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Fashion confronting unrelated sectors: the ideal model of manufacturing symbiosis between industrial systems

Maria Antonietta Sbordone

PhD, Università degli Studi della Campania Luigi Vanvitelli/ mariaantonietta.sbordone@unicampania.it
Orcid: 0000-0002-3780-6142

Bárbara Pizzicato

PhD, Università degli Studi della Campania Luigi Vanvitelli/ barbara.pizzicato@unicampania.it
Orcid: 0000-0001-8454-0191

Gianni Montagna

PhD Student, Universidade de Lisboa/ g.montagna@gmail.com
Orcid: 0000-0002-5843-2047

Sônia Seixas

PhD Student, Universidade de Lisboa/ sonia.seixas@gmail.com
Orcid: 0000-0002-9635-6321

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Fashion Confronting Unrelated Sectors: The Ideal Model of Manufacturing Symbiosis Between Industrial Systems

ABSTRACT

This study aims to reflect on a possible symbiosis between the fashion system and unrelated companies focused on reducing textile waste. Recent developments in the fashion system, in terms of the organizational network, highlight the importance of collaboration, or vice versa of competition enhancement mechanisms. The highly innovative and creative skills and tasks concentrate much of the value in the creation phase, characteristic of emerging sectors such as creative ones. The methodology will be carried out through a review of the reference literature, with a critical, constructive, and real analysis on strategies for the construction of this symbiosis. It is expected to contribute to a reflection on the development of collaboration and cooperation skills in an interdisciplinary, or even transdisciplinary approach, for the training and preparation of fashion design professionals, requiring a greater commitment from Academia in the creation of interactions and interrelationships with still very different disciplinary sectors.

Keywords: *Fashion system. Industrial systems. New skills.*

A Indústria da Moda Confrontando Setores Não Relacionados: O Modelo Ideal de Manufatura numa Simbiose entre Sistemas Industriais.

RESUMO

Este estudo tem como objetivo refletir sobre uma possível simbiose entre o sistema da moda e empresas não relacionadas com foco na redução de resíduos têxteis. Os recentes desenvolvimentos no sistema de moda, em termos da rede de valor organizacional ou difusa, destacam a importância da colaboração dos mecanismos de melhoria da concorrência. As competências altamente inovadoras e criativas concentram grande parte do valor na fase de criação, característica de setores emergentes como os criativos. A metodologia será realizada através de uma revisão da literatura de referência, com uma análise crítica, construtiva e real sobre estratégias para a construção desta simbiose. Espera-se contribuir para uma reflexão sobre o desenvolvimento de competências de colaboração e cooperação numa abordagem interdisciplinar, ou mesmo transdisciplinar, para a formação e preparação de profissionais de design de moda, exigindo um maior compromisso da academia na criação de interações e inter-relações com setores disciplinares ainda muito diferentes.

Palavras-chave: Sistema da moda. Sistemas industriais. Novas competências.

Enfoque basado en la capacidad. Reinventar relaciones viables de personas y materiales

RESUMEN

Este estudio tiene como objetivo reflexionar sobre una posible simbiosis entre el sistema de la moda y empresas ajenas centradas en la reducción del desperdicio textil. Los desarrollos recientes en el sistema de la moda, en términos de la red organizativa, resaltan la importancia de la colaboración, o viceversa, de los mecanismos de mejora de la competencia. Las habilidades y tareas altamente innovadoras y creativas concentran gran parte del valor en la fase de creación, característica de sectores emergentes como el creativo. La metodología se llevará a cabo mediante una revisión de la literatura de referencia, con un análisis crítico, constructivo y real de estrategias para la construcción de esta simbiosis. Se espera que contribuya a una reflexión sobre el desarrollo de habilidades de colaboración y cooperación en un enfoque interdisciplinario, o incluso transdisciplinario, para la formación y preparación de los profesionales del diseño de moda, requiriendo un mayor compromiso por parte de la Academia en la creación de interacciones e interrelaciones con todavía. sectores disciplinarios muy diferentes.

Palabras clave: *Sistema de moda. Sistemas industriales. Nuevas habilidades.*

1. INTRODUCTION

Recent developments in the fashion system, in terms of the organizational or diffused value network, highlight the importance of collaboration, or vice versa of competition enhancement mechanisms. The highly innovative and creative skills and tasks concentrate much of the value in the creation phase, characteristic of emerging sectors such as creative ones.

