PAD

20

P
AD

FASHION AND TEXTILE DESIGN RECONSTRUCTION

002

003

III. PRACTICES & TOOLS

IV. PROJECTS & DOCUMENTS

IV. BIOGRAPHIES

The Emergence of Sustainability and the Textile and Fashion Design Education

Sónia Seixas
Universidade de Lisboa

Keywords

Sustainability, Circular Economy, Fashion and Textile, Higher Education, Design Education.

Abstract

This paper intends to reflect on the relationship between design and academia and its context in a fragile and integrated ecosystem challenges such as the fashion system and its sustainability in a strategy of circular economy and change of social paradigm for the emergency of the future.

Design theories and practices are presented as fundamental for the sustainability of the fashion system and for human survival. Different approaches will be confronted in a critical perspective of ideas and possible paths to follow as essential tools for a more conscious and design creative thinking.

The methodology will be carried out through a review of literature where it is intended to review fundamental concepts and to proceed to a critical, constructive, and real analysis on the competences of the students. Develop strategies to raise awareness about sustainability concepts and circular economy allowing to understand its importance for its learning and future. The expected result will be to identify large thematic areas indispensable to design and transversal to education which are consistent with the evolution of the textile and clothing industry and with the needs of the consumer. Also, a reflection on the importance of the theme in the current and future economy.

1. Introduction

This study aims to reflect on the relationship between the design area and academia and its context in a fragile and integrated ecosystem such as the fashion system and its sustainability in a strategy of circular economy and social paradigm shift. It begins with a review of current literature on the underlying themes - society, consumer behavior, design, and sustainability - by conducting a constructive analysis on the need to develop strategies to raise awareness about the concepts of sustainability and circular economy, understanding its present and future importance.

21st century society should rethink consumption by purchasing products more consciously. It should be reflected on the material consumption exacerbated as an ideal lifestyle that generates an increase in production, for a society capable of producing and maintaining economic development reducing excess and consequently improving the quality of the environment, being social as physically (Manzini, 2008). It is important to rethink consumption behavior to make the human being aware of more conscious spending to protect the planet and himself. This awareness of change must also be instilled in the design education system to make students, as future designers, and users, aware of sustainability issues, not only at the environmental level but also at the economic and social level.

The textile and clothing industry proves to be one of the biggest environmental problems in landfilling waste. In this sense, strategies should be considered in order to minimize impacts and rethink the life cycle of fashion products, espe-

cially in an area where there is a lot of diversity of materials and processes (Fletcher & Grose, 2012). Considering the Portuguese reality, higher education in design associated with the textile and clothing industry is recent dating to its first undergraduate course in Fashion Design in 1992 at the Lisbon School of Architecture of the Universidade de Lisboa (Faculdade de Arquitetura de Lisboa, 2020). It will be analyzed how it is integrated into the study plan of undergraduate courses in Fashion and Textile Design in Portugal contents related to the theme of sustainability and circular economy.

It is intended to confront the business and be productive with its social reality and think on the effects that this analysis should reflect on the teaching of fashion and textile design in future professionals, but also citizens and consumers, thinking on the importance of sustainability in the current and future economic, deepening and generating knowledge.

2. The Society and the (un)Sustainability

Today's society should rethink consumption by purchasing products more consciously. Several authors address this problem by warning of its consequences. Gilles Lipovetsky (1987) mentions that the fashion system is the temporal dynamics that produced the consumer society and "modernity" considering the obsolescence of products produced by the fashion industry, as well as its ephemerality. It considers that fashion manifests itself rapidly in the change of products, prevailing the rule of ephemeral in production and consumption "(…) the fashion of our societies is identified with the institutionalization of waste, the creation on a large scale of artificial needs,

the normalization and hypercontrolled of private life"[1] (Li-povetsky, 2009 [1987], p.185). Jean Baudrillard (1970) alludes to the illusion created in the consumer society considering the pleasurable consumption and its dependence, but it never happens in isolation, and this, reflected in consumers, is a system of exchange and production of coded values. Humankind seeks pleasure, as if this were the only purpose of life resulting in an absence of reflection, distancing himself from moral values. Ezio Manzini (2008) narrates in his writings that sustainability demands a discontinuity of a society where the continuous growth of production and material consumption as an ideal lifestyle, one must reflect and change the paradigm for a society capable of producing and developing reducing these factors improving the quality of the environment, physically and socially (Manzini, 2008, p.19). He considers the changes are still very tenuous and designers are unfortunately part of the problem, and this process should be reversed. Designers can and should take the other side of the line and become part of the solution. Designers have the faculties to help in this problem tracing new horizons, so that in the future, guided by the issues of sustainability and acquiring a new vision of the world, to realize in association with society the necessary changes for a life with more quality, with isonomy and environmental consciousness (Manzini, 2008).

