

Analysis of fashion methodologies: proposing a critical and reflective approach emphasizing sustainability

Análise de metodologias de moda: propondo uma abordagem crítica reflexiva com ênfase na sustentabilidade

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Abstract

This article is an excerpt from a master’s degree research project in the field of design, aimed at rethinking sustainability in fashion. The purpose of this article is to analyze fashion design methodologies for proposing a new adapted methodology for developing fashion products and services aimed at sustainability. To achieve this objective, three collection development methodologies were analyzed to consider the potential of these methodologies to facilitate the development of sustainable projects. Following the analysis, an adapted methodology was proposed to rethink sustainable fashion products and services, based on strategic design and speculative approaches.

Key Words: Project Methodology, Collection Development, Sustainability, and Fashion.

1. INTRODUCTION

The purpose of this article is to analyze a fashion design methodology to recommend a new adapted methodology for developing fashion products and services aimed at sustainability. To achieve this purpose, three collection development methodologies were analyzed: Treptow (2013), Choklat



(2012), and Gwilt (2014). These methodologies were selected, as each one presents a different focus when addressing fashion creation. Treptow methodology (2013) is focused on the fashion industry, while the Choklat (2012) is aimed at an approach for developing avant-garde footwear, and the Gwilt methodology (2014) is focused on fashion sustainability through circularity.

Gwilt (2011, pg. 72) comments, “It is not until we look at and critique the way that we teach, learn, and use a process for fashion design and production that an alternative method of practice for fashion designers and makers will emerge.” Analyzing current ways of producing and conceptualizing fashion is crucial for promoting sustainable approaches.

Considering this, the article begins with a contextualization of sustainability in fashion, followed by the presentation of the three analyzed methodologies. Finally, an adapted methodology is proposed that has not yet been applied, but which supported the development of the speculative Beehive Design Tool (Müller, 2023), created to be used in fashion design processes at a meta-project stage. The tool was tested experimentally in workshops with volunteers who work in this field or fashion design students.

2. FASHION AND SUSTAINABILITY

According to Gwilt (2011), when we consider sustainable design, the main challenge of the fashion designer is not developing new garments with decreased environmental impact, but designing for fostering behavioral changes in society. This impacts the productive processes and the manners in which people consume and utilize fashion products (GWILT, 2011). Strategies related to the use of processes and materials with lower environmental impact can be effective in developing clothing that is less harmful to the environment, but they are not sufficient to ensure sustainability in fashion. According to Stegall (2006), it is necessary to develop products, processes, and services to design for sustainability. It does not do any good to design using materials with a lower impact if these products continue being worn in an unsustainable manner. Changes are necessary in the productive processes and the way consumers relate to clothing.

It is necessary to notice how the artifacts affect individuals, by understanding which values they communicate, making it possible to design through strategies, developing products encouraging more sustainable behaviors, aiding in the transition towards a more sustainable society (STEGALL, 2006). That idea aligns with the slow fashion approach that seeks to develop fashion products with a lower impact, encouraging a sustainable lifestyle based on the local economy. It also changes the way we interact with our clothes and perceive productive fashion processes.

Gwilt (2013) comments that it is necessary to comprehend how users relate to clothing for designing fashion sustainability. Slow fashion is identified as a feasible alternative, aiming to create long-lasting garments and encouraging consumers to keep wearing their clothing for longer periods. The author also cites approaches, such as designing convertible clothing projects that adapt

throughout the years, as alternatives for developing longer-lasting slow garments. Creative approaches to garment making, such as multifunctional pieces, can be alternatives to prevent premature disposal; however, for this to occur, reflective processes and experimentation are necessary (Gwilt, 2013).

Slow fashion represents a new fashion culture, a new worldview, with practices that oppose the values of fast fashion, aimed at rupturing the current fashion system (FLETCHER; GROSE, 2011). The slow fashion values, as cited by the authors, are related to the appreciation of local resources, traditional and hand-crafted techniques, and production on a small and medium scale.

