

Investigating School Uniform Design of Adolescent Girls in Saudi Arabia

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Due to their use in many countries worldwide, there is high global demand for adolescent girls' school uniforms. The purpose of this research was to apply a functional, aesthetic, expressive consumer needs (FEA) model (Kallal and Lamb, 1992) to designing and evaluating school uniforms that balance these three FEA consideration within the needs of adolescent girls in Saudi Arabia.

Vitamin D deficiency is very common among children and adolescents in Saudi Arabia and the global prevalence of Vitamin D deficiency is increasing in both children and adults (Al-Othman et.al, 2012). In the Middle East, there are 20–80% of otherwise healthy individuals who suffer from Vitamin D deficiency (Christie & Mason, 2011). Even though their location is a sunlit zone, lifestyle choices, socioeconomic, skin color, and designs of house that contribute to a tendency toward Vitamin D deficiency in Saudi Arabia (Nabi et al, 2015).

Parisi & Wilson (2005) found sunlight helps skin to produce Vitamin D. UVB radiation helps initiate Vitamin D production under the skin. Labelled as “tan-through, fabrics are engineered to allow penetration of more sunlight to allow the wearer to get a natural suntan through the fabric presents a potential partial solution. The solution must also be in combination with lifestyle modifications that include outdoor activities (Lanham, 2008).

A total of 210 Saudi Arabian mothers responded to an online FEA needs survey regarding their daughter's school uniform needs relative to the newly adopted *Current Style Uniform* and the proposed *Design Styles A and B*. Quantitative survey questions on a 7-point Likert scale were combined with several open-ended questions designed to obtain critique of the three types of uniforms.

Quantitative and qualitative survey responses were analyzed relative to the functional, expressive and aesthetic considerations of the three types of school uniforms; interest in Vitamin D absorption solutions through uniform design; and sample demographics. Analysis included: descriptive statistics; qualitative interpretation of open-ended questions; factor analysis across common FEA questions; and paired T-Tests among the *Current Style Uniform* and *Design Style A* and *Design Style B*.

Results began with responses to the *Current Style Uniform*. Participants were able to find high quality versions that looked good all school year (67.6%) and were similar to her daughter's peers (55.2%). Their sources were largely retail stores (44.8%) or custom designs (32.4%). Their priority was that school uniforms be comfortable (98.1%) and culturally appropriate for school (69.0%) and somewhat fashionable (45.2%). Table 1 provides a comparison of the three uniforms across eight FEA attributes factor analyzed within Aesthetic, Functional and

Expressive Considerations. Note that the *Current Style Uniform* has higher agreement across all attributes except the statement *My daughter would prefer wearing this uniform style* where Design Style B is rated slightly higher (41.0 % vs 47.6%) and the statement *My daughter would feel confident about her body wearing this uniform style* where Design Style A is rated higher (61.0% vs 71.0%). Functional Considerations regarding the prevalence of Vitamin D deficiency among these mothers (58.1%) and their daughters (41.9%) had strong support for a new uniform design that incorporated fabric that raised Vitamin D absorption (90.5%) and trumped all results within the study. This study also reinforced previous research that highlighted the importance of integrating aesthetic and expressive considerations into the design of apparel (Adelja, Salusso & Black, 2016). The authors recommend that the results of this study be shared with the Ministry of Education in Saudi Arabia for consideration as a contribution to the design of future uniforms.

Table 1. Overview of results comparing uniform styles across three FEA factors.

	Current Style	Design Style A	Design Style B
Factor 1: Aesthetic Considerations = 31.8% Variance Explained			
My daughter would prefer wearing this uniform style.	41.0%	42.0%	47.6%
Uniform style is flattering to my daughter’s body type.	68.1%	53.8%	50.4%
Uniform style is attractive to my daughter.	80.0%	53.8%	50.4%
My daughter would feel confident about her body wearing uniform style	61.0%	71.0%	60.9%
Factor 2: Functional Considerations= 23.2% Variance Explained			
My daughter’s uniform allows for easy movement at school.	71.9%	61.9%	53.3%
My daughter’s uniform makes it easy to dress	68.1%	53.8%	50.4%
Factor 3: Expressive Considerations= 20.8% Variance Explained			
Uniform style would be preferred among my daughter’s peers.	50.4%	44.8%	48.6%
Uniform style would help my daughter follow current fashion trends among her peers.	41.0%	42.0%	47.6%
Total Variance Explained by Principal Component Factor Analysis with Varimax Rotation = 75.9%			

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