Study of Mathematically Precocious Youth (SMPY; Benbow & Stanley, 1983) found that even though differences in mathematical ability were not found between males and females in the sample, sex differences were found in the type of degrees received. The women

went on to obtain more biology and medicine degrees while the men obtained more physics and engineering degrees (Lubinski, Webb, Morelock, & Benbow, 2001; Webb, Lubinski, & Benbow, 2002).

As far back as 1974, authors had argued that there were only a few differences between genders (Maccoby & Jacklin). Maccoby and Jacklin named the following areas as having the myth of sex differences but not the empirical support: girls are more social than boys, girls are more suggestible than boys, girls have lower self-esteem, girls are better at rote learning while boys are better at tasks that require higher-level processing, boys are more analytic, girls lack achievement motivation, and girls are auditory while boys are visual (p. 349-351). These differences would imply that boys are more intelligent and academically capable than girls, while girls are more concerned about relationships and less academically oriented than are boys.

Forty years later, Hyde (2005) addressed the (still) widespread belief by the public that men and women differ in many and varied ways. Hyde presented a contrary "gender similarities hypothesis" and posited that "males and females are similar on most, but not all, psychological variables" (p. 581). Hyde reviewed the major meta-analyses that have been performed on gender differences and concluded that women and men are more similar than they are different and that the differences between women and men should receive less attention than they have in the past. However, as noted above, there are gender differences in the types of jobs in which men and women work in the United States. Therefore, the question that arises is that if there are so few differences between women and men in cognitive performance and overall ability, why are women and men still entering sex-typed occupations in unequal proportions? With the increased amount of women in the workforce and their increasing levels of education, why is there still such a great difference in the types of occupations in which women and men work?

## The Present Study

Although society has made changes to encourage the integration of women into traditionally masculine career fields, a disparity still exists between the types of career choices made by women and men. Differences in vocational interests have been one of the most robust gender differences obtained in the literature on the topic of gender and are a factor in the different patterns of career choice. However, the mechanisms maintaining this significant difference in career interests between men and women are not yet fully understood.

Gender identity, gender role socialization, attitudes toward women, and the influence of gender role stereotypes could all contribute to the maintenance of sex differences in interests and sex segregation in the workforce. Gender role socialization has been found to influence gender identity. Gender role stereotypes might then provide information to young boys and girls about the types of activities and jobs that are "gender-appropriate" for each sex to pursue. Gender role socialization and gender role stereotypes might serve as a guide for the ways in which children develop ideas about how they would like to be perceived by others. The expectations one perceives in terms of his or her "reputation" can both shape and be shaped by one's internal sense of identity. This socioanalytic system might involve a reciprocal process that encourages individuals to strive for congruence between identity and perceived expectations of socially desirable career choices.

The present study attempts to examine these questions by investigating gender-related psychological factors that might influence career choice. The relationship between gender traits and vocational constructs will be explored along with the ways in which perceptions of occupations are related to the perceived gender of the employee in the occupation. Attitudes

toward women, evaluations of the gender traits, gender identity, and vocational interests will be assessed as well to gather more information about the nuances of the relationships that emerge. The following research questions and hypotheses will be examined in this study:

*1. The nature of associations between the Bem Sex Role Inventory Adjectives and Holland's RIASEC types.* The psychological literature has repeatedly demonstrated empirical support for gender differences in vocational interests (Lippa 2001; Prediger & Swaney, 2004; Su et al., 2009). A meta-analysis performed on such differences in interests found that men demonstrated significantly greater interest than women in the Realistic and Investigative areas, and women demonstrated significantly greater interest than men in the Artistic, Social, and Conventional areas. In addition, even more robust gender differences have been found along Prediger's (1982) Things-People dimension of interests. Men have been found to be significantly more interested in Things, and women have been found to be significantly more interested in People (Su et al., 2009).

These findings regarding gender differences in interests are used to develop the hypotheses for this research question. Men have been found to have more interest in the Realistic type than women, and the Realistic type also aligns with the Things end of the Things-People continuum. Thus, it is expected that masculine traits will be associated with this type. Conversely, women have been found to demonstrate more interest in the Social type, and the Social type falls on the People end of the Things-People continuum. Therefore, it is expected that feminine traits will be found to be associated with the Social type. Men have demonstrated greater interest in the Investigative type than women, and it is closer to the Things end of the Things-People continuum than People, so it is expected that masculine traits will tend to be associated with the Investigative type (although not to the degree that masculine traits will be

associated with the Realistic type). Women have demonstrated greater interest than men in the Artistic type, and the Artistic type is closer to the People end of the Things-People continuum, so it is expected that feminine traits will tend to be associated with the Artistic type (although not to the degree that feminine traits will be associated with the Social type). Past research has found that women tend to demonstrate greater interest in the Conventional type than men, but the Conventional type is closer to the Things end of the Things-People dimension. Thus, it is hypothesized that both masculine and feminine traits will be associated with the Conventional type. Significant gender differences in interests for the Enterprising type have not been found, but the Enterprising type is closer to the People end of the Things-People continuum. Therefore, it is expected that feminine traits will tend to be associated with the Enterprising type (although to a lesser degree than for the Social or the Artistic type).

*2. The extent to which women and men differ in their perceptions of the masculinity and femininity of the RIASEC types.* The first research question will provide information about the perceptions of masculinity and femininity of the RIASEC types. This second research question is an extension of the first, in that it is concerned with exploring whether there is a significant difference in the way that women and men perceive the masculinity and femininity of the RIASEC types. This question is exploratory in nature because no clear hypothesis emerges based on previous research. Consideration of previous research findings could lend evidence to both the hypothesis that there will be differences between women and men in these perceptions and the hypothesis that perceptions of masculinity and femininity of the RIASEC types will not differ by gender.

*3. The extent to which individuals differ in their perceptions of masculinity and femininity of the RIASEC types depending on whether participants are exposed to gender-ambiguous*

*occupational descriptions, as compared to gender-typed occupational descriptions.* Participants in this study will be randomly assigned to one of three conditions. In one condition, participants will read occupational descriptions that include male names only, in the second they will read occupational descriptions that include female names only, and in the third the occupational descriptions will not include names. Thus, two conditions will be gender-typed, and one will be gender-ambiguous. In the present study, the gender-ambiguous condition will be considered the *control condition*, and the sex-typed conditions will be referred to as the *male condition* and the *female condition*, respectively.

This research question is exploratory in nature as well because there are a range of potential outcomes. There is past research that could support several outcomes but none that definitively suggests a specific hypothesis.

*4. Relationship between an individual's vocational interests and perceptions of the masculinity and femininity of the RIASEC types.* Examination of the gender makeup of occupations has demonstrated that there is a gender disparity in the world of work. Women continue to be the minority in many traditionally male-dominated fields, such as in science, technology, engineering, and mathematics occupations (Bystydzienski, 2009). A significant difference in vocational interests has also been found repeatedly between men and women, with men having more interest in the Realistic and Investigative areas and women having more interest in the Social, Artistic, and Conventional areas (Lippa 2001; Prediger & Swaney, 2004; Su et al., 2009). Consequently, when considering perceptions of masculinity and femininity of the RIASEC types, it must be considered that one's own RIASEC interests could have some bearing on such perceptions. Thus, RIASEC interests will be included in the present study as

covariates in the analyses, and it is hypothesized that the interests of the participants will account for a significant portion of the variance in perceptions of the RIASEC types.

*5. Influence of an individual's gender identity on perceptions of masculinity and femininity of the RIASEC types.* Bem (1981) suggested that the gender identity of males and females is shaped by the culture's expectations about masculinity and femininity. She also wrote that children learn to view the world through the gender schema formed by messages that they perceive from society about gender-specific characteristics. Egan and Perry (2001) discussed aspects of gender identity, including perceived gender compatibility, felt pressure to behave in gender-congruent ways, and bias for one's own gender group. The authors found that there are individual differences on these facets of gender identity. Hogan and Roberts (2000) proposed that individuals are likely to behave in ways that are congruent with their identities. As noted above, it has also been suggested that individuals assume that characteristics they possess will also be possessed by others of the same gender (Martin & Halverson, 1981; Martin, Ruble, & Szkrybalo, 2002). Thus, it is possible that the findings on perceptions of masculinity and femininity of RIASEC types are likely to be partially attributable to gender identity of the participants. Measures of gender identity will be included in the present study as covariates in the analyses. It is hypothesized that gender identity will account for a significant amount of the variance in perceptions of masculinity and femininity of the RIASEC types.

*6. Individual differences in attitudes toward women as related to perceptions of the masculinity and femininity of the RIASEC types.* As noted previously, attitudes toward women in the United States seem to have changed over time (Twenge, 1997, 2011). Twenge (2011) reported that attitudes toward women have become less gender-stereotyped and individuals have become more supportive of gender equality. However, as Hofstede (2001) discussed, the United

States continues to display gender role differentiation rather than gender role equality. Although attitudes toward women have changed over time, it is extremely unlikely that sexist attitudes toward women have been eliminated. Thus, it is possible that individual differences in attitudes toward women could partially account for the perceptions of masculinity and femininity of RIASEC types. Consequently, measures of attitudes toward women will be tested as covariates in the present study.

In this study, sexist attitudes toward women will be measured by scores on the Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996) and the Modern Sexism Scale (MSS; Swim, Aikin, Hall, & Hunter, 1995). Subscale scores on these measures will be used to represent the endorsement of sexist attitudes demonstrated by each participant. It is hypothesized that attitudes toward women will be found to account for a significant portion of the variance in perceptions of masculinity and femininity of RIASEC types.

*7. The extent to which men and women differ in their judgments of masculine and feminine traits.* Although all participants in the present study will use the same set of masculine and feminine traits to assign to the RIASEC types, it is likely that there will be individual differences in how positively (favorably) or negatively (unfavorably) they view these characteristics. Thus, the participants will be asked to provide their opinions of the masculine and feminine traits. Based on gender schema theory, (Martin & Halverson, 1981; Martin, Ruble, & Szkrybalo, 2002), it is hypothesized that female participants will rate the adjectives from the Feminine subscale of the BSRI more positively than the adjectives from the Masculine subscale, while male participants will rate the adjectives from the Masculine subscale more positively than the adjectives from the Feminine subscale.

# CHAPTER 3. METHOD

## Participants

Participants were 833 students from a large, Midwestern university who were recruited from introductory undergraduate psychology courses and received course credit for their participation. Of the 833 participants, 508 (61.0%) identified as female, and 325 (39.0%) identified as male. The majority of participants (83.4%) identified as European American, while 3.5% identified as Hispanic American, 2.9% identified as African American, 2.8% identified as Asian American, 0.4% identified as Native American, 6.5% identified as "other," and 0.5% did not indicate their racial/ethnic identity. Age of participants ranged from 18 to 38 years, and the mean age of the sample was 19.52 years (SD = 2.11). The majority of the sample, 440 (52.8%), were freshmen, 233 (28.0%) were sophomores, 99 (11.9%) were juniors, 57 (6.8%) were seniors, and 4 (0.4%) did not indicate their class standing.

## Measures

***Occupation-Adjective Card Sort.*** A card sorting procedure was developed for administration in experimental conditions for the present study. Participants were randomly assigned to one of three groups, which determined which set of occupational descriptions they received. One set used male names, one set used female names, and the other set was gender ambiguous. Participants were then given a sheet with six occupational descriptions (see Appendix A for complete list of occupational descriptions) and a set of 60 cards. Each occupational description was descriptive of one of the six RIASEC types. Each of the cards was labeled with a trait from the BSRI (Bem, 1974) (see Appendix B for BSRI items). Twenty cards represented traditionally masculine traits, twenty cards represented traditionally feminine traits, and twenty cards represented socially desirable traits that were not particularly associated with

either men or women. Participants were given the following instructions: “Included with this answer sheet is a box containing a set of 60 adjectives. Divide the adjectives into six groups of ten cards that best describe the individuals who work in each of the six occupations described below. Please write the code for each adjective you choose for each occupation in one of the boxes, using each card only one time.”

***Bem Sex Role Inventory*** (BSRI; Bem, 1974). The BSRI was developed to measure the constructs of masculinity and femininity. To decide which items to include on the BSRI, Bem (1974) empirically examined which characteristics were viewed as socially desirable for men and women, respectively, in United States society. The BSRI includes three subscales: Masculinity, Femininity, and Social Desirability. The Social Desirability subscale consisted of items that were socially desirable for individuals to have but did not seem to be specifically associated with either men or women. By including these three subscales in the measure, Bem posited that, based on their scores on the scales, individuals could be found to be sex-typed (either masculine sex-typed or feminine sex-typed) if there were large differences between scores on the Masculine and the Feminine scales. Bem suggested that individuals could be found to be “androgynous” if there was little difference in scores between the Masculine and Feminine subscales.

Bem described the procedure for deciding which items would make up each of the scales. Judges rated 200 characteristics for whether they were more desirable for a man than a woman to possess in American society or whether they were more desirable for a woman than a man to possess in American society. Those items that were found to be significantly more desirable for men and, conversely, those more desirable for women were used to construct the Masculine Items and Feminine Items scales. Another 200 characteristics that were meant to be socially desirable traits and neither masculine nor feminine in nature were presented to the judges, and

they rated these characteristics on their masculinity and femininity and their social desirability. The items chosen for the Social Desirability scale were those that were rated as no more desirable for men than women (and vice versa).

Each of the three scales includes 20 items, for 60 total items. In the BSRI, each item is rated on a 7-point Likert-type scale in regards to how well the item describes him or herself. The response scale for each item ranges from 1 *never or almost never true* to 7 *almost always true*. The scores that can be calculated on the BSRI include a Masculinity score, a Femininity score, an Androgyny score, and a Social Desirability score.

After construction of the BSRI, Bem then administered the instrument to 917 undergraduate students at two colleges to gain psychometric information on the measure. The internal consistency of each of the four possible scale scores were found to be adequate, ranging from $\alpha$ =.70 to $\alpha$ =.86. The relationship between each of the scales was also explored. The Masculinity scale and the Femininity scale were both found to be significantly positively correlated with the Social Desirability scale (range of *r* from .19 to .38), whereas correlations between the Androgyny scale and the Social Desirability scale were not significant, with *r* ranging from .04 to .08.

Data on test-retest reliability was also obtained for the BSRI. Adequate test-retest reliability was found for each of the four subscales, ranging from $\alpha$ = .89 to $\alpha$ = .93. The instrument was also compared to two measures of sex roles that were in popular use at that time: the Masculinity-Femininity scales of the California Psychological Inventory (CPI; Gough, 1956) and the Guilford-Zimmerman Temperament Survey (GZTS; Guilford & Zimmerman, 1949). The Masculinity-Femininity scales of the CPI were found to have moderate correlations with the subscales of the BSRI while no significant correlations were found between subscales of the

BSRI and the Guilford-Zimmerman Temperament Survey. Bem suggests that the lack of strong correlations between the BSRI and the other two measures of masculinity and femininity indicates that the BSRI is measuring a unique facet of sex roles that the typical measures of sex roles used at that time did not capture

***Positive and Negative Ratings of the BSRI Adjectives.*** Participants rated the 60 adjectives from the Bem Sex Role Inventory in regard to how positive or negative they perceived each adjective to be. They rated each trait on a scale ranging from 1 *Very Negative* to 7 *Very Positive*. Because the participants were going to be assigning these adjectives to the job descriptions included in the card sorting task, it was important to gather information on the way in which participants perceive the adjectives themselves, independent of their association with a particular job description. The degree to which the adjectives are perceived as positive or negative will provide insight into relationships found between the adjectives and the RIASEC types. The present study is concerned with examining potential biases in perceptions of the RIASEC types. The positive and negative ratings of the adjectives will be used in this study to calculate positive and negative ratings of the RIASEC types, and this will provide additional information about attitudes toward the types.

***Ambivalent Sexism Inventory*** (ASI; Glick & Fiske, 1996). The ASI is a self-report measure of ambivalent attitudes toward women. The inventory includes two subscales which measure “ambivalent sexism,” which is defined by the authors as, “simultaneously holding two sets of related sexist beliefs: hostile and benevolent sexism” (p. 494). The subscales are the Hostile Sexism subscale and the Benevolent Sexism subscale. Hostile sexism refers to the common definition of prejudice and negative beliefs toward women. The Hostile Sexism subscale includes 11 items; sample items on this subscale are, “most women interpret innocent

remarks or acts as being sexist" and "most women fail to appreciate fully all that men do for them."

Benevolent sexism refers to stereotypical gender-role beliefs about women. Benevolent sexism includes attitudes that are "subjectively positive in feeling tone (for the perceiver) and also tend to elicit behaviors typically categorized as prosocial (e.g., helping) or intimacy-seeking (e.g., self-disclosure)" (p.491). The Benevolent Sexism subscale also includes 11 items; sample items on this subscale include, "women should be cherished and protected by men" and "no matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman." Participants respond to items on a 5-point Likert scale of 0 = strongly disagree, 1 = disagree somewhat, 2 = disagree slightly, 3 = agree slightly, 4 = agree somewhat, and 5 = agree strongly. Six of the items are reverse scored.

Glick and Fiske's (1996) study on the development of the ASI found results supporting the reliability of the measure across six samples. Alpha coefficients obtained ranged from .73 for Benevolent Sexism in one of the samples up to .92 for Hostile Sexism and for the total ASI score in one of the samples. Discriminant validity of the measure was demonstrated by a significant negative relationship ($r$ = -.52) between a measure of recognition of discrimination and the Hostile Sexism subscale. A weak positive relationship ($r$ = .25) was found between the measure of recognition of discrimination and the Benevolent Sexism subscale.

Convergent validity for the ASI was demonstrated by comparisons of the ASI to four other measures of sexism and attitudes toward women: the Attitudes Toward Women scale (AWS; Spence & Helmreich, 1972), the Modern Sexism scale and the Old-Fashioned Sexism scale (Swim, Aikin, Hall, & Hunter, 1995), and the Rape Myth Acceptance Scale (Burt, 1980). Significant positive correlations were found between the subscales and total score of the ASI and

the four measures of sexism. Glick and Fiske (1996) also found that the relationship between the ASI and these measures was mostly accounted for by the Hostile Sexism subscale, rather than the Benevolent Sexism subscale, as they had hypothesized. They concluded that benevolent sexism is not measured in the other four instruments.

To demonstrate predictive validity, Glick and Fiske (1996) wrote that the ASI should positively correlate with men's ambivalent attitudes toward women; this would mean that the two subscales (Benevolent and Hostile) would correlate in an opposite direction with attitudes toward women. The results of the study supported predictive validity for the ASI. For male participants, a significant negative relationship was found between favorable attitudes toward women and scores on the Hostile Sexism subscale. Conversely, a significant positive relationship was found between the Benevolent Sexism subscale and favorable attitudes toward women.

***Modern Sexism Scale*** (MSS; Swim, Aikin, Hall, & Hunter, 1995). Swim et al. (1995) discussed the similarities between modern racism and modern sexism. Research has demonstrated that individuals endorse both sexist and racist attitudes to a lesser degree than in the past, but discriminatory behaviors based on race and sex are still prevalent (Biernat & Wortman, 1991; Rowe, 1990). This suggests that individuals still possess racist and sexist attitudes, but they are simply less likely to directly voice these attitudes. Swim et al. (1995) developed an instrument to measure modern sexism, in which prejudicial attitudes are present but are expressed in a less direct manner than old-fashioned (overt) sexism. They included a modern sexism scale as well as an old-fashioned sexism scale in their instrument.

In development of this instrument, Swim et al. (1995) first generated statements related to beliefs about women; specifically, these statements were to represent modern sexism. To do this, they used statements that had been developed regarding modern racism against African-

Americans (Sears, 1988) and changed the wording to apply to sexism against women. The statements concerned denial of discrimination, resentment or opposition toward the demands of women, and animosity about "special favors" for women (Swim et al., 1995). A sample statement from the Modern Sexism scale is, "Discriminating against women is no longer a problem in the United States" (this item is reverse-scored). The authors also created a set of statements to measure old-fashioned sexism. These statements concerned the support of treating women and men differently, endorsing stereotypes about women's inferior abilities, and approval of traditional gender roles. A sample statement from the Old-Fashioned sexism scale is, "Women are generally not as smart as men." Participants respond to items on a 5-point Likert-type scale ranging from 1 *strongly agree* to 5 *strongly disagree*. Responses are averaged to obtain a score for each scale.

To assess the construct validity of the sexism scales, the factor structure of the scales and sex differences in responses to the items were investigated. Additionally, the relationship between individualistic and egalitarian values to modern sexism and perceptions of segregation of men and women in the workforce were both assessed as tests of construct validity. Results of confirmatory factor analyses demonstrated that a two-factor solution was a better fit than a one-factor solution; this finding supported the construct validity of the two sexism scales of the instrument. Evidence for construct validity was also found in that men's scores on both scales of sexism (modern and old-fashioned) were significantly higher than women's scores on the scales (Swim et al., 1995).

In regard to individualistic and egalitarian values, results demonstrated that greater endorsement of individualistic beliefs was related to higher sexism scores. Higher sexism scores were also related to lower egalitarian beliefs. Results also demonstrated that those who had

higher scores on the Modern Sexism scale were significantly more likely to overestimate the number of women in occupations that are male-dominated. Swim et al. (1995) concluded the results of this study supported the construct validity of the Old-Fashioned Sexism and Modern Sexism scales.

In a second study, Swim et al. (1995) sought to replicate the confirmatory factor analyses and to further test for construct validity. Investigation of construct validity in this study involved examining the way in which participants explained sex segregation in the world of work as well as examining modern sexism as a predictor of voting preferences. In this study, participants answered questionnaires including sexism items, racism items, or both sexism and racism items. If participants agreed to participate in a phone survey as well, they were then called and asked about their preferences for a local senate election, in which there was a male and a female candidate. Then, they were asked open-ended questions in which they were to explain the reasons for sex segregation in the workforce and were asked the degree to which biological differences, differences related to socialization, or discrimination were responsible for sex segregation in the workforce.