2.1 Product-service system

According to Zurlo (2014), the organization model must be updated and adapted to new environmental circumstances, and the designer can work in partnership with companies, helping to implement and disseminate these changes to update these models. The author introduces the concept of product-system as a coherent set between the product, service, and communication that helps the company position itself in the market and define its mission in society. The characteristics of the designers (seeing, predicting, and making), can contribute to visualizing these new processes within the organizations (Zurlo, 2014).

Vezzoli et al. (2018) present the concept of sustainable product-service systems, a model conducive to promoting systemic innovations in pursuit of sustainability. They do this by decoupling resource consumption from value consumption, thereby bringing about changes in the way products are designed and consumed. A focus on service development is also a sustainable alternative for fashion production and consumption. Fletcher and Grose (2011) highlight the provision of services as a sustainable alternative to the current fashion system, aiming to optimize resources and enable scale production, while generating revenue through services such as repairs and garment rentals.

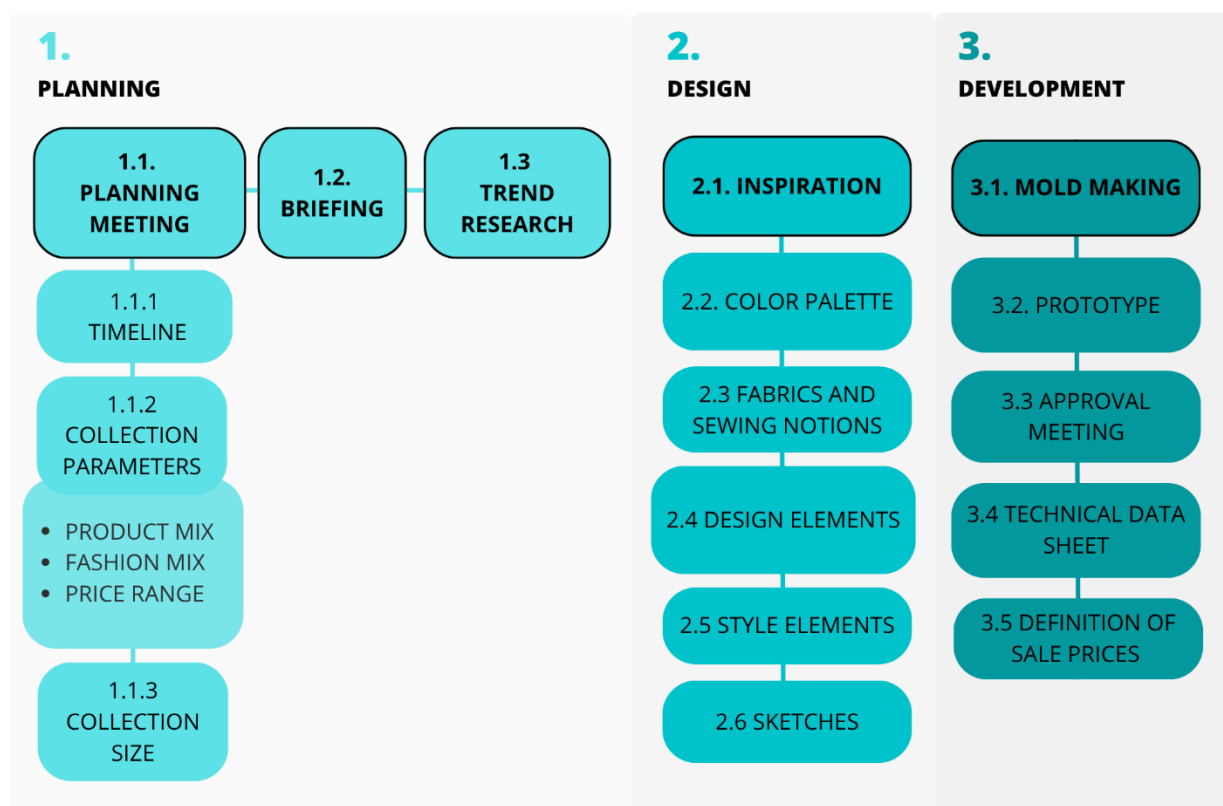
3. COLLECTION DEVELOPMENT METHODOLOGIES

The following was analyzed by the collection methodologies proposed by Treptow (2013), Choklat (2012), and Gwilt (2014). Three distinct methodologies were chosen to guide the development of fashion collections, to reflect on these processes, and to propose a different methodology, seeking to develop sustainable systems of products and services. To facilitate the visualization and understanding of each methodology, figures were prepared to illustrate the stages recommended by each author.

