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Discussing Consumption and Sustainability in Clothing Production: a case study of a company in Recife / BR

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Abstract

This article analyzes the fashion production and consumption practices according to the guidelines of the approach 'cradle to cradle' of McDonough and Braungart (2013) and sustainable methods based on social innovation proposed by Ezio Manzini [3]. Describes the challenges towards sustainable development of garment enterprises through the case study of the brand 'Refazenda', a Brazilian clothing company whose international image is based on recycling, and whose branding methods surprises the consumer by sustainable concepts and process and by the design.

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1. Introduction

The ephemerality of the fashion world induces excessive consumption of their products, since, what is new today will always be more desired than the yesterdays products. The large current trend of consumption in fashion is the devaluation of the old the cult of the new. The variety and the choices are endless, generating feelings of anxiety, uncertainty and anxiety post purchase. The act of next purchase turns into a vicious cycle of unnecessary needs and urgent desires, where the user is never satisfied completely. A phenomenon that directly affects the majority of fashion consumers, making not necessary to explain the desire for new goods, only the simple act of consuming by

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consuming. According to Lipovetsky [1], one of the strongest feelings, prevailing at the time of purchase, is called happiness of renewal, the desire is never satisfied, and must always be renewed.

"In the scenario of lush existence of a world that promises happiness of countless and ever renewed satisfaction, grows a huge disorientation individual and collective." [1]

According to Lipovetsky[1], the market offers drives the individual to become a disoriented consumer and a dissatisfied user. When a user says his clothes are out of style, is it a personal opinion or was dictated by the fashion industry? An interesting question to be evaluated, therefore, the clothes didn’t lose their duties. Only the desire for new provoked an unnecessary disposal, once the garment doesn't fit anymore in the patterns that are currents. Does the artifact lose sense to you or your appearance does not reflect the market windows reality? According to Baudrillard (1995), the object of consumption is a sign that fulfills a social function of representation by setting the status of a person. That's why yesterday's clothes no longer corresponds with the lifestyle of person who throws it out.

"The culture of free disposition of individuals in the contemporary lifestyles based on supermarket is also the culture where is seeing growing the tendency of self profigacy. In societies directed to the hyper-consumption, are affirmed, at the same time, the principle of full power of the individuals over the conduct of himself and the dependence of events and subjective impotence. "[1]

Does the taste for novelty, the unheard and the different prevails on the need to preserve the environment? Sharing and sale of used clothing can be effective practices to meet the desire of the novelty and decrease the consumption and production of new clothes, challenging issues that must be changed in the consumer society. They can reshaping the production and consumption in the fashion practices.

To the Italian designer, Ezio Manzini[3], some changes will begin through social innovation, indicating possible paths to sustainability, such as: enhancing individual skills of each individual, strengthening local roots in each region, rediscovering the value of coexistence collective through creative and collaborative communities and implementing new and more sustainable ideas based on social welfare. Manzini argues that the key issues to guide the sustainable path are related to the quality of life, quality of well-being desired by the people that will be turned into living better by consuming less.

The authors McDonough (architect) and (Braungart), chemical, approached the idea of 'Cradle to Cradle' [2], which consists of seeing garbage like food, such as nutrient for what is to come. They propose to apply methods of cooperation between industry and users to change the traditional way of thinking about waste. According to Alexandre Fernandes Gobbo (preface of the book "Cradle to Cradle), it means an approach to the eco-effectivity:

"... To glimpse the power of ecolifetividade - the choice to do the right thing - and thus to thrive as a society, nourishing the life cycle of the planet and "feeding" the technological cycle of the industries, instead of feeling guilty about consumption. "[2]

To understand the complex process of change on the habits and sustainable practices in fashion, we conducted a case study of a Brazilian fashion company, the 'Renascença'. According to the speech of the owner, the main mission of the company is to educate its users, promoting and fostering diverse eco-friendly attitudes. The advertising slogan of the brand is "Remake fashion, remake the world", with the focus centered on the user, comprising it as an individual capable of making their own decisions and change their life context. These attitudes depend on education and user awareness. According to the research, changing consumer practices and uses of fashion artifacts without changing the behavior and the integration of users is a process without guarantee of success.

