Chapter 3
Celebrating Transformations Through STEM Storytelling

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ABSTRACT

Storytelling describes the social and cultural activity of sharing stories. Every culture has its own stories or narratives, which are shared as a means of entertainment, education, cultural preservation, or instilling moral values. In the STEM culture, women of color tell their stories about overcoming barriers and obstacles. Their stories echo familiar themes (the lack of role models, gender bias, and/or cultural racism within the organization/institution) as well as shed light on decades of programs continuing to fall short in empowering and encouraging women of color, thus resulting in an exodus from the STEM pipeline. More disturbing is their stories are often silenced or filled with embellishments and improvisations by the institutions or organizations they faithfully served. The chapter reflects on a “typical” story about a woman of color in STEM higher education. It takes the reader on a journey from entry to departure from the “fairy tale pipeline” of higher education. It is a story of struggle, transformation, and love, within the culture of STEM.

INTRODUCTION

Despite renewed efforts of initiatives, policies, research activities, professional organizations focusing on women of color in STEM, and national funding within the last twenty years, women of color remain underrepresented in science, technology, engineering, and mathematics (STEM) disciplines (National Academy of Sciences 2011; National Science Foundation 2017). While much research has focused on ways

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to recruit women into these disciplines, less work has explored the strategies women use to navigate these STEM contexts (Lezotte and Ferguson, 2017; Leggett-Robinson and Villa, 2019) or the lasting results of having to navigate the STEM landscape on their professional and personal lives. Even more disconcerting is that programs focused on increasing and retaining women of color in STEM fields continue to fall short, resulting in an exodus from traditional to non-traditional STEM professions.

**Demographic Changes Promise An Even Larger Loss Of Talent**

National demographic data show that a full 92 percent of U.S. population growth in the last decade came from people of color (Cárdenas and Treuhaft, 2013). By 2050, communities of color will be in the majority, representing a projected 53 percent of the U.S. population. Growth of the young Latino population will continue its sharp rise, with a projected 63 percent increase in public high school graduates between the years 2008-09 and 2020-21 (NCES, 2013). Contrast this with the small number of Latinas earning STEM bachelor’s degrees: in 2017, 3.5 percent of STEM degrees overall and 2.1 and 1.7 percent of engineering and computer science degrees, respectively, went to Hispanic women (NCES, 2017).

Further, Black women earned a smaller percentage of bachelor’s degrees than their hispanic counterparts across all STEM fields e.g., Latinas, 3.8% and Blacks, 2.9%. (NCES, 2017).

The STEM community has sought to address the issue of low representation for WOC using diverse approaches, including efforts that work toward mentoring, networking, building personal agency, and leadership development. This chapter utilizes the simplicity of storytelling (A STEM Autobiography) to address the familiar and formidable barriers faced (STEM belonging, microaggressions, gender bias, and cultural racism) by women of color in STEM fields and to celebrate their personal and professional transformations.

**THE “LEAKY PIPELINE”**

The STEM pipeline metaphor assumes a linear progression through higher education and STEM occupations. Studies continue to assert that there are not enough women of color (WOC) graduating with degrees in STEM, and thus not enough WOC entering the traditional STEM workforce. Recent research suggests the “leaky pipeline” of underrepresentation of WOC in STEM is not just a matter of increasing entry into the pipeline (Whittaker & Montgomery, 2014; Sethna, 2011) but also a matter of retention at every educational transition point and in career progression. The lack of WOC in STEM is not a K-12 problem, a higher education problem, a
Signs of Plurilingualism: Current Plurilingual Countermoves in Danish Higher Education
www.igi-global.com/article/signs-of-plurilingualism/231473?camid=4v1a

Preparing Teacher Candidates for Diverse Classrooms: The Role of Teacher Preparation Programs
www.igi-global.com/chapter/preparing-teacher-candidates-for-diverse-classrooms/182098?camid=4v1a