Thinking on the point of view of the previous authors it is imperative to alert a change in consumer behaviors to more

1   "[...] o devir moda de nossas sociedades identifica-se à institucionalização do desperdício, à criação em grande escala de necessidades artificiais, à normalização e ao hipercontrole da vida privada" (free translation by the author).

conscious consumption to protect the planet, and this should also be instilled at the teaching level in design, sensitize and empower students to sustainability issues and not only at the level of materials, but also at the social and economic level, including methodologies and processes. To do it will be necessary to reflect on the educational system, rearranging the study plans evidencing practices of social, environmental, and economic responsibility to impregnate at the personal and professional level.

3. Design Theories and Practices in a Paradigm Shift View

Design as a part of the complexity of the current social, cultural and productive environment presents itself as an increasingly important activity in the contemporary world. Bruno Latour (2008) revises the term *design* in a vision of the contemporary world, placing design in a central position. It considers that one sees an extension of the design, which goes beyond form, function, and aesthetics; which integrates concept and experience, represents the change of the worldview, one new "vision of the world" that accepts design.

> (…) the little word "design" could offer a very important touch stone for detecting where we are heading and how well modernism (and also postmodernism) has been faring. To put it more provocatively, I would argue that design is one of the terms that has replaced the word "revolution"! (Latour, 2008, p.2)

Victor Margolin (2007) saw a change in the role of designers in the face of the challenges of contemporary society having the ability to intervene in material and immaterial form.

Designers should not merely be product creators, they can assume the role of mediators occupying a dialectical space between the current world and what could be. Victor Papanek (1972) mentions that designers should understand the social, economic, and political contexts considering that design is a constantly changing discipline, in contact with other knowledge, transforming the thought process and the practice of design (Papanek, 2006 [1972]).

Faced with these thoughts on the practice of design in the contemporary world, in today's society, it can be told that design is in a paradigm shift. Thus it is considered important an approach to this change, in which designers must understand and absorb that design begins to have increasing importance for a greater understanding of the design and design process and its relations with the complexity of the contemporary world, and should be integrated and interconnected in teaching in design.

4. Education for Sustainable Development

United Nations Educational, Scientific and Cultural Organization (UNESCO) carried out an initiative for the Education for Sustainable Development (ESD) which defend the reorientation of the industrial model of education with significant pedagogical implications for the cultivation of knowledge, skills, and values structured in order to support sustainable development (UNESCO, 2019).

"The disorder of ecosystems reflects a prior disorder of mind, making it a central concern to those institutions that purport to improve minds. In other words, the ecological crisis is in every way a crisis of education". (Orr, 2009)

ESD is supported by the definition of sustainable development from the World Commission on Environmental and Development (WCED), a concept introduced by the *Brundtland Report* (United Nations, 1987) that define sustainable development as sustainable when "(…) meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987, p.6).

> (…) sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.
> (United Nations, 1987, p.43)

ESD encourages a transdisciplinary approach to environmental, social, and economic issues by highlighting critical and creative approaches, long-term thinking, dealing with uncertainty, and solving complex problems. Emphasizes the mutuality between the environment, the economy, society, and cultural diversity, from local to a global level. It is necessary to act responsibly understanding that current attitudes will be repercussions for the future for the life of the human being and the planet (UNESCO, 2017).

A fundamental change is needed in the way we think about education's role in global development, because it has a catalytic impact on the well-being of individuals and the future of our planet (…). Education can, and must, contribute to a new vision of sustainable global development (UNESCO, 2017, p.7).

In view of this framework, the incorporation of ESD in education allows integrating the concepts of sustainability and sustainable development preparing students for a change of behaviors and more conscious and sustainable decision-making. Promote skills of reflection on future scenarios, critical and creative thinking, decision-making collaboratively, in a vision of improvement of the planet.

5. Education in Design and the Sustainability

The Textile and clothing industry is one of the most polluting industries (Boström & Micheletti, 2016) sustainability being a topic of debate, research, and attention (Shen et al., 2014). Designers and design theorists in other product fields have long been concerned with sustainability issues like Victor Papanek (1984) who believes that the design response must be unifying and positive, it must be the bridge between human needs, culture and ecology "Ecology and the environmental equilibrium are the basic underpinnings of all human life on earth; there can be neither life nor human culture without it" (Papanek, 2009 [1984], p.469). According to Victor Papanek (1995), ecology and environmental equity are the basic foundations of human life on the planet, there is no culture or life without the planet. The author explains how designers can create a safer future through better choices. The author highlights how the designer produces pollution through six key points: the choice of materials, the production method, the packaging, the finishes, the transport and, the waste, all these elements contribute to what Papanek describes as "a life cycle assessment". A reference that design education should be based on ecological ideas and methods (Papanek, 1995).

"(…) It is estimated that the product design and development phase carries approximately 80% or even more of the environmental and social impacts of the product including the manufacturing, use and disposal phase" (Charter & Tischner, 2001, p.120).