3.1 Treptow

Treptow (2013) proposed a collection development methodology divided into three main stages: planning, design, and development. Thus, it encompasses planning to its insertion in the market. The author comments on the importance of the designer being present throughout all the product cycle stages, enlarging their knowledge and aiding in the development of new products. The Treptow methodology is shown in Figure 1.

Figure 1 –The Treptow Methodology.



Source: Prepared by Müller (2023) based on Treptow (2013).

Collection development begins in the planning stage that includes actors from different sectors within the company and consists of defining the following aspects: collection timeline, collection parameter, collection size, and briefing (TREPTOW, 2013).

The first step stipulated by the author is to define the collection timeline, which must be planned based on data on the collection launch date. This way it can organize all the activities in reverse order that need to be completed within the stipulated timeframe. The planning stage also consists of defining the number of garments that can be produced, the product mix offered, in the fashion collection mix (quantity of basic items, fashion, and avant-garde), and the definition of the price range. All these factors give rise to the collection briefing, which will guide the design stage.

Treptow (2013) considered trend research, and he suggested that the inspiration of the collection would be based on previous trend research studies. One point raised by the author is that most brands do not position themselves as avant-garde brands; therefore, in such cases, opting to follow already established trends is considered a safer path. However, relying on pre-established trends—which also guide choices of materials, colors, and processes—may limit designers in their pursuit of more sustainable alternatives. When considering the slow approach, as previously mentioned, the creation and production process consists of valuing the local culture in which the brand is embedded, recovering ancestral production processes, and proposing new ways of relating to fashion and clothing. This is an approach that diverges from global macrorends pre-established by the market.

The collection inspiration, color palette, fabrics, and style elements that provide unity to the collection are defined in the design stage, and thereafter the first sketches are made (TREPTOW, 2013). A negative aspect of the design stage is the insufficient moments that enable the experimentation of new fabrics and processes. When considering projects focused on sustainability, moments for reflection and experimentation can be beneficial for seeking new alternatives and approaches for sustainability, as commented by Seiverwright (2007). He emphasized the importance of moments for experimentation and critical reflection of the designer regarding the production process, which are essential in the pursuit of developing unconventional garments.

After the design stage and then defining the models that make up the collection, the development stage is begun, composed of moments for prototyping, creation and approval, developing the technical data sheet, and defining the sale price (TREPTOW, 2013).

