



A design framework for the development of sportswear for wheelchair users

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This paper demonstrates the design framework needed to develop sportswear for wheelchair users. This framework is based on the premise that the mobility and comfort associated with using wheelchairs should be considered for a successful garment and the wearing of it. That means that comfort dimension was the main criterion for this design framework for developing the best sportswear for wheelchair users.

Synthetic models to measure comfort for clothing of people with disability

To determine the needed attributes for wheelchair comfort, the Model for Clothing for Special Needs (MCSN) (Feather, 1991) and the Clothing Comfort Model (CCM) (Branson & Sweeney, 1991) were combined. In the MCSN, the researcher proposed a conceptual framework for clothing for those with special needs applying three dimensions: Personal, ability, and clothing. In the personal dimension, age, cultural values, economic status, independence, and self-worth were precisely considered. Age attribute included those individuals with the maturity to seek physical comfort in their clothing. In the gender attribute, attitudes toward clothing for males and females were reported and seen as having greater perceived risk when males and females evaluate their clothing. Ability dimensions include physical ability, visual ability, and mental health ability. Physical ability relates to clothing issues, such as putting on clothing depends on individuals with relatively lower levels of mobility. The researcher finally suggested clothing selection processes that more closely addressed clothing dimensions: Clothing attributes, options, acquisition of clothing, acquired products, and internalized acceptance of clothing and thus the self. Clothing attributes encompassed appearance as well as physical and psychological comfort. Ready-to-wear in the clothing options dimensions was selected often because people with disabilities tended to want to reduce the general stigma associated with a disability and increase their own self-worth. In the final step in select clothing, the researcher saw that clothing acceptance, such as specific garments designed to meet comfort or self-help seems were well received when necessary modifications were less visible (Feather, 1991). The degree of disabilities of people with special needs relates to personal characteristics and ability. The MCSN in the clothing dimension demonstrated desirability, appropriateness, and the perceived quality of clothing for people with special needs as part of the overall clothing selection processes.

Since the term “clothing comfort” lies within a more complex phenomenon, the design framework was placed within the Clothing Comfort Model (CCM) (Branson & Sweeney, 1991) to form guidelines for comfort attributes. The Clothing Comfort Model (CCM) includes comfort attributes for both physical and social-psychological dimensions, and then each of those dimensions addresses three components, namely, people, clothing, and the environment. In the person component of the physical dimension, the activity attribute was addressed through a literature review where comfort was associated with a person’s activity. As fit is crucial area in

the clothing and textile area, fit attribute was proposed to measure clothing comfort to address the physical attributes. Thermal comfort related to a physiological response to the environment and was considered because wheelchair users need to reduce heat stroke possibilities during sport play. In the person attribute, self-concept was measured to identify comfort of persons in the psychological dimension. As self-concept “includes all relevant abilities, activities, qualities, orals, values, roles, and responsibilities” (Horn, 2008, p.51), self-concept with regard to sportswear for wheelchair user needs was measured for the psychological comfort. Since the aesthetic attribute is essential for clothing, a literature review was undertaken and measured for psychological comfort for the types of clothing. The occasion/ situation of wear attribute was addressed as an environment attribute within the social-psychological dimension in the Comfort model as proposed by Branson and Sweeney (1991) due to the required framework for the development of sportswear for wheelchair users.

The new design framework

The design framework for sportswear development for wheelchair users was integrated CCM into MCSN, and this study is to show a suggested design framework for determine the physical condition of users and their personal characteristics and also assess needs wheelchair users have for specific clothing comfort. The suggested design framework is displayed in Figure 1 below.

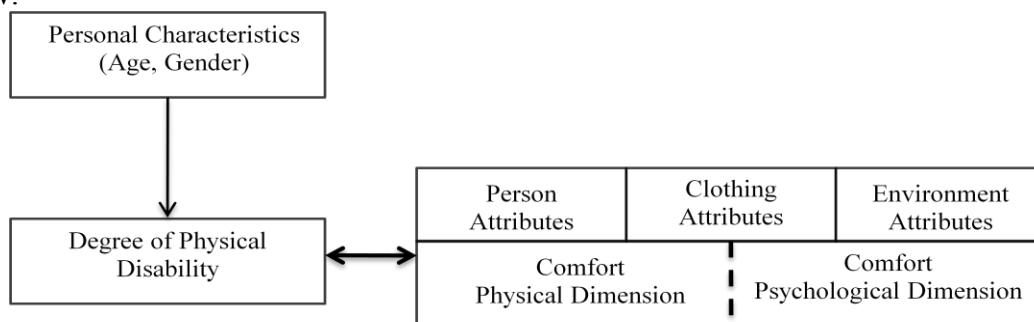


Figure 1. *The proposed clothing comfort model for people with a physical disability*

This study provides clear strategies for identifying the comfort aspect when designing sportswear for wheelchair users and does so by offering a new conceptual model. This new model approaches the unique phenomena by examining personal characteristics and the degree of physical ability and then developing useful guidelines for both best comfort and appropriate design dimensions for clothing for wheelchair users.

Reference

- Branson, D.H., & Sweeney, M. (1991). Conceptualization and measurement of clothing comfort: Toward a meththeory. In S. B. Kaiser & M. L. Damhorst (Eds.), *Critical Linkages in textiles and clothing subject matter: Theory, method and practice* (pp.94-105).
- Feather, B.L. (1991). Clothing for people with special needs: A proposed model to examine personal dimensions, clothing selection processes, and personal self-acceptance. In S. B. Kaiser & M. L. Damhorst (Eds.), *Critical linkages in textiles and clothing subject matter: Theory, method and practice* (pp. 116-124). Monument, CO: International Textile and Apparel Association.
- Horn, T.S. (2008). *Advances in sport psychology*. Human Kinetics Publishers.