



# Cultures and Local Practices of Sustainability

ROUTES Towards  
Sustainability Network

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# Changing perspectives: formative research at the Faculty of Clothing Design as a transforming mechanism of the textile and clothing industry in the city of Medellín

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## Abstract

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This reflection is the result of teaching experiences in research training for clothing design, focused on the application of Sustainable Learning and Education (SLE). First, we give some context on the city and the faculty, concerning the issues and crisis also inherent to the global industry. Then, we analyse the SLE and the academic structure of the research area of the Clothing Design program from Universidad Pontificia Bolivariana; the courses, the Fashion, City and Economy study group, and the development of the monograph's themes around sustainability in fashion to graduate as a Clothing Designer. We finish with some conclusions around the practice of SLE in formative training and the importance of a professional clothing designer, capable of changing processes and provide solutions from a sustainable approach.

**Key words:** clothing design, SLE, research, curricula, design research.

## Introduction

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**T**he greatest economic activity in Medellín has been concentrated on the textile industry, and it continues to be like this nowadays. Until today, the development of the fashion design cluster has had a great impact and supported the growth of the textile industry. Fashion, Clothing and Costume schools and institutes have acted as the cradle of young national designers. Over time, and with the opening to global economic dynamics, the textile industry has sustained an important transformation. Textile production began to compete with global markets, while production, marketing, and design emerge to complement the industry's productive system.

Initially, the economic vocation of the city was focused almost entirely on the industry, specifically on production. At the time of the national government protectionist policies (almost 60 years ago), the textile industry generated such prosperity and wealth that it has become the

second most important capital of the country to this day (Botero, 1996). According to Colombian fashion and design historians, the weak textile industry at the time was consolidated thanks to the boom of coffee as a product and its export processes, economic activities like mining, and the protectionist policies of near half of the 20th century. With this, and a growing supply chain of yarns, textiles, and clothing in the region, the perfect conditions were created to project the textile, clothing, and fashion industry in Medellín (Dominguez, 2004).

The strong productive concentration that this industry had in the city generated great impact, not only at the national level. At the end of the last century, factories of the most important textile companies of the country were built, the main-working class neighbourhoods were planned and designed (which were most of the residential and urban fabrics of the city), and the fashion, clothing, and costume schools were constituted. Designers, especially fashion and clothing ones, were involved among other agents responsible for making decisions in the chain.

During late 1980s and early 1990s, with the arrival of the economic opening, Medellín (and Colombia in general), began to lose ground in the market, after being the national hyper-centre of the fashion industry. The traditional national production, without an added value, was not able to compete with the international products (Quiñones, 2003). National and local governments had to initiate processes to modernise the industry and its offer. Medellín was especially forced to change its mode of operation as a textile and fashion city (with which it had obtained so much wealth and prosperity) and had to face this new dimension of the market, reassessing itself in the business (Pineda & Builes, 2020, pp.116-118).

Fast fashion products began to appear, competing with the national market in terms of quality and costs, and without a proper evaluation of the social and environmental impacts this had on the city. They generated substantial pollution issues such as different and non-identified typologies of gas emissions from multiple companies day and night; chemical and toxic effluents to the Medellín River: an increase in industrial urban waste; a rise in carbon and water footprint from the textile industry in general

(Vanegas-Ochoa, 2020); questionable working conditions for men and women in these companies, and so on.

Hence, within the supply and demand, the government and other associated institutions were focused on protecting the industry and boosting economic growth regardless of the social, environmental, and economic footprints. Design schools started to review their programs according to these notable changes at the local and national context. As a result, the question that arose in academia was: how could they train clothing designers to face the challenges of the multiple footprints of the textile and clothing industry? The answers pointed to promoting actions that prevent, mitigate, and correct the environmental and social impacts of the industry and the market. Understanding the multiple footprints of the textile and clothing industry requires an analysis focused on the different social, economic, productive, and cultural processes around clothing and textile products. Therefore, it is fundamental to rethink, restructure and reconsider the ways in which these processes have been investigated in academia.

The training of clothing designers requires new practices that develop critical, analytical and reflective skills, so that through research and innovation, they recognise the multiple footprints, take stances and implement product or service developments that mitigate the effects of these impacts and, at the same time, contribute to sustainable development.

## **Clothing Design Faculty at Universidad Pontificia Bolivariana**

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According to Quiñones (2003), after national and local development plans, the National Development Plan approved in 1995 in Colombia specified the need to include professionals from the design field in companies for industrial modernisation. In the city of Medellín, there was a wide acceptance of industrial design professionals from Universidad

Pontificia Bolivariana that specialized in fashion. This is because, unlike their other colleagues, they had a profile that not only addressed the technical aspects of clothing construction, but also social, cultural environmental, and economic issues when working in design projects. The industrial design programme promoted a profile that was very close to the fashion industry in the final semesters at university, focusing on relevant contents of the discipline (Suárez, 2020, pp. 13-14).

