Journal of Vocational Behavior 78 (2011) 59–67

Contents lists available at ScienceDirect

Journal of Vocational Behavior

journal homepage: www.elsevier.com/locate/jvb

# Birth cohort change in the vocational interests of female and male college students

Shawn T. Bubany *, Jo-Ida C. Hansen

*University of Minnesota, Minneapolis, MN, USA*

ARTICLE INFO

*Article history:*
Received 17 May 2010
Available online 12 August 2010

*Keywords:*
Vocational interests
Social role theory
Birth cohort design
Cross-temporal meta-analysis
Individual differences development
Gender differences

ABSTRACT

The purpose of this research was to investigate the extent to which vocational interests have changed across birth cohorts of college students to better understand how socio-cultural factors may have an impact on career development. Using meta-analytic data collection methods, dissertations and journal articles presenting interests scores representing Holland's RIASEC typology from the Strong Interest Inventory and Strong Campbell interest inventory were gathered. With samples spanning a time period from 1976 to 2004, relations between cohort year and interests were examined with weighted regressions. A salient aspect of our results was an increase in the Enterprising interests of females and decrease in the Realistic and Investigative interests of males. This finding, along with a reduction in differences between female and male Investigative, Enterprising, and Conventional interests from earlier to more recent cohorts parallels movement of American culture toward egalitarian views of gender and provides evidence for the effect of sociocultural factors on interests.



The construct of vocational interests—defined as one's pattern of likes and dislikes—has remained central in the study of vocational behavior and the practice of career counseling since the inception of the first interest inventories. Often used to inform decision making in the context of counseling, education, and personnel selection (Harmon, Hansen, Borgen, & Hammer, 1994), interest inventories have been recognized as one of the most frequently used psychological instruments in the United States (Watkins, Campbell, & McGregor, 1988). Further, longitudinal (e.g., Hansen & Dik, 2005; Hansen & Neuman, 1999; Hansen & Swanson, 1983) and meta-analytic studies (Lent, Brown, & Hackett, 1994) have consistently supported the hypothesis that interests are a main determinant of vocational choice. With the intention of understanding the development of interests, researchers have investigated the longitudinal stability (e.g., Low, Yoon, Roberts, & Rounds, 2005), longitudinal predictors (e.g., Lent et al., 2008), and heritability (e.g., Bouchard & McGue, 2003) of interests. However, little research has addressed the extent to which sociocultural factors such as gender stereotypes play a role in affecting the development of one's interests by studying change of interests across birth cohorts.

Monumental changes in the career trajectories of females have occurred during the past century (Statistical Abstract of the United States; U.S. Bureau of the Census, 1925–2000); nonetheless, striking disparities in the career patterns across women and men remain (Fassinger, 2008). For example, Fassinger highlighted that women make up half of the workforce with college degrees, yet they hold less than one fourth of the jobs in STEM (i.e., Science, Technology, Engineering, and Mathematics) fields (National Science Foundation, 2004). Among U.S. Fortune 1000 companies in the year 2000, only .62% of top executives were women, 8.2% of executives were women, and half of all the companies did not have any women executives (Halfat, Harris, & Wolfson, 2006). As Fassinger emphasizes, the underrepresentation of women and members of minority groups in occupational areas such as STEM fields and organizational leadership positions is a consequence of external barriers (e.g., discriminatory institutional practices) as well as internalized barriers involving one's career-related confidence and preferences (e.g., interests, aspirations).

* Corresponding author. Department of Psychology, University of Minnesota, 75 East River Road, University of Minnesota, Minneapolis, MN 55455, USA.
*E-mail address:* sbubany@umn.edu (S.T. Bubany).

0001-8791/$ – see front matter © 2010 Elsevier Inc. All rights reserved.
doi:10.1016/j.jvb.2010.08.002

In accord with evidence supporting the hypothesis that interests predict vocational choices (e.g., Hansen & Dik, 2005), occupational disparaties between males and females mirror gender differences in interests. Specifically, gender differences in areas of mechanics, electronics, science, math, education, health services, and management have been consistently observed by psychologists since the birth of interest inventories (e.g., Campbell & Hansen, 1981; Donnay, Morris, Schaubhut, & Thompson, 2005; Harmon et al., 1994; Strong, 1943; Thorndike, 1911). Since the early 1970s, interests commonly have been conceptually and operationally defined in terms of Holland's (1959;1997) RIASEC typology. Holland hypothesized that the work-related preferences of individuals can be described in terms of six broad types that include Realistic (i.e., mechanical or outdoor activities), Investigative (i.e., problem solving or research activities), Artistic (i.e., creating or appreciating art), Social (i.e., helping others), Enterprising (i.e., influencing others), and Conventional (i.e., managing and organizing data). Gender differences in RIASEC interest scores have been examined with a meta-analysis using data gathered from technical manuals of 47 interest inventories that include scales based on Holland's typology (Su, Rounds, & Armstrong, 2009). The researchers found that males reported greater Realistic ($d = .84$) and Investigative ($d = .26$) interest scores than females and females reported greater Artistic ($d = -.35$), Social ($d = -.68$), and Conventional ($d = -.33$) interest scores than males. Moreover, research suggests that gender differences in Realstic and Social domains of interest may be among the largest gender differences observed across various kinds of personal characteristics (Lippa, 1998; Lubinski, 2000).