2. The study case: the 'Refazenda', a project of several hands

To understand the sustainable practices in the fashion and discuss the feasibility of the approaches to sustainable development made by Manzini[3], McDonough and Braungart[2], we conducted a case study of the fashion brand in Brazil, the 'Refazenda'. The data were collected through internet research (site of ‘Refazenda’ and other sites which divulge the work of the brand) and interview with the designer and owner of the brand, Magna Coeli Donato, who answered, in the store, a list of core questions on the topic of sustainability. The idea was to record a local view on the cited subject, to be evaluated and compared with initiatives that are being practiced in the world of fashion context.
The Refazenda company has sustainability as its concept of branding, but promotes the launch of five collections a year to boost sales and encourage further consumption. This consumption can be considered conscious if consumers know the impact of attitude on the environment. The clothes of the 'Refazenda' are comfortable, contemporary and avant-garde, with elements that represent the popular and traditional culture of the states of Brazil. The company applies the manual work in most of his creations such as lace and embroidery, features that add value to clothing through the translation of the culture of a people values such as identity, memory and history of people and places trough the clothes. Some designers develop collections inspired by the cultural diversity of Brazil with projects that are modern designs, but considering regional aspects. The stylist Ronaldo Fraga (born in the State of Minas Gerais/BR), when establishing a collection, tells stories rescuing memories and valuing the handmade fashion as the future and the identity of the postmodern society. One of the factors that embody the philosophy of the brand 'Revival' is the craftsmanship. According to the company, better than a product made in series is to know that straws or embroidered details used in the finishing of garments or accessories were collected or produced by persons instead of machines.

In October 2014, the brand reached the amount of five stores: one in the city of São Paulo/BR and another four stores in the city of Recife/ Pernambuco, Brazil, including the factory at the north zone of Recife. In 2015, the the brand will complete 25 years of existence. To celebrate this achievements, the owner will do a survey through its customers to evaluate, socially and technologically, the first products produced in 1990. The objective is to evaluate the durability and the state of garments. For example, to observe if it has openings in the seam, if the set of intertwined wires remains intact, if the fabric was corroded, worn or if their dyes is the same, if it was renovated, if it was purchased by the user or if it was second hand. If this monitoring activity happens, the results will serve as a good source for sustainable innovations, and to solve the problems found on clothing and its interaction with the user and the environment. The company will better understand your users and the usability of its products, and will be able to formulate a strategy for the better planning of future collections on the issue of management and the use of its artifacts.

In order to obtain important information about the products for research, we visit some of the company's stores at Recife and talked to some customers upon purchase. According to the answers, other options are identified to get a 'Refazenda' product. Instead of the traditional buy at the store, many people are getting their products in an unconventional way, through innovative and sustainable solutions, such as the sharing of clothes, selling used products, exchanging clothes in bazaars and also receiving clothes as family heirlooms, from mother to daughter, for example. These habits are related to the post-use articles.

Fig. 1 – Necklace with mesh leftovers and shorts details with fabric scraps with different prints.

According to the owner of the company, the use of their material is 100% and there is no waste. In the production process leftovers, that would be waste, are not considered and treated as waste. All waste is planned in the research and development of the project, even before leftovers. Each modeling and cutting has a purpose. They do not understand why store loose threads, fabric scraps, small triangles, sometimes so small that they can be thrown away,
treated as waste. So, we have identified a failure of communication between the actors involved. In this case, for an optimization of the results would be appropriate, before starting a collection, to present for all employees the plans of the collection, each piece, every cut, every leftover, for the appropriation of this knowledge by the workers. With this action, people can feel themselves part of creation and to understand each stage of the product design process, working in the care of each piece of fabric. The lack of total knowledge about the process doesn't help, because each part does not understand its importance in the whole. According to Cardoso [4], the designer is one of the few professionals who have the ability to understand the production of objects as a whole, and that the systematic thinking is perhaps the most important aspect for solving problems in the complex world. The company can supply this gap by educating your employees, using design thinking to think about the problems more deeply and to understand each step and its relations in any types of production system, including the garment production.

According to the owner of the company speech, the total use of materials is planned through the following percentage: 80% of the fabrics are transformed into clothing (the clothing chips are considered accessories and finishes), 19.5% are used in the creation of parallel products, as decoration of shops, shows and other artifacts, 0.5% are waste (strips that are also treated as essentials in detail and the differential in the design of other collections). This design results in a sustainable and economically profitable strategy for the company.

Most of the 'Refazenda' products are produced with flax - a fiber originated from vegetable fibers, a renewable ecological fabric, 100% biodegradable, that after the disposal, does not pollute nature. Another fact realized through an informal search field: many users are not aware of the sustainable actions of the brand. They do not know why company chooses certain raw materials. They only conscious recognize that it is a brand that values crafts, recycling, with different design and develop products with fabric scraps.
In the next topic, we will make an assessment of the data collected in the survey, comparing the practices of the company of garment production ‘Refazenda’, with the theories of sustainable development, the criteria and concepts of social innovation postulated by Manizini (2008) and the approach of ‘Cradle to Cradle’ from McDonough and Braungart[2].