William McDonough and Michael Braungart (2002) address issues related to the environment and sustainability in the book *Cradle to Cradle: Remaking the Way We Make Things*. They say that with the creation of quantities of products in an exaggerated way these end up being discarded, and that design can save this cycle of *cradle to grave*. Designers can create environmentally friendly products by ensuring that they remain in circulation and use. They mention the importance of starting creatively on solutions that will allow rethinking the notion of disposal implementing a strategy of change. Consider a better framework of economic concerns in line with environmental and social issues, the concept of the circular economy, eliminating waste by visualizing future life. Tony Fry (2009) suggests a redirected premise of *design futuring* based on practice. He advises a *new design intelligence* focused on being a designer and the current world making it sustainable. It states that designers need changes in their own being, not to be so involved in materiality but to consider what they project in a more conscious way, thinking about the implications of products in a world with finite resources to bring new awareness and responsibility to designers. This new vision promotes transdisciplinary practice as a new method of thinking and working "By its very character, redirective practice can never be universally or theoretically generalised - it can only ever be situated and circumstantially reactive" (Fry, 2009, p10).

Faith Kane and Rachel Philpott (2013) suggest a heuristic style of interdisciplinary practice around textile creativity and sustainability that they call *textile thinking*. They suggest that professionals who work directly with textiles have some knowledge "specific blend" of materials that is essential in developing sustainable solutions. They mention "(…) handmaking and craftsmanship are key processes used by textile practitioners to develop understanding of both materiality and concept" (Kane & Philpoot, 2013, p.5). According to Kate Fletcher (2009), sustainability actions occur with small progressive changes because they are relatively simple to realize, however, in the challenge of a more sustainable fashion it is also necessary to make changes at a deeper level and consequently in the long term. It is important to look at the philosophies of design that consider sustainability for the process of change to be beneficial in the fashion universe. Annie Sherburne (2009) highlighted the role of a designer in the aesthetic creation of fashion products and suggested that the use of methods and materials can be a starting point in the process of creating a more sustainable fashion. Creativity and aesthetics should not conflict with ecological and social sustainability.

Fernando Moreira da Silva (2019) mentions that at each stage of the production process of a fashion product design plays an important role not only in terms of its functionality and aesthetics but also its intangible value. At the level of teaching, it is important to instill the trans and interdisciplinarity of the different disciplines and areas that interact in fashion design generating a new form of thought and action to allow the achievement of more holistic results, new strategies, and

competencies, generating a change of attitude and mentality in students.

Thinking on these thoughts it can be considered that the aesthetic aspect in conjunction with sustainable thinking can be complex, however, the choice of materials should be an essential part and correlated with the aesthetics of any product, including fashion products. The designer acquires a new role to work in a sustainability structure with emerging ways of visualizing the process and practice of sustainability. Fashion products are influenced by consumerist material culture and education with a sustainable vision in this area is extremely important in an alternative view of questioning. The challenge is to explore territories that are connected to human experience and ecological values in any product. Sustainability education places the central importance of bringing together and not destroying so designers can make a valuable contribution to society, thinking and acting in a new way by dissolving mental and disciplinary boundaries (Jones et al., 2010; Wals & Blewitt, 2010). Design education for sustainability should include critical thinking, learning, and questioning the world. Use the tools of Design Thinking combined with sustainability enabling changes and improvements in the way of thinking and consequent projects. Iterative, affirmative, reflexive, practical, and visionary skills, understanding the relationship between producer and consumer, between technology and society, can be a path to sustainability issues, sometimes complex, multifaceted, and unlimited issues. But these thoughts and ideologies are not always facilitated. Studies by Cosette Armstrong and Melody LeHew (2015) identify some barriers related to students in design teaching

with a sustainable vision, they mention the difficulty on the part of students in understanding content outside their field boundaries, outside the creative imagination. Addressing complex and scientific issues often generates frustration in design students by demonstrating reluctance to understand their importance, often associated with the difficulty in generating critical thinking and thinking in a non-linear way to search for solutions to complex problems, understanding, and awareness of more global issues, and more specifically, social responsibility and ecological literacy which on the part of students comes out of their areas of creative interest.

> "(…) Imagination, ingenuity, improvisation, empathy, the ability to contribute to and shape convention, will be at least as important as technical know-how in design, materials, and processes" (Williams, 2013, n.p.).

6. Higher Education in Fashion and Textile Design and Sustainability Practices in Portugal

This study addresses Higher Education in Fashion and Textile Design in Portugal of undergraduate courses and there are five training offers (Direção Geral de Ensino Superior, 2020). To analyze the issues related to the theme of sustainability in the existing national fashion and textile education offers it was started by investigating the study plans of the courses (Escola Superior de Artes Aplicadas, 2020; Escola Superior de Artes e Design, 2020; Faculdade de Arquitetura de Lisboa, 2020; Universidade da Beira Interior, 2020; Universidade do Minho, 2020). Only two of three offers integrates in their study plans specific units related to the theme os sustainabili-

ty, the undergraduate course from the School of Applied Arts integrates in the second year the unit *Sustainability in Fashion* that aims to engage a responsible awareness in students through the exploration of emerging concepts in fashion and to experiment alternative processes of design and production of clothing (Escola Superior de Artes Aplicadas, 2020), and the undergraduate course from the University of Beira Interior integrates in the second year the unit *Sustainable Fashion Design* that aims to internalize the importance of sustainable design applied to the textile and clothing industry developing sustainable design projects considering the entire product life cycle (Fig. 1) (Universidade da Beira Interior, 2020).