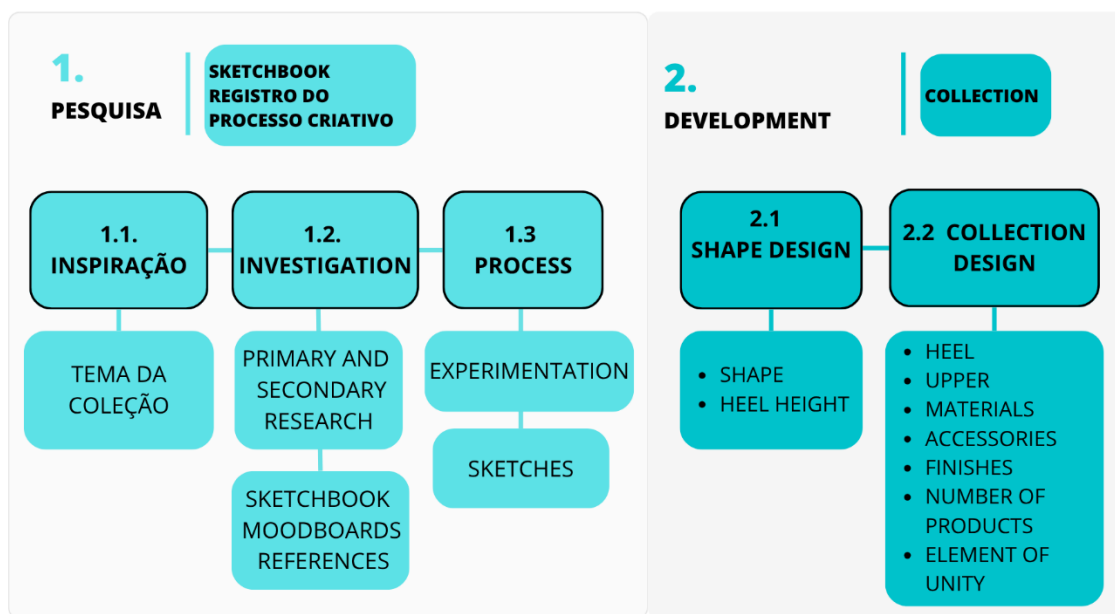
By analyzing the collection methodology proposed by Treptow, it is possible to identify some positive aspects as well as negative points that could be adapted when designing with sustainability in mind. One of its strengths is that the methodology corresponds to current fashion market practices, ensuring a safer path for brands by relying on established trends and market data to inform product and pricing decisions. These previous analyses ensure more assertiveness when planning collections, avoid unnecessary expenses, and wagers on commercial garments to guarantee increased sales demand. As a negative aspect, one may consider the fact that the methodology recommends a linear process, without moments of experimentation and lacking reflective spaces for the designer's creation. This thereby does not encourage fashion designers'

critical thinking in the pursuit of disruptive approaches that could promote changes in the status quo of the fashion industry.

3.2 Choklat

Choklat (2012) proposes a collection development methodology focused on footwear, but one that can be easily adapted to developing other types of clothing. The methodology recommended by the author is divided into two extensive stages: research and development. The first stage is research, and it is divided into three phases: investigation, inspiration, and process. Since the development stage is divided into two phases: designing the shape of the footwear (which can be adapted to modeling for considering other clothing products) and collection design. See the image of the proposed Choklat methodology displayed in Figure 2.

Figure 2 –Choklat Methodology



Source: Prepared by Müller (2023) based on Choklat (2012).

The research stage consists of defining the inspiration for the collection, conducting primary and secondary research to seek references, experimenting with processes, and developing sketches. Unlike Treptow, Choklat proposes original inspirations, rather than those based on established trends used as the collection theme. The author proposes that the inspiration will create the theme of the collection, emerging from the personal repertoire of the designer. For this purpose, Choklat (2012) presents several exercises, such as an idea book in which the designer can seek inspiration

from previous insights, places visited, art, literature, and other sources. After defining the theme, inspirational research can be the primary source, based on the content developed by the designer, such as personal or secondary drawings, using image repositories (CHOKLAT, 2012).

That thematic research will give rise to a moodboard including images, colors, textures, and other inspirational references. Following the creation of the moodboard, the experimentation and development processes of the collection sketches begin (CHOKLAT, 2012). The author comments that this is the moment when the designer performs experiments and tests new fabrics and processes, emphasizing the importance of testing three-dimensionality. To achieve this, Choklat (2012) proposes a series of exercises exploring the moodboard, and sometimes introducing three-dimensionality to the creative process, such as draping that utilizes modeling as an experimental process throughout the creative process. Other exercises proposed by the author to explore creativity when creating are: a development template sheet for developing ideas quickly, mold isolation, and creation exercises through collages. Creation and experimentation exercises seeking to explore different alternative shapes and fabrics can be interesting when the subject is considering new sustainable fashion alternatives. In this way, it provides opportunities that encourage the search for new approaches in fashion design, such as the use and discovery of new materials and modeling techniques that impact the product's life cycle.