A new approach to value processes requires a common effort in understanding the turning point: the transition of value from the co-produced value (supply chains) to co-create value (value networks, constellations, corporate ecosystems), as reported and identified by E. Galateanu and S. Avasilcai (GALATEANU; AVASILCAI, 2015).

In this scenario, the evolution of the fashion system, as a creative industry, adopts adaptation as a strategy to respond to change; a reaction to the pressures internal and external to the system, after verifying the impact it has on the environment in terms of resource consumption, due to the dynamics of overconsumption, and the consequent production of waste (fashion waste) that ends up in landfills.

The intrinsic nature of fashion is characterized by fluctuations over time that reflect on consumption, influenced by cultural attitudes and social behaviour, subjected to variations caused by new needs, desires and the changing tastes of consumers, in a given period. This dynamic requires constantly updated forecasts and new cultural, social, and productive models to satisfy the changing tastes and desires of the markets.

Various platforms can accommodate the mutations of fashion, using co-creation as a tool for open innovation. The idea behind these platforms is to involve and empower people in the innovation process of creating fashion products.

The evolution of crowdsourcing and crowdfunding models lies in the realistic forecast of focusing on a model that transforms users into co-creators and allows them to play a strategic role within the fashion system. Role supporting the logic of the co-production binomial that is reflected in the dominant logic of the co-producers

(supply chain) but is preparing to introduce a logic pervaded by the principle of the co-value chain (FUAD-LUKE, 2009).

It is a question of establishing a new social paradigm or dominant logic, based: on the capacity for cooperation and networking of the creative-productive ecosystem of fashion; where the responsibility of the user communities is to feed on innovation coming from the wider cultural and social environment; to play a role of pressure on companies to obtain sustainable processes and production; behind the push of research and training for sustainable innovation; to adopt all the creativity available from the open processes that come from below to bring about the conscious consumption of goods that have a longer life.

A new dominant social paradigm (LeHew, 2011) for the fashion industry would certainly include an expansion of the production system to foster this kind of collaboration and cooperation.The partnerships aim to include industrial, manufacturing, and organized service systems external to the fashion system itself, which already has competence in sustainability, and has experience in materials or environmental impact assessments. Furthermore, the saving of resources and the scarcity or less availability of virgin materials will determine the need to form partnerships with unrelated industries and could cooperate for the collection of waste to be used as secondary raw materials, or with companies that can reprocess or redesign second-hand clothing (ARMSTRONG; LEHEW, 2011).

According to LeHew (2011), "a new dominant social paradigm (DSP) would focus on creating apparel products that are more efficient in material use, production and consumer utility, as well as better meeting the human needs of the consumer base, inherently more social than material needs. Similarly, clothing education in the dominant new social paradigm would promote the development of skills that would most likely include understanding human needs and ecosystem limitations, working collaboratively with the market rather than trying to dominate it and an understanding of local culture and tradition" (ARMSTRONG; LEHEW, 2011).

The development of collaboration and cooperation skills among future apparel professionals should lead to industrial symbiosis with unrelated companies. Furthermore, this new DSP probably requires

a more interdisciplinary, or even transdisciplinary, approach to the training and preparation of clothing professionals, therefore a greater commitment of the Academy in creating interactions and interrelationships with even very different disciplinary sectors.

2. THE ROLE OF FASHION INDUSTRY

Fletcher and Williams (2013) report that the fashion industry is considered indissoluble in the consumer society and the growth of textile production, which together with psychological marketing tools, lead to additional growth in clothing production (FLETCHER; WILLIAMS, 2013). This fact is responsible for a large amount of waste which has led to the adoption of reuse and recycling strategies to tackle these problems, but nevertheless these strategies have not exactly tackled the problem-making by continuing to allow and generate increased consumption, and consequently the continuity of textile waste in landfills. This strategy requires only a small change in producers and consumers allowing the continuity of behavior of unsustainable consumption patterns (FLETCHER, 2008).