Institution	Course (undergraduate)	Year of implementation	Sustainability unit/discipline
Lisbon School Architecture of the Universidade de Lisboa	Fashion Design	1992	No
Higher School of Applied Arts from Polytechnic Institute from Castelo Branco	Fashion and Textile	1999	Sustainability in Fashion
University of Beira Interior	Fashion Design	2000	Sustainable Fashion Design
School of Art and Design	Design with a specialization in Fashion	2004	No
University of Minho	Fashion Design and Marketing	2005	No

Figure 1. Sonia Seixas, Higher Education undergraduate courses in Fashion and Textile Design in Portugal, 2021.

Given this scenario some undergraduate courses in the area under study do not include the specific teaching of sustainability in their study plans, only two integrate them. It does not mean, however, that in the other undergraduate courses these topics are not addressed but will be in an optional vision

through optional subjects or, teachers, whether they address these themes. This panorama leads us to reflect on the need to update the study plans in undergraduate course in Fashion and Textile Design in Portugal in order to integrate the concepts and issues of sustainability as a curricular unit, this being an emerging concern of the 21st century and to which textile and clothing industry has contributed as one of the most polluting industries (Boström & Micheletti, 2016).

7. Discussion

The goal of this study goal was to reflect on the relationship between the design area and academia and its context in a fragile and integrated ecosystem such as the fashion system and its sustainability in a strategy of circular economy and social paradigm shift. Based on the results of this research integrating into the undergraduate courses of Fashion and Textile Design the concepts of sustainability and circular economy will promote a change in the fashion system industry and consequently in the consumer consumption behaviors in a vision of a sustainable planet. Students will also experience a learning opportunity allowing them to act as change agents in understanding the design process and its relations with the complexity of the contemporary world (Fletcher & Grose, 2012; Manzini, 2008; Papanek, 2006 [1972]; UNESCO, 2017). In this sense it seems to be relevant to rearranging the study plans in this field evidencing practices of social, environmental, and economic responsibility, namely in Portuguese reality that which was one of the realities observed in this research.

8. Conclusion

The need to consider circular economy and sustainability in fashion system, academia and consumer behavior is gaining awareness among researchers. This research focused on reflecting on the relationship between design and academia and how the theme of sustainability is dealt with in undergraduate courses in Fashion and Textile Design namely in the Portuguese reality. This research was outlined in Higher Education in Fashion and Textile Design in Portugal due to the importance of this industry in the country, considered one of the most important sectors of the national economy due to the creation of wealth and employment, and in this sense the academy must be aligned with the problems generated by the current fashion system (Direção Geral das Atividades Económicas, 2018). Through the literature review it was possible to observe that a paradigm shift is emerging towards more conscious consumption in a current and future vision of the planet. A change in consumption patterns is considered imperative, and it is essential to raise awareness of the human being so that he understands that his acts of consumption generate consequences for the future of the planet. It is urgent to reflect on the direction of (un)sustainability generated by today's society, in an environmental, economic, and social vision. Design has a word to say on these issues, the designer must understand and absorb its importance in a greater understanding of design process, considering the issues inherent to sustainability in all phases of the process. Search for solutions to complex problems with more conscious and sustainable decision-making in a collaborative way, including reflective practices in a current and future vision in the relationship with objects and society.

Regarding fashion and textiles products the aesthetic aspect should be considered together with the choice of materials in critical, constructive, and sustainable thinking. Understanding the relationship between producer and consumer, between technology and society, can be a path to sustainability issues, sometimes complex, multifaceted, and unlimited issues. These issues should be addressed in the education system, students should be sensitized and acquire skills on the importance of sustainability and circular economy in the design phase. There must be an interdisciplinary correlation to allow more holistic results, new strategies, and competencies, generating a change of attitude and mentality. The students need to acquire social skills to help them deal with the uncertainty of an unsustainable future. Feel socially and ecologically responsible to be able to translate values and knowledge into more environmentally friendly projects.

The research allowed us to realize that the theme of sustainability in the five undergraduate courses in Fashion and Textile Design in Portugal is still in a very embryonic phase, only two offers integrate it, the University of Beira Interior and School of Applied Arts. This panorama leads us to reflect on the need to update the study plans of undergraduate course in Fashion and Textile Design in Portugal to integrate the concepts and issues of sustainability as a curricular unit, being a concern of the 21st century and to which textile and clothing industry has contributed as one of the most polluting industries. It is also worth reflecting on a strategy of approximation and interconnection between academia and industry to adjust the study plans combining academic teaching with practical experience in an interdisciplinary vision sharing research and innovation.