The second stage recommended by Choklat (2012) is divided into shape design, related to the modeling stage, and collection design. The collection design shows similarities with the methodology proposed by Treptow. At that moment, Choklat (2012), suggests the definition of elements that can unify the collection (such as Treptow style elements), by choosing fabrics, accessories, models, and finishing touches.

When analyzing Choklat's methodology (2012), one can consider that moments of experimentation seek to explore new forms and fabrics as a positive aspect. When considering sustainable projects, the search for new materials, modeling techniques, and construction methods can be useful in identifying lower impact alternatives. The creative exercises recommended by Choklat aim to explore the designer's authorial side, which carries both advantages and disadvantages. On the one hand, authorial creations differ from conventional ones and embody the designer's personal history. Moreover, the methodology suggested by the author encourages the development of disruptive and unconventional products and processes. These procedural characteristics can be particularly relevant when designing for sustainability, as they foster innovation in fashion. On the other hand, authorial products may be less accepted in the mass market when a brand adopts an avant-garde positioning.

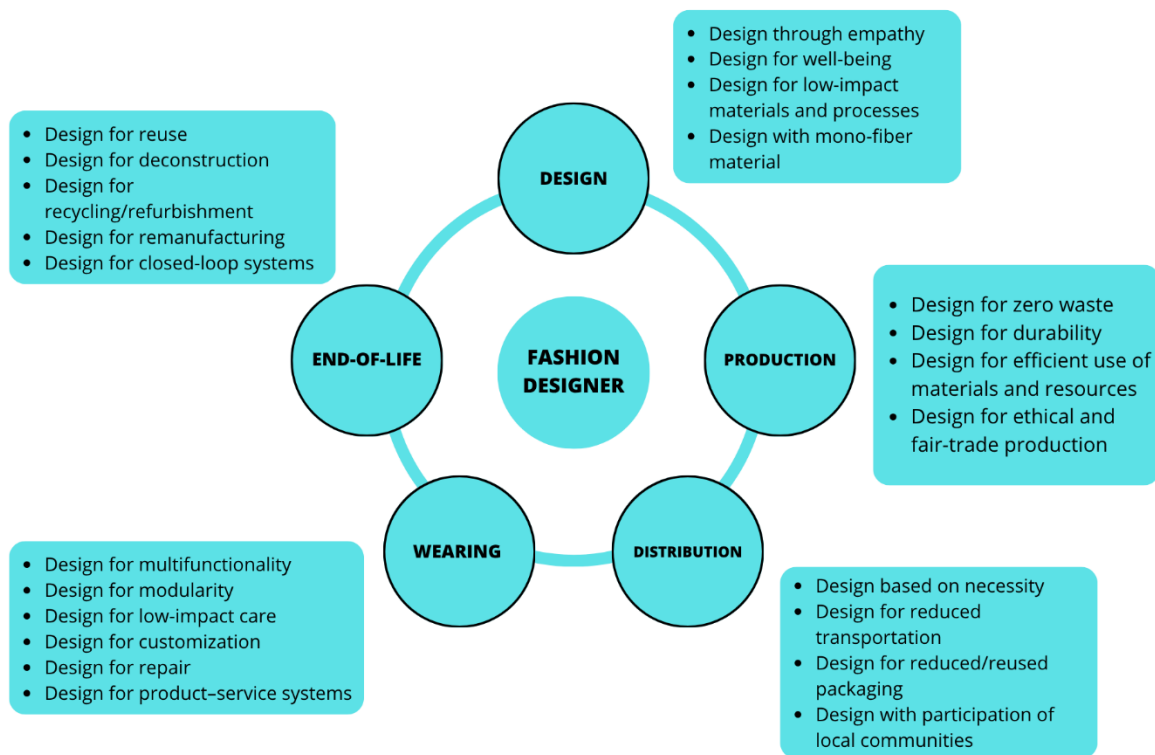
3.2 Gwilt

Gwilt (2013) introduces an approach focused on the development of sustainable products based on a circular economy, whereby she considers all the life cycle stages of a garment, ranging from its conception to its disposal. Hence, the author divides the life cycle of a garment into five stages:

design, production, distribution, wearing, and end-of-life. The author argues that, to design with sustainability in mind, the designer must reflect on the impacts caused by a garment throughout all stages of its life cycle. Ultimately, the designer must recommend a circular approach by reinserting the garment or its raw material into developing new products.

