

The Role of Information in the Choice of IT as a Career

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INTRODUCTION

Practitioners, researchers, and policy makers alike are puzzled by the continued intransigence to the integration of women to undergraduate and graduate majors, as well as occupation, in fields like engineering and information technology (IT). While strong advances in the direction of gender equity have been made in the last two decades in fields like biology and mathematics and in the professional fields of medicine and law, women only still represent about 20% of the undergraduate enrollments in engineering and computer science (NSF, 2000). This gender gap persists despite the near evaporation of evidence of gender differences in performance in these fields, such as in the dramatic narrowing of gender differences in the high school course taking patterns, including in advance placement courses (Clewell & Campbell, 2002). Gender differences in the enrollment in computer-related courses and out-of-class, informal programs in science and engineering persist, however (Volman & van Eck, 2001).

Academics have used several major groups of theories to try to understand the reasons for women's under-representation in IT and engineering. Social psychological theories are one of four major groupings of theoretical frameworks identified by Clewell and Campbell (2002). As compared to perspectives that seek biological or cognitive explanations for women's disinclination to pursue careers in some fields, social-psychological theorists consider environmental, social, and attitudinal influences. Factors such as teachers' and advisors' attitudes and beliefs, pedagogical practices in the way math and sciences courses are taught, and the influence of parents and the media are some of the factors considered by social-psychological theorists (Clewell & Campbell, 2002).

The research described in this entry belongs to the group of social-psychological theories that look to environmental, rather than individual, explanation for women's under-representation in certain fields in science and engineering, including information technology. It considers the role of parents and the role of interactions with teachers, counselors, and important others in interest in a career in information technology.

BACKGROUND

Career choice is often approached as if it were entirely a rational process whose outcome can be predicted by simply understanding an individual's abilities, attitudes, and interests. Researchers with a less individualistic perspective, however, point out that individual qualities are far less predictive of women's career choices than they are of men's (O'Brien & Fassinger, 1993) and that a number of social and cultural factors are required to understand the types of environments that promote women's interest in sex atypical careers, including IT (Blum, Frieze, Hazzon, & Dias, 2007). This fits with other research that documents that women continue to enter the IT field through nontraditional venues. Rather than taking a more direct route through an IT-related major in college, women often enter positions in IT as a result of propitious exposure or opportunity (Turner, Brent, & Percora, 2002). This is why some authors prefer to refer to "pathways" rather than to continue to utilize the "pipeline metaphor" as a way to capture the various career paths women follow prior to entering IT in a professional capacity (Leventmen, 2007).

A socio-cultural perspective considers career interest and choice to be the product of a complex interplay of factors that is primarily understood empirically through relatively sophisticated statistical procedures. This theoretical perspective frames research about gender and interest and success in fields in science, engineering, and technology (SET) to be the result of the interplay of personal and environmental factors. Key individual qualities related to interest in IT include positive attitudes about computers and computing fields (Dryburgh, 2000; Shashaani, 1997), and characteristics of parents, including their familiarity with IT and their views about the appropriateness of IT as a career choice (Meszaros, Laughlin, Creamer, Burger, & Lee, 2006). Attachment to parents is positively associated with career exploration among college women (Ketterson & Blustein, 1997).

Social qualities related to an interest in IT refer to dimensions of the environment, such as encouragement from educators, family and friends, role models, and peers. It also includes elements of the family, community, and educational environment that introduce opportunities to experience

creative and interactive applications of computing (Volman & Van Eck, 2001).

The stereotyping of many SET fields as inherently unfeminine is a key cultural dimensions that impacts women's perceptions of the opportunity for success and advancement in the field (Blum et al., 2007).

CAREER INFORMATION AND INTEREST IN IT AS A CAREER

This entry summarizes key research findings about the relationship between sources of career information and information seeking behavior and interest in IT among high school and college men and women. Findings reported here are based on responses to multiple administrations of questionnaire *Career-Decision Making Survey* (Creamer, Lee, Meszaros, Laughlin, & Burger, 2006) and the response of 1,147 high school and college men and women in rural and urban locations in the US. The focus in this entry is on the "information processing" section of a larger, complex causal model that was confirmed through statistical analysis using path analysis. The term "information processing" refers to the impact of others on interest in IT. Details about the complete model are reported elsewhere (Creamer, Meszaros, & Lee, 2007; Creamer, Lee, Meszaros, Burger, & Laughlin, 2006).

Our findings indicate that for both young women and men, there is a startling gap between knowledge about job options in IT, the extent of career exploration, and interest in IT. The nature of the relationship is quite different, however, for men and women. Figure 1 summarizes key findings about career information processing related to interest in IT as a career field and how this varies by gender.

As shown in Figure 1, there is no significant or direct relationship for men between amount of career exploration, sources of career information, and interest in IT as a career

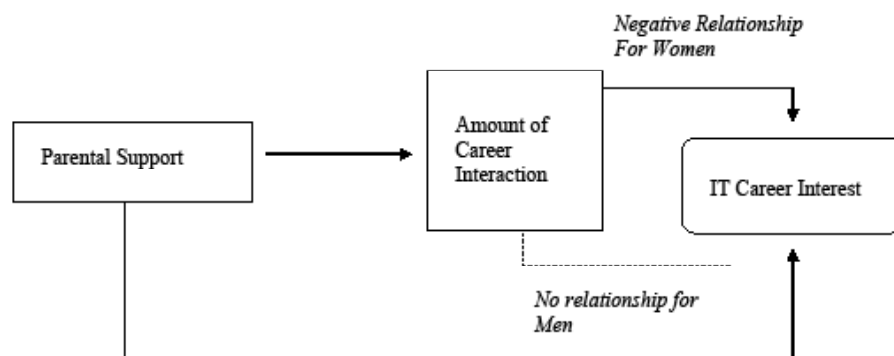
option. Interactions with others about career options had no significant positive or negative effect on interest in IT. For men, computer use and positive attitudes about the attributes of IT workers were the only factors directly related to IT career interests.

The relationship between information and interest in IT as a career choice was even more surprising for women. Women were more significantly more likely than men to report talking to others about career options. For women, however, there is a significant, *negative* relationship between career information about IT and interest in IT as a career. The more interactions women had with others about IT as a career field, the less interest they reported in IT as a viable career choice. This is consistent with other research that suggests women are more influenced than men by the opinions of others when making career choices (Seymour & Hewitt, 1997). This is probably even more so when the choice involves a sex-atypical career, like IT. While it is not possible to determine from our data exactly what is occurring during these interactions, what is clear from our analysis is that many women are walking away from interactions with teachers, peers, counselors and others with less than positive views about IT as a personally viable career option.

The amount of interaction with others about career options increased for women with uncertainty about career choice and/or the ability to make a good career choice. Another possible explanation for why women may walk away from exchanges about career options with negative views about IT is that the more people they talk to, the more likely they are to encounter different viewpoints about appropriate career alternatives. Making a reasoned decision in the face of differing viewpoints is not something most high school or college students are developmentally equipped to handle.

For both men and women, parents play a significant role in the development of IT as a career interest. Perceptions of parents support for IT as an appropriate career choice directly impacted the amount of career exploration students

Figure 1. The impact of career information on IT career interests among high school and first- and second-year college students, by gender



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