

Pattern Anatomies:

Can surgery cutting inform zero-waste fashion design?

Juliana Sissons

Nottingham Trent University, UK

juliana.sissons@ntu.ac.uk

Abstract

Pattern Anatomies is a practice-based research initiative, deriving from the sKINship research programme, founded by Rhian Solomon in 2012. sKINship is a professional network promoting cross-disciplinary collaborations between visual arts and science-based practitioners. The forum provides a space in which to exchange knowledge and ideas, exploring the process of 'Making' as a universal visual language to communicate and share.

This paper explores alternative methods of shape-making for fashion design, inspired by the practice of surgery cutting. Through the collaboration of two different practices, both concerned with aspects of the body, we ask the questions: Can surgery cutting inform new shaping methods for zero-waste fashion design? How can we contribute knowledge to sustainable design? And can these findings be taught within the university art and design sector? The British Fashion Council's pattern cutting seminars for education have provided a yearly platform since 2013 for dissemination of project development and innovative pedagogical methods. This has resulted in useful feedback.

This investigation of surgery cutting for fashion design started in 2013 and the exploration of the cutting process to find original shaping mechanisms, primarily for garment fit is a developing concept. Numerous samples and 3D models have been constructed in an assortment of materials, including knit for the development of new transferable cutting and shaping methods. These include the exploration of scale, repetition, mirror imaging and placement of such techniques as the 'Triangular transposition' and the 'Advancement flap', used within surgery cutting, to provide movement and to gain additional stretch of skin. Commonalities have been found between the professions of surgery practice and pattern cutting for fashion. For example, in preparation, designers often chalk onto the draped mannequin and surgeons draw directly onto the body. Cloth usually has a grain line to consider and, similarly, skin has 'Langers lines' to follow. These similarities have provided unique starting points for 'bias cut' exploration.

The majority of surgical cutting procedures were designed in the 1920's and 30's after the First World War. These procedures were being explored and tested on the reconstruction of soldiers by surgeons such as Sir Harold Gillies and interestingly, at the same time, designers such as Madeleine Vionnet were developing their design practices for fashion, including the cut, fit and silhouette of garments. In the developed shaping techniques of bias cutting, a technique which utilises the grain lines of fabric to enhance fit and is most known to be popular in the 1930's, it is quite possible that these fashion cutting techniques could have inspired surgery and vice versa. These same 1920's and 30's methods and procedures are still being used in surgery today and although original bias cut design is not known for its zero waste qualities, it is interesting to investigate the connections between these early shaping techniques and merge with current zero-waste aesthetics, especially as surgery is often zero-waste in its nature.

Findings so far have been shared internationally through conferences in New Zealand and New York and through educational seminars at institutions such as the Panjab University (Chandigarh) the Gerrit Rietveld Academie, (Amsterdam) the British Fashion Council, the Crafts Council, the V&A Museum, and the Institute of Making, University College (London). Master class lectures and workshops in 'Creative Cut' have been delivered to university students on course disciplines such as Fashion Design, Knitwear and Textile Design, Jewellery Design, Architecture, Engineering and Medicine.

A Pattern Anatomies short film emerged from an intensive two-week practice-based research collaboration at Nottingham Trent University in July 2020.

The development of this collaboration between designer and surgeon was recorded and built upon previous findings through a series of new experiments. The considerations of zero-waste and shape-making were addressed, but the theme of movement and fit were pushed further through the collaborative intersections of the two different practices.

Timo Rissanen and Holly McQuillan state in their book 'Zero Waste Fashion Design' (Bloomsbury) that zero-waste garments are often determined by the width of fabric produced. Designs can sometimes be compromised by the desire for fit without waste, with many offcuts being used as gussets to enable movement in what might otherwise be a very flat garment. The techniques developed in Pattern Anatomies allow the possibilities of garments to be made without cutting away sections, as shaping is achieved through the movement of flaps within the main body of fabric and the transference of these flaps provide a 2D to 3D shaping mechanism.

This film primarily discusses our responses to the findings and shows that, when experimenting with each other's cutting approaches, fit, movement and zero-waste possibilities can be considered. This

experience enabled the cross-pollination of ideas and in turn, identified connections, gaps and opportunities. By exploring alternative methods of pattern cutting we are engaging in new territory for 'shape-making' and employing experimental practice, research and research pedagogy. Through this initial meeting of designer with surgeon, sharing of knowledge about the different disciplines and transference of techniques into each other's applications, a collaborative practice has emerged.

The aim of my practice is to inform others in the field of fashion design, of new shaping techniques in pattern cutting and zero waste design. To promote collaboration between disparate disciplines and develop a common language. To inform surgery cutting through modes of planning, designing and educating and to potentially develop skin patterns for various plastic surgical procedures.

References: Professional network:

Initial Platform:

Rhian Solomon, founder of sKINship (Professional network, promoting cross-disciplinary collaborations between visual arts and science-based practitioners)

Zero Waste Cutting:

Timo Rissanen, Course director, Bachelor of Design, Fashion & Textiles, Faculty of Design, Architecture and Building, University of Technology, Sydney.

Holly McQuillan, Senior Lecturer in design at Massey University, New Zealand. PHD in Sustainable fashion design practice at the University of Borås, Sweden.

Medical platform:

Dr Sarah Pape, OBE, Consultant plastic surgeon, Newcastle Hospitals, United Kingdom.

Dr Mark Cooper, Consultant plastic surgeon, Morriston Hospital, Swansea, Wales, United Kingdom.

