

The designer's role in fashion system transitions: A critical review of transition design

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Based on the literature review, this paper discusses the role of designers in organizing designs that intervene and facilitate transitions in the fashion system. Four interventions are identified from the literature review concerning agents of practice and design objects that have been unclear in system transitions. The four categories are multi-stakeholder collaboration (1), design futures (2), sustainable strategies and digital technologies (3), and fashion design (4). The discussion focuses on designers in Multi-stakeholder collaboration and Designing products for fashion design. The roles and design actions of designers who intervene from outside the system and designers who are agents of change within the system reveal that the space and time for design activity and experience are expanding. Finally, this paper makes recommendations regarding the role of designers in the transition of the fashion system. More research is needed to design projects and analyze their long-term outcomes. Place-based design and the design of consumer-inclusive experiences are needed to develop models that challenge the fashion system paradigm.

Keywords: *sustainable fashion; transition design; designer's role; fashion system*

1 Introduction

The globalization of the fashion and textile industry has negative environmental and social impacts at every stage of the garment life cycle. Various environmental damages occur along the value chain, including high levels of water pollution, synthetic fiber production, petroleum-based global transportation networks, low levels of recycling, landfill and clothing incineration, and waste generation. The industry has developed several sustainability initiatives, generally focusing on production-related issues such as material selection, traceability, and recycling (Twigger Holroyd & Aspinall, 2022), but in the early 2000s garment production doubled, and garment wear has declined significantly. In addition, the number of times each garment is worn has declined substantially (Ellen MacArthur Foundation, 2021). Many social and environmental problems are associated with this system, most of which are inherent and related to the culture and paradigm in which it is applied. To



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turn away from an unsustainable fashion system, innovation must come from the depths of its culture and worldview (Whitty, 2021b).

1.1 Design for sustainability

From an industrial and technological perspective, design has been examined concerning the transition to a circular economy; Design for Sustainability (DfS) offers conceptual and strategic guidance. Additionally, they correspond to strategic factors influencing the emergence of radical innovations in the system (Odabasi et al., 2022). This field is partially influenced by systems innovation and transition theory and aims to address the contemporary urgency for substantive action and systemic change (Gaziulusoy & Erdoğan Öztekin, 2019). At a higher level, design is expressed at the socio-technical level. It is called Design for Sustainability Transitions (DfST) and focuses on transforming socio-technical systems through technological, social, organizational, and institutional innovations (Gaziulusoy & Erdoğan Öztekin, 2019). New values, technologies, and social practices are identified and conceptualized for sustainable socio-technical systems, and democratic deliberations on transition pathways and alternative futures are supported (Gaziulusoy & Erdoğan Öztekin, 2019). Socio-technical transitions can be defined as reflexive processes that require codesigning cyclical and iterative experimental phases (Odabasi et al., 2022).

1.2 Fashion design for sustainability

In the field of fashion, there are multiple definitions of sustainability, requiring a multifaceted and comprehensive perspective. The concept of eco-fashion refers to the use of recycled materials, nonfiber materials, and reused garments (Carey & Cervellon, 2014), and ethical fashion refers to incorporating fair trade principles into clothing, such as using biodegradable cotton or organic cotton, and maintaining safe working conditions (Dhir, 2022). Slow fashion criticizes fast fashion's speed and short-lived practical and emotional durability. It aims to create long-life products with a transparent and ethical production system using organic and recycled materials that consider local resources (Clark, 2008). Based on circular economy and sustainability principles, circular fashion refers to fashion that occurs in cycles. The clothing and its materials are designed to circulate, and at the end of their lives, they are recycled into new raw materials, which are then recirculated back into the economy (Haeggbloom & Budde, 2021). In sustainable fashion, ecological integrity, social quality, and human flourishing are incorporated into products, actions, relationships, and use practices (Fletcher, 2013). While there is overlap between these concepts, the implications of each are different. In addition to designing products with reduced environmental impact, sustainability in fashion considers aspects such as economic, environmental, and social aspects throughout the lifecycle.

