The Relationship Between Attitudes Towards Science and Sustainability

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Research Objectives

Many Fashion, Textile and Clothing (FTC) programs are exploring or reaffirming the commitment of the discipline to supporting sustainable consumption and fostering the development of their students as ethical professionals capable of valuing sustainability in their professional decision-making. At the same time, national policy is focusing education on supporting economic development and technological innovation by turning out students qualified for science, technology, engineering and math (STEM) careers. Is the goal of fostering a sustainable FTC industry and supporting sustainable consumption helped or hindered by focusing programs in improving the STEM preparation of our students? The purpose of this study was to explore the relationship between the attitudes of FTC students towards science and their perception and attitudes related to sustainable consumption.

Recent research has suggested that beliefs related to science creates an increase in ethical decision making (Ma-Kellams & Blascovich, 2013). Research has also shown that a personal sense of ethical obligation is strongly related to behavioral intention in the case of ethical consumption, including sustainability consumption (Shaw et al, 2000). Attitudes towards science are more general and thus might be theorized to relate to the development of a perceived ethical obligation, rather than towards a specific intention to consume sustainably. For this reason, this study examined the role of attitudes towards in building the attitudes, including ethical obligation, that lead to behavioral intention.

Methodology and Results

The method of exploring this issue was a pencil-paper survey method employed in one freshman course (N = 82) and two senior-level courses (N = 47) in a fashion merchandising program at a large school of FCS at a Southern US university. The variables used in the survey included Perceived Consumer Effectiveness (PCE: Roberts, 1996), Perceived Consumer Confidence (PCC: Vermeir &Verbeke, 2008), Perceived Ethical Obligation (PEO: Shaw et al, 2000) Perceived Responsibility (PR: Jansson et al., 2010), Overall Attitudes (AT: Chan, 2001), and Attitudes toward Science (ASI: Moore & Foy, 1997).

First, a multiple regression analysis was used to examine the role of students' attitudes toward sustainable consumption and towards science in predicting their perceived ethical obligation for sustainable consumption. The results revealed that approximately 57% of the variance of PEO could be accounted for by the linear combination of the predictors (R^2= .57, p <.01). Close examinations revealed that PCC (β = .38, p < .01), ASI (β = .30, p < .01), PCE (β = .27, p < .01) were positively related to PEO, but not PR and OA.

Given that attitudes towards science were shown to relate to increased ethical obligation to consume sustainably, we explored the relationship between ASI and the sustainable consumption variables. We hypothesized that students who have more positive attitudes towards science (ASI) would have higher levels of the sustainable consumption perceptions and attitudes. To test this hypothesis, we created groups of students with high and low levels of ASI using a median split at 4.06. Students below the median were grouped into ASI-, students above into ASI+, while students at the median were dropped from the analysis. The ASI+ group had significantly higher levels of PEO (m=5.40, $p < .01$) than ASI- (m=4.66), significantly higher levels of BI (m=4.65, $p < .01$) compared with ASI- (m=4.09), significantly higher levels of AT (m=4.42, $p < .04$) compared with ASI- (m=4.19), and significantly higher levels of PCC (m=5.45, $p < .01$) compared with the group with low positive attitudes towards science (m=5.01). For the remaining variable (PR), there was no significant difference between the low and high groups using a t-test. The average rating of the ASI+ group was on PR (m=4.73) and the ASI- group (m=4.52).

Finally, we tested a multivariate analysis of variance to determine the effect of the level of positive attitudes towards science on the other dependent variables. Significant differences were found among those with low and high attitudes towards science: Wilks' $\boldsymbol{\lambda} = .88$, F (5,101) =2.77, $p = .02$, $\eta^2 = .12$. Analyses of variance (ANOVA) on each dependent variable were then conducted using Bonferroni method (p =.008). The ANOVA on PCC (F (1, 105) = 5.977, p = .02, $\eta^2 = .05$), OA (F (1, 105) = 4.087, $p = .05$, $\eta^2 = .04$), and PEO (F (1, 105) = 13.961, $p < .01$, $\eta^2 = .12$) while the ANOVA on PR was non-significant. The group with higher positive attitudes towards sciences showed a stronger confidence in positive results from sustainable consumption, a stronger positive overall attitude towards sustainable consumption and a greater perception of an ethical obligation to consume sustainable when comparison with the group with low positive attitudes towards science.

Discussion and Implications

In conclusion, these exploratory results suggest that increasing students' positive attitudes towards science is related to increasing positive attitudes and behaviors related to sustainable consumption. The implications for FTC programs is that meeting STEM goals may be considered a supportive part of meeting sustainability goals when designing curriculum. At a time when, for a variety of reasons, many programs are eliminating or drawing back the science focused portion of the FTC curriculum, the results of this exploratory study suggest that building positive attitudes towards science among our students is important for creating the ethical attitudes related to sustainability that are a growing focus of many FTC programs. Further research on the role of attitudes towards science in sustainable consumption should be explored, beginning with a comparison of students in FTC programs with students in other programs which place either a greater or lessor emphasis on science (i.e. Chemistry or Marketing), in order to determine the role our curriculum plays in the development of these attitudes.

Ma-Kellams C, Blascovich J (2013) Does "Science" Make You Moral? The effects of priming science on moral judgments and behavior. PLoS ONE 8(3): e57989.