


Institution: UAL		
Unit of Assessment: 32		
Title of case study: The Fashion Paradox: Addressing the environmental impact of the clothes we wear.		
		
Carole Collet, <i>Mycelium Lace</i> , 2016		
Period when the underpinning research was undertaken: 2011–ongoing.		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by UAL:
Professor Carole Collet	Director, Design & Living Systems Lab.	August 1994–present
Professor Rebecca Earley	Co-Director, Centre for Circular Design.	October 1999–present
Professor Kate Fletcher	Centre for Sustainable Fashion.	September 2008–present
Professor Kay Politowicz	Professor Emeritus, Centre for Circular Design.	April 1985–present, November 2015–February 2016, April 2016–present
Professor Dilys Williams	Director, Centre for Sustainable Fashion.	
Dr Kate Goldsworthy	Reader in Circular Design; Co-Director, Centre for Circular Design; Deputy Director, The Business of Fashion, Textiles and Technology (BFTT).	October 2001–present March 2006–present
Period when the claimed impact occurred: 2015–2020		
Is this case study continued from a case study submitted in 2014? Yes		
1. Summary of the impact (indicative maximum 100 words) <p>UAL's investment in a critical analysis of fashion in relation to sustainability has had extensive worldwide impact on fashion design, production and cultures of consumption and disposal, whilst supporting fashion as a major economic contributor and creative endeavour with emotional and psychological functions. Recognising both the destructive and the restorative elements of the fashion industry and focusing on interrelationships between materials use, systems and policy, UAL's commitment to increasing knowledge in the area has produced an extensive range of new work, transforming thinking behind fashion and sustainability, and applying new knowledge to mainstream practices. This has fundamentally impacted manufacturers, suppliers and designers</p>		

from multinational to micro businesses, and fashion education globally, and is contributing to changes in public and political awareness, for citizens and governments.

2. Underpinning research (indicative maximum 500 words)

Research investigating fashion and sustainability at the University has made a major contribution to its strategic objective to demonstrate the importance of the arts to wider public concerns, as well as living with environmental change. This work has been developed across three collaborating UAL research centres: Textile Futures Research Centre (now Textile Futures Research Community), first developed under the leadership of Professor Jane Harris, then led by **Collet**, subsequently **Earley**, who went on to establish Centre for Circular Design, as it became apparent that expansion of research capacity in that area was needed, and Centre for Sustainable Fashion (CSF), conceived of and established by **Williams** to develop regenerative fashion cultures and practices.

Through design-led research into how the intersection of biological sciences and design can create new sustainable materials, **Collet's** project *Mycelium Skins* [3.1.] focused on the compatibility of growing mycelium (the underground root system of fungi) with bio waste to explore its potential as a surface treatment for textiles. **Collet** investigated the production of both soft and structural textiles by experimenting with tuning the growing environment of the mycelium, using materials including waste coffee grounds, and natural textile fibres such as hemp and sisal as nutrients.

In terms of systems, **Earley** and **Goldsworthy** have examined how established and innovative materials, techniques and production processes can be employed by designers to shift approaches to the production and use of garments, with particular focus on a piece of clothing's end-of-life. The overall objective of the eight-year, multi-faceted *Mistra Future Fashion* research project (2011–2019) was to reimagine the Swedish fashion system as a circular economy. The first phase of the project identified a gap in knowledge: although 'lifecycle thinking' had become a widely adopted and tested approach in academic and industry contexts, the dimension of 'time' or 'speed' was not fully resolved as a factor. Thus 'speed of cycle' became the focus of the research for phase two. **Politowicz's** paper [3.2.], with **Earley** and **Goldsworthy**, reviewed the literature in order to prepare for the action research phase. Concurrently, *Trash-2-Cash* (T-2-C, 2015–2018) brought together a cross-disciplinary team, which included designers, materials researchers and manufacturers, to research methods to create new, high-quality fibres from pre-consumer and post-consumer waste—textile and paper—beginning at the molecular level of the fibre. [3.3.]

Exploring fashion as contributor to social, cultural, environmental and economic sustainability, **Williams' early** research formed a holistic approach to establishing equality-based fashion practices through participatory and transformational design, creating interventions across fashion systems. Fundamental to her research is the essential need to respect earth's finite resources by living within nature's limits. **Williams' text** [3.4.] articulated research into design for sustainability that underpinned the creation of Centre for Sustainable Fashion.