Fashion needs to shift from linear to circular systems. The purpose of design for circulation is to ensure clothing circulates at its highest worth. Designers need to take into account the systems surrounding these products and recycle and reclamation resources that are the raw materials of the products, so as to create aesthetically pleasing products (Haeggbloom & Budde, 2021). There is also a long supply chain in fashion. To transition to a recycling-oriented system, information must be transparent and shared. There is a need to redesign the entire supply chain to facilitate connections between all stakeholders (Haeggbloom & Budde, 2021). Although there is a growing momentum toward a circular fashion system, there are studies that critique the paradigm from which the fashion system problems were created and search for alternative systems. A decolonial frame is used to examine the fashion system to examine the structural causes of dominance behind its rationality and reason (Kate Fletcher,

2019; Whitty, 2021b). Earth Logic is an action research plan to promote sustainable change (Kate Fletcher, 2019). Fashion has been rethought outside the logic of economic growth here. The system values "Multiple centres," "Interdependency," "Diverse ways of knowing," "Co-creation," "Grounded imagination," "Care for the world," and "Care for the self," and aims to restructure the industry from the accumulation of physical goods to care and maintenance through six policies in the Earth Logic.

1.3 Transition design for fashion system change

Toward the transition of the fashion system, prior research discussed the role of different organizational components such as designers, retailers, luxury brands, fashion associations, and consumers in the transformation to a more sustainable society (Ertekin & Atik, 2020). Sustainable fashion entrepreneurs were targeted, and based on social practice theory, factors that slow the transition to a sustainable fashion system were identified (Heinze, 2020). As a basis for data collection, Irwin's (2019) transition design framework has been customized for various methods, including practice-driven, practice-based, and action research, depending on the research context. The framework facilitates the understanding of interrelated issues and the nested, complementary interventions that must be implemented (Coward & Maione, 2022). According to Rissanen (2021), transition design is practice-based and practice-driven and considers the natural environment as the context for all design decisions, and lifestyle-driven and place-based. In systems transitions, design plays a vital role in supporting the process of defining an environmentally and socio-ethically sustainable system innovation concept (Buchel et al., 2022). The Transition Design Projects are developing DfST methods and tools to fundamentally rethink institutional models, redesign sociotechnical systems, and rebuild socio-ecological relationships (Gaziulusoy & Erdoğan Öztekin, 2019). Blanco (2022) focused on enabling sustainable fashion industry transformation through an undervalued cultural transformation. In fashion system transitions, circular design principles focus on what to design and have a limited understanding of the design process, such as how to design practices and make them work. It has also been noted that the design process's social, cultural, and relational aspects that drive circular strategies are not emphasized (Zaplata et al., 2022). To respond to these challenges, this paper aims to organize designs that intervene in the fashion system and facilitate the transition, deepen our understanding of the design process, and identify designers' role in becoming agents of change. It also contributes to the design literature for fashion system transitions by focusing on the role of new designers in facilitating fashion system transitions and providing perspectives and design objects for sustainable fashion systems.

2 Methodology

The literature search was narrowed using "sustainable fashion" and "transitions design" as search terms; papers published before February 2020-2023 were included in the review. The literature search identified 35 relevant papers (Including Springer, Google Scholar, ProQuest, Taylor and Francis, JSTOR, Scopus duplicate, and Web of Science). From these publications, 21 papers were selected based on two criteria: (a) those written from a design perspective and (b) those dealing with fashion system transformation methods and system innovation in sustainable fashion. Some of the identified studies were aimed at socio-technical innovations and policy. Other studies focused on the study's design and the designer's role rather than focusing explicitly on socio-technical innovations and policy

implications. However, the implicit impact expected for the fashion system is on global supply chains and policy.

2.1 Analysis results

Table 1 provides an overview of fashion system interventions found in the literature, which are grouped into four categories from a design perspective. Ceschin and Gaziulusoy (2019) organizes DfS studies across the hierarchy at the level of Product, Product-Service System, Spatio-Social, and SocioTechnical System. Although not an exact match, we used these perspectives to organize the collected literature. The four categories are multi-stakeholder collaboration (1), design futures (2), sustainable strategies and digital technologies (3), and fashion design (4). In the table, these are presented in the form of designs and interventions that facilitate fashion system transitions. For example, both (1) and (2) involve the creation of visions and future scenarios to facilitate system transitions in projects and initiatives. The former is based on collaborative practices in fashion production, while the latter is based on consumer participation. Since (2) is more focused on the creation of visions and future scenarios than (1), we treat them as separate categories. A brief description in the second row of Table 1 reveals the main characteristics of the intervention methods.

