Sustainable Fashion Product Innovation

Subjects: Environmental Studies

Contributor: Xiaoxiao Zhou , Ryoga Miyauchi , Yuki Inoue

The term “sustainable fashion” has arisen as a broad concept; the working definition of sustainable fashion is: “The variety of means by which a fashion item or behavior could be perceived to be more sustainable, including (but not limited to) environmental, social, slow fashion, reuse, recycling, cruelty-free, anti-consumption, and production practices”.

fashion design innovation fashion product innovation platform markets

1. Introduction

In the constantly evolving fashion industry landscape, there has been a notable increase in the popularity of second-hand clothing, as indicated by the expansion of second-hand product-trading platforms and the emergence of novel second-hand retail formats [1]. While the recent expansion of second-hand product trading platforms may counter fashion companies’ interests, they offer a means for individuals to sell used goods and purchase new ones. Consequently, they expand the overall market and enhance producers’ profitability [2]. Additionally, if a fashion product has continuous value, it becomes accessible through second-hand product trading platforms to individuals who could previously not afford the brand’s clothing. This outcome is advantageous for the company, as it cultivates potential customers. Therefore, the continuous value should be considered when innovating a product.

Additionally, the fashion industry’s short-term, institutional, and seasonal changes have made it one of the industries with the greatest environmental impacts [3]. Considerable research has been devoted to sustainable fashion to mitigate the environmental degradation the fashion industry causes. Researchers encompassed a wide range of efforts, including exploring sustainable business models, advancing novel technologies, conceiving and utilizing fresh materials, and moving towards a circular supply chain [4][5][6][7]. However, only a few studies have considered the design elements themselves when promoting sustainable development in the fashion industry. Hur and Cassidy (2019) [8] highlighted the challenges of incorporating sustainability into the fashion design process. These challenges include a lack of consensus and knowledge regarding sustainable design, and a lack of design-led approaches to implementing sustainability in fashion. Sustainability in the fashion industry has been studied from many aspects, such as slow fashion and recycling of fashion products [4][5]; no research has investigated the elements of product design that can promote sustainability in the fashion industry, and the research aims to fill this gap.

Buying second-hand or used clothes is one of the most sustainable techniques for using clothing [9]. Fashion products with continuous value can be resold on second-hand product trading platforms, thus promoting sustainable fashion practices. Design-led approaches for helping the fashion industry achieve sustainability are lacking. Therefore, Researchers focus on second-hand product trading platforms, highlights the effects of design elements on the continuation of product value, and raises the following research question:

RQ: How do various design elements contribute to the continuation of fashion product value?

Researchers focused on coats to eliminate any bias that might arise from comparing different clothing categories. Coats are an ideal subject for the research, as they are less likely to be damaged or become dirty and circulate more easily on second-hand product trading platforms. Thus, it should be mentioned that the results were derived from observations of a single clothing category. Researchers explore the impact of product design on continuous value based on five elements (classical, transformative, patterned, multimaterial, and decorative [10]), using data from a second-hand product-trading platform. Additionally, the critical element in measuring the value of a product is the customer's perceived value, which is reflected in the amount they are willing to pay [11]. To evaluate the continuous value of a product, the winning-bid price on second-hand product trading platforms was used as the dependent variable.

2. Sustainable Fashion and Product Innovation

Previous studies on sustainable product innovation have focused on various aspects, such as material choice, production methods, and business strategies [4][5][6][7][12][13]. These investigations aimed to minimize environmental impacts by considering the entire product life cycle while improving product quality and design. However, Karell and Niinimäki (2020) [14] highlighted that a company's sustainable design practices primarily focus on material selection and aspects that support product longevity. Hur and Cassidy (2019) [8] emphasized the difficulties in integrating sustainability into fashion design, including an absence of consensus and knowledge concerning sustainable design and insufficient use of design-led strategies for sustainability in the fashion industry. The design elements of sustainable fashion product innovation, such as innovation and design practicality, can also improve product quality and value [8]. However, the specific design elements contributing to sustainable fashion product innovation are poorly understood. Consequently, researchers posited that integrating product design elements into the innovation process promotes sustainable fashion.