By the end of the 1990's, it was decided that, in order to provide professionals with a more complete training in the field of clothing, it was better to divide specialties in separate programs. Hence, the clothing design program was born. The Faculty of Clothing Design at Universidad Pontificia Bolivariana was created in 2000, as a response to certain needs in the textile industry. It is part of the School of Architecture and Design, along with the Industrial Design, Graphic Design, and Architecture programmes.

Clothing Design, as a specialty in the field of design, is beyond meeting only the requirements of fashionable clothing (which responds to this phenomenon of trends and speed). It is broader proposal, where the axis is the act of dressing and everything that goes through it. The programme arises in a design school with a strong inclination for disciplinary activity; therefore, the main objective is the study of the body-artifact-context relationship. It was the first programme in this field of knowledge to receive high quality credentials from the Ministry of Education in Colombia. Within the design schools that have been inclined towards this approach, the first university in Latin America that chose to create an educational programme under the name of Clothing Design was the University of Buenos Aires (UBA) in 1989, as *Diseño de Indumentaria* (conceived under the model from the Polytechnic of Milan) (Fernández, 2016, p.188).

It is important to emphasize that, for this article, we will use the term clothing design, since there is no direct translation into English for *vestuario*. However, it is also relevant to note that this term is different from Fashion Design or Costume Design. Costume has a connotation of artistic or ritual pieces, while fashion applies to clothes corresponding to the social and market phenomena. In this way, we connect clothing (in

English) and *vestuario* (in Spanish) because clothing, as a verb, refers to the act of putting on clothes and, as a noun, it speaks of the elements that cover the body. That is, the act of dressing as a verb and noun, which is where the interest of the clothing designer lies.

According to the professional programme of Clothing Design of the School of Architecture and Design at Universidad Pontificia Bolivariana, this term is understood as:

[A] universe of the field of work, which transcends the issue of fashion, as something momentary and ephemeral, to reflect more on the cultural, anthropological, academic, and epistemological implications of the motivations and repercussions that stem from the act of dressing the human body and its environment, as an integral, interdisciplinary, and transdisciplinary project in a multicultural environment (Cano et al., 2014, p. 15, our translation).

Under these guidelines, the clothing designer must be prepared to make broader and more rigorous readings of context rather than just problems focused on fashion and trends. Within the Educational Project of the Clothing Design Programme (2006), which today governs the curriculum, research competences are required from both, the professional and the occupational levels.

In the professional profile, the trained clothing designer supports the act of dressing by being: "A researcher capable of reading and analysing critically the requirements and trends of the context in all its dimensions, for the generation and development of knowledge" (p.40, our translation).

In the occupational profile, the clothing design professionals may work as a researcher. They must be capable of generating knowledge and concepts around wardrobe, both diachronically and synchronically; they should also be able to build communication strategies as articulators and creators of languages, and of perceiving specialized needs to turn them into opportunities that develop business management based on knowledge (p.41).



Within this educational programme, there are some defined “Areas”, based on what is considered as necessary knowledge. These are: Project Area, the Theory Fundamentals Area, and the Technical Area; each of them is made of Axes, which are defined as “the ‘do’s’ of operative, cognitive, theoretical, practical, and theoretical-practical order that constitute the educational components of this discipline” (p.49, our translation). Some of them are the Project axis, Research axis, History axis, and Management axis. With these areas and axes, the courses given are proposed to students in their training as a clothing designers.

For ten semesters, the clothing designers in training (who are in a deep relationship with the context and the purpose of dressing projects), begin to develop skills and abilities to generate knowledge and schematic configurations of reality through formative research. In some courses of the research axis of the programme, teachers began introducing new methodologies and strategies, such as those described in the *Sustainable Learning and Education* (SLE) model. A philosophy which is founded on the principles of sustainability (Hays & Reinders, 2020).

## **Applying SLE in the Clothing Design Faculty**

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Conventional approaches to learning and teaching in an unconventional world are likely to be ineffective and perhaps counterproductive (Hays, 2017). Little remains as conventional as the scope of problems, and possibilities extend beyond traditional understandings and tried-and-true strategies. When educating for the textile and fashion industry, a new paradigm for learning and teaching is needed, for a variety of reasons. The main one being the extreme difficulty of current models to keep pace with the disruptive nature of technological and social changes (Fukuyama, 2017). Sustainable Learning and Education is designed to overcome the insufficiencies of a replication of solutions and incremental learning (Stroh, 2015). This is only possible through new ways of thinking about learning, on its focus, and how it is achieved; thus, a paradigm shift (Kuhn, 1962).

