Chapter 6
Increasing Women's Chances in STEM Fields and Combating Challenges

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ABSTRACT

Research has shown the challenges women face in the STEM fields, even though there are benefits. Therefore, knowing the challenges can help better prepare females for careers in STEM and help with policymaking. In this chapter, the authors have highlighted the impact of remote learning in STEM and how to increase women's representation and STEM on college students. They recognize that interventions are needed to help recruit and retain women in STEM fields, and female role models are required. Therefore, having a diverse workforce culture is vital, and removing the gender stereotypes associated with women in STEM is critical for the future of women's interest and employment in STEM fields.

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INTRODUCTION

What Is STEM?

According to Beede et al. (2011), STEM is referred to as "science, technology, engineering and math" (p. 2). STEM jobs include occupations that are in computer sciences, engineering, life/physical sciences, and mathematics fields. Beede et al. (2011) placed STEM occupations into four district categories. For example, physical/life sciences, computer/math, STEM managerial occupations, and engineering/ survey. Beede et al. (2011) noted that the computer/math fields had the largest STEM jobs among the different categories. At the same time, STEM degree holders are viewed as individuals that have their undergraduate degrees in STEM fields (Beede et al., 2011).

How Do Women Represent STEM Careers?

Research has shown that women have been underrepresented in STEM careers (Beede et al., 2011; García-Holgado et al., 2019; González-Pérez et al., 2020; Heybach, & Pickup, 2017; Kahn, & Ginther 2017). We used data from the U.S. Bureau of Labor Statistics (2021) and graphed Figure 1. The data shows that engineering and computer science — two of the most lucrative STEM fields — remain heavily male-dominated (Figure 1). Only 17% of engineering majors and 26% of computer science majors are women (U.S. Bureau of Labor Statistics, 2021). Beede et al. (2011) posited that the low representation of women in STEM has been constant for several years, and in 2009 U.S. women made up only 24% of the STEM workforce. The percentage of women biological scientists has increased up to 48% and chemists and material scientists are up to 32% (Figure 1). The increase seems encouraging but women are still underrepresented.

Figure 1. Women in selected STEM occupations in 2021
U.S. Bureau of Labor Statistics (2021)