Gwilt (2013) suggested a series of outputs by considering sustainable solutions that could be utilized to mitigate early disposal, waste product generation, and prolong the wearing stage. They also provide good operational conditions by seeking to minimize the negative impact generated in each stage of the life cycle. A proposed image of the model is presented in Figure 3.

Figure 3 – Life cycle and strategies for sustainability



Source: Gwilt (2013).

By analyzing Figure 3, it is possible to observe that most of the proposed approaches are related to the use of processes with lower environmental, social, and economic impact. Particularly in the areas of manufacturing, material selection, modeling, wearability, and garment durability. The

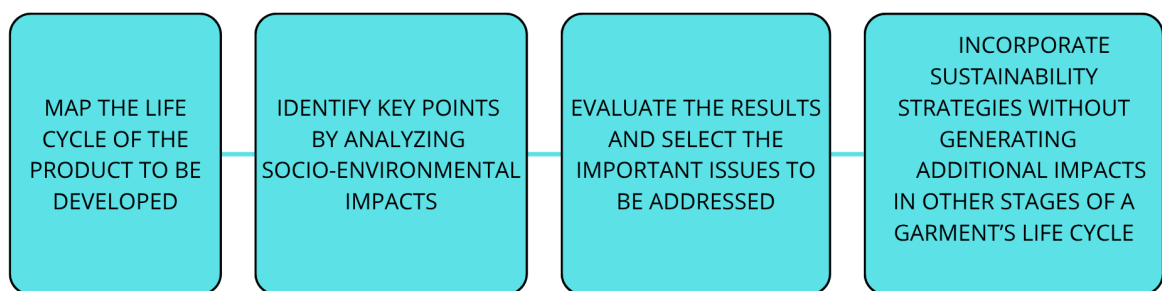
author comments that the main strategies focused on fashion sustainability seek alternatives to the following issues:

minimize the consumption of resources, select low-impact processes and resources, improve production techniques, improve the distribution system, reduce impacts generated while wearing, increase the useful life of a garment, and improve wearing through end-of-life systems (Gwilt, 2013, p.43).

Gwilt (2011), cites three key aspects for designing for sustainability. The first point cited by the author is to be aware of different strategies to be explored throughout the research and development processes, considering sustainability that must be present during all the project stages, and not only as a complement. The second point is to link the fashion designer to the sustainable strategies and production processes (GWILT, 2011). The author understands that the designer must play a core role in planning and action plans to be capable of applying one or more strategies in the project seeking to minimize the negative aspects and maximize positive aspects. The third point proposes to apply cycle life thinking in the product briefing, seeking criteria that comply with environmental and societal needs, considering what will happen when the product is in the hands of the consumer and then discarded (GWILT, 2011). To utilize the approach focused on the product life cycle, first we need to map the life cycle of the garment that will be developed and then identify the impacts these products generate in each phase. This way, we can select the most important points to be worked on in the project and incorporate strategies that seek to minimize negative impacts and maximize positive ones. (GWILT, 2013).

By mapping the life cycle, Gwilt (2013) suggests which activities the designer can influence at each stage. In the Design stage, this involves the choice of materials and techniques; in Production, modeling, prototyping, and garment construction; in Distribution, points of sale and the impact of transportation; in Wearing, the impacts of wearing, washing, and repair possibilities; and in End-of-Life, the impacts of disposal and the opportunities for reuse or recycling. A model of the methodology proposed by Gwilt is presented in Figure 4.

Figure 4 – The methodology proposed by Gwilt.



Source: Gwilt (2013).

Throughout the mapping of the life cycle, the author proposes that a series of inputs should be observed (aspects that need to be improved), so that they can be considered in the outputs (sustainable solutions). These can be considered as moments of critical reflection of the designer regarding the project, who estimates the development of improvements and sustainable solutions. The author also comments that the moments of reflection and prototyping during the project development can aid the designer in thinking of new alternative solutions for the fashion products and suggest experimental procedures in manufacturing pieces.