According to Hays and Reinders (2020), the intent of Sustainable Learning and Education is to create and proliferate sustainable curricula and methods of learning and teaching that instil the necessary skills and dispositions to thrive in complicated and challenging circumstances, and to contribute positively in making the world a better place. What makes SLE different than an empowering, liberating education (Shor & Freire, 1987), is its focus on sustainability, self-sufficiency, and consciousness. To produce such new capacity, it requires the dramatic reinvention of traditional education and professional development.

Changing principles and paradigms through Sustainable Learning and Education implies introducing subjects like: Principles and Practices of Sustainability, Theory and Behaviour of Complex Adaptive Systems, Wicked Problems, and Vicious and Virtuous Cycles, as suggested by Hays and Reinders (2020). In the following section, we will present the way these concepts are introduced in the Research Axis courses.

## **Research training: courses and teaching strategies of the SLE**

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It is important to acknowledge that research through Design is inserted within the design process. Understood from its scope in *Research For-About- Through Design* (Frayling, 1993; RTD, 2015a, 2015b), Design appears from a technical perspective of use, which consolidates the way designers work. This variable is appropriate mainly from the art and architecture point of view, from where it is known and conditioned to the different divisions of the exercise. There, characterizations specific to the discipline are used in the teaching of research for the realisation of the project in the curriculum.

For the field of design and its research objectives, these scopes are used by combining, mixing, and appropriating them without concern. However, these goals are often only achieved by the teaching team and not by the student(s). Therefore, the intention to demonstrate the application of

research processes and SLE within established courses in the curriculum as a new strategy in teaching design (for the understanding of multiple footprints) is of great relevance for its achievements in the assessment of the process as a method, connecting with one of the objectives of this work.

In the implementation of most design projects, a first stage of research on the subject (almost always called research), is taken into account. Research is based on the creation of new knowledge, directed towards the development of a set of organized knowledge (Best & Kahn, 2003). Nonetheless, this is difficult to achieve in a design project in its first stage. This first phase of the design project is far from a true investigation, considering its process, its care and theoretical review that must be taken for the creation of new knowledge; especially when one speaks of processes of less than six months in an undergraduate program with a purely technical focus, or based on the development of artifacts.

However, for some teachers and most students, this information seems new and relevant, and it creates knowledge for the project. It is research, from an individual perspective, but if we go for a simple definition, we would be defining the process of research as creation of new knowledge. If we point out the error, we understand that research is not achieved in its totality. It is only framed and transcended in the form of a product. However, it serves to establish future scopes and help students in their formation. It is possible that, later on, it can take those processes to deeper instances and become research that is created from the field of design for the creation of new knowledge.

In the Clothing Design Faculty, this recognition in the process happens from the first year. Students are encouraged to search, investigate, and compose for their professional growth. They assimilate this and understand that it will be the first step to take in their academic life and possibly in their professional life for their individual or collective projects.

The courses included within the curriculum that have been specifically formulated for this purpose are: Research Fundamentals, Research Electives, Observatory 1, Observatory 2, Observatory 3, and Monographs. It is necessary to say that within all the courses of the

Project Area, from its division between Workshop and Theory classes, the integration, application, and improvement of the skills acquired in the Research courses is allowed, connecting theoretical knowledge, praxis, and context. Specifically, the research axis poses:

[A] series of systematic, organised, and objective processes which, in clothing design, allow us to characterise the conceptualisation of the discipline and potentiate its prospective, increasing its knowledge and exploring its interaction with other disciplines. It is a process immersed in all the areas and that is particularised in the practice of each one; it goes through different levels, going from simple research to the simulation of quantitative and qualitative phenomena. (Educational Project of the Clothing Design Programme, 2006, pp.49-50, our translation)

Consequently, research as a primary exercise in the designer's project is constituted in their training through formative research. In the making of research, with purpose in designing, it is conceived for the production of knowledge, reflection and criticism, even for the questioning of the same practice of design. Fernandez - Silva and Zuleta (2015), in their paper *Los retos de la formación en investigación en diseño de vestuario*, state that "training in and through the project, as a pedagogical strategy for design and architecture, has been considered in itself as training in the research process" (p. 4, our translation).