3. The design for social innovation

From Manzini[3] ideas on sustainable development and social innovation, the design is displayed as a strategic tool, able to solve local problems relating to lifestyle and unsustainable patterns of production and consumption of artifacts. For the author, these changes begin locally, to form creative networks into a global system. Manzini ensures that cases of social innovation, in particular the creative communities, are able to reconstruct ways of being and doing in a creative and collaborative way. These creative communities can not be artificially constructed, have to be created spontaneously. The author states that it is possible the existence of a favorable environment to make sustainable strategies more feasible and likely. In this context, designers are perceived as tools for the generation of new ideas in planning services, products, spaces and support tools of communication that will allow paths of sustainability through social learning.

The "well-being based on products" is linked to the traditional and unsustainable way of life of the postmodern citizen. Other lifestyle that is emerging and gaining force in society is the "well-being based on access," even more unsustainable for nature. To Manzini, redirect lifestyles, so that current trends can be reversed in the "well-being based on the life-quality context " is essential to improve individual capacity and seek valuing human life.

Manzini states that designers are still part of the problem, but can also be part of the solution, therefore, the main role of design is to improve the quality of life and quality of environment, offering new solutions to create new possible and sustainable scenarios. They can help to establish conditions for creative society to develop design skills to solve everyday problems. The suggestion of the author is to rediscover social values of coexistence and cooperation to reduce the impact of the activities of each person in the environment, by building proactive networks.

"From this perspective, designers can be part of the solution, precisely because they are social actors who, more than any other, deal with the everyday interactions of humans with their artifacts. Are precisely such interactions, along with the expectations of welfare associated with them, that must necessarily change during the transition towards sustainability. "[3]

According to the discourse of the businesswoman, the education of their consumers related to social and environmental responsibility is stimulated by his conduct in the clothing manufacturing process, perceived by the user through the consumption of these artifacts. For the other side, we observed that the company has no educational campaigns to teach the proper use and methods for maintenance and durability of the clothes to the consumers. They also don’t exist to their employees.

The educational relationship between the responsible actors in the clothing manufacturing process is flawed. If better targeted, the employees could build links with other artisans to better understand and practice the values of coexistence and cooperation that Manzini proposes. The company could promoting meetings to exchange knowledge, as opportunities for those people to learn new techniques and to practice collective ways of identification among them. The company could teach more deeply the artisans about the value of their work if the ready clothes and final selling prices were presented to the professionals who participated in the design process. So, would be clearer the importance of their craftsmanship, in achieving a product with higher added value in relation to the value that is usually given in Brazil to craftsmanship. The company works with thirty-five cooperatives of artisans, including lace makers and embroiderers, distributed in Pernambuco and other states of Brazil. The practices of Refazenda, as expressed in the owner speech, regarding the social commitment of the company, also aims to attend this recommendation. However, we observed that is necessary to expand the strategies to enhance the awareness of the value of craftsmanship among workers involved in the process.

According to the Manzini’s guidelines, for building a sustainable system is necessary appreciate and keep the system at the local level. Standardized solutions planned for anyone and for anywhere are not sustainable. The use
of local materials makes easier the transportation, recycling, and the maintenance of the local economy and natural resources, facilitating the emergency of creative communities among people of the same culture, and generating respect for diversity. The brand also works with the criteria of locality, since the products keeps different types of lace and embroidery coming from the thirty-five cooperatives of craftsmen, adding the value of diversity in their clothes. Different types of manual work to tissue are used in the clothes of ‘Refazenda’ company (eg, bobbin lace, filet, renaissance, maze, cross stitch, crochet and full point). This strategy aims to valorize local craft tradition. By developing regional solutions to their collections, the company promotes the valorisation of the cultural memory of each region, provides the connection of knowledge flows about materials and craft practices, and puts this knowledge in favor of local needs and tastes, strengthening the regeneration of the local social tissue.

The motto adopted by the company, "remake the fashion, remake the world" strengthens the personal involvement of users with the idea of sustainability promoted by the brand. This process takes place from the time of purchase to use, engaging them in order to make a sustainable fashion. Instead of planning clothes, it proposes plan to a conscious wear, in which the products are replaced by the results they could promote. According to Manzini’s proposals, the defense of the practice "do-it-yourself" teaches a new direction for the production of 'welfare based on the context of life', in which the user plays a key role. This process promotes the sharing of responsibility in caring for people that live in a particular location and productive context.

