Cross-cultural comparative analysis of functional, expressive, and aesthetic (FEA) apparel design elements in successful crowdfunding fashion project: a text-mining approach

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Introduction

Crowdfunding is the practice of funding a new project by soliciting small- to medium-sized investments from a large number of people (Burthch et al., 2013). Unlike traditional online platforms, crowdfunding allows consumers to actively engage in the product design and development process, establishing trust through institutional mechanisms (Greiner & Wang, 2010). Consumers in crowdfunding become prosumers, acting as both consumers and producers, as they directly invest in entrepreneurs or companies with innovative ideas and share information. The unique characteristic of crowdfunding fosters interaction between creators and consumers across diverse nations, supporting collaborative fashion product. Previous research has analyzed the functional, expressive, and aesthetic (FEA) differences in apparel design within the cultural context of crowdfunding fashion products (An et al., 2022). However, the research was limited as it relied on qualitative analysis using small case studies. To address this limitation and examine various design elements for crowdfunding fashion products, we extend the study by applying text-mining methods to analyze a large number of crowdfunding fashion products. The purpose of this study was to examine the functional, expressive, and aesthetic apparel design elements that contribute in successful fashion projects on the reward-based crowdfunding in South Korea and the United States. The researchers address the gap in the literature regarding fashion crowdfunding products in the cultural context by applying the Lamb & Kallal (1992)'s FEA consumer needs model and identifying design elements that contribute to apparel project success.

Literature review

Fashion projects in reward-based crowdfunding

Crowdfunding is a service ecosystem where fashion products are collaborated to raise funds for a venture or project. In crowdfunding fashion projects, creators or entrepreneurs actively participate in the design process with the consumers to develop the products. Previous studies have shown that fashion consumers in such projects primarily support the early stages of design conceptualization and sample production, indicating their appreciation for fashion products with higher complexity and craftsmanship (Dalla Chiesa et al., 2022; Dey et al., 2017).

FEA consumer needs model in apparel design

The FEA consumer needs model is a comprehensive conceptual framework for apparel design (Lamb & Kallal, 1992). This model is categorized with the functional, expressive, and aesthetic criteria of apparel products. Additionally, it emphasizes the role of culture in shaping the design requirements within the

context of target consumers. Fashion-oriented designers evaluate, define, and understand the functional, expressive, and aesthetic design elements, enabling them to determine apparel designs that are relevant to customers. Recently, the FEA consumer needs model has been widely employed in fashion studies to analyze purchase intentions and develop apparel designs tailored to specific purposes (Orzada & Kallal, 2021). Thus, we applied the FEA consumer needs model to examine design elements of reward-based crowdfunding fashion products across different countries.

Methods

Text data on crowdfunding fashion projects were collected from Kickstarter, Indiegogo, Wadiz, and Tumblbug, which were the largest crowdfunding platforms in the United States and South Korea. Data was collected by crawling the web pages of fashion projects that had achieved a funding success rate of 100% or higher from May to August 2022. The dataset comprised a total of 13,469 projects. The collected data was then preprocessed using Python 3.9 program, which involved stopword removal and integrating similar words. An intercoder reliability analysis was conducted by two coders to ensure consistency in the coding frame and unit of code for vocabulary with a frequency in the top 2% or higher. Through this analysis, design elements representing the functional, expressive, and aesthetic aspects of fashion products were extracted. Subsequently, an analysis of the co-occurrence index between the three most frequent fashion items and ten associated design elements related to the functional, expressive, and aesthetic aspects was conducted. Additionally, a comparison of cross-national differences was performed between South Korea and the United States.

Findings and discussion

The analysis findings can be summarized as follows: First, successful crowdfunding fashion products in both the United States and South Korea commonly featured high frequencies of shirt, jacket, and dress items. Second, in terms of the frequency of vocabulary analysis in general, 'fabric' and 'size' were observed with the highest frequency in the United States, while 'size' and 'color' were prominent in South Korea. However, according to the co-occurrence analysis results for each item, the priority of the design elements was found to vary across different items. Third, the comparison of the FEA consumer model for each item, it was observed that the United States emphasized functional design, while South Korea focused on aesthetic design. Particularly, successful crowdfunding projects for jackets showed a high emphasis on functional design (48.2%), with focusing on design elements related to pockets, size, fit, and comfort. Conversely, there was a predominant emphasis on aesthetic design (41.6%) related to fabric, color, and details for jackets in South Korea.

Conclusions and further research

This research is significant as it provides a detailed understanding of design elements in reward-based crowdfunding fashion products through text-mining methods and validates the use of the FEA consumer needs model as a theoretical framework. It specifically derived the effective design elements of shirt, jacket, and dress in the crowdfunding markets of the United States and South Korea. Furthermore, this study contributes by expanding the scope of the FEA consumer needs model to conduct a cross-cultural comparative analysis of apparel products, enhancing our understanding of cultural differences in the reward-based crowdfunding projects.

Funding

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