The fashion industry has been brought into the mainstream questioning the consumption of traditional fashion and environmental, social, economic, and ethical production practices. There is a need for a triangulated change between the different actors, to rethink business models, teaching and consumer practices, encouraging social change, a new dominant social paradigm based on the capacity for cooperation and networking of the creative-productive ecosystem of fashion (ARMSTRONG; LEHEW, 2011; DOHERTY; DAVIES; TRANCHELL, 2013), adopt a familiar language regarding consumption and production to and empower the different actors - industry, academia and the user - to "do better" (MCDONAGH; PROTHERO, 2015).

Recent developments in the textile industry, at an inter-organizational level, highlight the importance of collaboration, or vice versa coopetition enhancement mechanisms. Coopetition occurs when companies interact with partial congruence of interests.

They cooperate with each other to reach a higher value creation if compared to the value created without interaction and struggle to achieve competitive advantage (DAGNINO; PADULA, 2002).

3. THE ROLE OF ACADEMIA

Fashion and textile designers are located at the beginning of the textile chain and must update their critical and creative thinking process by adding a sustainable thinking vision "Designers have a key role in creating more opportunities for sustainable consumption and production" (PARKER; DICKSON, 2009, p. 14), and in this sense, it is necessary to transform the system from the core collaborating in a holistic and participatory paradigm with sustainable concerns based on social, environmental, economic and ethical pillars, with academia playing a key role in the preparation of fashion and textile designers, future professionals in the sector but also consumers. Support the incorporation of education for sustainability in a transversal way, in different disciplines, to provide new learning experiences by acquiring a new vision of knowledge in a new form of thinking, responding more effectively to challenges, environmental and society changes. Transmit tools that enable them, in an informed way, to adapt to change and make future-oriented decisions in a socially just and developed world. Develop critical thinking and skills necessary for a sustainable future through formal and informal education (UNESCO, 2017). It is necessary to change the paradigm, a reorientation in education, and for this, teachers must be facilitators, collaborators and sensitize students in relation to the theme of sustainability, the circular economy and sustainable development (RODE; MICHELSEN, 2008; UNESCO, 2005).

Fashion and textile designers should not only consider the aspects of materials, but also sociocultural aspects such as behaviors related to consumption and the relationship with the well-being of the human being, positioning design at the heart of the socio-ethical dimensions of sustainability (ARMSTRONG; LEHEW, 2011; FLETCHER, 2008; VEZZOLI; MANZINI, 2008). Design is

crucial to moving in a direction towards a more sustainable future, rethinking how products are designed without decimating or depleting the planet's natural resources or compromising the well-being of the human being (now and future), using sustainability as a key to generating competitiveness and enhancing performance. Sustainable design requires a mentality, open, flexible, and long-term mindset (OTTO, 2005).

Designers are strategic agents for change capable of directly generating creative and imaginative solutions for entrepreneurs, media, policy makers and consumers, so fashion and textile designers must adopt a strategic role in the textile and clothing industry and therefore in society to enable a positive paradigm shift. Designing a project is not a simple process, but requires continuous thought during the design and review process. The project should be a tool for teaching, including creating a product with an authentic connection to the real world (LARMER; MERGENDOLLER; BOSS, 2015). The adoption of a circular model that proposes a holistic approach with design for sustainability discussed at the front of the innovation process (BALLIE; SMITH; MCHATTIE, 2016). The circular economy contemplates sustainability as an imperative element generating changes to traditional models of mass production in the search for new solutions and business models, a change of cultural paradigm with conscientious alternatives integrating collaborative consumption practices, responding to collective and individual needs and desires, considering existing resources. A change of thinking favoring access to the product sound the intrinsic need to have (TODESCHINI et al., 2017).

Co-creation approaches come to be considered where design concepts evolve to build new scenarios of use, reuse, redesign, upcycling and design, designing for society and embracing new collaborative ways of working (CHICK; MICKLETHWAITE, 2011). Consider co-creation to add value and innovation in a triangulation between the three spheres – industry, academia, and users – in a collaborative design vision, where actors share experiences in the creative process and in the process of using the product, with a focus on projecting new products or improving existing ones. The user plays an important role in sharing their experiences

actively collaborating in knowledge development, idea generation and concept development. A moment of knowledge sharing in a relationship of trust and dedication allowing new forms of innovation in an approach of non-linear interactions in a continuous generation or transformation of ideas, concepts, and knowledge (FONTANA; HEEMANN; GOMES, 2012; ISSBERNER, 2010). Create collaborative networks to generate value and innovation aiming to increase the efficiency and effectiveness of products, in a collective vision of defining the problem for a more open and democratic design process, enabling the creation of new ways of interacting with products and new values, requiring a new set of competencies (FUAD-LUKE, 2009) which the academy must assist in the preparation of designers in a multidisciplinary, interdisciplinary, and transdisciplinary approach.

