

Wearers' Perceptions and Acceptance of Shoes Made with Eco-Friendly Materials

Changhyun Nam, Iowa State University, USA
Young-A Lee, Auburn University, USA

Keywords: consumer acceptance, eco-friendly material, footwear industry, sustainable practice

The footwear industry has contributed to serious environmental and human health-related problems. For the past few decades, this industry has continued to make efforts to minimize energy usage, reduce the use of chemical materials, and enhance material efficiency in manufacturing footwear. Along with the industry's movement towards sustainable practices, as consumers' environmental consciousness increases, their attitudes towards purchasing eco-friendly footwear are gradually shifting towards a positive direction. Therefore, we were interested to further explore consumers' perceptions and acceptance of shoes made of eco-friendly materials. For this study, a men's eco-friendly shoe prototype was developed with cellulosic fiber-based nonwoven material, denim, and hemp guided by Nam and Lee's (2017) study in order to replace the use of leather in the footwear production. The purpose of this study was to assess wearers' perceptions and acceptance of the sustainable shoes, comparing with commercial leather shoes via human wear trials, followed by completing the online survey questionnaire. Here, we only reported the findings from the survey.

The survey consisted of five parts: (a) participants' demographic characteristics and key body measurements; (b) open-ended questions asking their thoughts of sustainable shoes and its benefit, experience, and reasonable price; (c) functional, expressive, and aesthetic needs; (d) physical fit and comfort during the wear trials; and (e) their acceptance of eco-friendly shoes. The measurements were adapted and modified from previous studies (Cao et al., 2013; Chae & Schofield-Tomschin, 2010) and used a five-point Likert-type scale, ranging from "very dissatisfied" (1) to "very satisfied" (5). The qualitative data were analyzed using NVivo 11 and SPSS 21 was used for the quantitative data analyses. A paired *t*-test was performed to examine whether there were significant mean differences between two groups, sustainable shoes (S) and leather shoes (L) at $p < 0.05$, in the following five dimensions: function, expression, aesthetics, mobility related with physical fit and comfort during wear trials, and wearer's acceptance.

A total of 42 male subjects without any history of leg or foot surgery or recent injury were recruited from one of large Midwestern universities. Participants' ages ranged from 18 to 43 years with a mean age of 25. Twenty-one participants were Caucasian/European American, followed by 19 Asian, and two Hispanic American/Latino. The results of content analysis presented that the participants generally connected the word phrase, "sustainable shoes" with environmental friendly (26%), expensive (10%), and recycling (9%). They addressed the benefits of purchasing sustainable shoes as being eco-friendly (35%), comfortable (12%), low cost (8%), and aesthetically pleasing (2%). When purchasing sustainable shoes, the following aspects – function, design, and footwear price, and environmental impact – were the most important considerations for them. About 71% of the participants were willing to pay an average of 16% or more for purchasing eco-friendly shoes.

As shown in Figure 1, among the five dimensions, only the mobility dimension had higher mean score ($M_L=3.60$) for leather shoes than that of sustainable shoes ($M_S=3.59$), but no statistically significant mean differences between the two shoes were found. For the rest of dimensions – function, expression, aesthetics, and acceptance, the mean scores of sustainable shoes were higher than those of leather shoes and statistically significant mean differences

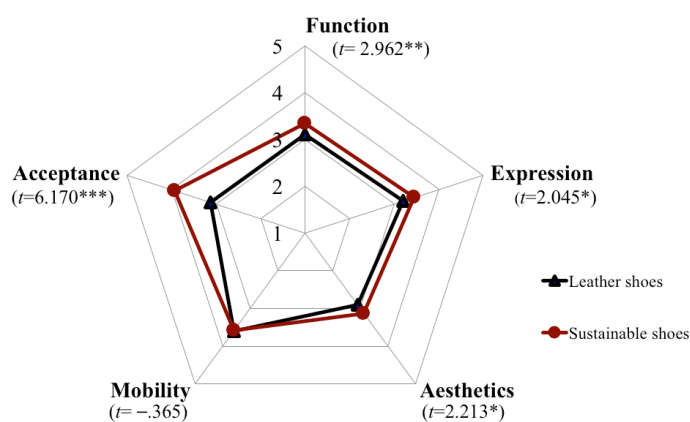


Figure 1. Mean differences with five dimensions.

between the two shoes were found for these four dimensions. Each dimension was further analyzed to deepen our understanding of each attribute within the five dimensions. For the functional dimension, statistically significant mean differences between the sustainable shoes and the leather shoes were found in terms of ventilation ($M_S=3.38$; $M_L=2.57$), insulation quality ($M_S=2.98$; $M_L=2.57$), and being light weight ($M_S=3.71$; $M_L=3.31$). This might be the results of using the lightweight, flexible, and breathable materials in sustainable shoes than those of leather shoes. For the expressive dimension, the attribute of conveying a leading role showed a statistically significant mean difference between the two shoes ($M_S=3.67$; $M_L=2.74$); by wearing eco-friendly shoes, the participants might perceive them as being the leaders of environmental awareness to the public. For the aesthetic dimension, the attribute of texture yielded statistically significant mean differences between the two shoes ($M_S=3.21$; $M_L=2.69$); the eco-layer material configuration used in the sustainable shoes might allow wearers to be more comfortable than when they wore the leather shoes. Finally, the wearers' acceptance dimension showed statistically significant mean differences between the two shoes in terms of possibility ($M_S=4.21$; $M_L=3.63$), recommendation ($M_S=3.90$; $M_L=3.07$), purchase intention ($M_S=4.07$; $M_L=3.21$), and spending more money ($M_S=3.52$; $M_L=2.62$). If functional, expressive, aesthetic, and mobile needs are satisfied, they are willing to buy sustainable shoes rather than leather shoes.

The findings demonstrated that the men's sustainable shoes made with the eco-layer material configuration, which can be a leather substitute, have the potential to attract young male consumers in the future. However, the sustainable shoes in this study still remained a lack of mobility related to fit and comfort as compared to the leather shoes. Further research needs to be performed to enhance the mobility of sustainable shoes for providing better fit and comfort of wearers. This study only focused on the small sample of young male participants. It is suggested to conduct another survey with a large sample size to validate our findings. It would be also interested to examine young females' perceptions and acceptance of sustainable shoes using a similar research design this study used.

Acknowledgement: This work was partially funded by the U.S. EPA under grant No. SU835733.

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