Craft of Use (2012–2014, funded by The Leverhulme Trust) [3.5.], took further **Fletcher's** research in the *Local Wisdom* project, reflecting on stories, themes and practices that span areas of study from economic theory to design processes, integrating insights from the natural and social sciences with ideas for fashion and sustainability. Fletcher offered a diversified view of fashion beyond market logic, revealing fashion provision and expression in a world not dependent on continuous consumption.

3. References to the research (indicative maximum of six references)

3.1. Collet, Carole (2015–2016/2018–2019) *Mycelium Textiles*. Series 1: 2015–2016: *From Earth, Mycelium Textiles*. Production of 30 mycelium textiles prototypes. Series 2: *Mycelium Textiles 2018–2019*. Production of 130 lab-grown mycelium textiles.

- 3.2. Politowicz, Kay, Goldsworthy, Kate and Earley, Rebecca (2017) *Circular Speeds: towards a new understanding of designing for fashion textile rhythms*.
- 3.3. Earley, Rebecca and Goldsworthy, Kate (2015–2018) *Trash-2-Cash*. Funded by the European Commission Horizon 2020 programme for 2015–2018.
- 3.4. Williams, Dilys (2012) *Designers fashioning the future industry*. In: The Sustainable Fashion Handbook. Thames and Hudson, London, pp. 96-108.
- 3.5. Fletcher, Kate (2016) *Craft of Use: Post-Growth Fashion*. Routledge, London.

4. Details of the impact (indicative maximum 750 words)

UAL's continued investment in its fashion and sustainability research is key to the level of impact achieved. Since REF2014, the impact created by these researchers has become increasingly defined and targeted, developing, refining and promoting the sustainable fashion agenda, embedding it in the ethos of major global fashion brands, including Kering's and LVMH's high-profile 'Maisons', and also a roster of small, medium and large fashion businesses including Filippa K and ASOS, which, in 2020, launched its groundbreaking Design Circular Collection.

In 2018, Kering and UAL introduced an award-winning course, 'Fashion and Sustainability: Understanding Luxury Fashion in a Changing World' (co-developed by UAL's researchers and Kering's sustainability experts), which was awarded a Green Gown Award for Next Generation Learning and Skills. In 2020, the course was cited as one of the best online courses to do during lockdown. [5.1.] More than 74,000 people have taken the course, across 191 countries.

Collet became CSM LVMH Director of Sustainable Innovation for the CSM x LVMH Global Partnership 2016–2020 (Sustainability & Innovation in Luxury | Fostering Creativity): a research fund and academic programme; five LVMH Grand Prix Scholarships; joint projects between LVMH Maisons and students/graduates; recruitment and campus events. **Collet**'s work is highly influential in the world of materials development, through conceptual research and thinking, and practical application. Her provocations create a space for discussion of future possibilities, while her design-led practice feeds into the work of others via her teaching (**Collet** founded MA Textile Futures which, in 2017, became MA Material Futures, and then in 2019, the groundbreaking MA Biodesign). Her work through the Design & Living Systems Lab grew out of nearly a decade of research. *Dezeen* described **Collet** as the "driving force" behind pioneering educational design and research in the field of sustainable innovation practices at UAL. [5.2.] Her work has been featured in exhibitions and conferences internationally on subjects including textile futures, biodesign and biomimicry, future manufacturing and designing for the bio-economy. [5.3.]

The Mistra Future Fashion project has a strategic, systemic approach to achieving a Circular Fashion industry. The work culminated in the formation of a new framework for Circular Design, 'Materials, Models and Mindsets', which underpins work in the area. The programme involved representatives from government and NGOs, and around 50 representatives from industry, including Filippa K, with whom **Earley** and **Goldsworthy** initiated an innovative 'researchers in residence' project. Through this process, the Filippa K team developed ways to use recycled materials in fashion, new technology to extend the life of clothing, and insights for designing for full recyclability, including its 2018 Front Runners garments, based on 'fast' and 'slow' clothing concepts, launching in London in November 2018 with exhibition—*Disrupting Patterns: Designing for Circular Speeds*. Filippa K's (fully recyclable) 'Eternal Trench Coat' went to retail and was acquired by the V&A as part of its permanent Fashion Gallery showcase. [5.4.] Executive Director, C&A Foundation (now Laudes Foundation): "As the leader of a foundation focused on making fashion a force for good, I have been both informed and inspired by the thoughtful reports produced by Mistra Future Fashion. They have brought data, insights and clarity to the many, diverse actors working to positively transform the fashion system". [5.5.]