Results of the confirmatory factor analyses supported a two-factor solution, which supported the two sexism scales as measuring two separate constructs. Results also found that preference for a male candidate for senator over a female candidate was predicted more so by scores on the Modern Sexism scale than the Old-Fashioned Sexism scale. The construct validity of the Modern Sexism scale was also supported in that it was found that the higher the scores on the Modern Sexism scale, the more likely the participant was to assert that biological differences were the causes for sex segregation in the workplace; likewise, participants who scored higher on

the Modern Sexism scale were less likely to endorse socialization and discrimination against women as reasons for job segregation by sex.

***Alternative Forms Public Domain (AFPD) RIASEC Markers*** (Armstrong, Allison, & Rounds, 2008). The AFPD RIASEC Markers were developed as an instrument that could be used in research to measure RIASEC interests rather than using a commercial instrument. The AFPD RIASEC Markers includes six scales (one for each RIASEC type), with eight items each, for a total of 48 work activity items. Participants rated the 48 items on a Likert-type scale ranging from 1 (*strongly dislike*) to 5 (*strongly like)* based on how much they would like to perform the work activity. Scores were computed based on the mean for each of the RIASEC scales. Samples items from this instrument are "assemble products in a factory" and "teach children how to read" (See Appendix D for a complete list of the activity items for each RIASEC scale).

Structural analyses have demonstrated that the arrangement of the RIASEC types based on the AFPD scales is consistent with the arrangement of the RIASEC types in Holland's model. Internal consistency reliability has been found to be adequate, with a mean of .88 and a range of .80 to .93 (Armstrong et al., 2008). The AFPD has been found to correlate with the General Occupational Themes of the Strong Interest Inventory (correlations ranging from .56 to .67) as well as with occupation-based interest ratings (correlations ranging from .72 to .87). These correlations provide evidence for the convergent validity of the measure.

**Procedure**

This study was completed by the participants in two parts; the first part was completed in person and the second was completed online. Students enrolled in introductory undergraduate psychology courses chose to voluntarily participate in this study from a list of studies in an online database. Participants signed up for a time to come into a designated research laboratory

in the psychology department to begin the study. When they arrived at the laboratory, the procedures of the study were described to them, and they were given an informed consent document to carefully read. This document outlined the purpose of the study, procedures, risks, benefits, costs and compensation, participant rights, confidentiality of the participants, and contact information for participants if they would have questions about the study. If the participant agreed to participate, he or she then completed the occupational card sort. The condition to which each participant was randomly assigned designated which card sort they completed (i.e., the card sort that used male names, the card sort that used female names, or the gender-ambiguous card sort). Participants then completed the demographic questionnaire, the AFPD RIASEC Markers, and the BSRI. After completing these instruments, the participants were reminded that they would receive an email within one week that would provide the link for them to complete additional surveys that formed the remaining portion of the study.

Participants were emailed a link to complete the second part of the study within one week after they completed the first part in the lab. The link took them to a website where they were instructed to complete the ASI, the MSS, and the positive and negative ratings of the BSRI adjectives. After participants completed these measures, they reached a page that thanked them for their participation and displayed a debriefing message. The debriefing message provided contact information for the researchers in case of questions as well as information for career-related resources on campus.

**Data Preparation**

Data was prepared for analysis according to screening procedures outlined by Tabachnik and Fidell (2007). This included removal of cases with an incomplete data set, identifying outliers, and examination of the data regarding assumptions of the analyses to be performed.

There were 929 individuals who attended the laboratory portion of the study, and 34 (3.66%) of these were cut from the data analysis because they did not complete the online part of the study. Of the 895 remaining participants, 42 were cut from the analysis because they had missed too many items from the measures included in the study. Another 15 were cut from the analysis due to random responding; a final five were cut after having been identified as outliers through a calculation of Mahalanobis distance. Thus, the sample used for data analysis included 833 participants (325 male and 508 female).

**Data Analyses**

***Assignment of BSRI Adjectives to RIASEC Types.*** Two sets of 60 Pearson's chi-squared tests ($\chi^2$) were then carried out to determine whether there were significant differences in the extent to which participants assigned the BSRI adjectives to the RIASEC type job descriptions by condition and by gender. The Pearson's chi-square test is used to assess whether there is a relationship between two categorical variables. In this test, the observed frequencies for categories are compared to the frequencies that would be expected by chance. If the result of the chi-square test is significant, then the null hypothesis is rejected, and this outcome would indicate that there is a significant relationship between the two variables (Field, 2009). In the present study, Pearson's chi-square test was used to analyze whether there was a significant relationship between each BSRI adjective and condition as well as whether each BSRI adjective and gender were significantly associated. First, 60 chi-square tests were performed that compared each BSRI adjective, respectively, to condition in order to determine whether the way in which participants assigned the adjectives to the RIASEC types differed by condition. To control for the family-wise error rate, the Bonferroni correction was applied. Thus, the *p* value for significance in these analyses had to be less than .001. Of the 60 analyses, only one was

significant at the $p < .001$ level. Next, another 60 chi-square tests were performed that compared each BSRI adjective, respectively, to gender in order to determine whether there were gender differences in the ways participants assigned adjectives to the RIASEC types. Again, the Bonferroni correction was applied to control for family-wise error rate, and the *p* value for significance again had to be less than .001.

***Property Vector Fitting.*** As a follow-up to the chi-square analyses, property vector fitting was used to examine whether the order predictions of the RIASEC model were met by the assignment of BSRI adjectives by the participants in this study. Property vector fitting (Kruskal & Wish, 1978; Shivy, Rounds, & Jones, 1999) uses linear multiple regression "to verify the presence and relevance of…hypothesized dimensions" (Jones & Koehly, 1993, p. 110). In this technique, one set of variables can be integrated into a multidimensional structure and the relationship between the variables and the structure can be determined. In the present study, the BSRI adjectives were plotted onto the two-dimensional RIASEC structure based on Holland's theory of vocational interests.

The first step in this analysis is to determine the coordinates that will represent the two-dimensional RIASEC circumplex structure. Coordinates used in this study were taken from Rounds and Tracey's (1993) representation of the theoretical structure of Holland's model in which there are equal distances between adjacent RIASEC types: R (.00, .58), I (.50, .29), A (.50, –.29), S (.00, –.58), E (–.50, –.29), C (–.50, .29). Next, linear multiple regression analyses were carried out to determine how well each of the BSRI adjectives (the *properties* in this analysis) could be integrated into the two-dimensional RIASEC structure. The variance accounted for in the multiple regression ($R^2$) was examined to determine the strength of the relationship of the BSRI adjective to the structure of Holland's model. Higher $R^2$ values indicate a stronger

relationship. Finally, directional cosines (regression coefficients standardized with the sum of their squared values equal to 1.00) were calculated from the results of the regression analyses to determine the location for each vector in the structure as a polar angle (see Figure 1). Consistent with Armstrong, Smith, Donnay, and Rounds (2004), only vectors representing BSRI adjectives with an $R^2$ value of greater than .50 were included in the figure. Although vectors are illustrated pointing in the direction of strongest association, the interpretation is bidirectional, that is, the angle of the vector indicates a positive relationship with that area of the RIASEC structure it is oriented towards, and the opposite direction would indicate a weaker or negative relationship with that area of the RIASEC structure.

***Multivariate Analysis of Variance and Covariance.*** A series of multivariate analyses of variance (MANOVA) and covariance (MANCOVA) were conducted to evaluate potential gender differences and differences by condition in perceptions of the masculinity and femininity of RIASEC types. MANOVA is used to test for significant differences in group means when there are multiple dependent variables. MANOVA is used when there are multiple dependent variables instead of running a separate ANOVA for each dependent variable to prevent the inflation of the familywise error rate that would increase with the number of tests conducted on the data (Field, 2009). MANOVA also provides information about the relationship between dependent variables, and it can provide information about whether there are differences for the dependent variables along a combination of dimensions (Field, 2009).

In MANOVA, the *F*-statistic represents the ratio of systematic variance to unsystematic variance for the dependent variables. Systematic variance refers to the variance in dependent variables that can be accounted for by the independent variables, while unsystematic variance

refers to the variance in the dependent variables left unexplained by the independent variables (Field, 2009)

Statistical assumptions of the MANOVA include statistically independent observations, dependent variables measured on at least an interval scale, homogeneity of covariance matrices, and multivariate normality of the dependent variables (Field, 2009). Homogeneity of covariance matrices refers to the assumption that variances in each dependent variable are roughly equal and that the relationship between dependent variables is roughly equal (Field, 2009). Box's test was used to test the covariance matrices between groups. Box's test was found to be significant, $p >$ .001. However, Tabachnick and Fidell (2007) noted that Box's test is "a notoriously sensitive test of homogeneity of variance-covariance matrices" (p. 252). Olson (1976; 1979) asserted that when the assumption of homogeneity of covariance matrices has been violated, researchers should use the Pillai-Bartlett statistic (Pillai's trace) to evaluate multivariate significance rather than using Wilks' lambda or the Hotelling-Lawley trace. Thus, Pillai's trace was used in the present study. The assumption for multivariate normality of the dependent variables was met because the data was grouped and the sample size was large (a sample size of at least 20 in each cell). When these criteria are met, the *F* test "is said to be robust to violations of normality of variables" (Tabachnik & Fidell, 2007, p.78).

In this analysis, gender (with two levels) and condition (with three levels) served as the independent variables and *gender rating* of each RIASEC type served as the dependent variables. To calculate a gender rating for each RIASEC type, dummy coding was used to obtain the number of adjectives from the masculine and feminine subscales of the BSRI, respectively, which participants had assigned to each of the six job descriptions (the six job descriptions corresponded to the six RIASEC types). The adjectives from the masculine scale were coded as

"1"s and the adjectives from the feminine scale were coded as "-1"s. Then, sums for each RIASEC type were calculated to provide the gender ratings. Thus, the greater the mean obtained for a RIASEC type, the more masculine the participants rated it, and the smaller the mean, the more feminine it was rated.

A series of multivariate analyses of covariance (MANCOVA) were then performed to examine the contributions of RIASEC interests, gender identity, and attitudes toward women in accounting for gender differences and differences by condition in perceptions of masculinity and femininity of RIASEC types. An extension of MANOVA, MANCOVA is used to test for significant group differences when there are multiple dependent variables and the researcher wants to control for or assess the effects of a variable that might also (in addition to the independent variable) influence the dependent variables. It was hypothesized that there could be a significant amount of variance in perceptions of masculinity and femininity of the RIASEC types accounted for by the vocational interests, gender identity, and attitudes toward women of the participants.

These analyses were extensions of the MANOVA discussed above, thus, gender (with two levels) and condition (with three levels) served as the independent variables, and *gender rating* of each RIASEC type served as the dependent variables. One MANCOVA included vocational interests of the participants, as measured by the AFPD RIASEC Markers, as a covariate. The next MANCOVA included participants' scores on the Masculine, Feminine, and Social Desirability subscales of the Bem Sex Role Inventory (BSRI) as the covariates. The following MANCOVA included participants' scores on the Hostile Sexism and Benevolent Sexism subscales of the Ambivalent Sexism Inventory (ASI) and scores on the Old-Fashioned Sexism and Modern Sexism Subscales of the Modern Sexism Scale (MSS) as the covariates.

Finally, to determine which covariates accounted for the greatest amount of variance in perceptions of masculinity and femininity of the RIASEC types, a MANCOVA was then performed with all of the covariates that had been found to be significant.

In the second series of multivariate analyses, MANOVA was carried out to evaluate potential sex differences and differences by condition in how positively or negatively the participants perceived the RIASEC types to be. A series of MANCOVA analyses were then performed to examine contributions of RIASEC interests, gender identity, and attitudes toward women to sex differences and differences by condition in how positive or negatively the participants rated the RIASEC types. These analyses included identical independent variables and covariates as outline in the first series of MANOVA and MANCOVA, but the dependent variable in these analyses was the positive/negative ratings of each of the RIASEC types. These ratings of the RIASEC types were calculated by first using dummy coding to identify which adjectives from the BSRI had been assigned by participants to each of the six job descriptions (the six job descriptions corresponded to the six RIASEC types). Then, the scores participants gave these adjectives on their ratings of how positive or negative they perceived each trait (on a scale of 1 *Very Negative* to 7 *Very Positive*) were averaged for each RIASEC type. Thus, the average for each RIASEC type could range from ten to seventy. The higher the average, the more positively participants rated the RIASEC type, and the lower the average, the more negatively participants rated the RIASEC type.

# CHAPTER 4. RESULTS

## Pearson's Chi-Square Analyses

The proportions for each of the adjectives from the BSRI assigned to each of the six job descriptions were examined using Pearson's chi-square tests. A set of sixty chi-square tests were performed that compared each BSRI adjective, respectively, to condition (see Tables 2, 3, and 4 for proportions and chi-square results for each adjective by condition). Of the 60 analyses, the only adjective found to be significantly associated with condition was Friendly $\chi^2$ (10) = 33.58, $p$ < .001. To determine the specific significant differences for Friendly, differences in proportions between conditions for each RIASEC type were examined for this adjective. Significant differences were found within Realistic and Artistic. Of those participants who assigned Friendly to the Realistic job description, 42.6% were in the gender ambiguous condition, 32.7% were in the condition using male names, and 24.8% were in the condition using female names. Of those who assigned Friendly to the Artistic job description, 50.9% were in the female names condition, 34.9% were in the male names condition, and 14.2% were in the gender ambiguous condition. Although these differences were found for the Realistic and Artistic types, it is important to note that only 12.2% and 12.8% of the participants assigned Friendly to Realistic and Artistic, respectively, while 41.9% of participants assigned this adjective to the Social job description.

Next, a second set of 60 chi-square tests were performed that compared each BSRI adjective, respectively, to gender (see Tables 5, 6, and 7 for proportions and chi-square results for each adjective by gender). Of these 60 analyses, four were found to be significant. Results were significant for Jealous $\chi^2$ (5) = 22.21, $p$ < .001, Leadership Ability $\chi^2$ (5) = 22.67, $p$ < .001, Individualistic $\chi^2$ (5) = 23.09, $p$ < .001, and Loves Children $\chi^2$ (5) = 22.28, $p$ < .001. Significant differences in proportions between genders for each RIASEC type were examined for these

adjectives. For Jealous, significant results were found for the Realistic and Social job descriptions. Of those who assigned Jealous to Realistic, 27.8% were male participants and 72.2% were female participants. Conversely, 88.9% of those who assigned Jealous to Social were male participants and 11.1% were female participants. Next, significant differences in proportions by gender were found for Leadership Ability when it was assigned to the Investigative and Conventional job descriptions. For those who assigned Leadership Ability to Investigative, 23.3% were male and 76.7% were female. Similarly, 27.5% of those who assigned Leadership Ability to Conventional were male and 72.5% were female. For Individualistic, significant results were found for the Artistic and Enterprising job descriptions. Of those who assigned Individualistic to Artistic, 34.1% were male participants and 65.9% were female participants. However, 62.5% of participants who assigned Individualistic to Enterprising were male and 37.5% were female. Significant differences in proportions by gender for Loves Children were found for the Investigative, Social, and Conventional job descriptions. Of those who assigned Loves Children to Investigative, 61.7% were male and 38.3% were female. However, 35.6% of participants who assigned Loves Children to Social were male and 64.4% were female. Similar to the results for Investigative, 63.6% of participants who assigned Loves Children to Conventional were male participants and 36.4% were female. Although some significant differences were found by gender in the way that the adjectives were assigned to the RIASEC types, it is important to recognize that such differences were only found for four out of the 60 adjectives.

Overall, there was a great deal of consistency found in the way that participants in this study assigned the BSRI adjectives to the RIASEC types. As noted above, there were few differences among condition or gender in the way that the traits were assigned to the RIASEC

types (i.e., of the 120 Pearson's chi-square analyses outlined above, only 5 were significant), with more differences found by gender than by condition. Thus, it is essential to examine the ways in which participants, overall, assigned the adjectives to the RIASEC types. Examination of the total proportions (total proportions for the adjectives assigned to each RIASEC type are provided in Table 4) revealed patterns in the way that participants associated masculine and feminine traits with the RIASEC types.

Participants assigned many of the feminine adjectives from the BSRI to the Social type. In fact, of the 16 traits assigned to the Social type, twelve were traits from the feminine subscale of the BSRI. Moreover, for six of these twelve traits, over half of the participants assigned them to the Social type. These six traits were Loves Children, Eager to Soothe Hurt Feelings, Sensitive to Others' Needs, Sympathetic, Affectionate, and Compassionate. This finding supported part of the hypothesis for the first research question (feminine traits would be more likely to be assigned to the Social type). It was also hypothesized that feminine traits would be assigned to the Artistic type, but to a lesser degree than for the Social type. In fact, three feminine traits (Childlike, Feminine, and Flatterable) were assigned to the Artistic type more so than the other RIASEC types. Over half of the participants assigned Childlike to the Artistic type, 39% of participants assigned Feminine to the Artistic type, and 26% of participants assigned Flatterable to this type.

It was also hypothesized that the masculine traits would be more likely to be associated with the Realistic type. The results demonstrated that five of the eight traits that participants assigned more often to the Realistic type than the other types were from the masculine subscale of the BSRI. These traits were Athletic, Masculine, Makes Decisions Easily, Self-sufficient, and Self-reliant. Of these, over half of participants assigned Athletic and Masculine to the Realistic type. This seemed to align with the hypothesis that masculine traits would be associated with the

Realistic type; however, another type was found to be associated with even more of the masculine traits. Eleven of the twelve traits that were associated with the Enterprising type were from the masculine subscale of the BSRI. These traits were Competitive, Aggressive, Dominant, Forceful, Assertive, Acts as a Leader, Leadership Ability, Willing to Take Risks, Strong Personality, Willing to Take a Stand, and Ambitious. Of these, over half of participants assigned Competitive, Aggressive, and Dominant to the Enterprising type. This finding did not support the hypothesis that the masculine traits would be most likely to be associated with the Realistic type. In fact, this finding was very unexpected based on the past research on gender differences in the RIASEC types.

Some support for the hypothesis that masculine traits would be associated with the Investigative type was found. Of the four traits assigned most often to the Investigative type, two (Analytical and Defends Own Beliefs) were from the masculine subscale of the BSRI; the other two were from the Social Desirability subscale. However, it does not fit the hypothesis that more masculine traits were assigned to the Enterprising type than the Investigative type. Finally, it was hypothesized that both masculine and feminine traits would be associated with the Conventional type. Of the 10 traits most often associated with the Conventional type, five were from the feminine subscale of the BSRI (Shy, Soft spoken, Yielding, Loyal, and Gullible). One of the 10 traits (Independent) was from the masculine subscale, and the other four were from the Social Desirability subscale. The hypothesis that the Conventional type would be associated with both masculine and feminine traits was not fully supported because more feminine than masculine traits were assigned to this type. All 60 BSRI adjectives and the RIASEC types participants assigned them to can be found in Table 11.

**Property Vector Fitting Analyses**

Results for the property vector fitting analyses are presented in Tables 8, 9, and 10. Nineteen of the BSRI adjectives (31.7% of the total adjectives) had $R^2$ values greater than .50 and were fit into the two-dimensional RIASEC structure (see Figure 2), 27 of the adjectives had $R^2$ values between .33 and .50, and 14 adjectives had $R^2$ values below .33. The interpretation of adjectives that fit well into this model appear to be consistent with what would be expected according to Holland's model. Adjectives from the Masculine subscale of the BSRI were more strongly related to the Realistic area of the structure. In fact, six of the eight adjectives that participants assigned to the Realistic job type were represented in the figure and were closely aligned with the Realistic area (which corresponds to the Things facet of Prediger's Things-People dimension of vocational interests). These were Self-reliant, Makes Decisions Easily, Self-sufficient, Reliable, Tactful, and Conventional. In addition, four of the sixteen adjectives that participants had assigned to the Social job type were represented in the figure and were more closely aligned with the Social area (which corresponds to the People facet of Prediger's Things-People dimension), and to some degree with the Artistic area as well. These adjectives included Cheerful, Affectionate, Sensitive to Others' Needs, and Compassionate.

Two of the four adjectives participants had assigned to the Investigative job type, Analytical and Adaptable, were represented in the model and were fit between the Realistic and Investigative areas of the structure. Two of the ten adjectives participants had assigned to the Artistic job type, Feminine and Happy, were also in the model and these were fit more closely with the Artistic area of the structure. Five of the eleven BSRI adjectives participants had assigned to the Conventional job type were in the model, and these were consistently fit near the Realistic area of the structure (some were between the Conventional and Realistic areas and

some were between the Investigative and Realistic areas). These five adjectives were Independent, Yielding, Loyal, Conscientious, and Solemn.

Although the adjectives integrated in the model were consistent with the RIASEC model, there were a number of adjectives strongly associated with one of the RIASEC types (based on the proportion of participants who assigned it to one type) but did not fit well into the two dimensional RIASEC structure. Notably, none of the twelve adjectives that had been assigned to the Enterprising type reached the threshold of an $R^2$ value of greater than .50 and, thus, none were fit into the model. Of these twelve adjectives that had been assigned to the Enterprising type, eleven were from the Masculine subscale of the BSRI and one was from the Social Desirability subscale. In contrast, of the eight adjectives assigned to the Realistic type, six of these fit into the RIASEC structure. The two that did not fit into the model were from the Masculine subscale of the BSRI.

As noted above, two of the four adjectives that participants assigned to the Investigative type fit into the model. Of the two that did not fit into the model, one was from the Masculine subscale of the BSRI and one was from the Social Desirability subscale. Seven of the ten adjectives that were assigned to the Artistic type were not effectively integrated into the RIASEC model. One of these was from the Masculine subscale of the BSRI, two were from the Feminine subscale, and five were from the Social Desirability subscale. Twelve of the fourteen adjectives that had been assigned to the Social type did not fit effectively into the RIASEC structure. Eight of these twelve adjectives were from the Feminine subscale of the BSRI, and four were from the Social Desirability subscale. As noted above, five of the adjectives participants assigned to the Conventional type fit into the model. Of the six that did not fit, three were from the Feminine subscale of the BSRI, and two were from the Social Desirability subscale. Overall, then, of the

20 total adjectives for each of the three subscales of the BSRI, 15 from the Masculine subscale did not fit into the model, 13 from the Feminine subscale did not fit, and 13 from the Social Desirability subscale did not fit.