4. 'Cradle to Cradle': waste as a nutrient

The concept expressed by the term 'Cradle to Cradle', postulates the law of return of materials such as cyclic and continuous process; unlike the idea of the 'Cradle to Grave', which proposes a one-way street in which is based the linear model of the industrial revolution. This design approach is related to understand and use the waste as a nutrient. For the authors of this idea, industries can and should contribute to the well-being of people and nature, and to restore the planet's ecosystems. This concept calls for a new development model that considers waste as nutrients to create regenerative production cycles, promoting life again, after the use of material products, generating positive impacts for people and for nature.

The leftovers of ‘Refazenda’ company are not perceived as waste; they are considered raw material for new products, according to its owner. Thus, the company establishes a dialogue with the approach of the creators of the term, McDonough and Braungart, considering the waste as a source of life. In ‘Cradle to Cradle’ approach there are five criteria to be satisfied by a company to become a sustainable innovation. That are:: a) the chemical design; b) the restoration of water; c) design for recyclability; d) the use of renewable energy, and finally; e) the social prosperity. According to the company:

1. On the issue of design for recyclability, the company’s product allows consumers to recover value of it's products both in terms of concept, maintenance and use. According to the owner, this recyclability can occur in patterns of clothing that are considered masterpieces, crafted by various hands, hand finished and assigned as inheritance among family and friends, such as the Refazenda products.

2. On the question of restoration of water, the company valorizes the water as a source for life and uses minimal industrial washing, since they already buy dyed fabrics and generally uses tissues without dyeing. According to the owner, the company teaches its consumers about the washing process, explaining about the importance of washing those clothes manually, in order to prolongue the durability with their original qualities of texture and color.

3. In the chemical design, the company does not meet its sustainable paper. When interviewed, the entrepreneur has declared that 'the company's product does not cause a health risk and does not contaminates the environment; however, she assumes that doesn't have control over the process as a whole and doesn't use to test it. The raw material, in his opinion, is not the competence of the company. Dyeing the fabric isn't also company responsibility. Times ago, company tried to make natural dyes in his products, but most of the laundry does not offered guarantee that the color would remain intact. During this time, many users complained that the clothes was losing color. So, considering the necessity to guarantee durability and the value in all its aspects of the produced artifacts (color and integrity of wires and embroidery), it decided to use only tissues industrially.
colored by other companies, that involve more polluting processes to the environment. In turn, the composition of soaps which are used for cleaning personal clothes in laundries, inspite of to meet the desired of sanitation of the costumers, are the most polluting to the nature and the most damaging to the skin.

4. In the use of renewable energy, the company's production could be 100% solar. However, according to the entrepreneur explanation, the financial investment to use this technology would be very high. A sustainable solution to this problem, according to the business woman, was to balance the energy expenses with the investment in human energy, opting to use the manual finishes, instead finishes produced by industrial machines.

5. For the owner of 'Refazenda' company, social prosperity for people who live surrounding is the essence of business. Through her speech, the entrepreneur claims to be fully committed to the well being of people worldwide, investing, empowering, encouraging and valuing the human being and their cultural knowledge, from producers to consumers of the garments produced.

This new paradigm for industry should to remake the form that the products are manufactured by evaluating the entire production process, use and disposal in a cyclic manner which does not produce waste. At each stage of production of an artifact, the natural cycle of all materials that comprise must be completed. In Brazil there is already a solid waste policy, where manufacturers are partly responsible for post-consumer disposal of its products and therefore should implement reverse logistics programs to enable the collection and recovery of solid waste to the business sector for reuse, or other disposition.

5. Conclusion, development and prospects

Most clothing companies in postmodernity and its entire production chain, distribution and consumption are unsustainable. Sustainable development is a complex issue for this sector, but it's not impossible. Many clothing companies are following without the slightest concern to the future and ignoring the relationship of their products with human being and with the environment. According to the speeches of the major part of fashion business people, the financial and technological investments to make changes towards sustainability are very expensive. Many do not understand that some of these changes may start from a very simple way, as the replacement of raw materials, and that it can gradually change the entrepreneur's and user's behavior.

One of the first strategies in the searching for sustainable fashion innovations is related to the area of materials. The substitution of raw materials that harm the environment and affect the health of people promotes the reduction of environmental impacts. However, besides the fact that these decisions are often considered palliative, be using only this perspective contributes to maintain the system untenable. A lot of entrepreneurs, just to gain more publicity, strategically, use to exchange raw materials pollutants. Then, they believe that with these initiatives, their companies may already be considered sustainable. But in fact, one soon realizes the increase in sales of products, causing more extraction of materials, more production,more consumption and more pollution. The reduction of the impact to the environment is minimal. To really achieve sustainable development, is necessary to maximize the benefits and positive ecological impacts on nature and to all individuals involved in life cycle of the product.

