Sowing the Seeds of Change: Educating emerging Textile & Apparel professionals on sustainability from cotton industry perspective

Geetika Jaiswal, Elizabeth Newcomb Hopfer and Devona Dixon

North Carolina A&T State University, USA

Keywords: fashion education, sustainable development, organizational and personal responsibility

The 2030 agenda of the United Nations' sustainable development goals is 'to achieve a better and more sustainable future for all,' which emphasizes the development of sustainable global textile and apparel (T&A) supply chain. The T&A supply chain is complex, comprised of multiple supply chain members and it is important that sustainable business practices are incorporated by each member. Even though the T&A industry is increasingly focused on incorporating triple bottom line business functions in their everyday operations, the industry has not reached the desired outcome in terms of achieving sustainability (Mukendi et al., 2020; Kent, 2021). In addition, the current fast fashion trend leading to superfluous consumption and disposal of fashion goods complicates integration of sustainability. Thus, there has been a growing concern in the past two decades over the textile and apparel (T&A) industry becoming highly unsustainable (Fletcher & Williams, 2013; Niinimäki, 2018).

Historically, profit maximizations and economic growth has been the focus of fashion industry and business education (MacVaugh & Norton, 2012; Maxfield, 2011). Considering the United Nation's call for '*sustainable development'* (2030 United Nation's agenda), there is a need to develop a new paradigm in fashion education where fashion industry and design processes are taught from a sustainability standpoint. It is important to reorganize and re-conceptualize fashion education in terms of how students should learn and how different aspects of sustainability can be incorporated in fashion education. Thus, a comprehensive fashion curriculum that integrates aspects of social, economic, and environmental in business functions (Haigh, 2005); and that aids in preparing fashion professionals with knowledge and skills that promote sustainable practices (Egan, 2004) is essential.

Although several existing fashion programs have successfully added topics related to sustainability in fashion curriculum, mostly offer discussions or trainings on sustainability sporadically without necessitating a systematic shift in teaching fashion (Armstrong & LeHew, 2011; MacVaugh & Norton, 2012). Thus, *in an effort to promote sustainability in fashion curriculum, and enhance students' understanding of sustainability, this research was conducted*. This research will contribute in preparing student for diverse roles in the modern fashion industry - from selection of environmentally friendly raw material in product development, to identification of the retail and consumer initiatives that reduce post-consumption textile waste.

As cotton is a versatile fiber and sustainable material from fiber to disposal (Bashar and Khan, 2013), study of cotton industry offered an excellent context for conducting this study. Three learning components were designed and implemented to conduct this study in Spring and Fall 2021. Component-1: 'Learning from Experts,' involved dissemination of cotton sustainability and supply chain knowledge via textile and apparel experts through series of

webinars. A project-based learning approach was adopted under learning component-2: 'Learning by Doing.' Course instructors identified specific design and merchandising related courses from the curriculum and class activities/ assignments/project on cotton and sustainability was organized. Under learning component-3: 'Student Showcase and Competition' was an organized opportunity offered to students to showcase their work, celebrate their achievements and extend sustainability related information to community member. Five categories of competitions were organized including poster presentation, flyer, window display, storyboard and T-shirt design competition. The winners each competition presented their work in the showcase.

The Rands' (2009) principles-attributes matrix (PAM) and Brookshire & Norum's (2011) key topics of sustainable development, organizational responsibility, and personal responsibility, were used for analyzing the project impact on student learning outcomes. A pre-and-post survey was conducted. The standardized scales developed by Brookshire & Norum (2011) were used in survey development. Questions were slightly modified to fit the study context. The final survey questionnaire included nine sets of scales that measured three principles (knowledge, skills and attitude) and three learning outcome attributes (sustainable development, organizational and personal responsibility). In total, 22 questions were formulated. After IRB approval, an online survey was implemented. Data was collected at two-time points; before grant activities (pre-test) in early March 2021 and after grant activities (post-test) in late November 2021. A total of 96 responses were collected, and 84 were found usable. Data was cleaned and assumptions were tested and met.