Table 1. Fashion system transition intervention methods from a design perspective

Intervention methods	Multi-stakeholder collaboration	Design Futures	Sustainable Strategies and Digital Technologies	Designing products for fashion design
Description	Co-design for circular value chain transition The conceptual model for reconnecting fashion systems Upcycling to intervene in traditional production and consumption circuits	Bridges the experiential divide between abstract concepts and the real world. By designing, creating, and acting on shared objects and stories of the future, it encourages people to get involved.	Integration of digital technologies and sustainable strategies for the transition to a circular economy Designing zero-waste garments and weaving systems.	The role of the textile designer in influencing production and consumption Fashion designers' role in learning from traditional crafts and producing local products Sustainability education for designers
Sources	(Montefalcone, 2021) (Vinlove, 2021) (Zaplata et al., 2022) (Vinlove, 2022)	(Rissanen, 2021) (Coward & Maione, 2022) (Twigger Holroyd & Aspinall, 2022)	(McQuillan, 2020) (Diandra Haupt, 2021) (Culén & Srivastava, 2021) (D. Haupt, 2022)	(Kane et al., 2020) (Lerpiniere, 2020) (Novoa, 2021) (Schreiber & Bota Moisin, 2021) (Whitty, 2021a) (Whitty, 2021b) (Micklethwaite, 2022)

Concerning the role of the designer, (1) discussed mainly those that promote collaborative practices in production. (2) included extending and sharing future designs with consumers. Both can be seen as design acts of designers intervening in the existing fashion system. As shown in the table, (4) is the method that appears most frequently in the literature. This one is a study of the practice acts of designers of fashion products, and the discussion ranges from extensions of existing designers to new roles. This paper discusses designers who facilitate fashion system transitions. The methods of

intervention in the system organized in the literature review reveal two points: the role of designers who intervene in the fashion system and a review of the current role of designers. The next chapter focuses on the designer's role in working with multi-stakeholders (1), and finally the designer's role in fashion design (4). Although there are overlapping areas, (1) focuses on the role of designers who intervene in the fashion system, while (4) focuses on a review of the current role of designers.

3 Multi-stakeholder collaboration

In the transition towards a circular fashion and textile system, there is an increased awareness of the importance of interdisciplinary collaboration and co-creation (Montefalcone, 2021; Vinlove, 2021, 2022; Whitty, 2021a, 2021b; Zaplata et al., 2022). The transition design framework combines multiple methodologies, including practice-driven, practice-based, and action research, to develop a comprehensive understanding of the problem and formulate interventions considering multiple levels of opportunity. According to McQuillan (2020), the research design consisted of three phases: creating a vision for the future, designing an intervention, and waiting and watching. This was to shift away from a fast, linear process of predicting definitive outcomes. Tools and approaches have been developed to support research projects, including systems mapping (Montefalcone, 2021), social design pathways (Vinlove, 2021, 2022), and design anthropology approaches (Thiel & Ellams, 2021). These have been implemented in the production process of fashion. It has been pointed out that in order to unravel the network and intervene at leverage points, designers need to work in a collaborative and participatory manner with specialists and experts from other fields (Vinlove, 2021). For example, Freya et al. (2022) proposed co-design to create stakeholder communication and collective learning experiences. It was argued that stakeholders from different disciplines need a common language for the design and production processes to open up to all stakeholders in the value chain and for effective collaboration. There was a discussion regarding the importance of design in creating physical and relational proximity among stakeholders. Vinlove et al. (2021, 2022) proposed a participatory or collaborative design that intervenes in the functioning of traditional production and consumption circuits. They create a collective of fashion and clothing designers who work on upcycling methodologies that repair and reuse garments and textiles discarded by fast fashion, working with consumers to make them part of the creation and design process. To this end, designers are expected to intervene as change agents who perceive the interests of all participants in the system and collaborate with them to focus on common goals for the socio-technical change that transition design seeks to achieve. Designs that facilitate transition need to include co-design among supply chains and participatory designs that include consumers. Others have pointed to the potential for existing designers to play a role in this process. Graphic designers are described as being able to educate stakeholders within brands and participate in circular circuits that influence the relationship between consumers and fashion. The focus is also on the workers responsible for cutting and sewing garments (Vinlove, 2021). Other roles and ways in which service designers can facilitate the transition are also discussed (Montefalcone, 2021). Further research is required on how different stakeholders can collectively work toward such a transition and who will be responsible for it in the context of fashion and textiles.