**MANOVA and MANCOVA Analyses**

**Perceptions of Masculinity and Femininity of RIASEC Types.** Multivariate analysis of variance (MANOVA) was carried out to evaluate potential gender differences and differences by condition in perceptions of the masculinity and femininity of RIASEC types (the results of this analysis as well as the MANCOVA analyses discussed below can be found in Table 15). In this analysis, gender (with two levels) and condition (with three levels) served as the independent variables and *gender rating* of each RIASEC type served as the dependent variables. To interpret the MANOVA, the significance value of the *F*-ratio for Pillai's trace was examined for gender, condition, and the condition by gender interaction. The *F*-statistic was significant for gender, Pillai's trace = .041, $F(6, 822) = 5.79$, $p \leq .001$. The *F*-statistic was not significant for condition or the gender by condition interaction. A small effect size was found for gender (multivariate $\eta^2 = .041$). The independent variable of gender had two levels, so the tests of between-subjects effects for the dependent variables and means for each gender were examined to determine the nature of the significant effect of gender. The results of the tests of between-subjects effects were significant for Social and Conventional at the $p \leq .001$ level. The effect size for Social was small ($\eta^2 = .024$) and was small as well for Conventional ($\eta^2 = .016$). The results were not significant for Realistic, Investigative, Artistic, or Enterprising. Female participants' gender rating for the Social type was -6.97, while male participants' gender rating for this type was -6.19. This suggests that female participants viewed the Social type as more feminine than did the male participants. For the Conventional type, the gender rating for female participants

was -0.14, and the gender rating for male participants was -1.02. This result indicates that men perceived the Conventional type to be more feminine than did the female participants.

Pillai's trace was not significant for condition. This suggests that participants' perceptions of the masculinity and femininity of the RIASEC types was consistent regardless of the gender of the person they considered doing the job. Means by condition and gender of participants can be found in Table 12, and standard deviations by condition and gender of participants can be found in Table 13. The correlation matrix for the variables can be found in Table 14.

Next, a MANCOVA (Multivariate Analysis of Covariance) was carried out to determine whether vocational interests of the participants accounted for a significant amount of variance in perceptions of masculinity and femininity of the RIASEC types. This analysis was an extension of the MANOVA discussed above, thus, gender (with two levels) and condition (with three levels) served as the independent variables, gender rating of each RIASEC type served as the dependent variables, and RIASEC interests of the participants served as the covariates. Vocational interests of the participants were the first covariate examined because previous research has consistently found differences by gender in interests, and such differences could affect the relationship between gender and perceptions of positivity and negativity of the RIASEC types.

When the covariate of interests was included in the MANCOVA, the effect of gender was no longer significant. Condition and the condition by gender interaction were non-significant as well. This suggests that the interests of the participants are accounting for some of the gender differences that were found in perceptions of masculinity and femininity of the RIASEC types. Specifically, significant results were found for participants' Artistic interest scores, Pillai's trace

= .025, $F(6, 816) = 3.55$, $p = .002$. Interest scores for the other RIASEC types did not account for a significant portion of the variance. Artistic interests accounted for 2.5% of the variance in perceptions of masculinity and femininity of the RIASEC types.

Then, a MANCOVA was carried out to determine whether participants' self-ratings on the BSRI accounted for a significant amount of variance in perceptions of masculinity and femininity of the RIASEC types. Gender (with two levels) and condition (with three levels) served as the independent variables, gender ratings of the RIASEC types served as the dependent variables, and the each participant's score on the Masculine subscale of the BSRI, Feminine subscale of the BSRI, and Social Desirability subscale of the BSRI serves as the covariates. Participants' scores on the BSRI were investigated as covariates because gender identity has been found to play a role in how individuals perceive characteristics of others of the same and different genders. Thus, it was hypothesized that this covariate could account for a significant portion of the relationship between gender and perceptions of positivity and negativity of the RIASEC types.

When this covariate was included in the MANCOVA, the effect of gender continued to be significant, Pillai's trace = .023, $F(6, 819) = 3.21$, $p = .004$. However, gender accounted for only 2.3% of the variance in perceptions of masculinity and femininity of the RIASEC types, as compared 4.1% when no covariates were included in the analysis. The only covariate in this analysis that was significant was participants' scores on the Masculine subscale of the BSRI, Pillai's trace = .022, $F(6, 819) = 3.09$, $p = .005$. This covariate accounted for 2.2% of the variance in perceptions of masculinity and femininity of the RIASEC types. This suggests that the participants' perceptions of their own masculinity accounts for some, but not all, of the gender differences in masculinity and femininity perceptions of the RIASEC types.

Next, a MANCOVA (Multivariate Analysis of Covariance) was carried out to determine whether attitudes toward women accounted for a significant amount of variance in perceptions of masculinity and femininity of the RIASEC types. Gender (with two levels) and condition (with three levels) served as the independent variables, gender ratings of the RIASEC types served as the dependent variables, and the covariates were scores on the Hostile Sexism and Benevolent Sexism subscales of the Ambivalent Sexism Inventory (ASI) as well as the Old-Fashioned Sexism and Modern Sexism subscales of the Modern Sexism Scale (MSS).

When this covariate was included in the MANCOVA, the effect of gender was still significant, Pillai's trace = .038, $F(6, 818) = 5.41$, $p \leq .001$. None of the covariates in this analysis were significant. This finding suggests that the way in which participants consider how masculine or feminine a job is does not depend on their attitudes toward women.

Finally, a MANCOVA was then carried out with gender (with two levels) and condition (with three levels) as the independent variables, gender ratings of the RIASEC types as the dependent variables, and the covariates which had been found to be significant (Artistic interests and scores on the Masculine subscale of the BSRI). The results of this analysis demonstrated that gender, Pillai's trace = .034, $F(6, 820) = 4.85$, $p \leq .001$, and Artistic interests, Pillai's trace = .031, $F(6, 820) = 4.34$, $p \leq .001$, were significant. Scores on the Masculine subscale of the BSRI were no longer significant in this analysis. These results suggest that when Artistic interests are accounted for, participants' ratings of their own masculinity no longer account for a significant portion of the variance in perceptions of masculinity and femininity of the RIASEC types. The results also indicate that gender and Artistic interests each accounted for small amounts of this variance. Gender accounted for 3.4% of the variance, and Artistic interests accounted for 3.1% of the variance.

The research questions regarding whether gender differences and/or differences by condition would be found in perceptions of masculinity and femininity of the RIASEC types were exploratory in nature, and the analyses discussed above provide information to answer these questions. Gender was found to account for a small, but significant, proportion of the variance in perceptions of masculinity and femininity of the RIASEC types. However, no evidence was found that individuals differenced in their perceptions of the RIASEC types depending on whether they were reading gender-typed or gender ambiguous occupational descriptions.

The analyses above also addressed the research questions regarding potential covariates of the relationship between gender and condition and perceptions of the masculinity and femininity of the RIASEC types. The first covariate examined was vocational interests. It was hypothesized that vocational interests would account for a significant portion of the variance in participants' perceptions of masculinity and femininity of the RIASEC types. The results of the analyses above indicated that participants' interests in the Artistic type had a small, yet significant, effect on perceptions, but interests in the five other areas were not found to be a significant covariate.

The second covariate examined was gender identity of the participants. It was hypothesized that gender identity would account for a significant amount of the variance in perceptions of masculinity and femininity of the RIASEC types. However, in the cumulative MANCOVA, the effect of gender identity was not found to be significant. The third covariate examined was attitudes toward women. Similar to the covariate of gender identity, it was hypothesized that attitudes toward women would account for a significant portion of the variance

in perceptions of the RIASEC types, but the results for this covariate were not significant in the cumulative MANCOVA model.

**Positive/Negative Ratings of the RIASEC Types.** Multivariate analysis of variance (MANOVA) was carried out to evaluate potential gender differences and differences by condition in how positive or negative each of the RIASEC types was perceived (the results of this analysis as well as the MANCOVA analyses discussed below can be found in Table 16). In this analysis, gender (with two levels) and condition (with three levels) served as the independent variables and the average of positive and negative ratings of each RIASEC type served as the dependent variables. Participants rated their perception of each trait from the BSRI on a scale of 1 *Very Negative* to 7 *Very Positive*. Thus, the greater the mean score obtained for a RIASEC type, the more positively it was rated by the participants, and the smaller the mean, the more negatively it was rated. Means by condition and gender of participants can be found in Table 12, and standard deviations by condition and gender of participants can be found in Table 13. The correlation matrix for the variables can be found in Table 14.

To interpret the MANOVA, the significance value of the *F*-ratio for Pillai's trace was examined for gender, condition, and the condition by gender interaction. The *F*-statistic was significant for gender, Pillai's trace = .047, $F(6, 822) = 6.74$, $p \leq .001$. The *F*-statistic was not significant for condition or the gender by condition interaction. A small effect size was found for gender (multivariate $\eta^2 = .047$). The independent variable of gender had two levels, so the tests of between-subjects effects for the dependent variables and means for each gender were examined to determine the nature of the significant effect of gender. The results of the tests of between-subjects effects were significant for Investigative, $F = 6.08$, $p = .014$, Artistic, $F = 9.71$, $p = .002$, Social, $F = 27.27$, $p \leq .001$, and Conventional, $F = 8.36$, $p = .004$. The effect sizes for

Investigative ($\eta^2$ = .007), Artistic ($\eta^2$ = .012), Social ($\eta^2$ = .032), and Conventional ($\eta^2$ = .010) were small. The results were not significant for Realistic or Enterprising.

The average of ratings by male participants for the Investigative type was 49.53, while the average for female participants was 50.89. This indicates that female participants viewed the Investigative type as more positive than did male participants. For the Artistic type, the average rating for male participants was 45.11, and the average rating by female participants was 46.86. Thus, female participants seemed to perceive the Artistic type more positively than did male participants. Next, the average rating for Social by male participants was 55.53, and the average rating by female participants was 58.40. These results suggest that male participants viewed the Social type less positively than did female participants. Finally, male participants gave the Conventional type an average rating of 47.35, and female participants gave it an average rating of 49.05. This indicates that male participants viewed the Conventional type as more negative than did female participants.

Next, a MANCOVA (Multivariate Analysis of Covariance) was carried out to determine whether vocational interests of the participants accounted for a significant amount of variance in ratings of positivity and negativity of the RIASEC types. This analysis was an extension of the MANOVA discussed above, thus, gender (with two levels) and condition (with three levels) served as the independent variables, average of positive and negative ratings of each RIASEC type served as the dependent variables, and RIASEC interests of the participants served as the covariates. Vocational interests of the participants were the first covariate examined because previous research has consistently found gender differences in interests, and such differences could affect the relationship between gender and perceptions of positivity and negativity of the RIASEC types.

When the covariate of interests was included in the MANCOVA, the effect of gender was no longer significant. Condition and the condition by gender interaction were non-significant as well. This suggests that the interests of the participants are accounting for some of the gender differences that were found in positive and negative ratings of the RIASEC types. Specifically, significant results were found for participants' Realistic interest scores, Pillai's trace = .025, $F(6, 816) = 3.49$, $p = .002$, Investigative interest scores, Pillai's trace = .027, $F(6, 816) = 3.75$, $p = .001$, Social Interest scores, Pillai's trace = .051, $F(6, 816) = 7.26$, $p \leq .001$, and Conventional interest scores, Pillai's trace = .021, $F(6, 816) = 2.99$, $p = .007$. The effect sizes for each were small: Realistic ($\eta^2 = .025$), Investigative ($\eta^2 = .027$), Social ($\eta^2 = .051$), and Conventional ($\eta^2 = .021$).

More specifically, Realistic interests accounted for 1.7% of the variance in positive/negative ratings of the Social type. Investigative interests accounted for 1.0% of the variance in ratings of the Artistic type. Social interests accounted for 4.7% of the variance in ratings of the Social type, and Conventional interests accounted for 1.0% of the variance in ratings of the Conventional type.

Then, a MANCOVA (Multivariate Analysis of Covariance) was carried out to determine whether participants' self-ratings on the BSRI accounted for a significant amount of variance in ratings of positivity and negativity of the RIASEC types. Gender (with two levels) and condition (with three levels) served as the independent variables, average of positive and negative ratings of each RIASEC type served as the dependent variables, and the each participant's score on the Masculine subscale of the BSRI, Feminine subscale of the BSRI, and Social Desirability subscale of the BSRI serves as the covariates. Participants' scores on the BSRI were investigated as covariates because gender identity has been found to play a role in how individuals perceive

characteristics of others of the same and different genders. Thus, it was hypothesized that this covariate could account for a significant portion of the relationship between gender and perceptions of positivity and negativity of the RIASEC types.

When this covariate was included in the MANCOVA, the effect of gender was no longer significant. Condition and the condition by gender interaction were non-significant as well. This suggests that the participants' perceptions of their own masculinity and femininity are accounting for some of the gender differences in ratings of positivity and negativity of the RIASEC types. Specifically, significant results were found for participants' scores on the Masculine subscale of the BSRI, Pillai's trace = .061, $F(6, 819) = 8.86$, $p \leq .001$, scores on the Feminine subscale of the BSRI, Pillai's trace = .152, $F(6, 819) = 24.42$, $p \leq .001$, and scores on the Social Desirability subscale of the BSRI, Pillai's trace = .036, $F(6, 819) = 5.16$, $p \leq .001$. The effect sizes for each were as follows: Masculine subscale ($\eta^2 = .061$), Feminine subscale ($\eta^2 = .152$), and Social Desirability subscale ($\eta^2 = .036$).

More specifically, participants' scores on the Masculine subscale of the BSRI accounted for 2.2% of the variance in positive/negative ratings of the Realistic type and 3.1% of the variance in positive/negative ratings of the Enterprising type. Participants' scores on the Feminine subscale of the BSRI accounted for 2.2% of the variance in positive/negative ratings of the Artistic type and 13.9% of the variance in positive/negative ratings of the Social type. Participants' scores on the Social Desirability subscale of the BSRI accounted for 1.3% of the variance in positive/negative ratings of the Social type.

Another MANCOVA (Multivariate Analysis of Covariance) was then carried out to determine whether attitudes toward women accounted for a significant amount of variance in ratings of positivity and negativity of the RIASEC types. Gender (with two levels) and condition

(with three levels) served as the independent variables, average of positive and negative ratings of each RIASEC type served as the dependent variables, and the covariates were scores on the Hostile Sexism and Benevolent Sexism subscales of the Ambivalent Sexism Inventory (ASI) as well as the Old-Fashioned Sexism and Modern Sexism subscales of the Modern Sexism Scale (MSS).

When this covariate was included in the MANCOVA, the effect of gender was still significant, although to a lesser degree than when the covariates were not included in the analysis. Gender now accounted for just 2.4% of the variance in positive/negative ratings of the RIASEC types. This suggests that the participants' attitudes toward women were accounting for some of the gender differences in ratings of positivity and negativity of the RIASEC types. Specifically, significant results were found for the Benevolent Sexism subscale of the ASI, Pillai's trace = .041, $F(6, 818) = 5.77$, $p \leq .001$, and for the Old-Fashioned Sexism subscale of the MSS, Pillai's trace = .081, $F(6, 818) = 11.96$, $p \leq .001$. The effect size for the Benevolent Sexism subscale ($\eta^2 = .041$) and for the Old-Fashioned Sexism subscale ($\eta^2 = .081$) were small.

More specifically, results indicated that scores on these subscales were both related to ratings of the Social type. Scores on the Benevolent Sexism subscale accounted for 3.7% of the variance in positive/negative ratings of the Social type, and the Old-Fashioned Sexism subscale accounted for 7.7% of the variance in ratings of the Social type.

A final MANCOVA was then carried out with gender (with two levels) and condition (with three levels) as the independent variables, average of positive and negative ratings of each RIASEC type as the dependent variables, and all of the covariates which had been found to be significant (Realistic interests, Investigative interests, Social interests, Conventional interests, scores on the Masculine subscale, Feminine subscale, and Social Desirability subscale of the

BSRI, and scores on the Benevolent Sexism and Old-Fashioned Sexism subscales. When all these covariates were included, gender was no longer significant. This finding did not support the hypothesis that there would be gender differences in ratings of the BSRI adjectives. The research question concerning differences by condition in ratings of the BSRI adjectives was exploratory, and the current results indicate that ratings of the adjectives are stable regardless of the gender of the person associated with the adjective.

Many of the covariates continued to account for a significant portion of the variance in positive/negative ratings of the RIASEC types. Scores on the Feminine subscale of the BSRI accounted for 8.9% of the variance, and scores on the Masculine subscale accounted for 5.9% of the variance. Scores on the Old-Fashioned Sexism subscale of the MSS accounted for 8.0% of the variance in ratings. Scores on the Social Desirability subscale of the BSRI and Conventional interests each accounted for 2.8% of the variance in positive/negative ratings of the RIASEC types, and Investigative interests accounted for 2.5% of the variance. Realistic interests, Social interests, and scores on the Benevolent Sexism subscale of the ASI no longer accounted for a significant portion of the variance in ratings.

It was hypothesized that vocational interests, scores on the BSRI, and attitudes toward women would each account for a significant portion of the variance in ratings of the BSRI adjectives. The current results provide support for these hypotheses. The greatest amount of variance was accounted for by feminine gender identity and sexist attitudes. A smaller, but still significant, amount of variance was accounted for by masculine gender identity, and then scores on the Social Desirability subscale of the BSRI, interests in the Conventional type, and interests in the Investigative type.

# CHAPTER 5. DISCUSSION

Progress has been made in the past few decades regarding the increase in women developing careers outside the home. However, although the number of women in the workforce has increased, there are still some striking differences between the types of jobs men and women perform within the United States workforce. Female employees continue to be underrepresented in traditionally male-dominated fields, such as those involving science, technology, and math; conversely, female employees are overrepresented in other fields, such as education and health services. There is also evidence that attitudes toward women have shifted in the past few decades, and this has led to both social and legislative changes that prevent many of the structural barriers to employment in traditionally male-dominated occupations that used to exist. Although structural barriers to employment for women in the United States are much less likely to exist now than in the past, perhaps less overt barriers continue to subsist. The purpose of the present study was to investigate potential gender-related barriers regarding the world of work. Specifically, this study attempted to examine whether individuals continue to view occupations as sex-typed and to examine the relationship between perceptions of gender and occupations.

The present study found that participants were consistent in the manner in which they assigned BSRI adjectives to the RIASEC types. Adjectives from the Masculine subscale of the BSRI were most likely to be assigned to the Enterprising type, then the Realistic type, and then the Investigative type. Adjectives from the Feminine subscale of the BSRI were most likely to be assigned to the Social type and then to the Conventional and Artistic types. The greatest contrast between assignment of adjectives from the Masculine and Feminine subscales of the BSRI, then, were with the Social type and the Enterprising type, rather than the Social and Realistic types, as had been hypothesized. The BSRI adjectives that were effectively integrated into the RIASEC

model supported Holland's structure of vocational interests. However, only 19 of the 60 total adjectives fit effectively into the model, and none of the adjectives that had been assigned to the Enterprising type fit into the model.

Perceptions of masculinity and femininity of the RIASEC types was also found to be consistent across experimental conditions. However, gender and Artistic interests accounted for small, yet significant, amounts of variance in perceptions of masculinity and femininity of the RIASEC types. The positive and negative adjective ratings were found to be consistent across experimental conditions as well as across gender. Participants' scores on the Feminine subscale of the BSRI as well as scores on the Old-Fashioned Sexism subscale of the MSS accounted for significant amounts of variance in positive and negative adjective ratings, followed by participants' scores on the Masculine subscale of the BSRI, scores on the Social Desirability subscale of the BSRI, Conventional interests, and Investigative interests.

**Masculine Adjectives and the RIASEC Model**

The present study hypothesized that participants would assign stereotypically-masculine traits to the Realistic job type. Of the eight traits that were assigned most often to the Realistic job type, five were stereotypically masculine traits, which seemed to align with the hypothesis. However, the results demonstrated that of the twelve traits assigned most often to the Enterprising job type, eleven of those were stereotypically-masculine traits. This finding was unexpected. The most robust sex differences in vocational interests have consistently been found to fall along the Things-People continuum, with males being more interested in Things and females more interested in People (Su et al., 2009). In terms of RIASEC types, males have been found to be more interested in the Realistic and Investigative areas, and females have been found to be more interested in the Social, Artistic, and Conventional areas. However, results of past

studies have not found sex differences in interests for the Enterprising area. Thus, the finding in this study that masculine traits were most often assigned to the Enterprising job type was not predicted in the hypotheses.

It is important to consider the possible reasons that participants assigned the masculine adjectives to the Enterprising job description. The masculine adjectives assigned to this job type were competitive, aggressive, dominant, forceful, assertive, acts as a leader, leadership ability, willing to take risks, strong personality, willing to take a stand, and ambitious. It seems logical that participants would tend to characterize the job description related to business activities with these traits. However, it is noteworthy that so many of the masculine adjectives were assigned to the Enterprising type and not with the Realistic type, as many of these traits could also be used to describe Realistic jobs. For instance, occupations that are categorized as Enterprising include retail salespersons, chefs and head cooks, police detectives, insurance sales agents, chief executives, and lawyers (O*NET OnLine, 2013). Occupations categorized as Realistic include construction laborers, security guards, commercial pilots, medical laboratory technicians, civil engineers, and oral surgeons. It seems reasonable to assert that the masculine traits could be associated with any of these jobs. This leads to the question of why the masculine traits were assigned overwhelmingly to the Enterprising job description even when there was another job description with which such traits could reasonably have been assigned. However, there is a lack of specific studies on gender and the Enterprising job type in the vocational research literature.

It is likely that the lack of focus on the Enterprising type in studies of gender and career choice is a result of the lack of sex differences in interests that has been found for this type. Also, because the Enterprising type is closer to People on the Things-People dimension, it has likely been assumed that the Social and Enterprising types would be perceived as more similar to one

another. However, the results of the current study indicate that there are significant differences in the way that these two types are perceived. Although sex differences in interests along the Things-People dimension described by Prediger (1982) has provided evidence that it is a bipolar construct, this structure does not seem to hold up for perceptions of masculinity and femininity of the RIASEC types. In fact, the types that participants seemed to perceive as most masculine (Enterprising) and most feminine (Social) are both on the People end of the Things-People dimension. Because both of these types involve working with others, it is important to consider the more specific types of working with people these interest types involve and why they could be viewed so differently in terms of masculinity and femininity.