In contrast to biological explanations for the development of psychological traits, social structural perspectives view human behavior as being influenced by socioeconomic disparities across social groups (Eagly & Wood, 1999). Social role theory (Eagly, 1987) offers a framework consistent with the hypothesis that sociocultural factors such as gender role socialization affect the development of interests. According to social role theory, differences in the occupations between males and females perpetuate gender stereotypes that, in turn, promote gender differences in the attributes of females and males. Eagly (1987) explained that gender stereotypes result from the correspondence bias. The correspondence bias involves the assumption that individuals hold the characteristics demanded by their roles and that the roles demand the characteristics of individuals who typically hold the roles. For example, individuals are likely to assume that males have characteristics that make men more capable leaders (e.g., assertiveness) and assume that leadership roles demand masculine characteristics simply because they observe more males in leadership roles. Therefore, observations of few women holding leadership roles may be internalized over time by females and lead to lower levels of confidence and/or interest to pursue leadership roles.

Social role theory has received substantial empirical support (e.g., Cejka & Eagly, 1999; Eagly, 1987; Eagly & Wood, 1999; Eagly, Wood, & Diekman, 2000). For example, Cejka and Eagly (1999) examined the extent to which perceptions of the personal attributes needed to be successful in a given occupation fit with gender role stereotypes and found that the results supported gender role theory. Specifically, the researchers reported that participants rated feminine personality and physical attributes as more important in determining success in a traditionally female occupations. In addition, participants rated masculine physical and personality attributes as more important in determining traditionally male occupations. Furthermore, success in higher prestige occupations was rated as dependent on masculine personality and cognitive attributes regardless of gender.

Cejka and Eagly (1999) findings support the hypothesis that individuals tend to assume that male attributes are needed for occupations traditionally held by males, and female attributes are needed for occupations traditionally held by females. Moreover, their results indicated that individuals view male attributes as more valuable in general than those of females. Taken together, the social role theory literature provides a theoretical and empirical basis for the hypothesis that the changes in the roles generally played by males and females that have occurred over that last 50 years have affected (a) the assumptions individuals make about the attributes of males and females, (b) assumptions about the attributes needed to be successful in occupations traditionally held by males and females, and, in turn, (c) the interests of males and females.

The dramatic flux of women into labor force during World War II, the civil rights movement, and the women's rights movement have marked monumental changes in American culture that can certainly be considered to involve changes in the socio-cultural messages young individuals encountered regarding gender. A number of trends in educational and occupational patterns suggest a relationship between career trajectories and sociocultural change. As clearly summarized by Twenge (2001a), trends apparent from United States census data (Statistical Abstract of the United States; U.S. Bureau of the Census, 1925–2009) include (a) a steady increase in number of women entering the workforce since the 1920s, (b) a steady increase in number of bachelor degree's earned by women since the 1950s, (c) a relatively rapid increase in the number graduate degrees attained by women since the 1970s, and (d) a relatively rapid increase in the average age of women at first marriage since the mid 1970s. According to social role theory, changes in the roles played by females indicated by these trends should be followed by changes in stereotypic beliefs concerning the attributes of males and females. Furthermore, if exposure to gender stereotypes influences the development of interests, then changes in mean levels of interests across birth cohorts should follow changes in exposure to gender stereotypes and changes in the disparate roles of males and females.

Unlike longitudinal or cross-sectional studies of stability and change across chronological age, birth cohort designs offer a longitudinal means of examining whether characteristics, such as interests, of a population as a whole have changed over time by comparing groups of participants that differ in year of birth, but not in chronological age. Based on trends in educational and occupational patterns, findings indicating decreases in gender differences in interests across cohorts of individuals born in differing decades would support the notion that sociocultural factors (e.g., gender role socialization, stereotypes, discrimination) affect the development of interests and vocational choice and, in turn, perpetuate economic disparities across social groups.

In one birth cohort study of interests, Hansen (1988) examined birth cohort change in interests using interest inventory scores across samples of Men-in-General and Women-in-General collected in the 1930s, 1960s, 1970s, and 1980s. Each sample included approximately 200 working adults with mean ages in the mid 30s, thus the participants samples were, on average, born in the