Journal of Fiber Bioengineering and Informatics 15:4 (2022) 303–318

Cite as: M. Fu et al.
doi:10.3993/jfbim03581

A Review of Universal Fashion ⋆

Meng-Qi Fu [a], Li-Min Shi [b,*], Xiao-Chun Wang [a,c], Jing Guo [b]

[a] *School of Material Design and Engineering, Beijing Institute of Fashion Technology, No.2 Yinghua Road Chaoyang District, 100029, China*

[b] *School of Fashion Art and Engineering, Beijing Institute of Fashion Technology, No.2 Yinghua Road Chaoyang District, Beijing, 100029, China*

[c] *National Innovation Center of Advanced Dyeing and Finishing Technology, Tai' an, Shandong 271000, P.R. China*

Abstract

This paper summarizes universal fashion for the physically disabled, visually disabled, mentally disabled and the elderly. From both physical and psychological needs, it focuses on clothing materials, clothing structure and smart wearable devices. Through this review, it is concluded that there are two distinctive features of the research on universal fashion. The first is the uneven focus on different universal groups. The largest research has been done on universal fashion for people with physical disabilities and it is the most mature. There are fewer studies on universal fashion for people with mental disabilities, and there are large research gaps. Secondly, the focus on universal fashion for the same group of people is also uneven. There is more research on clothing patterns than on clothing materials, but the development and application of clothing materials are more important, and there are still gaps in this part. Research on universal fashion for children with autism has not focused on the urgent need to address the problem of getting lost, so the author has designed an anti-wandering vest for children with autism, and it is worthwhile to continue to study this part in depth in the future. The future direction of research into universal fashion can be divided into two areas. On the one hand, there is the strengthening of new materials (including clothing fabrics and smart fibers) for universal people. On the other hand is the rational transfer of research methods from established disciplines to universal fashion research, relying on new technologies and interdisciplinary exchanges.

Keywords: Universal Fashion; Disability; Functional Design; Smart Garment

⋆Project supported by National Key R&D Program of China: Construction and demonstration of accessible, convenient and intelligent life service system (No. 2019YFF0303300) Subject IV: Universal apparel and accessories research and practice based on body and sporting features of disabled people (No. 2019YFF0303304). ZJ2021A09 program funded by National Innovation Center of Advanced Dyeing and Finishing Technology

*Corresponding author.
Email address: fzyslm@bift.edu.cn (Li-Min Shi).

Dec. 2022

1 Introduction

Beginning in 1974, the concept of barrier-free design was put forward by the United Nations organization. The barrier-free design was primarily designed for the disabled, to reduce inconvenience in their daily lives. Disability is defined by the WHO as a state of inconvenience caused by the influence of personal and environmental factors [1]. In the International Classification of Impairment, Disability and Handicaps published by WHO in 1980, disability is divided into three types: impairment, disability and handicap [2]. Initially, this barrier-free design was reflected in the urban building and traffic system (such as the blind path laid out for the visually impaired on the pedestrian path). Today, barrier-free design involves not only the physical aspect but also the psychological aspect. The barrier-free design has further evolved into a "universal design" that is available globally and is widely used [3]. Universal design also extends from disabled people to universal people, including disabled people, elderly people, pregnant women and children. Table 1 summarizes the definitions and characteristics of some universal people [4-6]. According to WHO, about 1 billion people currently suffer from disabilities, as shown in Fig. 1. This number is still growing due to demographic changes [7]. In addition, the world's population is rapidly aging [8]. It is believed that universal groups are the largest minority groups in the world, resulting in the dire need to provide more attention and care to these groups.

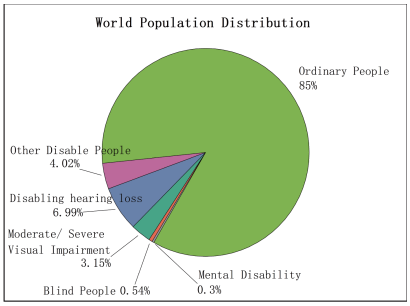

Fig. 1: World population distribution

Universal design is primarily reflected in various other fields but has been less evident in the clothing industry. The research on universal fashion is also based on social progress regarding the acceptance and inclusivity of people with disabilities. At present, universal fashion is in a growing state of development worldwide, and the research on universal fashion in foreign countries is relatively more progressive as it began much earlier. Moreover, some foreign clothing brands such as Tommy Adaptive and Able2 Wear sell clothes for the disabled. There is currently no special clothing brand in China that sells clothes for the disabled. Compared with foreign countries, the research on universal fashion in China started relatively late, but there has been an increase in research conducted by local institutions and scholars. In China, the large populations of universal groups have led to a high research value being placed on their universal fashion. Despite its rapid development, there is currently no uniform definition of universal fashion. In my opinion, it enables more people to wear barrier-free clothing (that is, to eliminate the obstacles presented to different universal groups in wearing clothing), makes it convenient to put on and take off clothing, and achieves the standard of beauty and fashion through tailoring and modifying defects. In addition through the inclusion of some smart wearable devices, universal fashion can play a part in monitoring and preventing injuries. In addition to the lack of uniformity in the definition of universal fashion, many areas still require further research within this field. In general, the current research is still very new and there is an imbalance of focus on different universal groups.