It is expected that this study will contribute to creating opportunities and conjunctures for the increase of sustainability themes in the field of Fashion and Textile Design, particularly in Higher Education in Portugal.

Acknowledgments

References

Armstrong, C., & LeHew, M. (2015). Barriers and Mechanisms for the Integration of Sustainability in Textile and Apparel Education: Stories from the Front Line. *Fashion Practice*, *6*(1), 59–85. https://doi.org/10.2752/175693814X13916967094830.

Baudrillard, J. (1995). *A Sociedade de Consumo*. Edições 70.

Boström, M., & Micheletti, M. (2016). Introducing the Sustainability Challenge of Textiles and Clothing. *Journal of Consumer Policy*, *39*(4), 367–375. https://doi.org/10.1007/s10603-016-9336-6.

Charter, M., & Tischner, U. (2001). *Sustainable Solutions. Developing Products and Services for the Future.* Greenleaf Pub.

Direção Geral das Atividades Económicas. (2018). *Indústria Têxtil e Vestuário (Sinopse)*. Direção Geral das Atividades Económicas.

Direção Geral de Ensino Superior. (2020). *Direção Geral de Ensino Superior [DGES]. Licenciaturas*. https://www.dges.gov.pt/pt/pagina/licenciatura.

Escola Superior de Artes Aplicadas. (2020). *Escola Superior de Artes Aplicadas [ESART]*. https://www.ipcb.pt/esart/escola-superior-de-artes-aplicadas.

Escola Superior de Artes e Design. (2020). *Escola Superior de Artes e Design [ESAD]*. https://esad.pt/pt/cursos.

Faculdade de Arquitetura de Lisboa. (2020). *Faculdade de Arquitetura de Lisboa [FAUL]*. https://www.fa.ulisboa.pt/index.php/pt/cursos.

Fletcher, K. (2009). Systems change for sustainability in textiles. In R. S. Blackburn (Ed.), *Sustainable Textiles. Life Cycle and Environmental Impact* (pp. 369–380). Woodhead Publishing Limited. https://doi.org/10.1533/9781845696948.1.3.

Fletcher, K., & Grose, L. (2012). *Fashion & Sustainability. Design for Change.* Laurence King Publishing Ltd.

Fry, T. (2009). *Design Futuring: Sustainability, Ethics and New Practice*. Berg Publishers.

Jones, P., Selby, D., & Sterling, S. (Eds.). (2010). *Sustainability Education: Perspectives and Practice across Higher Education*. Earthscan.

Kane, F., & Philpoot, R. (2013). Textile Thinking for Sustainable Materials. *Making Futures Journal*, *3*, 1–11.

Latour, B. (2008, September 3). *A Cautious Prometheus? A Few Steps Toward a Philosophy of Design* [Keynote lecture]. Networks of Design, meeting of the Design History Society, Falmouth, Cornwall, UK, 1–13. http://www.bruno-latour.fr/sites/default/files/112-DESIGN-CORNWALL-GB.pdf.

Lipovetsky, G. (2009) [1987]. *O império do efêmero. A moda e seu destino nas sociedades modernas*. Editora Schwarcz Ltda.

Manzini, E. (2008). *Design para a inovação social e sustentabilidade. Comunidades criativas, organizações colaborativas e novas redes projetuais*. E-papers Serviços Editoriais Ltda.

Margolin, V. (2007). Design, the Future and the Human Spirit. *Design Issues*, *23*(3), 4–15. https://doi.org/10.1162/desi.2007.23.3.4.

McDonough, W., & Braungart, M. (2002). *Cradle to Cradle. Remaking the Way We Make Things*. North Point Press.

Moreira da Silva, F. (2019). Sustainable fashion design: Social responsibility and cross-pollination! In G. Montagna & C. Carvalho (Eds.), *Textiles, Identity and Innovation: Design the Future* (pp. 439–444). Taylor & Francis Group.

Orr, D. W. (2009, June 29). *The Intelligence of Ecological Design*. Center for Ecoliteracy. https://www.ecoliteracy.org/article/intelligence-ecological-design.

Papanek, V. (1995). *Green Imperative: Ecology and Ethics in Design and Architecture*. Thames & Hudson Ltd.

Papanek, V. (2006). *Design for the Real World. Human Ecology and Social Change* (Second Ed.). Thames & Hudson Ltd. (Original work published 1972).

Papanek, V. (2009). Designing for a Safe Future. In H. Clark, & D. Brody (Eds.), *Design Studies: a reader* (pp. 469–473). Berg Publishers. (Original work published 1984).

Shen, B., Zheng, J. H., Chow, P. S., & Chow, K. Y. (2014). Perception of fashion sustainability in online community. *Journal of the Textile Institute*, *105*(9), 971–979. https://doi.org/10.1080/00405000.2013.866334.

037

Sherburne, A. (2009). Achieving Sustainable Textiles: a Designer's Perspective. In R. S. Blackburn (Ed.), *Sustainable Textiles. Life Cycle and Environmental Impact* (pp. 3–32). Woodhead Publishing Limited. https://doi.org/10.1533/9781845696948.1.3.