In 2017, as part of its 2020 Circular Fashion Commitments, ASOS pledged to deliver a circular fashion programme with its designers, subsequently developed by **Williams** and delivered with UAL's Knowledge Exchange team. ASOS' CSR initiatives included a conference for 90 of its third-party brands, including Levis and Adidas, to discuss ethical trade and sustainability issues.

Engagement with small design-led fashion businesses has been integral to **Williams'** research. Building on past funded projects *London Style*, *Creative Hub* and *Bright New Things*, design for sustainability mentoring and workshops have built capabilities in UK fashion design, recognised globally. AHRC-funded 'Fostering Sustainable Practices', (**Williams**, Co-I) has created an evidence base of how business models; design and business operations; working practices; networks and ecosystems of MSEs can contribute to holistic sustainability parameters. In 2019, **Williams** co-authored a report for the European Commission that maps current initiatives and key organisations in sustainable fashion and textiles across Europe. [5.6.] This report became the basis for subsequent funding calls.

UAL worked with Condé Nast to create *The Sustainable Fashion Glossary* and supported the company in realising their strategy to become a stronger voice on sustainability, influence change in the industry and be a trustworthy source of information. The glossary of over 250 terms supports sustainability narratives across written and visual fashion media outputs, ensuring sustainability terms (across environmental, social and industrial contexts) are used correctly, evidence-based and globally relevant. Chair of Global Sustainability Steering Committee, Condé Nast: "We were keen to partner with a well-established research centre with an international reputation, robust academic rigour and experience working with global audiences in conjunction with our development of the Glossary. [Centre for Sustainable Fashion] has a diverse community of key changemakers around the world who all share a common vision of transforming the fashion sector through a sustainability lens". [5.7.] (Glossary in translation into Chinese and Russian.)

UAL has received extensive media coverage for: *Fashioned From Nature*; Filippa K; the 2020 'red carpet season' (for which a sustainable fashion guide given to ceremony guests asked them to reconsider their fashion choices for the event); the Modern Slavery Act, part of the University's work with the All-Party Parliamentary Group on Human Trafficking and Modern Slavery. On the publication of the Environmental Audit Committee's report, *Fixing Fashion: clothing consumption and sustainability* (2019), **Williams** was interviewed on news channels including *BBC World*, *BBC Radio 5 Live* and *Sky News Sunrise*. She has featured in the *Evening Standard's* London's Progress 1000 list (2015, 2016, 2017); in 2020, she was named *Drapers' Sustainable Fashion Champion*: "a pioneer of industry change for more than a decade". [5.8.]

UAL researchers were invited to contribute to *Fashioned from Nature* (V&A, 2018, touring: Natural History of Museum Denmark, 2019; Design Society, China 2020–2021). **Williams** acted as Special Advisor to the exhibition, contributed a chapter to the accompanying publication and was the only designer commissioned to make installations for the exhibition, *Fashion Now*, an examination of the environmental impact of five contemporary fashion items; and *Fashion Futures 2030*, an interactive element that allowed visitors to explore future fashion scenarios. 175,794 visitors viewed the exhibition. Tristram Hunt, Director, V&A: "...*Fashioned from Nature* ... examines the impact at every stage [of fashion production], from the materials and the global networks that supplied them, to their manufacture, production and use.... Our collaboration with [Centre for Sustainable Fashion] has highlighted the innovative research taking place to resolve the challenges raised in the exhibition". [5.9.] *Time Out London* (October 2018): "This impressive blockbuster show covers the way clothing has been inspired by the beauty of nature but has also exploited and damaged the natural world. Don't miss it". The Environmental Audit Committee held a select committee for the Sustainability of the Fashion Industry Inquiry at the museum during the exhibition, the best-attended UK Select Committee hearing in history, and the first to be held outside Parliament (led by Mary Creagh MP). **Williams** appeared as witness. [5.10.]