In a study of gender segregation in managerial jobs, Barbulescu and Bidwell (2013) examined the types of jobs similarly qualified male and female MBA (Master of Business Administration) students applied for and the relationship of gender roles to expectations about jobs. They found that female MBA students applied more than the male students to jobs that were expected to provide greater work-life balance, were more likely to apply to jobs that already employed higher numbers of women, and were less likely to identify with finance jobs that are stereotypically masculine. This study also found that female MBA students were more likely to believe their applications would be unsuccessful for the stereotypically masculine finance positions. The findings of this study suggest that women's choice of careers within the Enterprising job type can be influenced by perceptions of the masculinity of those jobs.

Research findings (Oswald, 2008; Steele & Ambady, 2006) have suggested that awareness of gender affects preference for stereotypically male and stereotypically female occupations. Hogan and Roberts (2000) discussed the influence of both internal and external factors on behavior. Perceptions of masculinity and femininity of occupations could serve as an

internal factor that affects the way in which individuals consider occupations. These perceptions could then lead to attempts by individuals to express gender-congruent behavior (e.g., through career choices).

Baumgartner and Schneider (2010) noted that women are underrepresented in upper management positions within organizations and that this partially due to negative attitudes some men have toward women. Effective leadership styles for managers have also been examined, and results have been equivocal regarding whether female managers are more effective if they adopt a “masculine” leadership style or if they utilize a “feminine” style. The masculine leadership styles include such characteristics as competitiveness, risk taking, and independence, while feminine leadership styles include caring, empathy, and collaboration (Lizzio, Wilson, Gilchrist, & Gallois, 2003; van Vianen & Fischer, 2002).

Gadassi and Gati (2009) found evidence that individuals’ reported occupational options are influenced by gender stereotypes. They found that males were more likely to choose masculine jobs as those they believed that best suited them, while females chose feminine jobs. Past research has also demonstrated that the occupational preferences of males and females tend to be gender compatible (Eddleston, Veiga, & Powell, 2006). As applied to the findings of the current study that the Enterprising type is seen as masculine, this suggests that women would be less likely to view Enterprising jobs as viable options.

Considering Gottfredson’s Theory of Circumscription and Compromise (1981), if Enterprising occupations are viewed as masculine, then young females are likely to eliminate such jobs from their zone of acceptable alternatives because the jobs are believed to be “too masculine” for women to pursue. In addition to being eliminated during that stage of circumscription, enterprising occupations could also be eliminated as career options for women

during the compromise stage. If Enterprising occupations are perceived as masculine, then these occupations might be seen as less accessible due to barriers such as the glass ceiling. Thus, these jobs might be given up in preference of jobs that seem more accessible (e.g., jobs that are perceived as more feminine).

**Feminine Adjectives and the RIASEC Model**

The present study hypothesized that traits from the Feminine subscale of the BSRI would be assigned to the Social job type. The results supported this hypothesis in that 12 of the 16 traits participants assigned to the Social type were from the Feminine subscale of the BSRI. The other adjectives from this subscale were assigned to the Artistic and Conventional job types. Notably, none of the adjectives from this subscale were assigned to the Realistic, Investigative, or Enterprising job types. Prediger's Things-People dimension of interests seemed to be supported by the finding that Feminine adjectives were assigned to the People end of the continuum. However, the Artistic and Enterprising types are both adjacent to Social (closer to the People end of the Things-People continuum) and three of the Feminine adjectives were assigned to Artistic, yet none were assigned to Enterprising.

The perception of femininity of the Social type was consistent regardless of gender of the person imagined in the occupation. This finding suggests that the adjectives assigned to Social would likely be assumed to characterize an individual in a Social type job, regardless of gender of the individual. In fact, teaching, the quintessential example of a Social job, has been found to be characterized by many stereotypes regarding femininity. In an examination of perceptions of the field of teaching as a career, Carrington (2002) discussed how the teaching of children is seen as a "feminized" profession and that men who work as teachers have been found to engage in "continual negotiation of their masculine identities while at work" (p. 289). However, those who

are working or training to work in the field have been found to have very different beliefs than the stereotypes. In his study, Carrington (2002) surveyed males and females who were preparing to enter the workforce as primary school teachers. He found that 94% the male participants in the study disagreed that women are more caring than men, and 83% disagreed that women are better communicators than men.

Although males who work in the field of teaching may not view the occupation as feminine in nature, it seems that the majority of those outside of the occupation do view it as a job that is for women. Additionally, a very small percentage of the jobs teaching children are obtained by men; thus, it seems very likely that the perception of teaching as a "woman's job" might keep males from seeing such a job as a viable option, and thus they eliminate from their zone of acceptable job alternatives.

Over half of the participants in the current study assigned the adjectives Loves Children, Eager to Soothe Hurt Feelings, Sensitive to Others' Needs, Sympathetic, Affectionate, and Compassionate to the Social type; six other adjectives from the Feminine subscale of the BSRI were assigned to the Social types as well. However, of the 20 adjectives from the Feminine subscale of the BSRI, only seven fit into the RIASEC model. Five of these fit near the Social area or between the Social and Artistic areas, and two fit between the Conventional and Realistic areas. Thus, although participants overwhelmingly assigned the feminine adjectives to the Social job type, these adjectives did not consistently fit into the RIASEC and Things-People models of vocational interests.

This finding suggests that there are gendered perceptions of the RIASEC types but that these perceptions do not necessarily translate into vocational interests. That is, an individual's choice of career could be affected by his or her interests as well as perceptions of the world of

work, but there could be inconsistencies between one's interests in a job type and perceptions of that job type. The socioanalytic model of personality (Hogan & Roberts, 2000) provides a framework that could help explain the results of the present study.

The socioanalytic model of personality takes into account both internal and external factors that influence behavioral and decision-making processes. In this case, the internal factors include vocational interests of the individual, and the external factors include the cultural and societal messages about occupational types. The internal factors make up part of an individual's identity, while the external factors relate to reputation of the individual (how others perceive him or her). When the internal and external factors are in conflict, stress can result. Hogan and Roberts (2000) claimed that when individuals are aware of external expectations, they usually conform to those expectations to ensure their reputation. The results of the current study demonstrate that individuals consistently have certain expectations about people based upon their occupations. If these expectations do not match the reputation an individual wants to have in the eyes of others, then it is likely that the individual would not pursue the occupations with those expectations. Thus, internal factors such as vocational interests could be sacrificed in order to decrease conflict between one's interests and the societal expectations he or she perceives regarding choice of career.

**Gender Neutral Adjectives and the RIASEC Model**

The gender neutral adjectives (from the Social Desirability subscale of the BSRI) were assigned to each of the RIASEC types to some degree. However, the gender neutral adjectives that fit into the RIASEC structure tended to fit on the Things end of the Things-People continuum. The only exception to this was Happy, which fit closely onto the Artistic area. The others that fit into the model fell between the Conventional and Realistic areas (Reliable, Tactful,

Conventional, and Conscientious) or between the Realistic and Investigative areas (Solemn and Adaptable). Over half of the gender neutral items, however, did not fit effectively into the RIASEC model. This suggests that, overall, these adjectives were not tapping into vocational interests and do not seem to characterize the RIASEC interests. This result seems consistent with the understanding of these adjectives as gender neutral. However, since a few of the adjectives tended to fit on the Things end of the Things-People continuum, this could suggest that these particular traits could be descriptive of occupations that are more Things-oriented than People-oriented. Additionally, none of the adjectives that were integrated into the RIASEC model fit on the Data-Ideas dimension of interests. This could indicate that the Data-Ideas dimension of vocational interests is not related to perceptions of masculinity and femininity.

These findings, along with the findings for the adjectives from the Masculine and Feminine subscale of the BSRI cast doubt on Lippa's (2001) claim that masculinity and femininity make up a bipolar construct that underlies the Things-People dimension of vocational interests. Participants in the present study perceived the Enterprising type as the most masculine job type and the Social job type as the most feminine. The Realistic job type was associated with masculine traits but to a lesser degree than the Enterprising type. It could be that because both Social and Enterprising jobs involve working with people that the participants in the study were finding a way to differentiate the two people-oriented job types, and thus the greatest differences were found between these two types. The finding that none of the adjectives assigned to the Enterprising type fit into the RIASEC model and yet the Enterprising type was most associated with the masculine traits suggests that the structure of perceptions of masculinity and femininity of RIASEC types does not map neatly onto the structure of RIASEC and Things-People vocational interests.

**RIASEC and Perceptions of Masculinity and Femininity**

The first set of multivariate analyses performed in the present study examined whether participants' perceptions of masculinity and femininity of the RIASEC types varied by gender of the participants and by experimental condition. Current results demonstrated that the gender of the participant did account for some of the differences in perceptions of the RIASEC types. Gender of the participant was found to have a small, but significant, effect on perceptions of masculinity and femininity of the RIASEC types and continued to be significant even when covariates were included in the multivariate model. Additionally, condition was not found to be significant in any of the models. Taken together, these results suggest that there are some differences in the way that males and females perceive how masculine or feminine job types to be, but these perceptions seem to be stable. Specifically, the results demonstrated gender differences in perceptions of masculinity and femininity of the Social type and the Conventional type. Female participants perceived the Social type to be more feminine than did the male participants, and the male participants perceived the Conventional type to be more feminine than did the female participants. These findings regarding condition also indicated that these beliefs about the masculinity and femininity of the job types are stable regardless of whether a man or a woman is performing the job.

Gender differences regarding perceptions of masculinity and femininity of the RIASEC types could be related to different messages that males and females receive about acceptable gender-related behavior. For instance, sons have been found to be more likely to be discouraged by parents from cross-sex behavior than daughters (Fling & Manosevitz, 1972; Lansky, 1967), and it has been found that adult males were less likely to engage in cross-sex behavior than were adult females (Bem & Lenney, 1976). Such findings suggest that males and females receive

different messages about the appropriateness of behaviors according to gender. More recently, Blakemore (2003) found evidence for gender stereotypes in young boys and girls and that reactions to violations of gender norms differed according to whether a male or female was violating the gender norm. Differences in socialization around sex-typed behaviors, then, could likely lead to gender differences in perceptions of the masculinity and femininity of occupations.

The current finding that the perceptions of masculinity and femininity were stable regardless of whether it was a woman or man included in the job description rated by the participants suggests that the perceptions are related to the RIASEC types themselves. It might be that because many occupations were highly gender segregated for such a long period of time that now the occupations have "taken on" the gender of the employee who typically worked in the occupation. This could be why, in the present study, gender of the employee imagined in the occupations rated by participants was not found to be significant. The "identity" of the person in the occupation is based upon the occupation itself rather than his or her biological sex. Current society might be so used to the gendered lens through which we view the world, or the lens is so far from our awareness, that individuals might not realize they are still stereotyping occupations. Individuals might feel they are not stereotyping on the basis of gender anymore because they are stereotyping the occupation. However, stereotyped beliefs about individuals do end up existing, but rather it being due to his or her sex, it is due to his or her type of job.

The only covariate found to be significant in the cumulative MANCOVA was Artistic interests. Thus, the results demonstrate there was a significant effect of Artistic interests on the perceptions of masculinity and femininity of the RIASEC types, specifically the perceptions of the Conventional type. Considering the placement of these occupational types on Holland's hexagon could help in understanding this result. In Holland's model (1997), similarity of the

occupational types is inversely proportional to the distance between types on the hexagon. The Artistic type and the Conventional type are directly across from one another on the hexagon, indicating a lack of similarity between the types. The current results suggest that those with Artistic interests perceive the Conventional type differently in terms of its masculinity and femininity than do those with other interest areas. This could be due to those with Artistic interests having a distaste or lack of experience with activities typically associated with the Conventional type, so their perceptions of this type differ from perceptions others express.

**Positive and Negative Adjective Ratings**

A second series of multivariate analyses was carried out to examine potential differences in the way participants viewed the Bem Sex Role Inventory adjectives themselves. Similar to the findings in the first series of multivariate analyses, condition was not significant in any of the models. Thus, how positive or negative the participants rated the adjectives was not related to the gender of the employee they imaged in the jobs. This suggests that the positive and negative ratings of the traits were stable regardless of whether the participants imagined the traits being associated with males or females.

Also similar to the result of the first series of multivariate analyses, gender of the participant was found to account for some of the differences in ratings of the adjectives in the initial MANOVA. A number of covariates were also found to be significant in each of the MANCOVA models. However, in the cumulative MANCOVA model in this series, gender of the participants was no longer significant. This suggests that the covariates found to be significant accounted for the differences in ratings. Gender identity of the participants as well as their attitudes toward women appeared to influence ratings of the adjectives to the greatest

extent. Vocational interests of the participants accounted for a lesser, though still significant, portion of the variance in ratings of the BSRI adjectives.

Feminine gender identity accounted for the greatest amount of variance (8.9%) in ratings of the RIASEC types, and masculine gender identity accounted for 5.9% of the variance in ratings. Specifically, scores on feminine gender identity accounted for variance in ratings of the Artistic and Social types, and scores on masculine gender identity accounted for variance in ratings of the Realistic and Enterprising types. These findings seem to align with gender schema theory (Martin & Halverson, 1981; Martin, Ruble, & Szkrybalo, 2002). This theory asserts that individuals assume that the characteristics they possess will also be possessed by others of the same gender and that this helps to maintain an individual's consistency with his or her own gender identity. Women have been found to express greater interest in the Social and Artistic job types, and men have been found to express greater interest in the Realistic job type. Although sex differences in interests for the Enterprising type have not been supported by past studies, the results of this study suggest that the Enterprising type is perceived as masculine.

Oswald (2008) has found that women who more strongly identify with their gender group demonstrate more liking for more feminine-typed occupations. In the current study, gender of the participants was not significant for differences in ratings of the adjectives in this study when the variables related to gender identity were included in the analyses. This suggests that, regardless of gender of the participant, they may have rated adjectives that were more aligned with their own gender identities as more positive than those that were perceived as traits of a different gender identity. For example, female participants whose gender identity is much more feminine than masculine may have rated the adjectives from the Feminine subscale of the BSRI as more positive than those from the Masculine subscale.

In the current study, the average rating for the Social type was 51.49, while the average rating for the Enterprising type was 48.80. Feminine adjectives were overwhelmingly assigned to the Social type, and masculine adjectives were overwhelmingly assigned to the Enterprising type, so it stands to reason from the ratings that the feminine adjectives are perceived as more positive than the masculine adjectives. This has many implications regarding sex differences in career choice as well as the career experience of women who work in fields that typically employ more men than women or that are stereotypically masculine.

Smiler and Kubotera (2010) explored expectations about the behavior of women in feminine contexts (romantic relationships) and masculine contexts (the workplace). These researchers found that men preferred for women to display feminine characteristics (e.g., being gentle and understanding of others) in the context of romantic relationships but preferred women to display more masculine characteristics (e.g., willing to make decisions and able to stand up well under pressure) in the context of the workplace. If feminine characteristics serve women well in one context but not another, this could cause internal conflict for women who desire to enter into typically masculine fields of work.

In addition to gender identity, attitudes toward women were found to influence ratings of the RIASEC types. Specifically, 8.0% of the variance in positive and negative ratings of RIASEC types, particularly the Social type, was accounted for by attitudes around the support of treating women and men differently, endorsing stereotypes about women's inferior abilities, and approval of traditional gender roles. In Smiler and Kubotera's (2010) study discussed above, the differences in expectations for women's behavior based on context disappeared when egalitarian beliefs were taken into account. Those men who expressed greater egalitarian beliefs around gender did not demonstrate different contextual expectations for women. The current findings

regarding “old-fashioned sexism” having an effect on ratings of the occupational type that was rated as highly feminine (the Social type) are consistent with the findings of Smiler and Kubotera. In the current study, the feminine adjectives were being considered in a work context, so it is likely that those with more egalitarian beliefs had more positive feelings toward the Social type while those with more sexist beliefs had less positive attitudes toward the characteristics associated with the Social type when in the context of employment.

Interestingly, Conventional interests was a significant covariate in this model and accounted for a small percentage of the variance in positive and negative ratings of the Artistic type. As discussed above, Conventional and Artistic are directly across from one another on Holland’s hexagon, and thus are theorized to be quite dissimilar. Perhaps those with interests in the Conventional area have certain biases about traits associated with an area so different in nature. Those with Conventional interests are likely to value efficiency and detail-oriented work activities, and thus might be less likely to appreciate or admire the qualities associated with the Artistic Holland type, such as ambiguity and a lack of a clear set of rules.

**Implications for Career Counseling Models and Practice**

The findings of this study have implications for the understanding of sex differences in the world of work, the current understanding of perceptions of the RIASEC types, and for career counseling. Sex differences in interests along the Things-People dimension has been one of the most robust findings in the literature on sex differences. The current findings regarding masculinity and femininity of the RIASEC types did not fall along the Things-People continuum as expected. Instead, evidence was found to suggest that occupational types on the same end of this continuum can, in fact, be perceived in very different ways in terms of masculinity and femininity. Namely, the Social and the Enterprising types are both occupational areas that

involve working directly with other people, rather than with objects or data. However, feminine traits were overwhelmingly assigned to the Social type, while the majority of masculine traits were assigned to the Enterprising type. Perceptions of the Enterprising type as masculine has many implications regarding women and jobs that are Enterprising in nature. Similarly, there are also implications for men and jobs that are Social in nature (as the Social type was perceived as feminine). Women with interests in Enterprising occupations and men with interests in Social occupations are likely to perceive barriers to entering these career fields and, thus, might be directly or indirectly discouraged from pursuing these fields of study. Additionally, men and women who work in fields that others might perceive as gender-incongruent could experience additional stressors related to the intersection of gender identities and work identities. These stressors could be both internal (e.g., feeling like an outsider, feeling pressure to prove him or herself in the work environment) and external (e.g., supervisors or co-workers who question his or her capabilities to do the work well simply based on his or her gender, disapproval from family or friends about choice of career).

These findings are quite relevant for direct work with clients in career counseling. The finding that perceptions of masculinity and femininity of the RIASEC types did not align with the past research on sex differences in RIASEC interests suggest that individuals might choose career paths that do not match their areas of interests in order to be “gender-congruent.” Thus, career counselors should not assume that a client’s interests will directly lead to career choice but that other factors, including perceptions of occupations themselves, can affect such choices. If career counselors are aware of these less overt barriers that can lead to circumscription and compromise of career choices, they can monitor their clients regarding their narrowing of occupational options.

Career counselor can help their clients explore their perceived expectations regarding occupations as well as how sensitive the clients are to expectations of others. If a client's expectations about his or her reputation do not match with his or her vocational interests, then the counselor can serve an important role of helping the client work through this conflict between internal and external factors. It can also be helpful for career counselors to be aware that perceptions of occupations are likely stable in nature; thus, it can be beneficial to explore with clients the ways in which their perceptions might relate to their career choices. The findings also suggest utility in exploring gender identity as well as attitudes toward women with clients and how this can relate to their perceptions of occupations.

**Limitations and Future Directions**

Some limitations of this study are related to demographic characteristics of the sample. The sample was made up of college students, so the results might not be representative of the general population. Individuals who are students in the world of higher education could have perceptions of occupations that differ from those without experience in postsecondary education. However, the results do generalize to the college population, so the findings of this study could be of particular interest and use to those who work with college students, such as career counselors and advisors in higher education. Other limitations are that a majority (61%) of the sample was female, which could limit the generalizability of the results. However, many university populations now include more women and men; thus, the proportion of males and females in the present study could actually tend toward an accurate representation of the student population. The current sample was also primarily Caucasian (83.4% of the sample). This certainly limits the generalizability of the results to individuals from other racial backgrounds. There was not enough variability in race in the present sample to examine racial differences in

perceptions of masculinity and femininity of RIASEC types, so the present study could be missing cultural variables that might influence perceptions of gender and the world of work.

The findings of the present study can serve as a catalyst for a number of future directions of research. In particular, the results regarding the masculine perception of the Enterprising job type reveals a necessity for more research on perceptions of this job type as well as the potential benefit of examining different perceptions of the variety of occupations that involve working with others (the People end of the Things-People continuum). Potential barriers for women in Enterprising job types has been studied in organizational research, but this is an area that vocational psychology could serve well to examine further, particularly the less overt barriers that might exist around women in this type of work. Consequently, future research could further explore the link between the lack of sex differences in interests of the Enterprising type and the current finding of that there are differences in perceptions of the masculinity and femininity of the Enterprising type. One potential direction to explore is the fact that women might have interest in this area of work but might not pursue this area due to perceptions that the jobs are quite masculine.

Replications of the current study could also be a fruitful area of future research. The experimental conditions of this study could be altered for future studies to continue to explore perceptions of occupations. For instance, each participant in this study read a set of occupational descriptions that was consistent in gender of the employee throughout. Future studies could explore having participants read occupational descriptions that differ by gender (e.g., three of the descriptions use male names and three use female names). A number of other modifications could be made as well to examine the research question in additional ways and determine whether their results are consistent with the results of the current study.

Future research could also try to get more directly at whether individuals are aware of their stereotypes about gender and occupations. The development of this study included the assumption that individuals would be more likely to express their true beliefs about the masculinity and femininity of occupations when assessed in an indirect manner. However, it might be that individuals feel comfortable disclosing stereotyped perceptions of occupations. They might be likely to deny overt sexist beliefs or stereotyped beliefs about persons but could believe that it is socially acceptable to stereotype an occupation.

**Summary and Conclusions**

The present study sought to investigate whether individuals continue to view occupations as sex-typed and to examine the relationship between gender traits and perceptions of occupations. The results provided evidence that sex-typing of occupations continues to be prevalent. The findings also demonstrated that differences in perceptions of the RIASEC types were not consistent with the past literature on sex differences in interests of the RIASEC types. These results highlight the need for further research on perceptions of masculinity and femininity of occupational types and how beliefs about occupations may affect career choice in a different way than vocational interests.

This study provides a starting point for many directions of future research on perceptions of RIASEC types and the nuances of the relationship between gender and occupational choice. Further exploration of the Enterprising job type in particular could provide a great deal of beneficial information about sex differences in these occupational fields. Gender identity and attitudes toward women also are additional areas to explore in regard to the relationship between perceptions of occupations and choices individuals make about their career paths. Future

research will not only enrich the vocational literature but can also serve to influence clinical work with clients who present with career-related concerns.