UNESCO. (2017). *Education for Sustainable Development Goals Learning Objectives.* United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000247444.

UNESCO (Ed.). (2019). *UNESCO. Education for Sustainable Development.* https://en.unesco.org/themes/education-sustainable-development.

United Nations. (1987). *Report of the World Commission on Environment and Development: Our Common Future.* World Commission on Environment and Development. https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf.

Universidade da Beira Interior. (2020). *Universidade da Beira Interior [UBI].* http://www.ubi.pt/.

Universidade do Minho. (2020). *Universidade do Minho [UMINHO].* https://www.uminho.pt/PT/ensino/oferta-educativa.

Wals, A. E. J., & Blewitt, J. (2010). Third Wave Sustainability in Higher Education: Some (Inter)national Trends and Developments. In P. Jones, D. Selby, & S. Sterling (Eds.), *Sustainability Education: Perspectives and Practice across Higher Education* (pp. 55–74). Earthscan.

Williams, D. (2013, July 11). *Fashion Education in Sustainability: Change Through Experiential Crossings.* TEESNET Global Citizenship Sixth Annual Conference, London South Bank University, UK. https://ualresearchonline.arts.ac.uk/id/eprint/6305/.

BIOGRAPHIES

Carmela Ilenia Amato
Italian fashion designer focused on the research of biomaterials and new technologies in the fashion industry for developing new body concepts. I have a Bachelor's degree in Fashion Design and a Master degree in Innovation Design from the University of Campania, Italy. I collaborate with research groups in fashion design, graphic communication, bio-materials and digital fabrication creatively investigating the material throughout develop smart, innovative and sustainable fabrics and assist in the research of innovative technologies and bio design applied to fashion.
carmelailenia.amato@studenti.unicampania.it

Roberta Angari
She is an Italian graphic designer. In 2015 she graduated in Design for Innovation at University of Campania "Luigi Vanvitelli". In 2020 she obtained a Ph.D degree in Architecture, City and Design - Design Sciences at University IUAV of Venice with the dissertation "Kono - Analysis and design of a digital archive of visual communication". Main focus of her line of research are data visualization, digital design and digital archive - knowledge acquired during her academic path.
Since may 2020 she has a research grant entitled "Scientific Design for Medical Research", with tutor Carla Langella, at the University of Campania "Luigi Vanvitelli" - Department of Architecture and Industrial Design (DADI). At the same Department, she is Teacher Assistant of the course "Visual identity for Cultural landscapes" and "Ethic Communication", both held by Daniela Piscitelli.
roberta.angari@unicampania.it

Giulia Bolzan de Morais
Giulia Bolzan de Morais Megård, MsC in Design from Universidade do Vale do Rio dos Sinos (Unisinos). Strategic designer and trend researcher.
giubolzan@gmail.com

Elisabetta Cianfanelli
Architect and Industrial Design Specialist, is Full Professor at DIDA (Architecture Department) of University of Florence (Italy), Design Campus section. President of the CdLM in Fashion System Design, and scientific director of the DIDA Lab REI (Reverse Engineering & Interaction Design). Her research interests are related to the world of Small and Medium Enterprises concerning the development of new products and technologies applied to design and production.
elisabetta.cianfanelli@unifi.it

Giovanni Maria Conti
Ph.D, Associate Professor, he is currently the Coordinator of Knitwear design Lab – Knitlab of the Fashion Design Degree at the Politecnico di Milano. Founder and Scientific Coordinator of the website/blog www.knitlab.org, he was executive secretary of Fashion Design Degree at the School of Design of Politecnico di Milano, he is Instituto Italo-Latino Americano – IILA expert collaborator in the Pymes Forum for cooperation projects on textile and fashion. He is Director of the Master in Fashion Direction: Product Sustainability Management at MFI (Milano Fashion Institute Consortium) and member of LeNS - International Learning Network on Sustainability.
giovanni.conti@polimi.it

Karine de Mello Freire
PhD in Design from PUC-Rio. Researcher at the Graduate Program in Design at Universidade do Vale do Rio dos Sinos (Unisinos). Researches Design for Social Innovation and Sustainability. Activist of design and social innovation in projects related to sustainability.
kmfreire@unisinos.br

Chiara Del Gesso
Designer and Phd Student at the department of Pianification, Design and Technology of Architecture of "Sapienza Università di Roma". Her doctoral research investigates the field of new paradigms of material and processes related to the theme of sustainability.