3. Consumer-Perceived Value and Value Continuation

There are several types of value, including economic, social, and hedonic [15]. No matter what kind of value, it is important for consumers to be able to perceive the value, which researchers call perceived value. Consumer-perceived value is a critical factor in determining the value of a product. It reflects the customer's assessment of the product's overall worth and is determined by various factors, including its quality, features, price, and reputation. For consumers, perceived value determines the amount of money they are willing to pay [11]. Thus, perceived value plays a crucial role in gaining a competitive advantage and influencing customer repurchase intention [11].

However, consumer loyalty is dynamic and strongly influenced by consumers' emotional attitudes over time [16]. The continuation of product value and perceived loyalty align [17]. Ongoing customer relationships are also related to the continuation of product value [18]. Perceived value continuation is expected to help to maintain a fashion company's sustainable business performance. Continuous value refers to the ability of a product to maintain its value over time. Consumers play a crucial role in the continuation of value as they provide feedback on the performance, functionality, and overall experience of the product. Perceived value is crucial for gaining competitive advantage [11] and is considered the most critical indicator of repurchase intention [19][20]. For this reason, it is important for fashion companies to ensure that their products have perceived value for their customers.

4. Design Elements and Value Continuation

The term "design" is defined in three dimensions: function, aesthetics, and symbolism [21][22]. Consistent with these aspects, product design positively affects consumers' willingness to buy [21][22].

Function is a key feature and is considered a success factor for product value [23]. This enables consumer engagement and stimulates dialogue among consumers [23]. Additionally, aesthetics play a crucial role in satisfying consumers, as they appreciate designers who demonstrate creativity and a willingness to challenge design norms [24]. Various studies have evaluated the importance of aesthetics [23][25][26][27]. However, symbolic design dimensions have received little attention [21]. Nevertheless, emphasizing aesthetics and functionality in highly competitive markets and providing consumers [21] with symbolism are important because they influence consumer behavior [21][28]. Successful companies maintain high innovation while providing cutting-edge product designs [29][30]. Product design innovation contributes to consumers' willingness to buy and to the product value. This aspect should be considered when designing fashion products. Understanding the appropriate use of design elements is indispensable for successful innovation in the fashion industry. The importance of design elements as creative elements is increasingly recognized [10][31]. Companies and brands motivate consumers by proposing visual designs that distinguish them from their competitors [31]. Product design is key between products and consumers and influences consumers' final product choices [30][31][32].

However, previous studies have not sufficiently investigated how product design elements influence continuation of product value. Researchers selected elements that have an impact on continuation of product value based on prior research [10]: (1) classic design elements as product functions; (2) transformative, (3) patterned, and (4) multimaterial design elements as aesthetic product points; and (5) decorative design elements as product symbols. Researchers explored the contribution of these five elements to the continuation of fashion product value.

References

1. Strähle, J.; Klatt, L.M. The secondhand market for fashion products. In Green Fashion Retail; Strähle, J., Ed.; Springer: Berlin/Heidelberg, Germany, 2017; pp. 119–134.
2. Nie, P.Y.; Wang, C.; Wen, H.X.; Cui, T. Durable goods with secondary markets. J. Appl. Econ. 2021, 24, 577–591.
3. The State of Fashion. Business of Fashion and McKinsey & Company. 2017. Available online: https://www.mckinsey.com/~/media/McKinsey/Industries/Retail/Our%20Insights/The%20state%20of%20fashion/The state-of-fashion-2017-McK-BoF-report.pdf (accessed on 10 September 2022).
4. Thorisdottir, T.S.; Johannsdottir, L. Sustainability within fashion business models: A systematic literature review. Sustainability 2019, 11, 2233.
5. Todeschini, B.V.; Cortimiglia, M.N.; Callegaro-de-Menezes, D.; Ghezzi, A. Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers, opportunities, and challenges. Bus. Horiz. 2017, 60, 759–770.
6. Pandit, P.; Nadathur, G.T.; Jose, S. Upcycled and low-cost sustainable business for value-added textiles and fashion. In Circular Economy in Textiles and Apparel; Woodhead Publishing: Sawston, UK, 2019; pp. 95–122.
7. Jia, F.; Yin, S.; Chen, L.; Chen, X. The circular economy in the textile and apparel industry: A systematic literature review. J. Clean. Prod. 2020, 259, 120728.
8. Hur, E.; Cassidy, T. Perceptions and attitudes towards sustainable fashion design: Challenges and opportunities for implementing sustainability in fashion. Int. J. Fash. Des. Technol. Educ. 2019, 24, 163–

169.

