Are they tech-savvy?: Understanding technology self-efficacy of apparel female freshmen

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Background and Research Purpose. Apparel graduates face ever-increasing expectations for using and adopting new technology (Romeo & Lee, 2013). In addition to being proficient with constantly developing ways of digital communication, analyzing, storing, and sharing data, successful apparel professionals must master various specialized soft- and hardware such as virtual retailing, product lifecycle management, computer-aided design, digital printing, and emerging 3D technologies. To address challenges of the fast-paced and highly competitive industry, preparing technologically-savvy apparel graduates becomes one of the priorities (Romeo & Lee, 2013). Ninety-five percent of students completing a bachelor's degree in apparel and textiles (CIP Code: 19.09) are female (National Center for Education Statistics, 2017).

Women have been encouraged to consider and pursue STEM-related careers (Buschol, Kappler, Frei, & Berweger, 2014), yet, many continue to have math and technology-related anxiety and low confidence in their abilities in comparison to men. For example, Cassidy and Eachus (2002) empirically showed that men had higher computer self-efficacy than women. Further, research indicates that young women have different predispositions to STEM subjects and fields: whereas some display high self-efficacy, others do not (Hill, Corbett, & St. Rose, 2010). The **purpose of this study** was to explore young women's technology related experiences that might explain why some have low vs. high technology self-efficacy, i.e. judgement of one's capability to use technology (Compeau & Higgins, 1995). To frame the study, we used Bandura's (1977) social cognitive theory, postulating that one's social environment and personal characteristics shape an individual's behavior: in our case, use and adoption of technology.

Method. To identify participants with low vs. high technology self-efficacy, screening of 300+ female apparel freshmen at a Midwestern University was completed using computer self-efficacy scale (Compeau & Higgins, 1995). Students with low and high scores were invited to participate in the study. Thirteen women were individually interviewed about their technology-related experiences during childhood and school years, focusing on family and public settings. An interview protocol was used for a systematic data collection. Questions encouraged participants to reflect on their interactions with technology. Interviews were audio taped and transcribed. Two researchers coded the transcripts, identifying categories and emerging themes and reaching consensus. For each theme, a definition, inclusion criteria, and exclusion criteria were developed. The established coding guide and MaxQDA software were used in the final analyses and interpretation of the data.

Results. Participants ranged in age from 17 - 19 years old and almost all of them were European-American. Qualitative data findings were structured using social cognitive theory (Bandura,

1977). The first topical area explored *the role of pre-college environmental factors* in forming participants' technology self-efficacy. Two themes discussed participants' physical environment (accessibility and types of technology) and interpersonal environment (support/ encouragement from parents, siblings, teachers, and friends) regarding their pre-college (pre-, elementary, middle-, and high-school) technology–related experiences. The second topical area examined *the role of personality* in shaping participants' technology self-efficacy. Four themes emerged in this area described learning preferences for technology (experimental learning and collaborative learning vs. individual learning), risk taking, technology anxiety, and individuals' affect.

When growing up, all participants had access to technology (e.g., iPad, and/or computer), especially at school. The results indicated that participants with low and high technology self-efficacy had similar levels of encouragement and support from family and teachers in using technology. The research findings imply that environmental factors might not be as important predictor in shaping young females' technology self-efficacy. In contrast, personality factors appear to be decisive indicators of young female's technology self-efficacy.

Conclusions and Implications. The purpose of this study was to understand why some young females are comfortable adopting and using technology, whereas others are not. Our findings indicate that participants' personal differences set them apart in terms technology self-efficacy. The results of the study can help apparel and textiles educators understand barriers to successful technology adoption among young females and might be useful for developing learning and teaching strategies, particularly, for women with low technology self-efficacy. These solutions would likely assist in counteracting technology-related anxiety, building greater confidence in female students, and enabling them to learn ever-changing fashion industry technology.

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