The essential element to start the process of moving to follow the path of sustainability in fashion will be through the decision making. All stakeholders, users, manufacturers and brand owners must make decisions to change the current scenario. It is necessary to reduce pollution on the amount of clothing produced and discarded and plan recycling strategies and methods of post-use of artifacts. It's also necessary to plan procedures, in which waste and leftovers are not considered garbage, but new possibilities of use.

Investment in design determines positively greatest results for the consumer society, even considering the complexity of the system. Alternatives to bet on changes in the patterns of production and consumption will allow the re-education of the user, in the search for a new way to perform their necessary activities with better use of the artifacts. Manzini advocates a new scenario in which the products are replaced by the results that promote the sharing of goods as sustainable solutions to the planet.

The brand 'Refazenda' has some sustainable practices, but also has many others that are unsustainable, as most apparel companies. According to the company, the garment industry, with its rules and trends about the transience of fashion, guides the textile sector for unsustainable paths. The clothes washing process was identified by the company as a major problem related to the use and the durability of the product. Because of not being washed
properly, clothes are damaged. Consumers are not concerned about washing instructions. They always use to blame the manufacturer relating to the problem. To optimize the washing process, the company takes into account the characteristics of the fabric according to the functions they promote, such as quick drying, no need for ironing and its resistance to wear. The solution to 'Refazenda' company to continue on towards sustainability is by education, through teachings people about the use and reuse of the product. That is the formula designed to ensure that maintenance is the essence for durability, delaying the clothing disposal. It is necessary communicating effectively the message about sustainable company practices to the consumers. For this reason, it is important to create stamps that guarantee the good features of the products, whose qualities would be substantiated by technical research on sustainability.

The development of projects focused on the possibilities of use and post-use and on no waste production was one of the needs identified for the sustainability of fashion clothing. Nevertheless, to plan the life cycle of artifacts beyond the post-use, it's necessary to consider the speed and the ease with which the artifacts get into and out of people's lives. This planning allows the redefinition of the clothing life, beyond the most immediate purpose for which they were designed. If there are residues, they must be absorbed by nature and regulated by law. As explained Cardoso [4] about the redefinition of symbolic artifacts, clothing can also be considered products through which it is possible to teach new usage habits. It is possible to reset its meaning, besides the first discard:

"If garbage is an idea that makes the object, then it follows that it is possible to redeem a portion of the things we treat as junk by the reclassification of its meaning." [4]

Cardoso also states that it is possible to program the meaning of artifacts and, through its appearance, it is possible to extract ideas and thoughts:

"If the artifacts necessarily carry on information and these have their origin in the associations we make between appearances and contexts, then it is possible to induce the user, through the appearance, to infer certain ideas. That is, to use an analogy, you can program its sense." [4]

To promote changes towards sustainability will be necessary to develop an entirely new way of thinking about the clothes, their production and their use, in order to transform the prospects for all involved. In building this new scenario for fashion, education will be a great ally. If properly instructed, the user will find several creative solutions to their clothing, slowing the wear and consume with differentiated and conscious attitudes, increasing the product's survival probability in the development of multiple uses. In this case, the designer is one of the essential tools to create fertile environments that promote sustainable innovations. From the change in decision-making, people can achieve more sustainable attitudes that will change the living standards, currently unsustainable.

References:

[1] G. Lipovetsky. A cultura mundo: resposta a uma sociedade desorientada, Gilles Lipovetsky e Jean Serroy. Tradução Maria Lúcia Machado. São Paulo, Companhia das Letras, 2011 –23
[2] W. Mcdonough, M. Braungart. Cradle to Cradle: criar e reciclar ilimitadamente [translated into Portuguese by Frederico Bonaldo]. São Paulo: Editora G. Gili, 2013 –8
[3] E. Manzini. Design para inovação social e sustentabilidade - Comunidades criativas, organizações colaborativas e novas redes projetuais/ Ezio Manzini; [coordenação de tradução Carla Cipolla; equipe Elisa Spampinato, Aline Lys Silva]. Rio de Janeiro: E-Papers, 2008 –16
[4] R. Cardoso. Design para um mundo complexo/ Rafael Cardoso. São Paulo: Cosac Naify, 2012 – 158.