Analyzing the methodology proposed by Gwilt, it can be considered that, as in Choklat's methodology, moments of critical reflection may assist designers in seeking new materials, methods, and processes aimed at sustainable solutions. The main characteristic of the methodology proposed by Gwilt (2013) is its focus on a closed-loop approach, considering the impacts of garments throughout their life cycle and seeking to reinsert the piece once it reaches the end of its useful life. This methodology is grounded in the principles of the circular economy, with an emphasis on resource optimization and waste reduction. In comparison with the other methodologies presented in this article, it is the only one that places a specific focus on sustainability and encourages the designer's critical reflection on the impacts generated by their project.

4. RESULTS AND DISCUSSION

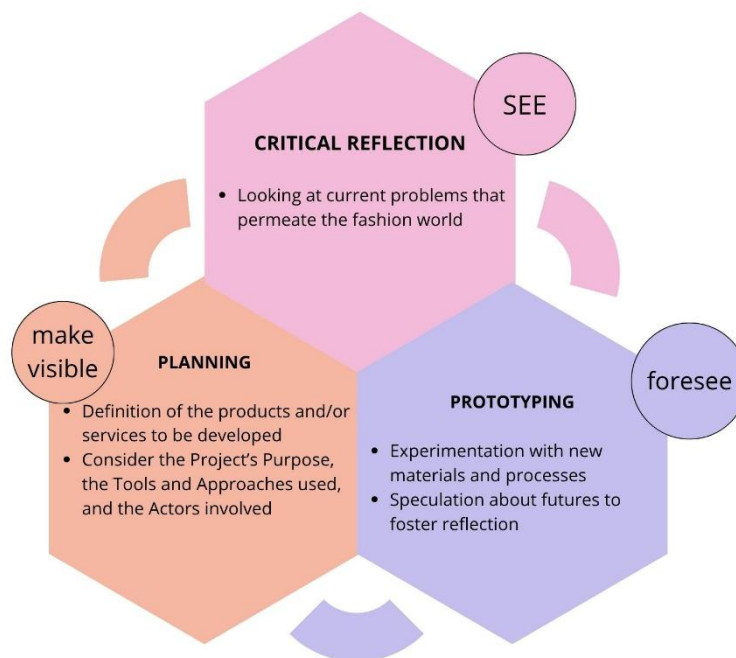
When observing the methodologies used in the development of fashion product collections, it becomes evident that approaches such as those by Choklat (2012) and Treptow (2013) lack a focus on sustainability. However, moments of experimentation with new materials and processes, as proposed by Choklat (2012), can support designers in their search for alternatives with lower environmental impact.

Fashion design methodologies that do not encourage moments of experimentation and critical reflection of designers end up reinforcing the status quo of the fashion industry, as designers are not influencers by rethinking their projects and seeking new sustainable alternatives. The methodologies proposed by Gwilt (2013) prove to be relevant for developing sustainable fashion collections. Not only because they address strategies aimed at reducing the negative impact and promoting positive impacts, but also to provide moments for design reflection regarding impacts caused by fashion projects and how designers can propose solutions for them.

Methodologies that do not encourage moments of critical reflection and experimentation with new materials and processes, such as the one proposed by Treptow (2013), may be safer from an economic standpoint. However, these collection development processes ultimately fail to contribute to the search for new ways of thinking, making, and consuming fashion regarding sustainability.

With the aim of proposing a methodology that helps fashion designers rethink their design processes and search for sustainable solutions in fashion—whether products or services—a new methodology was conceived based on the strategic designer’s capabilities proposed by Zurlo (2010). The proposed methodology acts at a pre-project moment, before developing the product and/or service. This methodology proposes moments of reflection and discussion on critical issues that permeate the contemporary world, enabling designers to reflect not only on searching for solutions, but also on identifying new problems to be explored. Figure 5 presents an illustration of the methodology.