She is conducting her studies at the intersection of Design and Science, in particular related to the application of biologic processes in substitution of the conventional manufacturing processes, in order to exploit their potentiality in terms of new aesthetics, languages and fruitions patterns. She has conducted several department researches and experimentations in the field of biomaterials, obtained from the re-use of organic waste from the agri-food chain, and collaborated as teaching assistant on the topic. She is actually part of the team of the Interdepartmental Center Saperi&Co of Sapienza University.
chiara.delgesso@uniroma1.it

Rossana Gaddi
MS in Design and PhD in Design and technologies for the enhancement of cultural heritage at Politecnico di Milano. From 2020, she is assistant Professor at the Department of Architecture of the University "G. d'Annunzio" of Chieti-Pescara. She teaches communication design for the fashion system as contract professor in the inter-university consortia Poli.Design, Milan Fashion Institute (Politecnico di Milano, Bocconi University, Catholic University) and Ard&nt (Politecnico di Milano, Brera Academy).
Visiting Professor at the School of Fashion and Design (SOFD) of the GD Goenka University in Gurgaon (New Delhi, India) and at the EDC Business School (Ecole des Dirigeants et des Créateurs d'entreprise) in Paris.
From 2011 to 2020, she has been a contract lecturer at the School of Design of the Politecnico di Milano and from 2009 to 2018 research fellow at the Design dept of the Politecnico di Milano, developing research on communication for the fashion system and on the relationships between design, culture and territory.
rossana.gaddi@unich.it

Leonardo Giliberti
After the three-year course in Bologna in "Industrial Product Design" he graduated at CDLM in Fashion System Design at University of Florence. He is interested in the creative sphere, confronting different expressive disciplines such as illustration, painting, videomaking, DIY, gaming, musical composition and writing.
leonardo.giliberti@stud.unifi.it

Debora Giorgi
PhD, Architect, she is a Researcher in Design at the Dipartimento di Architettura of the University of Florence (DIDA-UNIFI). Since 1991 she works on the issues related to Sustainable Local Development and the social implications of the project starting from the Cultural Heritage.
For over 20 years she worked in projects in Ethiopia, Algeria, Tunisia, Morocco, Yemen, Jordan, Haiti, with the most important national and international donors WHC - UNESCO, UNCCD, World Bank, European Commission, WMF, AICS. Since 2011 she has been collaborating with the DIDA UNIFI especially in projects around Maghreb countries and in the social field promoting Social Design projects and workshops using co-design methodologies.
She is professor of Service Design at DIDA UNIFI, professor of Design for Cultural Heritage in the License Course in Design at Ecole Euro-Méditerranéen d'Architecture Design et Urbanisme de l'Université Euro-Méditerranéene de Fès EMADU – UEMF in Morocco and visiting professor in some universities in Mediterranean countries.
debora.giorgi@unifi.it

Roberto Liberti
He is Associate Professor in ICAR 13 sector, Industrial Design with lectures in the Design for Fashion at the DADI Department of Architecture and Design Industrial from 2001. He is the coordinator of the Job Placement of the department and for Curricular Internships. In 2018 he obtained national scientific qualification as full professor I level (ssd ICAR 13).
A scientific training gained in the national and international design environment gives him research and strategic planning skills in Design and Design for Fashion, thanks the relationship with supranational research and training institutions as Iacocca Institute of Lehigh University USA; Oxford Brookes University, England; Saint Petersburg University of Technology and Design, Russia; Goenka University, New Dheli, India; Tecnologico de Monterrey, Campus Sonora Norte, Mexico; BIFT Bejing Univeristy of Fashion Technology, Beijing, China; ESMOD Japan, School of Fashion Design , Tokyo, Politecnico di Milano.
roberto.liberti@unicampania.it

Gabriele Pontillo
He is an Italian product designer. In 2015 he graduated in Design for Innovation at the University of Campania "Luigi Vanvitelli". In 2019 he obtained a Doctoral Research Fellowship in Environment, Design and Innovation at the University of Campania "Luigi Vanvitelli".
Main focus of his line of research are parametric design, medical design, and advanced manufacturing – knowledge acquired during his academic path. The Ph.D. course with industrial characterization has allowed him to carry out and consolidate his research activity, as well as at his university, also at the Escuela Técnica Superior de Ingeniería y Diseño Industrial (Universidad Politécnica de Madrid, Spain) and a company from Campania, based in Gricignano di Aversa, to design a system of innovative orthopedic devices through parametric design.
gabriele.pontillo@unicampania.it

Elena Pucci
A graduate of the CDLM in Fashion System Design, is interested in art, music and writing. She coordinates the virtual lab at DIDA (Department of Architecture) of the University of Florence (Italy), Design Campus section. Currently she works in communication projects of and for CDLM in Fashion System Design. She was involved in "Metamorphic Fashion Design" offering her contribution in the design of environments, as well as in the collection and organization of material.
elena.pucci@stud.unifi.it

Paolo Pupparo
Graduated from the Master's Degree in Design at the University of Florence, currently a PhD student in "Sustainability and innovation for the built environment and product system design (cycle XXXVI - a.y. 2020/2021). During his research interests concerning the development of methodologies applied to creative processes.
He is currently engaged in the research project: "Design, Art and Business: innovation, strategy and sustainable channels for the creation of value", which focuses on the analysis and collection of information relating to the mapping of the relationships between Design, Contemporary Art and Companies starting from the Tuscan territory.
paolo.pupparo@stud.unifi.it

