Predicting Women's Interest and Choice of an IT Career

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INTRODUCTION

Research has supported the need to develop separate models for predicting men's and women's career interests. Women's career interests, particularly in nontraditional fields in science, engineering, and technology (SET), are considerably more difficult to predict than are men's (O'Brien & Fassinger, 1993). A number of factors have a significant impact on women's career interests and choices but have little effect in predicting men's career interests (O'Brien, Friedman, Tipton, & Linn, 2000). One of the most striking gender differences is that there is a much weaker connection for women than for men between interests, enjoyment, and career choice (O'Brien & Fassinger). The failure to make this connection is one explanation for the troubling finding that the majority of young women express interest in sex-typical careers that do not match their skills and are far below their ability (O'Brien & Fassinger).

Gender differences in the factors that predict career interest apply to the field of information technology as well. There are significant gender differences in all aspects of the IT pipeline, from how women become interested in the computing field to how they enter and remain in it, as documented by Almstrum (2003).

BACKGROUND

Understanding women's interest in IT careers cannot be reduced to a single factor or to a cluster of factors. It requires the consideration of a broad palette of environmental, social, and personal characteristics that generally are beyond the means of a single instrument to capture. Parental characteristics and support are environmental factors often recognized as central to women's career orientation and choice. Attitudes about technology and computer use are two additional factors that are frequently linked to interest in IT in the research literature. These factors are reviewed briefly in the following section.

Parental support. A fairly substantial body of empirical research documents the instrumental role of parents in the career orientation and choices of high-school and college women (Altman, 1997; Fisher & Griggs, 1994; Ketterson & Blustein, 1997). Parents have a greater impact on career choice than do counselors, teachers, friends, other relatives, and people working in the field (Kotrlik & Harrison, 1989).

An instrumental role played by parents in career decision making is in their support of career exploration. Parental attachment is positively associated with vocational exploration among college women

(Ketterson & Blustein, 1997). Parents who discuss issues openly and promote independent thinking in their children encourage more active career exploration (Ketterson & Blustein). Mothers, fathers, and siblings play a positive role in promoting career exploration by indirect means such as providing emotional esteem and informational support, and by more tangible means such as providing educational materials (Schultheiss, Kress, Manzi, & Glasscock, 2001).

A fairly large body of research provides support for the role of mothers in women's career orientation (O'Brien & Fassinger, 1993) and vocational choice (Felsman & Blustein, 1999). Adolescent girls were more likely than boys to report that their mothers provided positive feedback, supported their autonomy, and were open to discussions about career decisions (Paa & McWhirter, 2000). The career orientation of adolescent females is influenced by a complex interplay of ability, agenting characteristics, gender-role attitudes, and the relationship with their mothers (Rainey & Borders, 1997).

Computer use. Experience with computers is associated with positive attitudes toward computers (Dryburgh, 2001; Lips & Temple, 1990) and interest in computers (Lips & Temple; Shashaani, 1997). High-school programming experience has also been shown to be a significant predictor of women's success in computer science at the college level (Bunderson & Christensen, 1995). Enjoyment with using computers is associated with an interest in majoring in computer science (Lips & Temple).

Attitudes. Research is somewhat mixed about the connection between attitudes about the nature of work in computer-related fields and women's interest in IT and related fields. Some research suggests that negative stereotypical views deter women from enrolling in computer-related fields (Breene, 1993; Fountain, 2000), while other research indicates that women have more positive views than do men about computer technology (Ray, Sormunen, & Harris, 1999). Gender differences in attitudes about computer technology have probably narrowed as the gender gap in access to computers has virtually disappeared in the last decade.

MAIN THRUST OF THE ARTICLE

This article summarizes key findings of a theoretically driven, causal model that the Women and Information Technology (WIT) team developed to predict women's interest and choice of careers in information technology. This model reflects the results of a path analysis and predicts 27.4% of the variance in women's interest and choice of computer-related fields. The model was refined through analysis of the responses to three revisions of a questionnaire, *The Career Decision-Making Survey*, administered between 2002 and 2005 in three waves to high-school and college women in rural and urban locations in the mid-Atlantic region (N=1621). The findings discussed here are from 373 high-school and college women completing the questionnaire in the fall of 2004 and spring of 2005. The theoretical implications of the model were further extended through the analysis of interview data with high-school and college women (N=151). The analysis of data collected through one-on-one interviews with female high-school (N=53), community college (N=39), and university (N=59) women attending public schools in urban and rural locations throughout the mid-Atlantic region added to the theoretical development of the model.

Characteristics of questionnaire respondents. The sampling technique of purposefully targeting students enrolled in a balance of rural and urban institutions produced a diverse pool of respondents. Slightly more than half of our respondents (50.7%) are racial minorities. Nearly 40% have parents whose highest level of education is high school or less (37.3% mothers, 38.1% fathers), reflecting that more than one third of our sample is probably from middle- and low-income families. More respondents were enrolled in high school (N=293) than in college (N=80).

One exogenous variable (race) and four mediating variables (parental support, computer use, positive attitudes about the attributes of IT workers, and sources of career information) have direct effects on the dependent variable: IT career choice and interest. Each of these variables consists of a num-

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