

Chapter 31

Women in STEM Workplaces and Computer–Mediated Communication: Obstacle or Advantage?

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ABSTRACT

As women have the potential to bring unique perspectives to the workplace, the under-representation of women in STEM occupations is a severe limitation to global advancement through research and innovation. Workplace utilization of computer-mediated communication (CMC) may impact common barriers faced by women in STEM, such as stereotypes, a “chilly” workplace climate, lack of social support and mentorship opportunities, and work-family conflict. As organizations shift further into the use of virtual communication, it is essential to take advantage of CMC as a way to facilitate gender equality in the workplace while simultaneously mitigating barriers workplace CMC may present for women in STEM. The potential implications of workplace virtual communication, virtual teams, e-mentoring, cyber incivility, and telecommuting for women in STEM careers are discussed.

DOI: 10.4018/978-1-7998-7297-9.ch031

INTRODUCTION

Globally, women remain underrepresented in science, technology, engineering, and mathematics (STEM) fields (Catalyst, 2018; Jackson, Hillard, & Schneider, 2014). Whereas women constitute 47% of those employed in the United States (U.S. Bureau of Labor Statistics, 2017), only 25% of those employed in STEM occupations are women (U.S. Department of Commerce: Economics and Statistics Administration, 2017). Women who obtain STEM jobs are significantly less likely to persist in their careers compared to those in jobs outside of STEM (Glass, Sassler, Levitte, & Michelmore, 2013), and a considerable portion of the women who leave their STEM careers behind do so to pursue other occupations, not because they are choosing to leave the labor force altogether (Glass et al., 2013). Even when women graduate with STEM degrees, they are less likely than male STEM graduates to work in STEM occupations, often opting to work in education or healthcare instead (U.S. DOC: ESA, 2017).

Considering the importance of STEM skill development in an increasingly technical and automated job market (Soergel, 2015) and the need to remain competitive at a global level in areas of innovation and research (National Science Board, 2015), increasing the participation and persistence of women in STEM has become particularly important. As reliance on computer-mediated communication (CMC) outlets (e.g., email, video-based platforms, and instant messaging) becomes increasingly commonplace in organizations, it raises concerns about how such technological advances will affect women in male-dominated STEM fields. This article explores the current status of some common barriers women face in STEM occupations, including stereotypes, a “chilly” work climate, lack of mentorship opportunities, and work-family conflict and the potential impact workplace utilization of CMC may have on these barriers. Topics discussed include virtual teams, virtual communication platforms, e-mentoring, and telecommuting.

BACKGROUND

Substantial efforts have been made to understand barriers that contribute to the underrepresentation of women in STEM to inform the development of strategic interventions designed to rectify these issues. Gender stereotypes are a key factor in the underrepresentation of women in STEM (Dasgupta & Stout, 2014). Stereotypes are commonly held beliefs about groups of people classified into categories based on associated common traits or attributes (Koch, D’Mello, & Sackett, 2015), and they tend to be activated quickly and automatically (Banaji & Hardin, 1996). In STEM, stereotypes often contribute to women’s experiences of a “chilly” or unwelcoming work climate because, by choosing to work in male-dominated fields, they are perceived to be violating traditional gender role norms (Dasgupta & Stout, 2014; Hughes, 2014). The “chilly” climate experienced by women in STEM is exacerbated by problematic gender dynamics in mixed-gender mentoring relationships as well as insufficient access to same-sex mentorship opportunities (Preston, 2004). Further, work-family responsibilities and inflexible working hours have been identified as key factors in women’s decisions to leave their STEM careers behind (Heilbronner, 2013).

These established barriers take on new meaning in the context of a technologically advanced workspace through the utilization of CMC. Workplace utilization of virtual teams, e-mentoring, and telecommuting policies has the potential to impact women in STEM in positive ways, such as enabling women to overcome stereotype threat in group settings (Furumo & Pearson, 2007), reducing men’s perceived risk

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