The first level, Research Fundamentals for Clothing Design, begins with tasks related to qualitative research and raises awareness of the contextual needs of clothing design in the research field. An epistemological basis is built around the research paradigms and, essentially, the concepts of design research (reading context) and research for design (knowledge production) are differentiated. In addition, through processes such as observation, analysis, synthesis, deduction, induction, and comparison, are enhanced for the research exercise.

Then, the research elective deepens in research tools, such as ethnography, or interpretative analysis systems. Subsequently, the

courses called Observatory 1, 2, and 3, rather than indicating levels of increasing difficulty, propose spaces for observation of different themes; Observatory 1, as a laboratory for training and information capture, and for the understanding of functionality and technology in the world of clothing; Observatory 2, as a space in which diverse knowledge and views of a social phenomenon are articulated, read from a socio-cultural perspective; Observatory 3 introduces the concepts of socioeconomic studies of clothing and fashion. For this paper, we will concentrate on this course since it was the first one in which SLE strategies and methodologies were applied.

Observatory 3 centred the discussion in the socio-economical processes (production, consumption, and distribution) of the textile and fashion industry and its impacts in the city. It is fundamental that, within the research exercise, both in the theory and in the practice of research, the student is given the opportunity to deepen in topics of contemporary relevance, such as the multiple footprints of the textile and fashion industry. Tools, concepts, instruments, and methodologies are provided, following the fundamental question that each student poses, maintaining the critical questioning on these as a unit. In addition to a theoretical framework, in this case in the economic and productive field concerning clothing, the students confront the impacts and traces of the textile and fashion industry and debate with the profile that they have built as clothing designers.

Furthermore, through the configuration of the Research Incubator and the Research Group on Clothing and Textile Design, research training continues to be strengthened. The research group has three research lines: Functional-Technological, Socio-Cultural and Economic-Productive. Additionally, the annual realisation of the event *Experiencias Investigativas del Vestir y la Moda* can be included since 2010, which today is constituted as an international event, and a proposed space for reflection, debate, exploration and deepening of the relationships between body and clothing. Teachers are permanently encouraged to participate in academic meetings and scientific committees to propose research projects that link students and other fields of knowledge to the production for specialised

publications as a result of their research exercises. At this point, the teaching experience is linked to the research exercise of students.

As a result of these discussions, the Fashion, City and Economy study group was formed, as an exercise of exploration within the same structures that constituted the economic model on which the urban and economic development of the city of Medellín was based. It also provides a space to discuss designers' practices in this chain. The production of clothing with textiles of dubious origin, re-labelling, and questionable working conditions for those involved in the production chain, among others, allowed discussions among researchers, professors, and students around the multiple footprints that the textile and clothing industry has generated (here, with specific local impact). As a result, the group, formed by undergraduate and master students of Clothing Design, Industrial Design, and Architecture, and researchers from various disciplines (economists, engineers, designers, and architects), formulated a research project entitled: Fashion, City, and Economy. This project focused, for two and a half years, on the impacts caused by the consumption, distribution, and production of clothing products on the territory.

All strategies, methodologies, and practices become evident in student's monographs to apply to the undergraduate title, while the implementation of SLE in research courses materialises in various monographs between 2014 and 2019. Students research questions centred around multiple footprints of the textile and fashion industries, since the SLE was introduced in these courses. As you can see in the following table, we collect some of the monographs written by the students between 2015 and 2019.

**Table 1.** Monographs written by students between 2015 and 2019 related to sustainability

Monograph Title	Theme	Year of presentation
Retazo y cero residuos	Reducing waste in the production chain.	2018
Cíclico – más conciencia, nuevos ciclos	Re-interpreting the production, consumption, and distribution cycle of clothing.	2018
Smog Capital	Wardrobe for air pollution solutions	2018
Nuevos ciclos: impulsar la sostenibilidad ambiental en la industria de vestuario de Medellín	To promote the use of sustainable environmental strategies in clothing companies in the city	2018
Estudio de caso del <i>denim</i> y su impacto medioambiental en Fabricato: sostenibilidad de la industria textil en Medellín	Sustainability and multiple footprints in the textile industry. Case study: Denim	2018
Consumo consciente: modelo de negocio enfocado en la transformación de vestidos de novia bajo la práctica del Upcycling	Sustainable business models	2017
Comunicación visual sostenible	Visual sustainable communication	2019
Sostenibilidad y reciclaje: elaboración de ropa de hogar usando muestras sobrantes y residuos de lavandería, procesos y acabados del Denim de la empresa textilera de Medellín.	Recycling and Upcycling	2015
Educación sobre el consumo sostenible de moda	Sustainable Education for fashion	2019

As it is evident in this table, there is a rising preoccupation around sustainability and multiple footprints regarding the textile and fashion industry and sector. The discussion in courses, seminars, and research groups was also enriched by the students' interest and works.