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**Table 1. Examples of Employment by Sex in Traditionally Sex-Typed Occupations**

| Occupation | Holland Code | % Women | % Men |
|---|---|---|---|
| Firefighters | RS | 4.5 | 95.5 |
| Civil Engineers | RIC | 13.1 | 86.9 |
| Police Patrol Officers | REC | 12.0 | 88.0 |
| Aerospace Engineers | IR | 12.4 | 87.6 |
| | | | |
| Preschool/Kindergarten Teachers | SA | 97.0 | 3.0 |
| Secretaries/Administrative Assistants | CE | 96.1 | 3.9 |
| Cosmetologists | AES | 82.8 | 17.2 |
| Social Workers | SE | 93.0 | 7.0 |

*(U.S. Bureau of Labor Statistics, 2013; O*Net OnLine, 2013)*

**Table 2. Proportions and Pearson's Chi-Square ($\chi^2$) Results for Masculine BSRI Adjectives by Condition.**

| Adjective | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Self-reliant | GA | 0.25 | 0.17 | 0.19 | 0.01 | 0.08 | 0.32 | | |
| | M | 0.29 | 0.23 | 0.17 | 0.01 | 0.08 | 0.22 | | |
| | F | 0.26 | 0.20 | 0.17 | 0.01 | 0.09 | 0.27 | 9.42 | .493 |
| Defends own beliefs | GA | 0.15 | 0.40 | 0.24 | 0.01 | 0.11 | 0.09 | | |
| | M | 0.11 | 0.35 | 0.22 | 0.01 | 0.16 | 0.15 | | |
| | F | 0.15 | 0.34 | 0.18 | 0.02 | 0.19 | 0.13 | 15.69 | .109 |
| Independent | GA | 0.18 | 0.17 | 0.24 | 0.00 | 0.06 | 0.35 | | |
| | M | 0.25 | 0.21 | 0.24 | 0.01 | 0.07 | 0.23 | | |
| | F | 0.27 | 0.21 | 0.22 | 0.00 | 0.07 | 0.24 | 19.19 | .038 |
| Athletic | GA | 0.62 | 0.08 | 0.03 | 0.06 | 0.14 | 0.08 | | |
| | M | 0.54 | 0.07 | 0.04 | 0.05 | 0.23 | 0.08 | | |
| | F | 0.59 | 0.08 | 0.04 | 0.05 | 0.18 | 0.06 | 10.45 | .402 |
| Assertive | GA | 0.25 | 0.10 | 0.01 | 0.02 | 0.50 | 0.12 | | |
| | M | 0.23 | 0.10 | 0.02 | 0.03 | 0.46 | 0.16 | | |
| | F | 0.23 | 0.13 | 0.03 | 0.03 | 0.45 | 0.13 | 8.16 | .613 |
| Strong personality | GA | 0.16 | 0.08 | 0.26 | 0.05 | 0.37 | 0.09 | | |
| | M | 0.21 | 0.09 | 0.19 | 0.06 | 0.36 | 0.09 | | |
| | F | 0.20 | 0.10 | 0.18 | 0.06 | 0.37 | 0.09 | 7.96 | .633 |
| Forceful | GA | 0.23 | 0.09 | 0.03 | 0.01 | 0.53 | 0.11 | | |
| | M | 0.25 | 0.08 | 0.03 | 0.02 | 0.50 | 0.14 | | |
| | F | 0.28 | 0.09 | 0.02 | 0.01 | 0.44 | 0.16 | 6.14 | .804 |
| Analytical | GA | 0.15 | 0.53 | 0.03 | 0.00 | 0.08 | 0.22 | | |
| | M | 0.19 | 0.53 | 0.01 | 0.00 | 0.04 | 0.23 | | |
| | F | 0.22 | 0.52 | 0.00 | 0.00 | 0.07 | 0.19 | 16.42 | .088 |
| Leadership ability | GA | 0.24 | 0.13 | 0.01 | 0.11 | 0.40 | 0.11 | | |
| | M | 0.32 | 0.07 | 0.01 | 0.13 | 0.36 | 0.12 | | |
| | F | 0.21 | 0.12 | 0.01 | 0.11 | 0.46 | 0.11 | 17.48 | .064 |

*Notes.* GA = Gender ambiguous; M = Male names; F = Female names.

**Table 2. (Continued).**

| Adjective | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Willing to take risks | GA | 0.10 | 0.21 | 0.28 | 0.00 | 0.38 | 0.03 | | |
| | M | 0.10 | 0.22 | 0.24 | 0.01 | 0.39 | 0.05 | | |
| | F | 0.11 | 0.25 | 0.24 | 0.01 | 0.34 | 0.05 | 6.68 | .755 |
| Makes decisions easily | GA | 0.35 | 0.11 | 0.11 | 0.02 | 0.21 | 0.20 | | |
| | M | 0.34 | 0.16 | 0.12 | 0.04 | 0.15 | 0.19 | | |
| | F | 0.35 | 0.14 | 0.12 | 0.03 | 0.21 | 0.16 | 8.78 | .554 |
| Self-sufficient | GA | 0.27 | 0.16 | 0.13 | 0.01 | 0.10 | 0.34 | | |
| | M | 0.31 | 0.18 | 0.16 | 0.01 | 0.08 | 0.25 | | |
| | F | 0.34 | 0.19 | 0.11 | 0.01 | 0.10 | 0.25 | 11.97 | .287 |
| Dominant | GA | 0.28 | 0.09 | 0.00 | 0.01 | 0.51 | 0.11 | | |
| | M | 0.21 | 0.10 | 0.02 | 0.00 | 0.54 | 0.13 | | |
| | F | 0.27 | 0.12 | 0.01 | 0.01 | 0.47 | 0.13 | 11.04 | .354 |
| Masculine | GA | 0.56 | 0.06 | 0.02 | 0.01 | 0.26 | 0.10 | | |
| | M | 0.55 | 0.04 | 0.01 | 0.01 | 0.28 | 0.11 | | |
| | F | 0.45 | 0.08 | 0.01 | 0.01 | 0.31 | 0.15 | 14.66 | .145 |
| Willing to take a stand | GA | 0.20 | 0.25 | 0.12 | 0.03 | 0.29 | 0.11 | | |
| | M | 0.19 | 0.25 | 0.11 | 0.04 | 0.28 | 0.13 | | |
| | F | 0.16 | 0.22 | 0.07 | 0.04 | 0.40 | 0.11 | 15.28 | .122 |
| Aggressive | GA | 0.21 | 0.10 | 0.02 | 0.00 | 0.55 | 0.13 | | |
| | M | 0.19 | 0.10 | 0.01 | 0.00 | 0.59 | 0.10 | | |
| | F | 0.22 | 0.11 | 0.02 | 0.01 | 0.51 | 0.15 | 6.47 | .774 |
| Acts as a leader | GA | 0.27 | 0.10 | 0.01 | 0.12 | 0.41 | 0.09 | | |
| | M | 0.27 | 0.06 | 0.02 | 0.14 | 0.43 | 0.09 | | |
| | F | 0.24 | 0.11 | 0.01 | 0.08 | 0.47 | 0.10 | 12.59 | .247 |
| Individualistic | GA | 0.12 | 0.10 | 0.54 | 0.00 | 0.07 | 0.17 | | |
| | M | 0.14 | 0.18 | 0.53 | 0.01 | 0.03 | 0.12 | | |
| | F | 0.14 | 0.17 | 0.50 | 0.01 | 0.05 | 0.13 | 15.45 | .116 |

**Table 2. (Continued).**

| Adjective | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Competitive | GA | 0.15 | 0.16 | 0.05 | 0.00 | 0.56 | 0.08 | | |
| | M | 0.12 | 0.14 | 0.06 | 0.01 | 0.57 | 0.10 | | |
| | F | 0.14 | 0.19 | 0.06 | 0.01 | 0.51 | 0.09 | 6.74 | .750 |
| Ambitious | GA | 0.22 | 0.24 | 0.14 | 0.00 | 0.32 | 0.08 | | |
| | M | 0.17 | 0.23 | 0.14 | 0.03 | 0.31 | 0.12 | | |
| | F | 0.19 | 0.31 | 0.08 | 0.03 | 0.31 | 0.09 | 22.57 | .012 |

**Table 3. Proportions and Pearson's Chi-Square ($\chi^2$) Results for Feminine BSRI Adjectives by Condition.**

| Adjective | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Yielding | GA | 0.17 | 0.26 | 0.05 | 0.05 | 0.13 | 0.33 | | |
| | M | 0.16 | 0.26 | 0.05 | 0.04 | 0.11 | 0.39 | | |
| | F | 0.18 | 0.26 | 0.05 | 0.06 | 0.13 | 0.31 | 5.54 | .853 |
| Cheerful | GA | 0.15 | 0.13 | 0.20 | 0.31 | 0.08 | 0.13 | | |
| | M | 0.10 | 0.17 | 0.23 | 0.32 | 0.09 | 0.09 | | |
| | F | 0.12 | 0.12 | 0.23 | 0.34 | 0.12 | 0.07 | 13.73 | .186 |
| Shy | GA | 0.10 | 0.21 | 0.13 | 0.01 | 0.04 | 0.51 | | |
| | M | 0.16 | 0.26 | 0.10 | 0.00 | 0.01 | 0.47 | | |
| | F | 0.15 | 0.18 | 0.14 | 0.00 | 0.02 | 0.50 | 16.01 | .990 |
| Affectionate | GA | 0.06 | 0.06 | 0.19 | 0.58 | 0.04 | 0.08 | | |
| | M | 0.06 | 0.06 | 0.23 | 0.53 | 0.04 | 0.09 | | |
| | F | 0.07 | 0.08 | 0.18 | 0.55 | 0.06 | 0.07 | 6.64 | .759 |
| Flatterable | GA | 0.11 | 0.20 | 0.27 | 0.07 | 0.21 | 0.15 | | |
| | M | 0.11 | 0.19 | 0.22 | 0.09 | 0.19 | 0.20 | | |
| | F | 0.10 | 0.15 | 0.30 | 0.08 | 0.15 | 0.22 | 12.48 | .254 |
| Loyal | GA | 0.21 | 0.19 | 0.04 | 0.09 | 0.17 | 0.30 | | |
| | M | 0.24 | 0.14 | 0.06 | 0.10 | 0.14 | 0.33 | | |
| | F | 0.17 | 0.14 | 0.06 | 0.09 | 0.22 | 0.33 | 13.41 | .201 |
| Feminine | GA | 0.03 | 0.09 | 0.33 | 0.44 | 0.05 | 0.06 | | |
| | M | 0.01 | 0.09 | 0.47 | 0.32 | 0.03 | 0.10 | | |
| | F | 0.03 | 0.12 | 0.37 | 0.33 | 0.05 | 0.11 | 22.26 | .014 |
| Sympathetic | GA | 0.04 | 0.13 | 0.10 | 0.59 | 0.03 | 0.11 | | |
| | M | 0.05 | 0.07 | 0.13 | 0.61 | 0.05 | 0.10 | | |
| | F | 0.08 | 0.07 | 0.13 | 0.55 | 0.08 | 0.09 | 19.84 | .031 |
| Sensitive to others' needs | GA | 0.04 | 0.06 | 0.07 | 0.69 | 0.11 | 0.04 | | |
| | M | 0.04 | 0.07 | 0.12 | 0.63 | 0.09 | 0.06 | | |
| | F | 0.02 | 0.05 | 0.18 | 0.64 | 0.06 | 0.04 | 22.02 | .015 |

*Notes.* GA = Gender ambiguous; M = Male names; F = Female names.

**Table 3. (Continued).**

| | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Understanding | GA | 0.13 | 0.24 | 0.07 | 0.36 | 0.09 | 0.11 | | |
| | M | 0.12 | 0.18 | 0.10 | 0.40 | 0.09 | 0.12 | | |
| | F | 0.13 | 0.22 | 0.08 | 0.40 | 0.09 | 0.08 | 6.24 | .795 |
| Compassionate | GA | 0.08 | 0.07 | 0.22 | 0.55 | 0.04 | 0.05 | | |
| | M | 0.05 | 0.11 | 0.24 | 0.50 | 0.04 | 0.06 | | |
| | F | 0.08 | 0.08 | 0.22 | 0.50 | 0.03 | 0.08 | 8.46 | .584 |
| Eager to soothe hurt feelings | GA | 0.03 | 0.08 | 0.05 | 0.78 | 0.03 | 0.04 | | |
| | M | 0.03 | 0.05 | 0.08 | 0.73 | 0.06 | 0.06 | | |
| | F | 0.05 | 0.04 | 0.08 | 0.71 | 0.07 | 0.06 | 15.55 | .113 |
| Soft spoken | GA | 0.10 | 0.19 | 0.14 | 0.14 | 0.04 | 0.40 | | |
| | M | 0.09 | 0.22 | 0.16 | 0.06 | 0.04 | 0.43 | | |
| | F | 0.10 | 0.17 | 0.17 | 0.12 | 0.03 | 0.41 | 12.24 | .269 |
| Warm | GA | 0.10 | 0.11 | 0.18 | 0.44 | 0.06 | 0.10 | | |
| | M | 0.12 | 0.08 | 0.17 | 0.49 | 0.08 | 0.06 | | |
| | F | 0.09 | 0.10 | 0.17 | 0.50 | 0.06 | 0.09 | 7.06 | .720 |
| Tender | GA | 0.09 | 0.14 | 0.14 | 0.50 | 0.03 | 0.10 | | |
| | M | 0.10 | 0.12 | 0.24 | 0.38 | 0.04 | 0.13 | | |
| | F | 0.09 | 0.12 | 0.17 | 0.42 | 0.06 | 0.15 | 17.96 | .056 |
| Gullible | GA | 0.13 | 0.25 | 0.24 | 0.09 | 0.07 | 0.22 | | |
| | M | 0.12 | 0.16 | 0.26 | 0.07 | 0.09 | 0.30 | | |
| | F | 0.09 | 0.24 | 0.25 | 0.10 | 0.07 | 0.25 | 14.80 | .140 |
| Childlike | GA | 0.10 | 0.10 | 0.59 | 0.11 | 0.03 | 0.07 | | |
| | M | 0.10 | 0.10 | 0.50 | 0.16 | 0.04 | 0.10 | | |
| | F | 0.08 | 0.06 | 0.56 | 0.19 | 0.03 | 0.09 | 14.06 | .170 |
| Does not use harsh language | GA | 0.06 | 0.12 | 0.08 | 0.45 | 0.08 | 0.21 | | |
| | M | 0.08 | 0.15 | 0.06 | 0.49 | 0.08 | 0.15 | | |
| | F | 0.05 | 0.14 | 0.10 | 0.48 | 0.08 | 0.16 | 9.23 | .511 |

**Table 3. (Continued).**

| | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Loves children | GA | 0.05 | 0.05 | 0.10 | 0.75 | 0.03 | 0.03 | | |
| | M | 0.04 | 0.07 | 0.07 | 0.74 | 0.03 | 0.05 | | |
| | F | 0.03 | 0.05 | 0.07 | 0.79 | 0.02 | 0.05 | 7.10 | .716 |
| Gentle | GA | 0.11 | 0.11 | 0.13 | 0.47 | 0.03 | 0.15 | | |
| | M | 0.09 | 0.13 | 0.12 | 0.44 | 0.04 | 0.18 | | |
| | F | 0.09 | 0.11 | 0.19 | 0.44 | 0.03 | 0.15 | 8.79 | .552 |

**Table 4. Proportions and Pearson's Chi-Square ($\chi^2$) Results for Gender Neutral BSRI Adjectives by Condition.**

| Adjective | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Helpful | GA | 0.14 | 0.14 | 0.03 | 0.43 | 0.10 | 0.17 | | |
| | M | 0.20 | 0.16 | 0.01 | 0.42 | 0.11 | 0.11 | | |
| | F | 0.14 | 0.19 | 0.02 | 0.44 | 0.09 | 0.12 | 13.43 | .201 |
| Moody | GA | 0.12 | 0.13 | 0.42 | 0.00 | 0.14 | 0.19 | | |
| | M | 0.11 | 0.12 | 0.43 | 0.01 | 0.13 | 0.21 | | |
| | F | 0.11 | 0.14 | 0.38 | 0.02 | 0.13 | 0.23 | 8.15 | .614 |
| Conscientious | GA | 0.19 | 0.25 | 0.06 | 0.04 | 0.10 | 0.36 | | |
| | M | 0.19 | 0.23 | 0.06 | 0.09 | 0.13 | 0.29 | | |
| | F | 0.22 | 0.25 | 0.06 | 0.07 | 0.11 | 0.30 | 9.23 | .505 |
| Theatrical | GA | 0.05 | 0.08 | 0.76 | 0.04 | 0.03 | 0.03 | | |
| | M | 0.03 | 0.08 | 0.75 | 0.04 | 0.06 | 0.05 | | |
| | F | 0.03 | 0.09 | 0.74 | 0.03 | 0.07 | 0.04 | 8.72 | .559 |
| Happy | GA | 0.21 | 0.15 | 0.26 | 0.25 | 0.06 | 0.07 | | |
| | M | 0.12 | 0.17 | 0.29 | 0.25 | 0.08 | 0.09 | | |
| | F | 0.11 | 0.18 | 0.32 | 0.25 | 0.06 | 0.08 | 15.36 | .120 |
| Unpredictable | GA | 0.03 | 0.22 | 0.62 | 0.00 | 0.10 | 0.03 | | |
| | M | 0.08 | 0.20 | 0.54 | 0.01 | 0.11 | 0.06 | | |
| | F | 0.05 | 0.21 | 0.57 | 0.02 | 0.10 | 0.05 | 14.45 | .153 |
| Reliable | GA | 0.27 | 0.14 | 0.01 | 0.08 | 0.15 | 0.34 | | |
| | M | 0.37 | 0.18 | 0.01 | 0.06 | 0.10 | 0.28 | | |
| | F | 0.33 | 0.15 | 0.01 | 0.06 | 0.14 | 0.32 | 13.86 | .179 |
| Jealous | GA | 0.14 | 0.24 | 0.14 | 0.01 | 0.26 | 0.21 | | |
| | M | 0.12 | 0.21 | 0.11 | 0.01 | 0.27 | 0.28 | | |
| | F | 0.15 | 0.19 | 0.12 | 0.01 | 0.22 | 0.31 | 11.11 | .349 |
| Truthful | GA | 0.15 | 0.29 | 0.03 | 0.09 | 0.16 | 0.28 | | |
| | M | 0.16 | 0.31 | 0.03 | 0.11 | 0.14 | 0.25 | | |
| | F | 0.14 | 0.35 | 0.04 | 0.06 | 0.12 | 0.30 | 9.69 | .468 |

*Notes.* GA = Gender ambiguous; M = Male names; F = Female names.

**Table 4. (Continued).**

| Adjective | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Secretive | GA | 0.08 | 0.27 | 0.09 | 0.01 | 0.22 | 0.33 | | |
| | M | 0.05 | 0.32 | 0.09 | 0.00 | 0.21 | 0.33 | | |
| | F | 0.12 | 0.20 | 0.08 | 0.02 | 0.24 | 0.34 | 21.31 | .019 |
| Sincere | GA | 0.14 | 0.16 | 0.12 | 0.26 | 0.11 | 0.22 | | |
| | M | 0.12 | 0.16 | 0.12 | 0.31 | 0.12 | 0.18 | | |
| | F | 0.14 | 0.22 | 0.11 | 0.29 | 0.11 | 0.13 | 11.45 | .323 |
| Conceited | GA | 0.11 | 0.16 | 0.15 | 0.00 | 0.37 | 0.20 | | |
| | M | 0.11 | 0.18 | 0.10 | 0.01 | 0.38 | 0.23 | | |
| | F | 0.13 | 0.20 | 0.15 | 0.01 | 0.31 | 0.20 | 9.98 | .442 |
| Likeable | GA | 0.18 | 0.15 | 0.13 | 0.30 | 0.15 | 0.09 | | |
| | M | 0.15 | 0.17 | 0.11 | 0.33 | 0.13 | 0.13 | | |
| | F | 0.12 | 0.14 | 0.16 | 0.31 | 0.14 | 0.14 | 10.22 | .422 |
| Solemn | GA | 0.15 | 0.19 | 0.07 | 0.01 | 0.12 | 0.46 | | |
| | M | 0.13 | 0.27 | 0.05 | 0.04 | 0.09 | 0.42 | | |
| | F | 0.22 | 0.18 | 0.08 | 0.02 | 0.08 | 0.42 | 24.82 | .006 |
| Friendly | GA | 0.18 | 0.13 | 0.06 | 0.37 | 0.17 | 0.09 | | |
| | M | 0.12 | 0.11 | 0.13 | 0.47 | 0.11 | 0.07 | | |
| | F | 0.08 | 0.14 | 0.18 | 0.41 | 0.12 | 0.07 | 33.58 | .000 |
| Inefficient | GA | 0.11 | 0.24 | 0.44 | 0.03 | 0.05 | 0.13 | | |
| | M | 0.10 | 0.24 | 0.38 | 0.03 | 0.09 | 0.16 | | |
| | F | 0.10 | 0.21 | 0.38 | 0.03 | 0.07 | 0.21 | 11.17 | .344 |
| Adaptable | GA | 0.18 | 0.36 | 0.13 | 0.09 | 0.13 | 0.13 | | |
| | M | 0.25 | 0.30 | 0.12 | 0.06 | 0.16 | 0.12 | | |
| | F | 0.24 | 0.33 | 0.13 | 0.06 | 0.10 | 0.14 | 10.26 | .418 |
| Unsystematic | GA | 0.08 | 0.14 | 0.67 | 0.01 | 0.07 | 0.04 | | |
| | M | 0.04 | 0.12 | 0.69 | 0.02 | 0.07 | 0.06 | | |
| | F | 0.06 | 0.12 | 0.64 | 0.02 | 0.11 | 0.06 | 11.80 | .298 |