Prue Thimbleby, Arts in Health Co-ordinator, ABM University Health board, Swansea, Wales, United Kingdom

British Association of Plastic, Reconstructive and Aesthetic Surgeons

St Thomas' Hospital, Breast Reconstruction Surgery Dept. London, United Kingdom

Fabric and Research connections:

Speedo International, Emily Hutson, soft goods materials manager- Aqualab, Nottingham, United Kingdom.

Associate Professor Katherine Townsend, Craft Research Journal, Fashion, Textiles and Knitwear Design, Nottingham Trent University, Nottingham, United Kingdom.

Conferences, Talks, Educational Seminars and Master Classes:

Nottingham Conference Centre, Nottingham UK, The British Association of Plastic Reconstructive and Aesthetic Surgeons, *BAPRAS Conference*, 2013

The Crafts Council, London, UK, *Block Party* Touring Exhibition 2012-2013

The University of Auckland, New Zealand, *Shape Shifting* Conference 2014

The Gerrit Rietveld Academie, Amsterdam, Workshops 2014

The Institute of Making, University College London, UK, Workshops 2014

University of Huddersfield, UK, *International Creative Cut* Conference 2014

Nottingham Trent University, Bonington Gallery, UK, *Knitting Nottingham* Exhibition 2014

St Thomas' Hospital, London, UK, Workshops 2014-2015

Morrison Hospital, Swansea, UK, *Reconstructing Ourselves* Seminar 2015

Materials Innovation Arts Foundation Prize, UK, *Shortlisted for prize* 2015

Nottingham Trent University, UK, *Crafting Anatomies* Exhibition 2015

The V&A Museum, London, UK, *'Making it'* Talk 2016

University of Huddersfield, UK, *Creative Pattern Cutting* Conference (Key note speaker) 2016

Parsons The New School for Design, New York, *Cutter Design Cutter* Talk 2017

The Panjab University, Chandigarh, India, Workshops 2019

The British Fashion Council, London, UK, *Creative Cutting* Seminars 2013-2019

Nottingham Trent University, UK, *Art and Design School Research Conference* (online) 2020

Master class lectures and workshops in 'Creative Cut' have been delivered internationally, to university students on course disciplines such as Fashion Design, Knit Design, Textile Design, Jewellery Design, Architecture, Engineering and Medicine.

Funding received:

2019: Nottingham Trent University ERC prize funding

2013: The British Association of Plastic Reconstructive and Aesthetic Surgeons

References / Bibliography

Rissanen. T. Mcquillan. H. (2016) *Zero Waste Fashion Design*, Bloomsbury, London.

Townsend. K. Solomon. R. Briggs-Goode. A. (2020) *Crafting Anatomies*, Bloomsbury, London.

Giddings. F. D. (2018) *Surgical Knots and Suturing Techniques*, 5th edition, Giddings Studio Publishing, Anacortes Washington

Doshi. U. (2019) *Creating with shapes*, Cos Publishing, London

- Sissons. J. (2018) Basics Fashion Design Knitwear, 2nd edition, Bloomsbury, London.
- Lindqvist. R. (2013) On the Logic of Pattern Cutting: Foundational cuts and approximations of the body, University of Borås, studies in artistic research No 3.
- Almond. K. (2010) Insufficient allure: the luxurious art and cost of creative pattern cutting, International journal of Fashion Design, Technology and Education, Vol 3. No 1,
- Black. S. Alexander. H. (2012) The Sustainable Fashion Handbook, Thames & Hudson, London.
- Harris. J. (2013) Digital Skin – Textile: Journal of Cloth and Culture, Bloomsbury, London, Vol 11. No 3.
- Schwarz. M. Yair. K. (2010) Making Value – Craft and the economic and social contribution of Makers, The Crafts Council, London,
- Yair. K. (1996) Design through Making, Crafts Knowledge as facilitator to collaborative new product development, *Design Studies*, 20(6), 496-515,
- Lee. S. (2007) Fashioning the Future, Tomorrow's wardrobe, Thames and Hudson, London,
- Hemmings. J. (2012). The Textile Reader, Berg, Oxford,
- Ravetz. A. Kettle. A. (2014) Collaboration through Craft, Bloomsbury, London
- Simonson. C. (2008) Textile, Journal of Cloth and Culture – Skin or Cloth, Berg, Vol 6, issue 3, Oxford.
- Ingold. T. (2013), Anthropology, Archaeology, Art and Architecture, Routledge, Oxford,
- Ingold, T. (2012). 'Toward an Ecology of Materials'. Annual Review of Anthropology, vol 41, pp. 427-442
- Ingold, T. (2010). 'The textility of making'. Cambridge Journal of Economics, vol 34, no. 1, pp. 91-102.
- Bonsiepe, G. (2007). The Uneasy Relationship between Design and Design Research. *Design Research Now*, 25-39.
- Rust, C. (2004). Design Enquiry: Tacit Knowledge and Invention in Science. *Design Issues*, 20(4), 76-85.
- Rust, C. (2007). Unstated Contributions - How Artistic Inquiry Can Inform Interdisciplinary Research. *International Journal of Design*, 1(3), 1-10.
- Willem, R. A. (1990). Design and science. *Design Studies*, 11(1), 43-47.
- Katzenbach, Jon R., and Douglas K. Smith. *The Wisdom of Teams*. New York, NY: HarperCollins, 2003.

Keywords: Fashion, Design, Zero-waste, Surgery cutting, Collaboration

ISBN: 978-989-54263-1-7