Figure 5 – The reflective methodology for developing the *Product-Service System (PSS)* in fashion.



Source: Drafted by the authors and inspired by Zurlo (2010).

The proposed model is displayed in the format of a beehive, considering a non-linear creative process. The model proposes a continual process that can always return to previous stages so that reflection in pursuit of improvement is possible. The model presented in Figure 5 is based on the strategic designer’s capabilities proposed by Zurlo (2010), namely, *see* (looking at the problems of our world), *foresee* (imagining possible futures), and *make visible* (rendering those futures visible).

Based on the model presented, Müller (2023) proposes a critical-reflective tool intended to assist fashion designers in rethinking their design processes and considering sustainability when designing. The Beehive Design tool consists of a deck of hexagonal cards, divided into six categories: critique, speculation, purpose, actors, tools, and feedback. The Beehive Design has been considered as a tool for aiding discussions among fashion designers in moments of a pre-project timeframe, acting on three levels (see, *foresee*, and *make visible*), which are unblocked based on how the discussion progresses. The Critique category is related to the *see* skill, Speculation is related to *foresee*, the Purpose, Actors, and Tool categories are related to *make visible*. Finally, the purpose of the Feedback category is to guide the use of the tool, so that it can be easily applied to any profession in the field of fashion or design (Müller, 2023). See the image on categories in Figure 6.

Figure 6 – Categories in the Beehive Design tool.



Source: Adapted by Müller, 2023.

Each category presents a selection of cards that aid fashion designers in critically reflecting on fashion sustainability, serving as a way of guiding and materializing group discussions. Thus, it makes it possible to have moments of critical reflection among professionals in this field, before beginning their design process. The Critique category cards, present actual cases of unsustainable practices in the fashion world, such as the Rana Plaza disaster and the garment landfill in the Atacama Desert (Müller, 2023). This is the first step: to see and look at the impacts that fashion brings to the world in searching for new problems. The problems identified can stimulate designers' critical thinking, support projects, and serve as topics of discussion among the creative team.

Foresee consists of prototyping moments, through the experimentation of different materials and processes, and/or through the speculation of visual scenarios that encourage designers' reflection and can foster discussions. Dunne and Raby (2013) comment on the speculation of scenarios—whether dystopian, utopian, or imagining events that could have unfolded differently—to foster reflection and discussion. Considering this, the Speculation category cards address different forms of constructing scenarios for fostering discussion, introducing concepts on utopias, dystopias, and contrafactual scenarios (Müller, 2023).

The *make visible* consists of making it visible and applicable to possible solutions, in this case products and services. Since the development of services is relevant to promoting sustainability in fashion, as previously mentioned. For this reason, it is necessary to consider the purpose of the project, the actors involved, and possible tools and/or approaches to be used for sustainability. The Purpose, Tools, and Actors categories introduce cards that help designers to reflect on how to implement solutions seeking sustainability, which is the purpose of the project, which tools are most aligned with which actors, so that they can jointly work to achieve that purpose (Müller, 2023).

The hexagonal shape of these cards provides the possibility of creating a large-size beehive, a visual materialization of the discussion, in which the cards are inserted purposefully to connect to each other (Müller, 2023).

5. FINAL CONSIDERATIONS

Analyzing the development processes of a fashion collection can be relevant to providing new opportunities regarding methodologies that encourage and aid in thinking about new projects focused on sustainability. When addressing the theme of fashion design for sustainability, it is necessary not only to look at the means of developing and producing clothing, but also at the methods preceding the design stage and to consider the entire design process.

The intension of this article is not only to delve into the tool generated from the proposed methodology, but also to investigate the methodologies utilized in the field of fashion, reflect and rethink future methodologies that could be used for developing sustainable products/services. It would be interesting, in future publications, to present results from methodology applied to actual contexts from developing fashion design that can be utilized with or without the aid of the Beehive Design tool. Another topic to be presented in future articles concerns the further development of the Beehive Design tool, its prototypes, and its experiments.

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