**Table 4. (Continued).**

| | Condition | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Tactful | GA | 0.30 | 0.24 | 0.03 | 0.04 | 0.17 | 0.23 | | |
| | M | 0.33 | 0.21 | 0.00 | 0.04 | 0.19 | 0.23 | | |
| | F | 0.33 | 0.17 | 0.04 | 0.04 | 0.19 | 0.24 | 11.48 | .321 |
| Conventional | GA | 0.30 | 0.19 | 0.03 | 0.01 | 0.10 | 0.38 | | |
| | M | 0.35 | 0.19 | 0.03 | 0.00 | 0.13 | 0.29 | | |
| | F | 0.34 | 0.19 | 0.02 | 0.02 | 0.12 | 0.33 | 9.55 | .481 |

**Table 5. Proportions and Pearson's Chi-Square ($\chi^2$) Results for Masculine BSRI Adjectives by Gender.**

| Adjective | Gender | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Self-reliant | M | 0.28 | 0.19 | 0.19 | 0.02 | 0.07 | 0.25 | | |
| | F | 0.26 | 0.21 | 0.16 | 0.01 | 0.09 | 0.27 | 4.29 | .508 |
| Defends own beliefs | M | 0.15 | 0.37 | 0.21 | 0.02 | 0.15 | 0.11 | | |
| | F | 0.13 | 0.35 | 0.21 | 0.01 | 0.16 | 0.14 | 2.55 | .769 |
| Independent | M | 0.23 | 0.17 | 0.28 | 0.01 | 0.06 | 0.26 | | |
| | F | 0.24 | 0.22 | 0.20 | 0.00 | 0.07 | 0.27 | 9.12 | .105 |
| Athletic | M | 0.57 | 0.07 | 0.03 | 0.07 | 0.20 | 0.06 | | |
| | F | 0.59 | 0.08 | 0.03 | 0.04 | 0.18 | 0.08 | 3.85 | .572 |
| Assertive | M | 0.21 | 0.15 | 0.03 | 0.04 | 0.45 | 0.14 | | |
| | F | 0.25 | 0.09 | 0.01 | 0.02 | 0.48 | 0.14 | 9.82 | .080 |
| Strong personality | M | 0.23 | 0.09 | 0.19 | 0.07 | 0.34 | 0.09 | | |
| | F | 0.17 | 0.09 | 0.22 | 0.05 | 0.38 | 0.09 | 7.04 | .218 |
| Forceful | M | 0.27 | 0.09 | 0.04 | 0.02 | 0.47 | 0.12 | | |
| | F | 0.24 | 0.09 | 0.02 | 0.01 | 0.50 | 0.15 | 5.84 | .322 |
| Analytical | M | 0.17 | 0.52 | 0.02 | 0.00 | 0.06 | 0.23 | | |
| | F | 0.20 | 0.53 | 0.01 | 0.00 | 0.06 | 0.20 | 3.89 | .565 |
| Leadership ability | M | 0.30 | 0.06 | 0.02 | 0.11 | 0.43 | 0.08 | | |
| | F | 0.22 | 0.13 | 0.00 | 0.12 | 0.39 | 0.13 | 22.67 | .000 |
| Willing to take risks | M | 0.08 | 0.22 | 0.23 | 0.02 | 0.43 | 0.03 | | |
| | F | 0.12 | 0.23 | 0.26 | 0.00 | 0.33 | 0.05 | 15.66 | .008 |
| Makes decisions easily | M | 0.36 | 0.13 | 0.11 | 0.03 | 0.21 | 0.16 | | |
| | F | 0.34 | 0.14 | 0.12 | 0.03 | 0.18 | 0.20 | 2.86 | .721 |
| Self-sufficient | M | 0.30 | 0.16 | 0.17 | 0.02 | 0.11 | 0.25 | | |
| | F | 0.32 | 0.19 | 0.11 | 0.01 | 0.08 | 0.29 | 13.31 | .021 |
| Dominant | M | 0.26 | 0.09 | 0.01 | 0.01 | 0.52 | 0.10 | | |
| | F | 0.25 | 0.11 | 0.01 | 0.00 | 0.49 | 0.14 | 4.80 | .440 |
| Masculine | M | 0.54 | 0.07 | 0.01 | 0.02 | 0.27 | 0.09 | | |
| | F | 0.50 | 0.05 | 0.02 | 0.00 | 0.29 | 0.14 | 13.87 | .016 |

*Notes.* M = male; F = female.

**Table 5. (Continued).**

| Adjective | Gender | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Willing to take a stand | M | 0.20 | 0.25 | 0.09 | 0.06 | 0.27 | 0.13 | | |
| | F | 0.17 | 0.23 | 0.10 | 0.03 | 0.35 | 0.11 | 11.22 | .047 |
| Aggressive | M | 0.18 | 0.13 | 0.02 | 0.01 | 0.57 | 0.09 | | |
| | F | 0.23 | 0.08 | 0.01 | 0.00 | 0.53 | 0.15 | 14.47 | .013 |
| Acts as a leader | M | 0.30 | 0.06 | 0.02 | 0.13 | 0.43 | 0.06 | | |
| | F | 0.23 | 0.11 | 0.01 | 0.10 | 0.44 | 0.11 | 17.67 | .003 |
| Individualistic | M | 0.11 | 0.18 | 0.46 | 0.01 | 0.08 | 0.17 | | |
| | F | 0.15 | 0.14 | 0.56 | 0.00 | 0.03 | 0.12 | 23.09 | .000 |
| Competitive | M | 0.16 | 0.16 | 0.07 | 0.02 | 0.53 | 0.07 | | |
| | F | 0.12 | 0.17 | 0.05 | 0.00 | 0.56 | 0.10 | 9.93 | .077 |
| Ambitious | M | 0.16 | 0.28 | 0.12 | 0.03 | 0.34 | 0.08 | | |
| | F | 0.21 | 0.25 | 0.12 | 0.02 | 0.30 | 0.11 | 7.38 | .194 |

**Table 6. Proportions and Pearson's Chi-Square ($\chi^2$) Results for Feminine BSRI Adjectives by Gender.**

| Adjective | Gender | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Yielding | M | 0.16 | 0.26 | 0.05 | 0.08 | 0.13 | 0.34 | | |
| | F | 0.19 | 0.26 | 0.05 | 0.04 | 0.12 | 0.35 | 6.44 | .266 |
| Cheerful | M | 0.11 | 0.13 | 0.19 | 0.37 | 0.10 | 0.10 | | |
| | F | 0.13 | 0.15 | 0.24 | 0.29 | 0.10 | 0.09 | 7.62 | .179 |
| Shy | M | 0.11 | 0.19 | 0.16 | 0.00 | 0.01 | 0.52 | | |
| | F | 0.16 | 0.24 | 0.10 | 0.01 | 0.03 | 0.47 | 13.52 | .019 |
| Affectionate | M | 0.08 | 0.07 | 0.22 | 0.51 | 0.04 | 0.08 | | |
| | F | 0.05 | 0.06 | 0.19 | 0.58 | 0.05 | 0.08 | 6.53 | .258 |
| Flatterable | M | 0.11 | 0.17 | 0.25 | 0.08 | 0.17 | 0.23 | | |
| | F | 0.11 | 0.18 | 0.28 | 0.08 | 0.19 | 0.17 | 5.28 | .382 |
| Loyal | M | 0.23 | 0.13 | 0.06 | 0.08 | 0.18 | 0.32 | | |
| | F | 0.19 | 0.17 | 0.05 | 0.10 | 0.18 | 0.32 | 4.14 | .530 |
| Feminine | M | 0.03 | 0.13 | 0.39 | 0.31 | 0.04 | 0.10 | | |
| | F | 0.03 | 0.08 | 0.39 | 0.39 | 0.04 | 0.08 | 9.43 | .093 |
| Sympathetic | M | 0.06 | 0.09 | 0.13 | 0.54 | 0.06 | 0.12 | | |
| | F | 0.06 | 0.09 | 0.12 | 0.60 | 0.06 | 0.08 | 4.23 | .517 |
| Sensitive to others' needs | M | 0.04 | 0.07 | 0.14 | 0.63 | 0.08 | 0.05 | | |
| | F | 0.02 | 0.06 | 0.12 | 0.67 | 0.08 | 0.05 | 3.37 | .643 |
| Understanding | M | 0.15 | 0.21 | 0.08 | 0.38 | 0.08 | 0.11 | | |
| | F | 0.11 | 0.21 | 0.09 | 0.39 | 0.10 | 0.11 | 2.75 | .739 |
| Compassionate | M | 0.05 | 0.12 | 0.22 | 0.49 | 0.04 | 0.08 | | |
| | F | 0.09 | 0.07 | 0.23 | 0.53 | 0.03 | 0.05 | 9.83 | .080 |
| Eager to soothe hurt feelings | M | 0.05 | 0.06 | 0.08 | 0.70 | 0.06 | 0.07 | | |
| | F | 0.02 | 0.05 | 0.06 | 0.76 | 0.05 | 0.05 | 6.59 | .253 |
| Soft spoken | M | 0.08 | 0.16 | 0.18 | 0.10 | 0.04 | 0.45 | | |
| | F | 0.10 | 0.22 | 0.14 | 0.11 | 0.04 | 0.39 | 8.87 | .114 |
| Warm | M | 0.12 | 0.10 | 0.16 | 0.47 | 0.06 | 0.09 | | |
| | F | 0.09 | 0.09 | 0.18 | 0.49 | 0.07 | 0.08 | 2.82 | .727 |

*Notes.* M = male; F = female.

**Table 6. (Continued).**

| Adjective | Gender | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Tender | M | 0.11 | 0.13 | 0.19 | 0.39 | 0.04 | 0.15 | | |
| | F | 0.09 | 0.12 | 0.19 | 0.45 | 0.05 | 0.11 | 5.80 | .327 |
| Gullible | M | 0.11 | 0.21 | 0.25 | 0.09 | 0.07 | 0.28 | | |
| | F | 0.11 | 0.22 | 0.26 | 0.08 | 0.09 | 0.25 | 3.29 | .656 |
| Childlike | M | 0.07 | 0.11 | 0.54 | 0.16 | 0.04 | 0.08 | | |
| | F | 0.10 | 0.07 | 0.55 | 0.16 | 0.03 | 0.09 | 5.39 | .370 |
| Does not use harsh language | M | 0.06 | 0.13 | 0.09 | 0.45 | 0.09 | 0.18 | | |
| | F | 0.06 | 0.14 | 0.07 | 0.49 | 0.08 | 0.16 | 3.21 | .668 |
| Loves children | M | 0.04 | 0.09 | 0.08 | 0.70 | 0.02 | 0.07 | | |
| | F | 0.04 | 0.04 | 0.08 | 0.80 | 0.03 | 0.02 | 22.28 | .000 |
| Gentle | M | 0.11 | 0.12 | 0.17 | 0.41 | 0.03 | 0.17 | | |
| | F | 0.09 | 0.12 | 0.13 | 0.48 | 0.03 | 0.15 | 4.36 | .498 |

**Table 7. Proportions and Pearson's Chi-Square ($\chi^2$) Results for Gender Neutral BSRI Adjectives by Gender.**

| Adjective | Gender | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Helpful | M | 0.17 | 0.17 | 0.02 | 0.41 | 0.12 | 0.12 | | |
| | F | 0.15 | 0.16 | 0.02 | 0.44 | 0.09 | 0.14 | 2.20 | .821 |
| Moody | M | 0.10 | 0.12 | 0.40 | 0.02 | 0.13 | 0.23 | | |
| | F | 0.12 | 0.13 | 0.41 | 0.01 | 0.13 | 0.20 | 5.94 | .312 |
| Conscientious | M | 0.18 | 0.24 | 0.08 | 0.09 | 0.13 | 0.29 | | |
| | F | 0.22 | 0.25 | 0.05 | 0.06 | 0.10 | 0.33 | 8.18 | .147 |
| Theatrical | M | 0.03 | 0.11 | 0.68 | 0.04 | 0.09 | 0.05 | | |
| | F | 0.04 | 0.07 | 0.79 | 0.03 | 0.04 | 0.03 | 17.23 | .004 |
| Happy | M | 0.14 | 0.15 | 0.28 | 0.27 | 0.07 | 0.08 | | |
| | F | 0.15 | 0.18 | 0.30 | 0.24 | 0.06 | 0.08 | 2.51 | .775 |
| Unpredictable | M | 0.06 | 0.22 | 0.55 | 0.01 | 0.12 | 0.05 | | |
| | F | 0.05 | 0.20 | 0.59 | 0.02 | 0.10 | 0.05 | 2.95 | .707 |
| Reliable | M | 0.36 | 0.17 | 0.01 | 0.05 | 0.13 | 0.28 | | |
| | F | 0.31 | 0.15 | 0.01 | 0.07 | 0.13 | 0.33 | 6.29 | .279 |
| Jealous | M | 0.10 | 0.20 | 0.15 | 0.03 | 0.22 | 0.31 | | |
| | F | 0.17 | 0.21 | 0.11 | 0.00 | 0.26 | 0.24 | 22.21 | .000 |
| Truthful | M | 0.14 | 0.35 | 0.03 | 0.09 | 0.12 | 0.28 | | |
| | F | 0.15 | 0.30 | 0.04 | 0.09 | 0.15 | 0.27 | 3.78 | .582 |
| Secretive | M | 0.07 | 0.24 | 0.09 | 0.01 | 0.25 | 0.33 | | |
| | F | 0.09 | 0.27 | 0.09 | 0.01 | 0.21 | 0.34 | 2.66 | .752 |
| Sincere | M | 0.12 | 0.17 | 0.13 | 0.29 | 0.13 | 0.16 | | |
| | F | 0.15 | 0.18 | 0.11 | 0.29 | 0.10 | 0.18 | 3.67 | .598 |
| Conceited | M | 0.11 | 0.19 | 0.15 | 0.01 | 0.31 | 0.23 | | |
| | F | 0.12 | 0.18 | 0.13 | 0.01 | 0.37 | 0.19 | 5.17 | .395 |
| Likeable | M | 0.13 | 0.17 | 0.09 | 0.36 | 0.13 | 0.12 | | |
| | F | 0.15 | 0.14 | 0.16 | 0.28 | 0.14 | 0.12 | 14.85 | .011 |
| Solemn | M | 0.18 | 0.19 | 0.08 | 0.04 | 0.07 | 0.45 | | |
| | F | 0.16 | 0.23 | 0.07 | 0.02 | 0.11 | 0.42 | 9.29 | .098 |

*Notes.* M = male; F = female.

**Table 7. (Continued).**

| Adjective | Gender | R | I | A | S | E | C | $\chi^2$ | *p* |
|---|---|---|---|---|---|---|---|---|---|
| Friendly | M | 0.13 | 0.12 | 0.11 | 0.45 | 0.13 | 0.06 | | |
| | F | 0.12 | 0.13 | 0.14 | 0.40 | 0.13 | 0.09 | 5.15 | .398 |
| Inefficient | M | 0.11 | 0.23 | 0.39 | 0.04 | 0.05 | 0.19 | | |
| | F | 0.10 | 0.23 | 0.41 | 0.02 | 0.08 | 0.16 | 8.83 | .116 |
| Adaptable | M | 0.26 | 0.32 | 0.11 | 0.08 | 0.13 | 0.09 | | |
| | F | 0.20 | 0.33 | 0.13 | 0.07 | 0.12 | 0.15 | 9.77 | .082 |
| Unsystematic | M | 0.06 | 0.12 | 0.66 | 0.02 | 0.09 | 0.06 | | |
| | F | 0.07 | 0.13 | 0.66 | 0.01 | 0.08 | 0.05 | 1.89 | .864 |
| Tactful | M | 0.28 | 0.21 | 0.03 | 0.04 | 0.22 | 0.22 | | |
| | F | 0.35 | 0.20 | 0.02 | 0.03 | 0.16 | 0.24 | 9.55 | .089 |
| Conventional | M | 0.33 | 0.19 | 0.02 | 0.02 | 0.11 | 0.34 | | |
| | F | 0.33 | 0.19 | 0.03 | 0.00 | 0.12 | 0.32 | 5.10 | .404 |

**Table 8. Overall Proportions for Masculine BSRI Adjectives by RIASEC Type and Property Vector Fitting Results.**

| Adjective | R | I | A | S | E | C | R2 | Angle |
|---|---|---|---|---|---|---|---|---|
| Self-reliant | 0.27 | 0.20 | 0.17 | 0.01 | 0.08 | 0.27 | 0.84 | 86 |
| Defends own beliefs | 0.14 | 0.36 | 0.21 | 0.02 | 0.16 | 0.12 | 0.49 | -- |
| Independent | 0.24 | 0.20 | 0.23 | 0.01 | 0.07 | 0.27 | 0.63 | 75 |
| Athletic | 0.58 | 0.07 | 0.03 | 0.05 | 0.19 | 0.07 | 0.39 | -- |
| Assertive | 0.23 | 0.11 | 0.02 | 0.03 | 0.47 | 0.14 | 0.42 | -- |
| Strong personality | 0.19 | 0.09 | 0.21 | 0.06 | 0.37 | 0.09 | 0.12 | -- |
| Forceful | 0.25 | 0.09 | 0.03 | 0.02 | 0.49 | 0.14 | 0.43 | -- |
| Analytical | 0.19 | 0.53 | 0.01 | 0.00 | 0.06 | 0.21 | 0.56 | 66 |
| Leadership ability | 0.25 | 0.11 | 0.01 | 0.12 | 0.41 | 0.11 | 0.42 | -- |
| Willing to take risks | 0.11 | 0.23 | 0.25 | 0.01 | 0.37 | 0.04 | 0.03 | -- |
| Makes decisions easily | 0.35 | 0.14 | 0.12 | 0.03 | 0.19 | 0.18 | 0.70 | 107 |
| Self-sufficient | 0.31 | 0.18 | 0.13 | 0.01 | 0.09 | 0.28 | 0.91 | 97 |
| Dominant | 0.25 | 0.10 | 0.01 | 0.01 | 0.50 | 0.12 | 0.39 | -- |
| Masculine | 0.52 | 0.06 | 0.02 | 0.01 | 0.28 | 0.12 | 0.47 | -- |
| Willing to take a stand | 0.18 | 0.24 | 0.10 | 0.04 | 0.32 | 0.12 | 0.13 | -- |
| Aggressive | 0.21 | 0.10 | 0.02 | 0.00 | 0.55 | 0.13 | 0.39 | -- |
| Acts as a leader | 0.26 | 0.09 | 0.01 | 0.11 | 0.44 | 0.09 | 0.38 | -- |
| Individualistic | 0.13 | 0.16 | 0.52 | 0.01 | 0.05 | 0.14 | 0.36 | -- |
| Competitive | 0.14 | 0.16 | 0.06 | 0.01 | 0.55 | 0.09 | 0.23 | -- |
| Ambitious | 0.19 | 0.26 | 0.12 | 0.02 | 0.31 | 0.10 | 0.10 | -- |

**Table 9. Overall Proportions for Feminine BSRI Adjectives by RIASEC Type and Property Vector Fitting Results.**

| Adjective | R | I | A | S | E | C | R2 | Angle |
|---|---|---|---|---|---|---|---|---|
| Yielding | 0.17 | 0.26 | 0.05 | 0.05 | 0.12 | 0.34 | 0.64 | 112 |
| Cheerful | 0.12 | 0.14 | 0.22 | 0.32 | 0.10 | 0.09 | 0.68 | 302 |
| Shy | 0.14 | 0.22 | 0.13 | 0.01 | 0.02 | 0.49 | 0.41 | -- |
| Affectionate | 0.06 | 0.07 | 0.20 | 0.55 | 0.05 | 0.08 | 0.53 | 283 |
| Flatterable | 0.11 | 0.18 | 0.26 | 0.08 | 0.18 | 0.19 | 0.06 | -- |
| Loyal | 0.20 | 0.15 | 0.05 | 0.09 | 0.18 | 0.32 | 0.90 | 138 |
| Feminine | 0.03 | 0.10 | 0.39 | 0.36 | 0.04 | 0.09 | 0.76 | 304 |
| Sympathetic | 0.06 | 0.09 | 0.12 | 0.58 | 0.06 | 0.10 | 0.43 | -- |
| Sensitive to others' needs | 0.03 | 0.06 | 0.13 | 0.65 | 0.08 | 0.05 | 0.52 | 275 |
| Understanding | 0.13 | 0.21 | 0.08 | 0.39 | 0.09 | 0.11 | 0.22 | -- |
| Compassionate | 0.07 | 0.09 | 0.23 | 0.51 | 0.04 | 0.06 | 0.57 | 291 |
| Eager to soothe hurt feelings | 0.03 | 0.06 | 0.07 | 0.74 | 0.06 | 0.05 | 0.43 | -- |
| Soft spoken | 0.09 | 0.19 | 0.16 | 0.11 | 0.04 | 0.42 | 0.17 | -- |
| Warm | 0.10 | 0.10 | 0.17 | 0.48 | 0.07 | 0.08 | 0.47 | -- |
| Tender | 0.09 | 0.13 | 0.19 | 0.43 | 0.04 | 0.12 | 0.43 | -- |
| Gullible | 0.11 | 0.21 | 0.25 | 0.08 | 0.08 | 0.26 | 0.20 | -- |
| Childlike | 0.09 | 0.09 | 0.55 | 0.16 | 0.03 | 0.09 | 0.49 | -- |
| Does not use harsh language | 0.06 | 0.14 | 0.08 | 0.47 | 0.08 | 0.17 | 0.32 | -- |
| Loves children | 0.04 | 0.06 | 0.08 | 0.76 | 0.03 | 0.04 | 0.42 | -- |
| Gentle | 0.10 | 0.12 | 0.15 | 0.45 | 0.03 | 0.16 | 0.31 | -- |