Monographs are cited as an example of the use of SLE principles in the Clothing Design program. For instance, the work *Estudio de caso del denim y su impacto medioambiental en Fabricato: sostenibilidad de la industria textil en Medellín* (2018), focused the research exercise on the following SLE principles: 1) Transformation and change: recognising how employees of the *Fabricato* denim industry were equipped with the skills, capacity, and motivation to plan and manage change towards sustainability within an organisation; 2) Critical thinking and reflection: understanding the capacity of the organisation individuals and groups to reflect on the organisational experiences to challenge accepted ways of interpreting and engaging with the world; and 3) Participation: recognising participation as critical for engaging groups and individuals in sustainability.

Another example that can be pointed out is the work entitled *Sostenibilidad y reciclaje: elaboración de ropa de hogar usando muestras sobrantes y residuos de lavandería, procesos y acabados del denim de la empresa textilera de Medellín* (2015). It focused on the exercise of four SLE principles involving the textile industry to gain trust, manage change through partnership, envision a better future, and apply system thinking as the fundamentals for economic and environmental sustainability of the project in the future. More examples can be listed, as the number of research works have increased regarding environmental sustainability and multiple footprints.

Additionally, students applied SLE through the development of different proposals in project design courses. + *Conscience-Water* was a prototyped strategy designed by Sofía González, Laura Vallejo, and Manuela Granda, which focused on raising awareness and educating the consumer of garments on the use of resources in their production, particularly, the excessive use of water. Designed from elements of design for behaviour change and design for education, from macro-trend



analysis and research with industry experts, it connects with SLE from an approach to individual, organisational, and societal change. With this, the principles (Hays, 2020) to which they adhered were: principles and practices of sustainability; theory and behaviour of Complex Adaptive Systems; Ecology; the nature of knowledge and knowing; self-direction and learner autonomy; Action Learning and Action Research; and individual accountability and collective action.

The project was intended to be a means for the empowerment of consumers, it sought to destroy and question that hierarchy that made decisions in favour of economic surplus value and not in favour of the protection of a resource such as water. As Suárez (2020) explains in her research, the project could be located within the sense of a design for transition, which Gutiérrez (2016) defines as:

A movement that starts from the recognition that we live in transitional times, whose central premise is the need for societal transitions towards more sustainable futures with design (or designs), open to a greater spectrum of knowledge playing a key role within them (Irwin, et al., 2015, as cited in Gutiérrez, 2016, pp. 28-29).

## Conclusion

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From the conception of the multiple footprints, several spaces of conversation have been generated, which have allowed to question, from different perspectives, the very practice of clothing design. Rethinking academic research implies approaching authors who are critical of the same profession, those who point out the “painful truths” of the industry.

Due to the deep secrecy of the processes related to the impacts of the textile industry, the contexts where the research action takes place, make the action of the researcher more complex or limited. It is therefore recognised that there are political and legal limits to the academic research carried out by the SLE, exemplified by the situation of students

who have not been able to complete the research process because they have made sectors of the industry feel uncomfortable with their questions.

Restructuring formative research was one of the strategies that the faculty applied for the understanding of these multiple traces in the textile industry. This transformation calls for tools, instruments, methods, and classroom learning actions that are different from those traditionally used in the design discipline. Using SLE in the curricula formed clothing designers with new paradigms of action, who now are starting to transform the textile and clothing industry in the city of Medellín in different levels. Not only by working inside textile or fashion companies, but also in the creation of their own brands and businesses as we evidenced in the interviews with clothing designers.

Traditionally, design, designers and more specifically, clothing designers, have been not related with research due to the stereotype that sells publicity. But from this reflection, it is possible to affirm that to confront the current world crisis and the crisis of the sector itself, finding actions from multiple perspectives is essential; the formative research with SLE strategies is a mechanism that provides students with a wide vision, and the possibility of questioning and finding answers around the multiple footprints and all the impacts of the textile and fashion industry.

In personal communications, many managers from big fashion companies in the city of Medellín have recognized the valuable ability and capacity of clothing designers from Universidad Pontificia Bolivariana to analyse, reconsider, and propose many solutions that could be considered as sustainable, which is an added value to the fashion industry today.

Formative research and SLE have been an important factor in the university professional training of these new professional designers worried about finding better solutions for today's world. It is necessary that all the disciplines reconsider research to understand these multiple traces, give it more relevance and to categorise it as a fundamental factor on all the industries and companies.

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