9. Shrivastava, A.; Jain, G.; Kamble, S.S.; Belhadi, A. Sustainability through online renting clothing: Circular fashion fueled by Instagram micro-celebrities. J. Clean. Prod. 2021, 278, 123772.
10. Miyauchi, R.; Zhou, X.; Inoue, Y. Design elements that increase the willingness to pay for denim fabric products. Textiles 2023, 3, 11–25.
11. Parasuraman, A. Reflections on gaining competitive advantage through customer value. J. Acad. Mark. Sci. 1997, 25, 154–161.
12. Gasparin, M.; Green, W.; Schinckus, C. Slow design–driven innovation: A response to our future in the Anthropocene epoch. Creat. Innov. Manag. 2020, 29, 551–565.
13. Niinimäki, K. Ethical foundations in sustainable fashion. Text. Cloth. Sustain. 2015, 1, 3.
14. Karell, E.; Niinimäki, K. A mixed-method study of design practices and designers' roles in sustainable-minded clothing companies. Sustainability 2020, 12, 4680.
15. Papista, E.; Krystallis, A. Investigating the types of value and cost of green brands: Proposition of a conceptual framework. J. Bus. Ethics 2013, 115, 75–92.
16. Johnson, M.D.; Andreas, H.; Frank, H. The evolution of loyalty intentions. J. Mark. 2006, 70, 122–132.
17. Coelho, F.J.; Fillip, M.C.; Arnaldo, C.M.F. Functional brand qualities and perceived value: The mediating role of brand experience and brand personality. Psychol. Mark. 2019, 37, 41–55.
18. Bendapudi, N.; Leonard, B.L. Customers' motivations for maintaining relationships with service providers. J. Retail. 1997, 73, 15–37.
19. Holbrook, M.B. Consumption experience, customer value, and subjective personal introspection: An illustrative photographic essay. J. Bus. Res. 2006, 59, 714–725.
20. Parasuraman, A.; Grewal, D. The impact of technology on the quality-value-loyalty chain: A research agenda. J. Acad. Mark. Sci. 2000, 28, 168–174.
21. Candi, M.; Jae, H.; Makarem, S.; Mohan, M. Consumer responses to functional, aesthetic and symbolic product design in online reviews. J. Bus. Res. 2017, 81, 31–39.
22. Homburg, C.; Martin, S.; Christina, K. New product design: Concept, measurement, and consequences. J. Mark. 2015, 79, 41–56.
23. Han, J.; Forbes, H.; Schaefer, D. An exploration of how creativity, function, and aesthetics are related in design. Res. Eng. Des. 2021, 32, 289–307.
24. Lavie, T.; Tractinsky, N. Assessing dimensions of perceived visual aesthetics of web sites. Int. J. Hum.-Comput. Stud. 2004, 60, 269–298.
25. Sigurdsson, K.; Candi, M. Saying and doing: Social responsibility declared and applied. Creat. Innov. Manag. 2020, 29, 128–140.
26. Cropley, D.H.; Kaufman, J.C. The siren song of aesthetics? Domain differences and creativity in engineering and design. Proc. Inst. Mech. Eng. Part C J. Mech. Eng. Sci. 2019, 233, 451–464.

27. Holbrook, M.B.; Hirschman, E.C. The experiential aspects of consumption: Consumer fantasies, feelings, and fun. J. Consum. Res. 1982, 9, 132–140.
28. Connor-Crabb, A.; Miller, K.; Chapman, J. Design strategies for the eternal reoccurrence of the new. Fash. Pract. 2016, 8, 22–43.
29. Candi, M. The role of design in the development of technology–based services. Des. Stud. 2007, 28, 559–583.
30. Moon, H.; Miller, D.R.; Kim, S.H. Product design innovation and customer value: Cross-cultural research in the United States and Korea. J. Prod. Innov. Manag. 2013, 30, 31–43.
31. Micheli, P.; Gemser, G. Signaling strategies for innovative design: A study on design tradition and expert attention. J. Prod. Innov. Manag. 2016, 33, 613–627.
32. Rubera, G.; Cornelia, D. Technology versus design innovation's effects on sales and Tobin's Q: The moderating role of branding strategy. J. Prod. Innov. Manag. 2013, 30, 448–464.