**Table 10. Overall Proportions for Gender Neutral BSRI Adjectives by RIASEC Type and Property Vector Fitting Results.**

| Adjective | R | I | A | S | E | C | R2 | Angle |
|---|---|---|---|---|---|---|---|---|
| Helpful | 0.16 | 0.16 | 0.02 | 0.43 | 0.10 | 0.13 | 0.35 | -- |
| Moody | 0.11 | 0.13 | 0.41 | 0.01 | 0.13 | 0.21 | 0.11 | -- |
| Conscientious | 0.20 | 0.24 | 0.06 | 0.07 | 0.11 | 0.31 | 0.75 | 108 |
| Theatrical | 0.04 | 0.08 | 0.75 | 0.04 | 0.06 | 0.04 | 0.42 | -- |
| Happy | 0.14 | 0.17 | 0.29 | 0.25 | 0.07 | 0.08 | 0.81 | 329 |
| Unpredictable | 0.06 | 0.21 | 0.57 | 0.01 | 0.10 | 0.05 | 0.49 | -- |
| Reliable | 0.33 | 0.16 | 0.01 | 0.06 | 0.13 | 0.31 | 0.96 | 119 |
| Jealous | 0.14 | 0.21 | 0.13 | 0.01 | 0.25 | 0.27 | 0.43 | -- |
| Truthful | 0.15 | 0.32 | 0.03 | 0.09 | 0.14 | 0.27 | 0.42 | -- |
| Secretive | 0.08 | 0.26 | 0.09 | 0.01 | 0.22 | 0.34 | 0.34 | -- |
| Sincere | 0.13 | 0.18 | 0.12 | 0.29 | 0.11 | 0.17 | 0.13 | -- |
| Conceited | 0.12 | 0.18 | 0.14 | 0.01 | 0.35 | 0.21 | 0.25 | -- |
| Likeable | 0.15 | 0.15 | 0.13 | 0.31 | 0.14 | 0.12 | 0.37 | -- |
| Solemn | 0.17 | 0.21 | 0.07 | 0.02 | 0.10 | 0.43 | 0.60 | 68 |
| Friendly | 0.12 | 0.12 | 0.13 | 0.42 | 0.13 | 0.08 | 0.46 | -- |
| Inefficient | 0.10 | 0.23 | 0.40 | 0.03 | 0.07 | 0.17 | 0.43 | -- |
| Adaptable | 0.22 | 0.33 | 0.13 | 0.07 | 0.13 | 0.13 | 0.73 | 56 |
| Unsystematic | 0.06 | 0.13 | 0.66 | 0.02 | 0.08 | 0.05 | 0.42 | -- |
| Tactful | 0.32 | 0.21 | 0.02 | 0.04 | 0.18 | 0.23 | 0.92 | 112 |
| Conventional | 0.33 | 0.19 | 0.02 | 0.01 | 0.12 | 0.33 | 0.99 | 112 |

**Table 11. BSRI Adjectives Assigned to RIASEC Types.**

| | BSRI Subscale | Adjective(s) |
|---|---|---|
| Realistic | M | Athletic, Masculine, Makes Decisions Easily, Self-sufficient, Self-reliant |
| | F | --- |
| | SD | Conventional, Reliable, Tactful |
| Investigative | M | Analytical, Defends Own Beliefs |
| | F | --- |
| | SD | Adaptable, Truthful |
| Artistic | M | Individualistic |
| | F | Childlike, Feminine, Flatterable |
| | SD | Theatrical, Unsystematic, Unpredictable, Moody, Inefficient, Happy |
| Social | M | --- |
| | F | Loves Children, Eager to Soothe Hurt Feelings, Sensitive to Others' Needs, Sympathetic, Affectionate, Compassionate, Warm, Does Not Use Harsh Language, Gentle, Tender, Understanding, Cheerful |
| | SD | Helpful, Friendly, Likeable, Sincere |
| Enterprising | M | Competitive, Aggressive, Dominant, Forceful, Assertive, Acts as a Leader, Leadership Ability, Willing to Take Risks, Strong Personality, Willing to Take a Stand, Ambitious |
| | F | --- |
| | SD | Conceited |
| Conventional | M | Independent |
| | F | Shy, Soft spoken, Yielding, Loyal, Gullible |
| | SD | Solemn, Secretive, Conscientious, Jealous |

*Notes.* M = Masculine; F = Feminine; SD = Social Desirability

**Table 12. Means by Condition and Gender of Participants.**

| | Ambiguous | | Male Names | | Female Names | |
|---|---|---|---|---|---|---|
| | M | F | M | F | M | F |
| M/F of RIASEC | | | | | | |
| Realistic | 2.99 | 3.10 | 3.47 | 2.84 | 2.99 | 3.29 |
| Investigative | 0.37 | 0.60 | 0.73 | 0.67 | 1.06 | 1.25 |
| Artistic | -0.90 | -0.85 | -1.46 | -1.10 | -1.49 | -1.76 |
| Social | -6.55 | -7.09 | -5.68 | -6.86 | -6.32 | -6.96 |
| Enterprising | 5.04 | 4.23 | 4.57 | 4.41 | 4.27 | 4.65 |
| Conventional | -0.88 | 0.05 | -1.70 | 0.04 | -0.49 | -0.51 |
| P/N Ratings of RIASEC | | | | | | |
| Realistic | 52.08 | 51.93 | 51.25 | 52.03 | 51.25 | 50.60 |
| Investigative | 50.36 | 51.16 | 48.80 | 50.63 | 49.63 | 50.90 |
| Artistic | 45.04 | 46.72 | 45.38 | 47.10 | 44.92 | 46.75 |
| Social | 56.71 | 58.53 | 55.12 | 58.85 | 55.10 | 57.86 |
| Enterprising | 49.51 | 48.86 | 47.73 | 48.10 | 49.13 | 49.53 |
| Conventional | 48.93 | 50.34 | 46.20 | 48.67 | 47.34 | 48.26 |
| Interests | | | | | | |
| Realistic | 2.48 | 1.53 | 2.66 | 1.63 | 2.42 | 1.60 |
| Investigative | 3.01 | 2.83 | 2.80 | 2.87 | 2.97 | 2.78 |
| Artistic | 2.65 | 2.62 | 2.51 | 2.72 | 2.52 | 2.59 |
| Social | 2.99 | 3.69 | 3.01 | 3.69 | 3.02 | 3.69 |
| Enterprising | 2.66 | 2.82 | 2.76 | 2.78 | 2.62 | 2.75 |
| Conventional | 2.36 | 2.19 | 2.54 | 2.10 | 2.40 | 2.06 |
| Gender Identity | | | | | | |
| M | 5.12 | 4.83 | 5.05 | 4.70 | 5.10 | 4.84 |
| F | 4.64 | 5.13 | 4.54 | 5.09 | 4.56 | 5.07 |
| GN | 4.58 | 4.65 | 4.53 | 4.58 | 4.52 | 4.62 |
| Attitudes Towards Women | | | | | | |
| ASI Hostile | 3.55 | 3.33 | 3.56 | 3.21 | 3.56 | 3.11 |
| ASI Benevolent | 3.61 | 3.49 | 3.60 | 3.43 | 3.66 | 3.46 |
| MSS Old-Fashioned | 2.34 | 1.96 | 2.37 | 1.83 | 2.42 | 1.97 |
| MSS Modern | 2.93 | 2.52 | 2.77 | 2.54 | 2.82 | 2.59 |

**Table 13. Standard Deviations by Condition and Gender of Participants**

| | Ambiguous | | Male Names | | Female Names | |
|---|---|---|---|---|---|---|
| | M | F | M | F | M | F |
| M/F of RIASEC | | | | | | |
| Realistic | 3.08 | 3.21 | 3.16 | 3.35 | 3.54 | 3.25 |
| Investigative | 3.08 | 3.11 | 2.68 | 3.01 | 3.21 | 3.19 |
| Artistic | 3.05 | 2.91 | 2.86 | 2.99 | 2.68 | 2.59 |
| Social | 2.50 | 2.26 | 3.15 | 2.04 | 2.63 | 2.10 |
| Enterprising | 3.24 | 3.36 | 3.26 | 3.40 | 3.55 | 3.49 |
| Conventional | 3.18 | 3.11 | 3.06 | 3.62 | 3.65 | 3.20 |
| P/N Ratings of RIASEC | | | | | | |
| Realistic | 9.01 | 7.77 | 7.69 | 7.50 | 7.78 | 7.80 |
| Investigative | 7.66 | 7.04 | 8.02 | 6.27 | 7.48 | 7.87 |
| Artistic | 7.72 | 8.07 | 7.56 | 7.96 | 6.97 | 8.19 |
| Social | 6.89 | 6.58 | 8.08 | 6.73 | 8.14 | 7.83 |
| Enterprising | 8.68 | 8.64 | 7.66 | 8.55 | 8.27 | 7.83 |
| Conventional | 7.40 | 7.87 | 7.98 | 7.57 | 7.42 | 7.94 |
| Interests | | | | | | |
| Realistic | 0.84 | 0.62 | 0.85 | 0.66 | 0.80 | 0.63 |
| Investigative | 0.93 | 1.13 | 0.89 | 1.07 | 1.00 | 1.03 |
| Artistic | 0.95 | 1.00 | 1.01 | 1.04 | 0.98 | 1.05 |
| Social | 0.89 | 0.78 | 0.80 | 0.71 | 0.82 | 0.78 |
| Enterprising | 0.78 | 0.85 | 0.79 | 0.80 | 0.76 | 0.92 |
| Conventional | 0.98 | 0.91 | 0.92 | 0.87 | 0.93 | 0.84 |
| Gender Identity | | | | | | |
| M | 0.63 | 0.71 | 0.67 | 0.67 | 0.59 | 0.69 |
| F | 0.57 | 0.59 | 0.65 | 0.58 | 0.58 | 0.60 |
| GN | 0.40 | 0.43 | 0.42 | 0.36 | 0.34 | 0.40 |
| Attitudes Towards Women | | | | | | |
| ASI Hostile | 0.63 | 0.79 | 0.70 | 0.78 | 0.72 | 0.73 |
| ASI Benevolent | 0.63 | 0.75 | 0.64 | 0.73 | 0.69 | 0.73 |
| MSS Old-Fashioned | 0.73 | 0.61 | 0.64 | 0.65 | 0.67 | 0.65 |
| MSS Modern | 0.51 | 0.50 | 0.48 | 0.50 | 0.53 | 0.49 |

**Table 14. Correlation Matrix.**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| M/F of RIASEC | | | | | | | | | |
| 1. Realistic | 1.00 | | | | | | | | |
| 2. Investigative | -0.14 | 1.00 | | | | | | | |
| 3. Artistic | -0.16 | -0.22 | 1.00 | | | | | | |
| 4. Social | -0.17 | -0.15 | -0.19 | 1.00 | | | | | |
| 5. Enterprising | -0.30 | -0.22 | -0.11 | -0.19 | 1.00 | | | | |
| 6. Conventional | -0.27 | -0.26 | -0.23 | -0.05 | -0.26 | 1.00 | | | |
| P/N Ratings of RIASEC | | | | | | | | | |
| 7. Realistic | -0.02 | 0.05 | -0.02 | -0.05 | 0.09 | -0.07 | 1.00 | | |
| 8. Investigative | 0.03 | 0.04 | -0.01 | -0.07 | 0.06 | -0.08 | 0.30 | 1.00 | |
| 9. Artistic | -0.02 | -0.06 | -0.05 | 0.16 | -0.04 | 0.04 | 0.12 | 0.11 | 1.00 |
| 10. Social | -0.01 | 0.01 | -0.04 | -0.05 | 0.04 | 0.03 | 0.29 | 0.28 | 0.31 |
| 11. Enterprising | 0.04 | 0.01 | 0.04 | 0.01 | -0.19 | 0.11 | 0.05 | 0.07 | 0.17 |
| 12. Conventional | -0.02 | -0.09 | -0.03 | -0.04 | 0.03 | 0.13 | 0.13 | 0.07 | 0.11 |
| Interests | | | | | | | | | |
| 13. Realistic | 0.02 | -0.03 | 0.01 | 0.12 | 0.01 | -0.11 | 0.02 | -0.05 | -0.10 |
| 14. Investigative | -0.01 | 0.06 | -0.03 | -0.08 | 0.06 | -0.02 | 0.08 | 0.09 | -0.07 |
| 15. Artistic | 0.06 | -0.04 | 0.10 | -0.02 | 0.04 | -0.13 | 0.04 | 0.04 | 0.10 |
| 16. Social | 0.00 | -0.02 | 0.04 | -0.07 | -0.01 | 0.05 | 0.05 | 0.08 | 0.14 |
| 17. Enterprising | 0.01 | -0.08 | 0.08 | -0.04 | -0.04 | 0.06 | -0.03 | 0.00 | 0.02 |
| 18. Conventional | -0.02 | 0.02 | 0.01 | 0.01 | -0.06 | 0.04 | -0.05 | -0.02 | -0.13 |
| Gender Identity | | | | | | | | | |
| 19. M | 0.06 | -0.04 | -0.04 | 0.12 | -0.05 | -0.03 | 0.16 | 0.06 | 0.14 |
| 20. F | 0.00 | -0.02 | -0.02 | -0.09 | 0.01 | 0.09 | 0.11 | 0.19 | 0.26 |
| 21. GN | 0.02 | -0.03 | 0.01 | 0.00 | -0.04 | 0.04 | 0.11 | 0.15 | 0.24 |
| Attitudes Towards Women | | | | | | | | | |
| 22. ASI Hostile | 0.06 | -0.01 | 0.00 | 0.05 | -0.07 | 0.00 | -0.02 | -0.08 | 0.01 |
| 23. ASI Benevolent | 0.03 | -0.03 | -0.05 | 0.02 | 0.01 | 0.02 | 0.03 | 0.01 | 0.11 |
| 24. MSS Old-Fashioned | 0.04 | -0.04 | -0.02 | 0.11 | -0.06 | 0.00 | -0.10 | -0.11 | -0.04 |
| 25. MSS Modern | 0.07 | -0.04 | -0.04 | 0.04 | -0.06 | 0.02 | -0.07 | -0.12 | -0.05 |

**Table 14. Correlation Matrix (continued).**

| | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|
| M/F of RIASEC | | | | | | | | | |
| 1. Realistic | | | | | | | | | |
| 2. Investigative | | | | | | | | | |
| 3. Artistic | | | | | | | | | |
| 4. Social | | | | | | | | | |
| 5. Enterprising | | | | | | | | | |
| 6. Conventional | | | | | | | | | |
| P/N Ratings of RIASEC | | | | | | | | | |
| 7. Realistic | | | | | | | | | |
| 8. Investigative | | | | | | | | | |
| 9. Artistic | | | | | | | | | |
| 10. Social | 1.00 | | | | | | | | |
| 11. Enterprising | 0.24 | 1.00 | | | | | | | |
| 12. Conventional | 0.29 | 0.20 | 1.00 | | | | | | |
| Interests | | | | | | | | | |
| 13. Realistic | -0.21 | -0.02 | -0.08 | 1.00 | | | | | |
| 14. Investigative | 0.07 | -0.08 | 0.02 | 0.18 | 1.00 | | | | |
| 15. Artistic | 0.06 | -0.04 | 0.01 | 0.10 | 0.21 | 1.00 | | | |
| 16. Social | 0.29 | 0.03 | 0.13 | -0.27 | 0.15 | 0.34 | 1.00 | | |
| 17. Enterprising | 0.02 | 0.11 | 0.05 | 0.03 | -0.12 | 0.22 | 0.24 | 1.00 | |
| 18. Conventional | -0.06 | 0.05 | 0.05 | 0.34 | -0.07 | -0.14 | -0.12 | 0.42 | 1.00 |
| Gender Identity | | | | | | | | | |
| 19. M | -0.03 | 0.23 | 0.04 | 0.12 | 0.01 | -0.06 | -0.01 | 0.03 | -0.03 |
| 20. F | 0.42 | 0.05 | 0.19 | -0.28 | 0.07 | 0.18 | 0.47 | 0.08 | -0.10 |
| 21. GN | 0.14 | 0.16 | 0.15 | -0.06 | 0.03 | 0.15 | 0.24 | 0.10 | -0.04 |
| Attitudes Towards Women | | | | | | | | | |
| 22. ASI Hostile | -0.16 | 0.09 | 0.00 | 0.14 | -0.11 | -0.14 | -0.16 | 0.06 | 0.13 |
| 23. ASI Benevolent | 0.08 | 0.06 | 0.02 | 0.08 | -0.08 | -0.03 | 0.01 | 0.13 | 0.08 |
| 24. MSS Old-Fashioned | -0.33 | -0.01 | -0.09 | 0.26 | -0.07 | -0.07 | -0.21 | 0.08 | 0.13 |
| 25. MSS Modern | -0.19 | -0.03 | 0.01 | 0.16 | -0.09 | -0.13 | -0.20 | 0.06 | 0.10 |

**Table 14. Correlation Matrix (continued).**

| | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|
| M/F of RIASEC | | | | | | | |
| 1. Realistic | | | | | | | |
| 2. Investigative | | | | | | | |
| 3. Artistic | | | | | | | |
| 4. Social | | | | | | | |
| 5. Enterprising | | | | | | | |
| 6. Conventional | | | | | | | |
| P/N Ratings of RIASEC | | | | | | | |
| 7. Realistic | | | | | | | |
| 8. Investigative | | | | | | | |
| 9. Artistic | | | | | | | |
| 10. Social | | | | | | | |
| 11. Enterprising | | | | | | | |
| 12. Conventional | | | | | | | |
| Interests | | | | | | | |
| 13. Realistic | | | | | | | |
| 14. Investigative | | | | | | | |
| 15. Artistic | | | | | | | |
| 16. Social | | | | | | | |
| 17. Enterprising | | | | | | | |
| 18. Conventional | | | | | | | |
| Gender Identity | | | | | | | |
| 19. M | 1.00 | | | | | | |
| 20. F | 0.00 | 1.00 | | | | | |
| 21. GN | 0.41 | 0.55 | 1.00 | | | | |
| Attitudes Towards Women | | | | | | | |
| 22. ASI Hostile | 0.14 | -0.17 | 0.06 | 1.00 | | | |
| 23. ASI Benevolent | 0.17 | 0.10 | 0.11 | 0.32 | 1.00 | | |
| 24. MSS Old-Fashioned | 0.13 | -0.22 | 0.02 | 0.44 | 0.28 | 1.00 | |
| 25. MSS Modern | 0.11 | -0.15 | -0.01 | 0.37 | 0.10 | 0.38 | 1.00 |

**Table 15. MANCOVA Results for Masculinity and Femininity of RIASEC Types.**

| MANCOVA Model and Covariates | Multivariate *F* | $\eta^2$ |
|---|---|---|
| 1. No covariates | | |
| Gender | 5.79* | .041 |
| Condition | 2.09 | .015 |
| Gender x Condition | 1.76 | .013 |
| 2. RIASEC interests | | |
| Gender | 2.58 | .019 |
| Condition | 1.94 | .014 |
| Gender x Condition | 1.76 | .013 |
| Realistic AFPD | 1.15 | .008 |
| Investigative AFPD | 2.65 | .019 |
| Artistic AFPD | 3.55* | .025 |
| Social AFPD | .446 | .003 |
| Enterprising AFPD | 2.12 | .015 |
| Conventional AFPD | 1.04 | .008 |
| 3. Gender identity (GI) | | |
| Gender | 3.21* | .023 |
| Condition | 2.18 | .016 |
| Gender x Condition | 1.74 | .013 |
| Masculine GI | 3.09* | .022 |
| Feminine GI | .858 | .006 |
| Social Desirability | 1.06 | .008 |
| 4. Attitudes toward women | | |
| Gender | 5.41* | .038 |
| Condition | 2.13 | .015 |
| Gender x Condition | 1.75 | .013 |
| ASI Hostile | .866 | .006 |
| ASI Benevolent | .906 | .007 |
| MSS Old-Fashioned | .924 | .007 |
| MSS Modern | 1.36 | .010 |
| 5. All significant covariates | | |
| Gender | 4.85* | .034 |
| Condition | 2.19 | .016 |
| Gender x Condition | 1.76 | .013 |
| Artistic AFPD | 4.34* | .031 |
| Masculine GI | 2.82 | .020 |

* $p < .001$

**Table 16. MANCOVA Results for Positive and Negative Ratings of RIASEC Types.**

| MANCOVA Model and Covariates | Multivariate *F* | $\eta^2$ |
|---|---|---|
| 1. No covariates | | |
| Gender | 6.74* | .047 |
| Condition | 1.85 | .013 |
| Gender x Condition | 0.39 | .003 |
| 2. RIASEC Interests | | |
| Gender | 0.87 | .006 |
| Condition | 1.97 | .014 |
| Gender x Condition | 0.41 | .003 |
| Realistic AFPD | 3.49* | .025 |
| Investigative AFPD | 3.75* | .027 |
| Artistic AFPD | 1.36 | .010 |
| Social AFPD | 7.26* | .051 |
| Enterprising AFPD | 2.01 | .015 |
| Conventional AFPD | 2.99* | .021 |
| 3. Gender identity (GI) | | |
| Gender | 0.90 | .007 |
| Condition | 1.66 | .012 |
| Gender x Condition | 0.36 | .003 |
| Masculine GI | 8.86* | .061 |
| Feminine GI | 24.42* | .152 |
| Social Desirability | 5.16* | .036 |
| 4. Attitudes toward women | | |
| Gender | 3.38* | .024 |
| Condition | 1.87 | .014 |
| Gender x Condition | 0.38 | .003 |
| ASI Hostile | 2.66 | .019 |
| ASI Benevolent | 5.77* | .041 |
| MSS Old-Fashioned | 11.96* | .081 |
| MSS Modern | 1.89 | .014 |
| 5. All significant covariates | | |
| Gender | 2.45 | .018 |
| Condition | 1.65 | .012 |
| Gender x Condition | 0.37 | .003 |
| Realistic AFPD | 2.13 | .015 |
| Investigative AFPD | 3.46* | .025 |
| Social AFPD | 1.74 | .013 |
| Conventional AFPD | 3.92* | .028 |
| Masculine GI | 8.48* | .059 |
| Feminine GI | 13.26* | .089 |
| Social Desirability | 3.86* | .028 |
| ASI Benevolent | 2.63 | .019 |
| MSS Old-Fashioned | 11.79* | .080 |