In turn, teachers understand that to train fashion and textile design students for the social challenges and for the future, they must also have, in addition to technical knowledge and skills, knowledge of sustainability, develop sustainable consumption behaviors in their own fashion product (ARMSTRONG et al., 2016; HILLER; KOZAR, 2012; RUPPERT-STROESCU et al., 2015), involving consumers in sustainable consumption practices linking sustainability to a benefit through transparency (VISSER; GATTOL; HELM, 2015), understand the lifestyles of consumers, be agents of change and understand business models in search for innovative solutions.

Moreover, design has evolved from the design of objects both physical and immaterial, to the design of systems, to the design of complex adaptive-systems. This evolution is shifting the role of designers, who should consider themselves participants within the systems they exist in. This is a fundamental shift–one that requires a new set of values (ITO, 2016).

Reflecting, a triangulated collective action is needed in the search for a new dominant social paradigm focused on the change of all actors, reshaping the educational system (academia), removing barriers to sustainable consumption (user), and facilitating sustainable business models (industry), where the free flow of information must happen naturally for the well-being of the human

being and the planet.

4. THE ROLE OF USERS

A more radical change is needed at all levels, from the creative process to distribution, generating changes in consumer behavior to the adoption of more sustainable practices for the protection of the human being and the planet. Fletcher (2008) noted that making a sustainable alternative more attractive to consumers will encourage them to adopt it (FLETCHER, 2008). Sherburne (2009) highlighted the role of the designer in creating an aesthetically attractive fashion product and suggested that the definition of materials and production methods could be the starting point in the process of creating a sustainable fashion, and stresses that beauty and creativity should not conflict with social and ecological sustainability (SHERBURNE, 2009).

Although consumers are changing their fashion-focused behaviors and practices for a more sustainable future, they are beginning to avoid Fast Fashion by supporting local brands and are increasingly aware of the problems of the fashion industry (ERTEKIN; ATIK, 2015; KIM; CHOO; YOON, 2013).

In this sense, fashion designers must work in partnership with all stakeholders in all phases of the chain of a fashion product, from the production of the raw material to the elimination of the product at its end-of-life cycle (FLETCHER, 2008; FLETCHER; GROSE, 2012). They are also agents of change in a new dominant social paradigm teaching the human being to live better by consuming less, regenerating the quality of the environment, the global ecosystem and the context (VEZZOLI; MANZINI, 2008).

5. FASHION CONFRONTING UNRELATED SECTORS

Moving towards a circular economy involves a rethinking of the whole fashion system, reshaping the interaction between the

three actors – Industry, Academia and Users. Such a change reflects the idea of systemic eco-innovation, which consists in a change or implementation of a system, with the objective of reducing the environmental impacts of the multiple actors involved in the system in a coordinated way, improving its overall environmental performance in a more comprehensive and efficient way than the individual actors would have been able to do.

A further evolution of the fashion and textile system would contemplate the inclusion of unrelated sectors at a systemic and organizational level, being able to intervene not only in the idea of reducing environmental impact, but also being socially more just and economically more correct, including the fair trade aspect, among others (Figure.1).

Organizational or systemic eco-innovation at meso level, which focuses on actor's interaction, is particularly important for the achievement of circular economy, especially in terms of incremental development aimed at increasing resource productivity and material reuse and recycling. Eco-innovation at meso levels is usually designed to exploit potential synergy with the value chain and the territory or to enable new types of collective innovation, like sharing services or other strategies that can lead to a maximization of the value of common resources (MAZZONI, 2020).

Starting from the cradle-to-cradle principle of creating nature-like industrial systems by designing products and processes that allow materials to flow into two metabolisms) – biological and technical – the fashion sector should embrace this concept creating relationships with very distant sectors as well.

In the textile industry several companies are already pioneering processes of transition towards circular usage of materials by creating new organizational forms to collaboratively improve this industry.