4 Designing products for fashion design

Clothing is generally not designed in the macro context of limited natural resources and the air and water pollution that clothing causes, and the designer's scope of responsibility ends at the point of consumer purchase (Whitty, 2021a). While sustainable practices are increasingly prevalent in fashion and garment design, more than interventions that focus solely on improving garment production processes are needed to create a paradigm shift (Vinlove, 2021). Compared to designers in other fields, fashion designers lack the ability to engage in strategic thinking, question existing solutions, and understand and solve complex problems (Whitty, 2021a). On the other hand, discussed in the context of textile designers' role in product innovation in the industry, designers' existing knowledge and skills are important. In the context of the textile designer's role in the industry's product innovation, the designer's existing knowledge and skills influence consumers' everyday experiences with washing, care, and repair (Lerpiniere, 2020; Novoa, 2021). Furthermore, designers' interpretive, aesthetic, and developmental skills can not only change the sense of identity but also strengthen social relations such as affiliation and loyalty to the brand (Kane et al., 2020; Vinlove, 2021). Fashion textile designers can catalyze the socio-technical changes necessary to move toward a vision of a sustainable future by leveraging their specific skills, collaborating with teams from other disciplines, and incorporating the expertise of different social groups at different scales (Vinlove, 2021). Nevertheless, there are challenges to designing processes based on circular design principles due to the dispersion of value chains around the world and considerable differences in the way designers and their technical partners approach such designs (Zaplata et al., 2022). Therefore, designers must coordinate with stakeholders and integrate aesthetics, technical aspects, and user needs into their designs (Whitty, 2021b; Zaplata et al., 2022). It also points to the need to think of fashion as a more complex, higher-order design in terms of interaction, experience, and systems, and to address usercentered methods by pursuing the usefulness, usability, and desirability of products and garments (Whitty, 2021b). The design object of fashion and textile designers as agents of change is expanding. We believe it is necessary to consider product interaction and experience from the perspective of the product's life cycle, including after purchase, and to integrate design and other partners' designs into the product.

4.1 Place-based design and traditional crafts

This study of place-based production and design proposes a design alternative for decolonization against the colonial paradigm (Schreiber & Bota Moisin, 2021). Place-based material making and traditional craftsmen, community-based production rooted in the local environment of traditional crafts integrates all human and non-human actors involved in the process. Additionally, it creates intangible relationships between producers, consumers, and secular society, builds cultural identity, and serves as a vehicle for transmitting memory through manual labor (Kane et al., 2020; Novoa, 2021). Novoa (2021) states that examining the production processes and values of artisanal producer communities can provide an alternative model for developing sustainable fashion practices. Despite the need for circular design practices that incorporate all aspects of the life cycle, the role of designers in the existing textile and fashion industry is limited. Besides in textiles and fashion, such design methods and practices have been implicitly undervalued and under-researched (Lerpiniere, 2020). Material production based on local resources and knowledge has a role to play in recognizing, valuing, and nurturing the coexistence of multiple worlds. Analyzing undervalued textile and fashion design knowledge and skills, place-based design, and traditional crafts designers can revolutionize existing design processes and facilitate fashion system transitions by rediscovering design practices.

5 Conclusion

This paper contributes to the design literature for fashion system transitions. Prior research has proposed design strategies, practices, and requirements for circular products, but it is unclear who and how designers should address them and what their role should be in facilitating system transitions. This paper discusses the role of designers as agents of change by organizing designs that facilitate transitions within the fashion system and intervene in the process. It helps designers in their practice by focusing on the new designer's role in facilitating fashion system transitions and by providing perspectives and design objects for sustainable fashion systems.

The literature review identified four categories of design practices for facilitating fashion system transitions. Participatory and collaborative approaches in multi-stakeholder collaborations were essential to address issues specific to the fashion industry, and the focus was on creating a common language and sense of proximity among all stakeholders. Clarifying the role and scope of the designer's intervention in the system will assist in putting this into practice. The design object of the product designer facilitating the transition also expanded from the product itself to the user's experience and the system. Studies on place-based design and traditional crafts suggest alternative production systems and contribute to an understanding of the social, cultural, and relational aspects missing in sustainable fashion. This paper presents a literature review with the keywords sustainable fashion and transition design. The literature on systemic design and systemic innovation, which is like the transition design of fashion systems, is not fully covered in this report. The design practices discussed in this paper do not have a clear time horizon in transition design, which assumes longterm outcomes. Further research needs to be conducted on the goals and design processes of fashion designers who aim to transition to a new fashion system in the short, medium, and long term. In addition, we believe that design future, the field of designing alternative life experiences that include consumers, is an essential research area for reconstructing the entire life cycle that does not separate production and consumption. Although this paper focused primarily on the production process, it is our belief that the design of future experiences that challenge the transformation of consumer values will be a key area of research in the future, as the fashion system involves the consumer as well as the design of consumer habits and experiences, which must also be taken into account.

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