

Apparel Professionals' Perception of Sustainability-Related Technology: Empirical Evidence from Bangladesh

Md Arif Iqbal and Jin Su, The University of North Carolina at Greensboro, USA

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Introduction and Literature Review: Technologies such as computer-aided design, high-speed sewing machines, technology for dyeing and finishing apparel products with a reduced amount of energy, water, and chemicals, automation, information technology used in the sustainable production process, etc., can be termed as sustainability-related technologies which have been adopted in the apparel industry to improve the environment, the well-being of employees, and the economic performance of firms (Díaz-Chao et al., 2021; Papahristou & Bilalis, 2017). The environmentally sound and socially responsible technologies play a substantial role in upgrading the global apparel industry (Su et al., 2022, 2021) and addressing the “triple bottom line” of people, planet, and profit.

As managers of the apparel firms are the decision-makers regarding the use of technology (Iqbal & Su, 2021), it is crucial to understand the managers' characteristics, such as their personal innovativeness in technology, knowledge about the apparel technology, and their knowledge about the environmental impact of apparel production. Examining these traits of apparel managers is essential to understanding their personal propensity toward sustainability-related technology. Their perceptions of sustainability-related technology will influence their decision-making process for their firms. This study was conducted in the context of professionals working in the Bangladeshi apparel industry (Iqbal et al., 2022). How individual apparel professionals perceive sustainability-related technology has not been addressed in Bangladesh's context in the prior studies. The purpose of this research is to examine the effects of the characteristics of apparel professionals on their attitude towards sustainability-related technologies in the context of a developing country (Bangladesh).

The theoretical foundation of this study is built on Fishbein's attitude theory (Fishbein, 1963; Fishbein & Ajzen, 1975). The fundamental theoretical proposition of this theory is that it suggests a causal flow among cognitive variables including beliefs and attitudes. The attitude theory of Fishbein states that the attitude of a person is a function of his or her salient beliefs, and those beliefs are shaped by knowledge. Fishbein's attitude theory has been commonly used in research examining sustainable consumer behavior at the personal level (Paul et al., 2016; Su et al., 2019). In this study, this theory is applied to examine how the various characteristics of the individual apparel professionals (i.e., personal innovativeness in technology, knowledge of apparel technology, knowledge of environmental issues of apparel manufacturing) affect their awareness of and attitude toward sustainability-related technology. Figure 1 illustrates the theoretical model and five hypotheses.

Methodology: An online survey was conducted through a structured questionnaire. The survey was sent to 2900 manager-level apparel employees in Bangladesh and 239 responses were received. After data screening, 204 valid responses were used in data analysis. Measures for personal innovativeness were adapted from Lu et al. (2005) and Agarwal and Prasad (1998), knowledge about environmental issues from Dickson (2000) and Kang et al. (2013), knowledge about apparel technologies from Dickson (2000) and Koo and Chung (2014), the level of awareness from Mishra et al. (2014), and attitude from Kamble et al. (2019) and Upadhyay et al. (2022). Around 77% of the apparel professionals who responded to the survey worked in the areas of production, supply chain, and merchandising departments. About 62% of

the respondents had job experience of 3 to 9 years, and around 8% had more than 15 years of experience. About 88% of the respondents were males and 12% were females.

Results, Discussion, and Implications: A two-step technique of structural equation modeling (SEM) was used for data analysis. Initially, the measurement model was evaluated using confirmatory factor analysis. To examine the fit of the model, multiple fit indexes were used. The measurement model shows

Fit Indices	Value
Chi-Square/df	3.20
RMSEA	.10
CFI	.80
TLI	.78

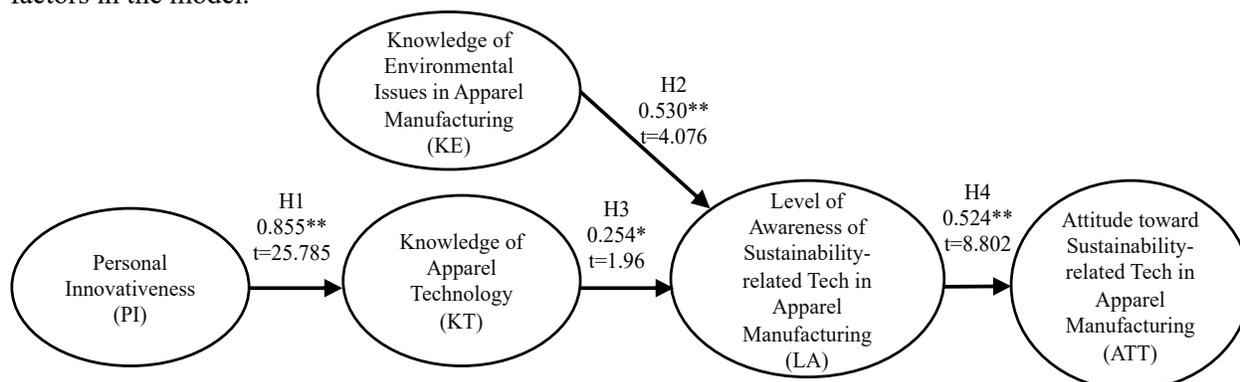
	CR	LA	PI	ATT	KE	KT
LA	.909	.82				
PI	.699	.478	.66			
ATT	.869	.495	.437	.75		
KE	.881	.732	.497	.561	.77	
KT	.853	.692	.636	.485	.860	.73

Note: 1. CR=Composite Reliability. 2. The elements on the diagonal (bold) are the square root of Average Variance Extracted (AVE). 3. The element below the diagonal are inter-factor correlation estimates

Table 1 Measurement Model Result

a satisfactory fit and adequate level of measurement reliability and validity (Table 1). In the next step, the structural relationships of the model were investigated using SEM. The results of the data analysis show that all four hypotheses are supported (Figure 1 includes standardized factor loadings and t-values). The findings demonstrate that apparel professionals’ personal innovativeness positively impacts their knowledge of apparel technology. Individual managers who hold the personality trait of innovativeness might have a greater motivation to seek more information about the apparel technology, which makes them more knowledgeable about newer apparel technologies. Their knowledge about apparel technology and environmental issues in apparel manufacturing positively impacts their level of awareness of sustainability-related technology, which further has a significant positive impact on the attitude toward sustainability-related technology in apparel manufacturing. This study measured two types of knowledge of the apparel professionals and both types of knowledge significantly and positively impact their level of awareness of sustainability-related technology in apparel manufacturing. Moreover, compared with the knowledge of apparel technology, apparel professionals’ knowledge of environmental issues in apparel manufacturing has a stronger effect on their level of awareness.

This study demonstrates the applicability of Fishbein’s attitude theory in examining apparel professionals’ perceptions of sustainability-related technology in the context of Bangladesh. This study provides empirical evidence on the role of apparel professionals’ traits on their awareness of and attitude toward sustainable technology. Future studies are needed to expand the present research and include other factors in the model.



Note: The path coefficients in the figure are standardized parameter estimates. * $p < 0.05$; ** $p < 0.001$

Figure 1. Research Model

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