* $p < .001$

**Figure 1. Holland Model.**

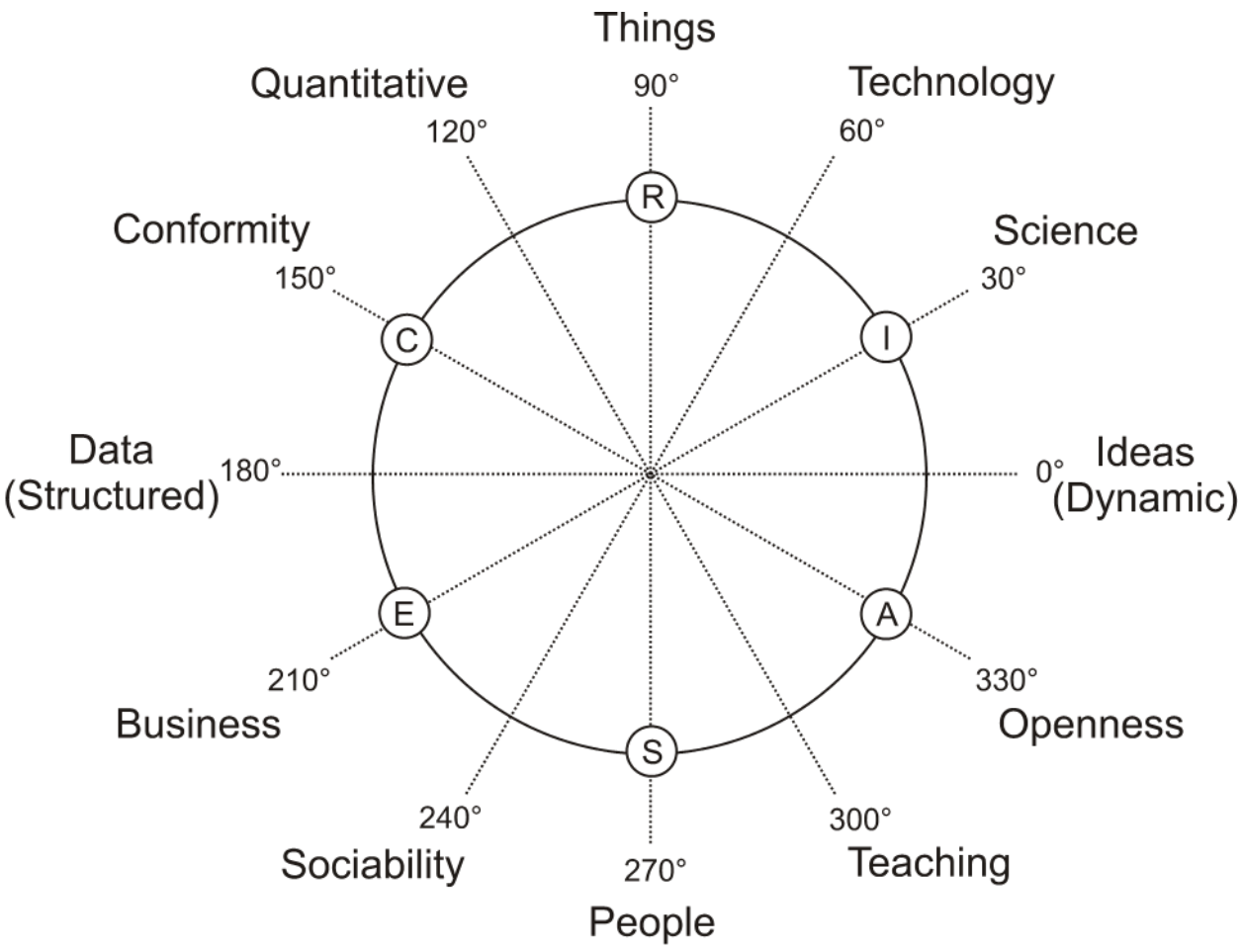


**Figure 2. Property Vector Fitting Results.**

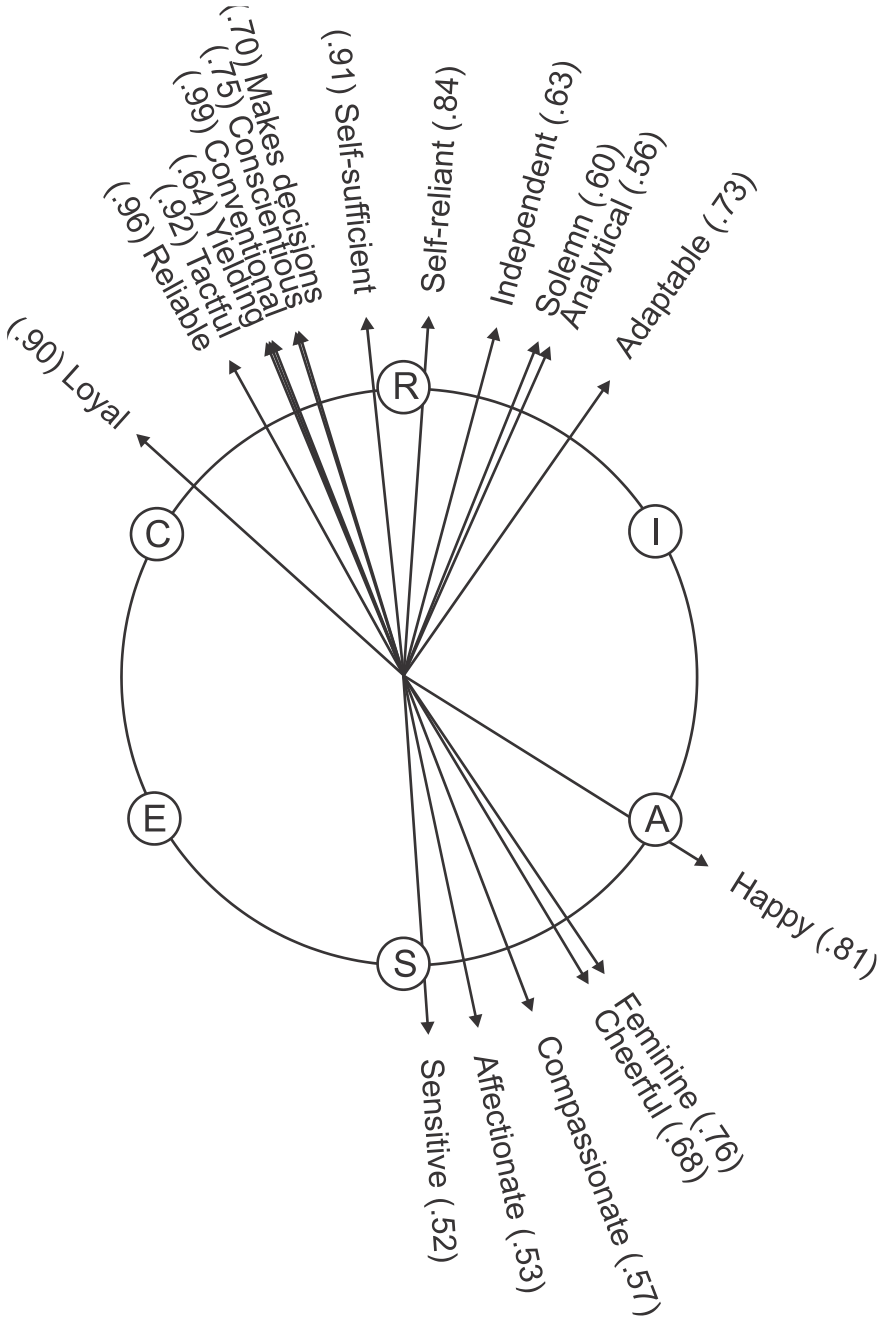
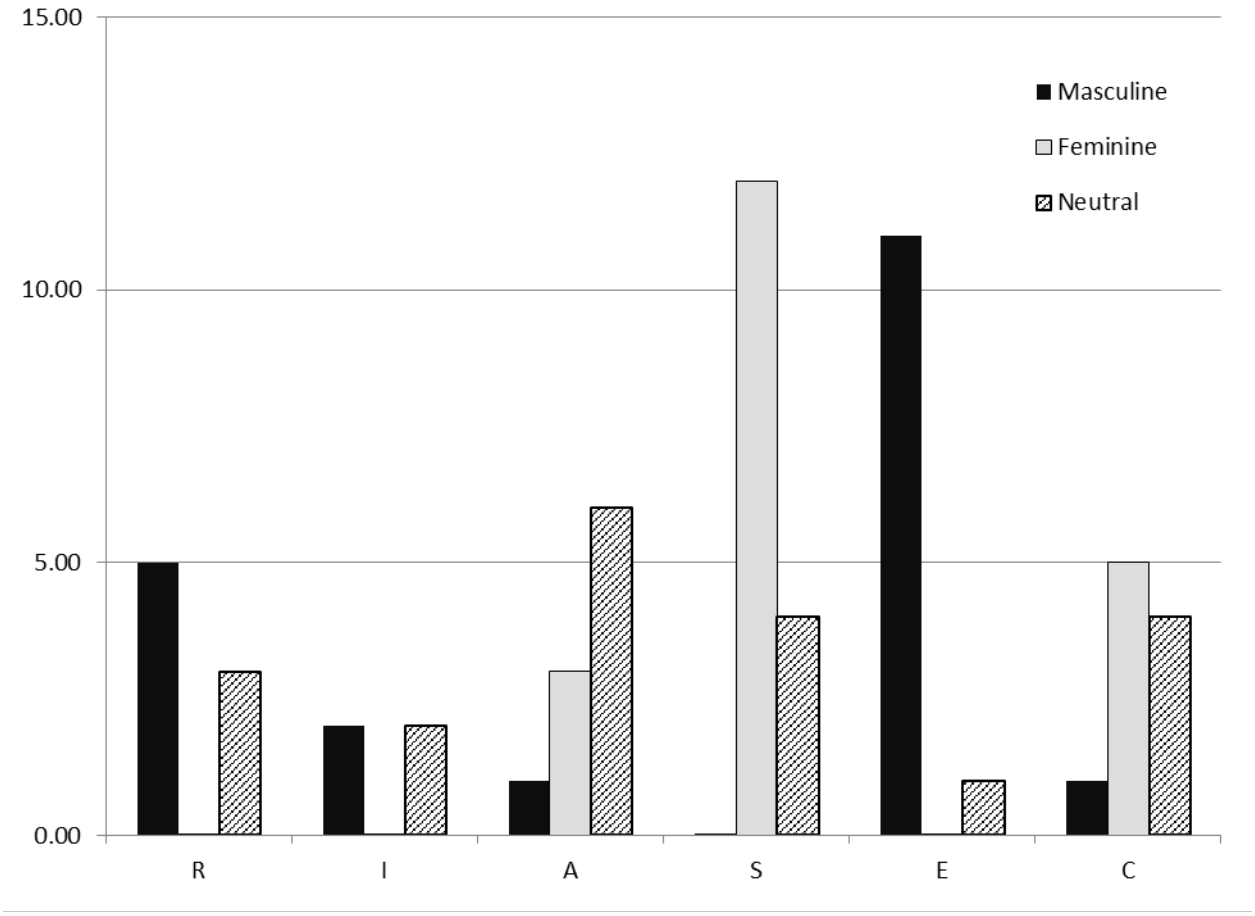


**Figure 3. Number of Adjectives Assigned to Each RIASEC Type by BSRI Scale.**



# APPENDIX A: CARD SORT OCCUPATIONAL DESCRIPTIONS

## Realistic Occupation Descriptions:

Michael works in a job where he performs hands-on activities that involve precise movements and measurements. He works to plan and modify product configurations and inspect systems for defects and malfunctions. He tests equipment performance and diagnoses problems with products. Michael's job involves coordinating and directing projects and following detailed plans to accomplish goals. He prefers to solve problems using concrete, practical solutions.

Jessica works in a job where he performs hands-on activities that involve precise movements and measurements. He works to plan and modify product configurations and inspect systems for defects and malfunctions. He tests equipment performance and diagnoses problems with products. Jessica's job involves coordinating and directing projects and following detailed plans to accomplish goals. He prefers to solve problems using concrete, practical solutions.

This person works in a job where they perform hands-on activities that involve precise movements and measurements. This individual works to plan and modify product configurations and inspect systems for defects and malfunctions. This person tests equipment performance and diagnoses problems with products. This job involves coordinating and directing projects and following detailed plans to accomplish goals. This person prefers to solve problems using concrete, practical solutions.

## Investigative Occupation Descriptions:

Christopher works in a job gathering information and designing experiments to test theories in order to develop new knowledge in his field. His job involves looking for trends and patterns in the data he collects. Christopher's work activities involve publishing the findings of his research as well as evaluating the research of others. He prefers to solve problems by gathering information and analyzing objective data.

Ashley works in a job gathering information and designing experiments to test theories in order to develop new knowledge in her field. Her job involves looking for trends and patterns in the data she collects. Ashley's work activities involve publishing the findings of her research as well as evaluating the research of others. She prefers to solve problems by gathering information and analyzing objective data.

This person works in a job gathering information and designing experiments to test theories in order to develop new knowledge in the field. This individual's job involves looking for trends and patterns in the data collected. This person's work activities involve publishing the findings of the research as well as evaluating the research of others. This individual prefers to solve problems by gathering information and analyzing objective data.

## Artistic Occupation Descriptions:

Matthew works in a job where he creates original works of art. He designs materials to meet personal standards and standards of clients. He integrates various elements in order to produce

certain effects in his artwork, such as illustration of ideas, emotions, or moods. Matthew generates new ideas and develops plans for his art based on these ideas. He prefers to solve problems using intuition and originality.

Samantha works in a job where she creates original works of art. She designs materials to meet personal standards and standards of clients. She integrates various elements in order to produce certain effects in her artwork, such as illustration of ideas, emotions, or moods. Samantha generates new ideas and develops plans for her art based on these ideas. She prefers to solve problems using intuition and originality.

This person works in a job creating original works of art. This individual designs materials to meet personal standards and standards of clients. This job involves integration of various elements in order to produce certain effects in the artwork, such as illustration of ideas, emotions, or moods. This person generates new ideas and develops plans for the art based on these ideas. This individual prefers to solve problems using intuition and originality.

**Social Occupation Descriptions:**

Joshua works in a job where he helps and serves others. He teaches important life skills to individuals and groups and uses a variety of methods to teach them. He evaluates the progress of the individuals and groups and works collaboratively with others to develop programs to help meet their needs. Joshua also trains others to do this work. He prefers to solve problems by communicating and cooperating with others.

Brittany works in a job where she helps and serves others. She teaches important life skills to individuals and groups and uses a variety of methods to teach them. She evaluates the progress of the individuals and groups and works collaboratively with others to develop programs to help meet their needs. Brittany also trains others to do this work. She prefers to solve problems by communicating and cooperating with others.

This person works in a job helping and serving others. This person teaches important life skills to individuals and groups and uses a variety of methods to teach them. This job involves evaluating the progress of the individuals and groups and working collaboratively with others to develop programs to help meet their needs. This individual also trains others to do this work. This person prefers to solve problems by communicating and cooperating with others.

**Enterprising Occupation Descriptions:**

Andrew works in a job where he directs financial activities to maximize investments and increase efficiency in the organization. He is also involved in supervising the work of others and evaluation of their performance. Andrew networks with others to develop new business accounts, prepares and delivers sales presentations, and implements procedures to maximize productivity. He prefers to solve problems through negotiation in terms of economic goals for the organization.

Sarah works in a job where she directs financial activities to maximize investments and increase efficiency in the organization. She is also involved in supervising the work of others and evaluation of their performance. Sarah networks with others to develop new business accounts, prepares and delivers sales presentations, and implements procedures to maximize productivity. She prefers to solve problems through negotiation in terms of economic goals for the organization.

This person works in a job where they direct financial activities to maximize investments and increase efficiency in the organization. This individual is also involved in supervising the work of others and evaluation of their performance. This person networks with others to develop new business accounts, prepares and delivers sales presentations, and implements procedures to maximize productivity. This individual prefers to solve problems through negotiation in terms of economic goals for the organization.

**Conventional Occupation Descriptions:**

Brandon works in a job where he prepares and manages extensive databases of information. He works to verify the accuracy of the data and resolves discrepancies in the records. His work sometimes involves writing detailed reports and preparing charts and graphs to illustrate the data. Brandon prepares and updates files and works to maintain software. He prefers to solve problems through careful planning and use of established rules and procedures.

Emily works in a job where she prepares and manages extensive databases of information. She works to verify the accuracy of the data and resolves discrepancies in the records. Her work sometimes involves writing detailed reports and preparing charts and graphs to illustrate the data. Emily prepares and updates files and works to maintain software. She prefers to solve problems through careful planning and use of established rules and procedures.

This person works in a job where they prepare and manage extensive databases of information. This individual works to verify the accuracy of the data and resolve discrepancies in the records. The work sometimes involves writing detailed reports and preparing charts and graphs to illustrate the data. This person prepares and updates files and works to maintain software. This individual prefers to solve problems through careful planning and use of established rules and procedures.

## APPENDIX B: BEM SEX ROLE INVENTORY ITEMS (BEM, 1974)

| Scale | Item |
|---|---|
| Masculinity Subscale | |
| | Self reliant |
| | Defends own beliefs |
| | Independent |
| | Athletic |
| | Assertive |
| | Strong personality |
| | Forceful |
| | Analytical |
| | Leadership ability |
| | Willing to take risks |
| | Makes decisions easily |
| | Self-sufficient |
| | Dominant |
| | Masculine |
| | Willing to take a stand |
| | Aggressive |
| | Acts as a leader |
| | Individualistic |
| | Competitive |
| | Ambitious |
| Femininity Subscale | |
| | Yielding |
| | Cheerful |
| | Shy |
| | Affectionate |
| | Flatterable |
| | Loyal |
| | Feminine |
| | Sympathetic |
| | Sensitive to others' needs |
| | Understanding |
| | Compassionate |
| | Eager to soothe hurt feelings |
| | Soft spoken |
| | Warm |
| | Tender |
| | Gullible |
| | Childlike |
| | Does not use harsh language |
| | Loves children |
| | Gentle |

| Social Desirability Subscale | |
|---|---|
| | Helpful |
| | Moody |
| | Conscientious |
| | Theatrical |
| | Happy |
| | Unpredictable |
| | Reliable |
| | Jealous |
| | Truthful |
| | Secretive |
| | Sincere |
| | Conceited |
| | Likable |
| | Solemn |
| | Friendly |
| | Inefficient |
| | Adaptable |
| | Unsystematic |
| | Tactful |
| | Conventional |

## APPENDIX C: ITEMS FROM THE ASI (GLICK & FISKE, 1996) AND THE MSS (SWIM ET AL., 1995)

| Inventory | Item |
|---|---|
| Ambivalent Sexism Inventory (ASI) | |
| | No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman. |
| | Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality." |
| | In a disaster, women ought not necessarily to be rescued before men. |
| | Most women interpret innocent remarks or acts as being sexist. |
| | Women are too easily offended. |
| | People are often truly happy in life without being romantically involved with a member of the other sex. |
| | Feminists are not seeking for women to have more power than men. |
| | Many women have a quality of purity that few men possess. |
| | Women should be cherished and protected by men. |
| | Most women fail to appreciate fully all that men do for them. |
| | Women seek to gain power by getting control over men. |
| | Every man ought to have a woman whom he adores. |
| | Men are complete without women. |
| | Women exaggerate problems they have at work. |
| | Once a woman gets a man to commit to her, she usually tries to put him on a tight leash. |
| | When women lose to men in a fair competition, they typically complain about being discriminated against. |
| | A good woman should be set on a pedestal by her man. |
| | There are actually very few women who get a kick out of teasing men by seeming sexually available and then refusing male advances. |
| | Women, compared to men, tend to have a superior moral sensibility. |
| | Men should be willing to sacrifice their own well being in order to provide financially for the women in their lives. |
| | Feminists are making entirely reasonable demands of men. |
| | Women, as compared to men, tend to have a more refined sense of culture and good taste. |
| Modern Sexism Scale (MSS) | |
| | Women are generally not as smart as men. |
| | I would be equally comfortable having a woman as a boss as a man. |
| | It is more important to encourage boys than to encourage girls to participate in athletics. |

| | |
|---|---|
| | Women are just as capable of thinking logically as men. |
| | When both parents are employed and their child gets sick at school, the school should call the mother rather than the father. |
| | Discrimination against women is no longer a problem in the United States. |
| | Women often miss out on good jobs due to sexual discrimination. |
| | It is rare to see women treated in a sexist manner on television. |
| | On average, people in our society treat husbands and wives equally. |
| | Society has reached the point where women and men have equal opportunities for achievement. |
| | It is easy to understand the anger of women's groups in America. |
| | It is easy to understand why women's groups are still concerned about societal limitations of women's opportunities. |
| | Over the past few years, the government and news media have been showing more concern about the treatment of women than is warranted by women's actual experiences. |

## APPENDIX D: ITEMS FROM THE AFPD RIASEC MARKERS (ARMSTRONG, ALLISON, & ROUNDS, 2008)

| Scale | Item |
|---|---|
| Realistic | |
| | Test the quality of parts before shipment |
| | Lay brick or tile |
| | Work on an offshore oil-drilling rig |
| | Assemble electronic parts |
| | Operate a grinding machine in a factory |
| | Fix a broken faucet |
| | Assemble products in a factory |
| | Install flooring in houses |
| Investigative | |
| | Study the structure of the human body |
| | Study animal behavior |
| | Do research on plants or animals |
| | Develop a new medical treatment or procedure |
| | Conduct biological research |
| | Study whales and other types of marine life |
| | Work in a biology lab |
| | Make a map of the bottom of an ocean |
| Artistic | |
| | Conduct a musical choir |
| | Direct a play |
| | Design artwork for magazines |
| | Write a song |
| | Write books or plays |
| | Play a musical instrument |
| | Perform stunts for a movie or television show |
| | Design sets for plays |
| Social | |
| | Give career guidance to people |
| | Do volunteer work at a non-profit organization |
| | Help people who have problems with drugs or alcohol |
| | Teach an individual an exercise routine |
| | Help people with family-related problems |
| | Supervise the activities of children at a camp |
| | Teach children how to read |
| | Help elderly people with their daily activities |
| Enterprising | |
| | Sell restaurant franchises to individuals |
| | Sell merchandise at a department store |
| | Manage the operations of a hotel |

| | |
|---|---|
| | Operate a beauty salon or barber shop |
| | Manage a department within a large company |
| | Manage a clothing store |
| | Sell houses |
| | Run a toy store |
| Conventional | |
| | Generate the monthly payroll checks for an office |
| | Inventory supplies using a hand-held computer |
| | Use a computer program to generate customer bills |
| | Maintain employee records |
| | Compute and record statistical and other numerical data |
| | Operate a calculator |
| | Handle customers' bank transactions |
| | Keep shipping and receiving records |

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