Ongoing UAL initiatives in fashion and sustainability are continuing the examination of materials use, systems and policy, including a focus on waste. *Fishskin* (Elisa Palomino, 2019–2023, funded by EU Horizon 2020 MSCA Research and Innovation Staff Exchange Programme) explores the viability of the use of fish leather in contemporary fashion. This project is already attracting considerable attention in academia and industry with initial findings communicated through conferences and events worldwide. *Preservation of Hezhen Fish Skin Tradition through*

Fashion Higher Education, a film presenting the research (2020), won the Best Green Fashion Film award at the Fashion Film Festival Milan.

Local Wisdom, followed by *Craft of Use*, explored a set of under-documented practices relating to the wearing of and caring for clothes that challenge the high material throughput practices of the fashion industry. By turning attention to tending, mending and adapting garments rather than just creating them, this project positioned fashion away from the dominant discourses of consumerism. An international network of educators and students developed design methods from the research and integrated them into wider practice, education or business models. The culmination included 'The Craft of Use' event (2014, including Jonathan Porritt and John Thackara), and a publication: *Craft of Use*. **Fletcher** brought the findings and thinking that derived from the two projects into her subsequent work, which has been influential in relation to the development of 'post-growth fashion'. Jonathon Porritt, Founder and Director, Forum for the Future: "I love the idea of the 'craft of use', where meaning and wellbeing can be seen to flow not so much from the buying as from the using of any garment". [5.11.]

Trash-2-Cash engaged 18 partners from 10 countries to work on six new material prototypes: 0° shirt; R3 coat; ReAct Base-layer; Denim NAture Jeans; Fashion Fascia; Reborn–Reworn Jacket. The European Union Innovation Radar identified UAL as a 'Key Innovator' for Trash-2-Cash in developing "A holistic approach in product development, integrating materials development, product design and manufacturing". [5.12] Papers were delivered at Circular Transitions 2016 conference (UK), and a keynote, Sustainable Innovation conference (2016).

UAL's support of its award-winning researchers, recognised as experts in the field of fashion and sustainability, has enabled each to take up advisory roles, contribute expert media commentary, publish books and scholarly articles, curate international exhibitions, headline conferences and participate in events worldwide for the fashion industry and the more general sustainability arena. **Earley** is special advisor to European Clothing Action Plan. **Fletcher's** *Sustainable Fashion and Textiles: Design Journeys* (2008) has become a key text, with its second edition published in 2014. **Williams** is special advisor on the APPG for Ethics and Sustainability in Fashion.

Under the leadership of Harris, and with **Goldsworthy** as deputy director, UAL is delivering one of nine UK-based Creative R&D Partnership awards, 'The Business of Fashion, Textiles and Technology, (GBP5,644,115), part of the AHRC-Creative Industries Cluster Programme. This extensive project takes further the University's work, undertaken by **Williams**, (also Co-I on the project) in relation to the role of designers in the future of the fashion industry.

5. Sources to corroborate the impact (indicative maximum of 10 references)

- 5.1. [tweak, March 2020. 'The Best Online Courses to do While You Power Through Lockdown'](#).
- 5.2. [Central Saint Martins launches masters course in biodesign, Natashah Hitti, 21 May 2019, Dezeen.](#)
- 5.3. [Vogue, 4 May 2019. 'The Degree Teaching Fashion Students How To Work Sustainably'](#)
- 5.4. [Filippa K Front Runners.](#)
- 5.5. Executive Director, C&A Foundation (now Laudes Foundation), The Outlook Report 2011–2019. UAL on request.
- 5.6. Centre for Sustainable Fashion, Middlesex University, Politecnico di Milano and Institut Français de la Mode (2019) *Support Report Mapping Sustainable Fashion Opportunities for SMEs*. Luxembourg: Publications Office of the European Union. UAL on request.
- 5.7. Chair of Global Sustainability Steering Committee, Condé Nast, letter. UAL on request.
- 5.8. [Drapers Online, 6 July 2020. 'Dilys Williams: A Rebel With a Cause.'](#)
- 5.9. Tristram Hunt, Director's Foreword, *Fashioned from Nature*, p9. UAL on request.
- 5.10. Environmental Audit Committee, 13 November 2018. *Oral evidence: Sustainability of the fashion industry, HC 1148*. UAL on request.
- 5.11. [Craft of Use: Post-Growth Fashion.](#)
- 5.12. [Trash-2-Cash, European Commission's Innovation Radar.](#)