Sandra Regina Rech
She is an Associate Professor at the Santa Catarina State University (UDESC/Brazil) - Fashion Department; Tenured Professor of the Graduate Program in Fashion (PPGMODA/UDESC) - Professional Master's Degree in Apparel and Fashion Design and Leader of the Research Group on Fashion Design and Technology (UDESC/CNPq).
She was a Visiting Professor at the Politecnico di Milano (Italy) and was awarded a CAPES PVEX scholarship (2019/2020). She is the Editor-in-Chief of ModaPalavra e-periódico (UDESC), Coordinator of the laboratory FPLab - Futuro do Presente (UDESC), Collaborating Researcher at the University of Lisbon (CIAUD/Portugal), and Integrated Researcher at the TrendsObserver platform (Portugal).
Her areas of interest are focused on the following themes: Fashion Design, Trend Studies, Scenarios, Consumer Culture, Qualitative Research, Methodologies.
sandra.rech@udesc.br

Giulia Scalera
Designer and PhD, is a Research Fellow at the dept. DADI of the University of Campania "Luigi Vanvitelli". She is the author of "Il design nella società estemporanea" (2015) and "Open Brand. Nuovi linguaggi visivi per la moda" (2019); two monographs that represent her two main strands of research. One oriented to the study and innovation of design and production models of the design oriented industry and the other to innovation and experimentation, including design, of branding.
Since 2015 she has been teaching fashion and communication design courses at the Accademia delle Belle Arti di Napoli.
Since 2009 she has been working as a professional visual designer and in 2017 she is co-founder of the Pluff design studio specialized in visual communication projects of national and international importance.
Among the main projects are the visual identity of the Italian Pavilion at the Venice Biennale (2015) and the creative direction of Milano Book City.
giulia.scalera@unicampania.it

Juliet Seger

She is a vocationally trained tailor, clothing engineer and designer. Her academic path at The University for Applied Sciences Hamburg (Clothing – Technology and Management B. Eng., 2019) and The University of Edinburgh (Design for Change MA, 2020) was paired with diverse practical experience in the fashion industry. Following placements in bespoke tailoring and an extensive tailoring training with the HOLY Fashion Group, she worked as technical designer and studio manager for menswear designer Alex Mullins in London and spent one season with Proenza Schouler in New York. For several years she led sewing workshops for children and supported the student sewing lab at HAW Hamburg. Her label PAID VACATION functions as creative platform for contemporary tailoring and made-to-order fashion design. Since Autumn 2020 Juliet is based in Berlin where she works as fashion product developer.
juliet@paidvacation.de

Sónia Seixas

PhD student in Design, Fashion and Textile Designer, teacher of subjects related to fashion and textile design through Technological Specialization Courses and Technical Higher Education (level V ECVET), Professional Technical Courses (level IV ECVET) and, Modular Training Certified. Her research interests concern the design in the universe of fashion and textile related to education.
sonia.seixas@gmail.com

Renato Stasi

He has been involved in the creation of clothing and accessories collections for the fashion segment for almost thirty years, as a designer and responsible for the development of the collection, he has worked for several companies including the LVMH Group, Redwall, Hettabretz. He is an adjunct professor at the DIDA - UNIFI Department of Architecture, in the CDL in Industrial Design and CDLM Fashion System Design. Lecturer at IED, where he is the coordinator of two three-year courses. He has carried out supplementary teaching activities at the Politecnico di Milano for several years. He has held seminars and workshops in various universities. Stasi is Coordinator of the Steering Committee of the Master's Degree Course in Fashion System Design of the University of Florence - School of Architecture - DIDA.
renato.stasi@unifi.it

Margherita Tufarelli

Designer, PhD in Design. Currently a research fellow at DIDA (Department of Architecture) of the University of Florence (Italy), Design Campus section. The PhD thesis, with the title "future heritage and heritage futures. An exploration on meanings of the digitized Cultural Heritage" aimed at investigating the role that the digital archives of Cultural Heritage can have in the contamination between the culture of the past and contemporary creativity.
Her research interests concern the heritage/creativity sphere within the digital evolution; thus, the application, impact and opportunities that lie in the relationship between digital technologies and cultural heritage. She is currently working on a research project titled "Living archive. Disseminating and reusing the Fashion cultural heritage" founded by Regione Toscana.
margherita.tufarelli@unifi.it

Kellie Walters

She is a color, materials, and finishes (CMF) designer at Garmin International and previously at Newell Brands spanning professional experience in consumer electronics and home goods. She is also a published researcher on trend forecasting and CMF trends as well as a published theorist on future aesthetics after artificial general intelligence is created and society heads toward artificial superintelligence. Kellie is focused on the direct impact that social and political events have on future aesthetics and their relationship with the economics of design.
kelliekaydesign@gmail.com

298

P
AD

AIAP
associazione italiana design
della comunicazione visiva