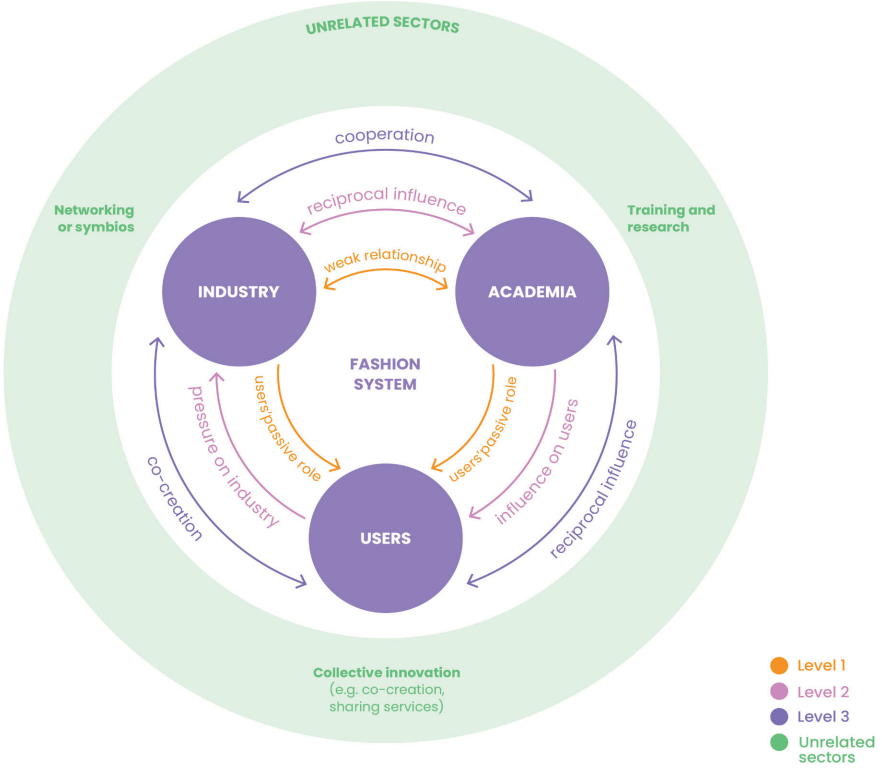
Just to name a few examples, thermal and sound insulation materials can be obtained from waste wool (PATNAIK et al., 2015); nylon can be obtained by post-consumption waste of carpet flooring or recovered plastic; new fibers can be made thanks to the collaboration with agri-food supply chain.

Interdependencies are created either because materials need to be jointly managed or because complementary assets or competences need to be jointly applied to, for example, reuse and refurbish materials. Simultaneously, interdependencies are created because a second actor can use the stream of output in another

stage of the cycle.

From an organizational standpoint, firms engaged in cyclical metabolisms are more interdependent because they also deal with increased complexity when compared to firms engaging in linear supply chain relations (ASHTON, 2008). The interdependency not only concerns manufacturing processes, materials and energy flows, but also affects the decision-making processes and the information actors have to process and store (KORHONEN, 2018).

Figure 1: Fashion system consisting of the interaction of its three main actors - Industry, Academia and Users - expands with the integration of unrelated sectors



Source: Sbordone; Pizzicato; Montagna; Seixas (2021).

6. DISCUSSION

The paper outlined the necessity of a rethink of the whole fashion system, reshaping the interaction between the three actors – Industry, Academia and Users and envisaging a shift in consumers' fashion and textile consumption in order to raise

environmental awareness focused on a circular economy strategy. This would result in the establishment of a new Dominant Social Paradigm, based on the capacity for cooperation and network work of the three spheres (academia, industry, users), ending in the presentation of a triangular model. A further evolution of the Fashion and textile system was envisaged, concerning the inclusion of unrelated sectors at a systemic and organizational level, in order to achieve both competitive advantage and systemic eco-innovation, with the objective of reducing the environmental impacts of the multiple actors involved in the system in a coordinated way. This kind of innovation in the fashion and textile sector would lead to potential synergy with the value chain and the territory or to enable new types of collective innovation, like sharing services or other strategies that can lead to a maximization of the value of common resources.

NOTES

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