A paired sample *t*-test was conducted to compare the impact of research activities on students' knowledge, skills and attitude about cotton and sustainability before and after project activities. SPSS was used for data analysis. The results of paired-sample *t*-test comparisons showed that exposure of students to project activities had the overall largest impact on students' knowledge followed by students' skills and attitude. Within the students' **knowledge** attribute, sustainable development showed the greatest change before and after grant activities (mean difference=-2.31, t=4.693, p=0.000), followed by organizational responsibility (mean difference=-2.167, t=-4.030, p=0.000) and personal responsibility (mean difference=-1.119, t=-2.923, p=0.006) Within the students' **skills** attribute, sustainable development showed the greatest change before and after grant activities (mean difference=-2.167, t=-4.701, p=0.000), followed by student organizational responsibility (mean difference=-1.071, t=-2.672, p=0.011) and personal responsibility (mean difference=-0.667, t=-2.192, p=0.034). Lastly, in terms of students' **attitudes** toward cotton and sustainability, grant research activity seemed to have the greatest impact on sustainable development (mean difference =-1.071, t=-3.918, p=0.000, followed by personal responsibility (mean difference = -0.952, t=-3.087, p=0.004). The smallest impact was reflected on organizational responsibility (mean difference=-0.595, t=-2.087, p=0.043)

The mean comparison of pre-and-post study results showed that the research grant activity had a statistically significant positive impact on the level of FMD students' knowledge, skills and attitude towards cotton and sustainability. The change in students' attributes post study

suggests that students had limited information and skill sets on understanding sustainable development of textile and apparel industry prior to grant activities. It was interesting to observe a smaller effect on change in student attitude and personal responsibilities. This suggests that FMD students already possessed a positive attitude and had a higher sense of personal responsibility toward sustainable development, however, they do not seem to have adequate knowledge about what textile and apparel businesses could do to make the supply chain sustainable. Therefore, this study contributes in highlighting that fashion design and merchandising educators should focus on developing course curriculum that strategically integrates courses and topics on sustainable development throughout the course curriculum. This will enable students to build strong knowledge base, impart necessary skill sets and transform their attitude towards sustainable development.

References

Armstrong, C., & LeHew, M. (2011). Scrutinizing the explicit, the implicit and the unsustainable: A model for holistic transformation of a course for sustainability. *Journal of Teacher Education for Sustainability*, *13* (2), 17-43.

Egan, J. (2004). Skills for sustainable development. Office of the Deputy Prime Minister, London.

Fletcher, K., & Williams, D. (2013). Fashion education in sustainability in practice. *Research Journal of Textile and Apparel*, 17 (2), 81-88.

Ha-Brookshire, J., & Norum, P. (2011). Cotton and sustainability: Impacting student learning through Sustainable Cotton Summit. *International Journal of Sustainability in Higher Education*, 12 (4), 369-380.

Haigh, M. (2005). Greening the university curriculum: Appraising an international movement. Journal of Geography, 29 (1), 31-38.

MacVaugh, J., & Norton, M. (2012). Introducing sustainability into business education contexts using active learning. *International Journal of Sustainability in Higher Education*, 13 (1), 72-87.

Mahbubul Bashar, M., & Khan, M. A. (2013). An overview on surface modification of cotton fiber for apparel use. *Journal of Polymers and the Environment*, 21 (1), 181-190.

Maxfield, S. (2011). Teaching economics to business students through the lens of corporate social responsibility and sustainability. *The Journal of Economic Education*, 42 (1), 60- 69.

Mukendi, A., Davies, I., Glozer, S., & McDonagh, P. (2020). Sustainable fashion: current and future research directions. *European Journal of Marketing*, 54 (11), 2873-2909.

Niinimäki, K. (2018). *Sustainable fashion in a circular economy*. Aalto University.

Rands, G.P. (2009). *A principle-attribute matrix for environmentally sustainable management education and its application: The case for change-oriented service-learning projects. Journal of Management Education*, 33 (3), 296-322.

Kent, S. (2021). The sustainability gap: How fashion measures up. Business of Fashion. https://cdn.businessoffashion.com/reports/The_Sustainability_Index_2021.pdf