

A systematic review of zero waste fashion construction techniques

Dr Hye-Won Lim

Lecturer in Fashion Design, School of Fashion and Textiles,
Faculty of Arts, Design and Media, Birmingham City University
Hye-Won.Lim@bcu.ac.uk

Introduction

There are a number of techniques, strategies, alternative processes and approaches to sustainable design products having a low environmental impact and positive social purpose in fashion. However, this study is only focused on the zero waste fashion construction techniques globally addressed as one of the sustainable design to give rise to the attention of fashion designers and garment manufactures.

Background

Zero waste fashion is attended to produce garments with little or no textile waste [1]. This technique can be applied to the design stage as well as the pattern cutting, fabric cutting, and production stages to facilitate material efficiency and waste reduction.

Methodology

This review aims to map literature on the techniques of Zero Waste fashion with a focus on construction aspects. The adopted search strategy involves physical and electronic databases by examining the titles and keywords, and screening abstracts descriptively to extract the relevant outcomes for the classification of the study [2].

Key Findings

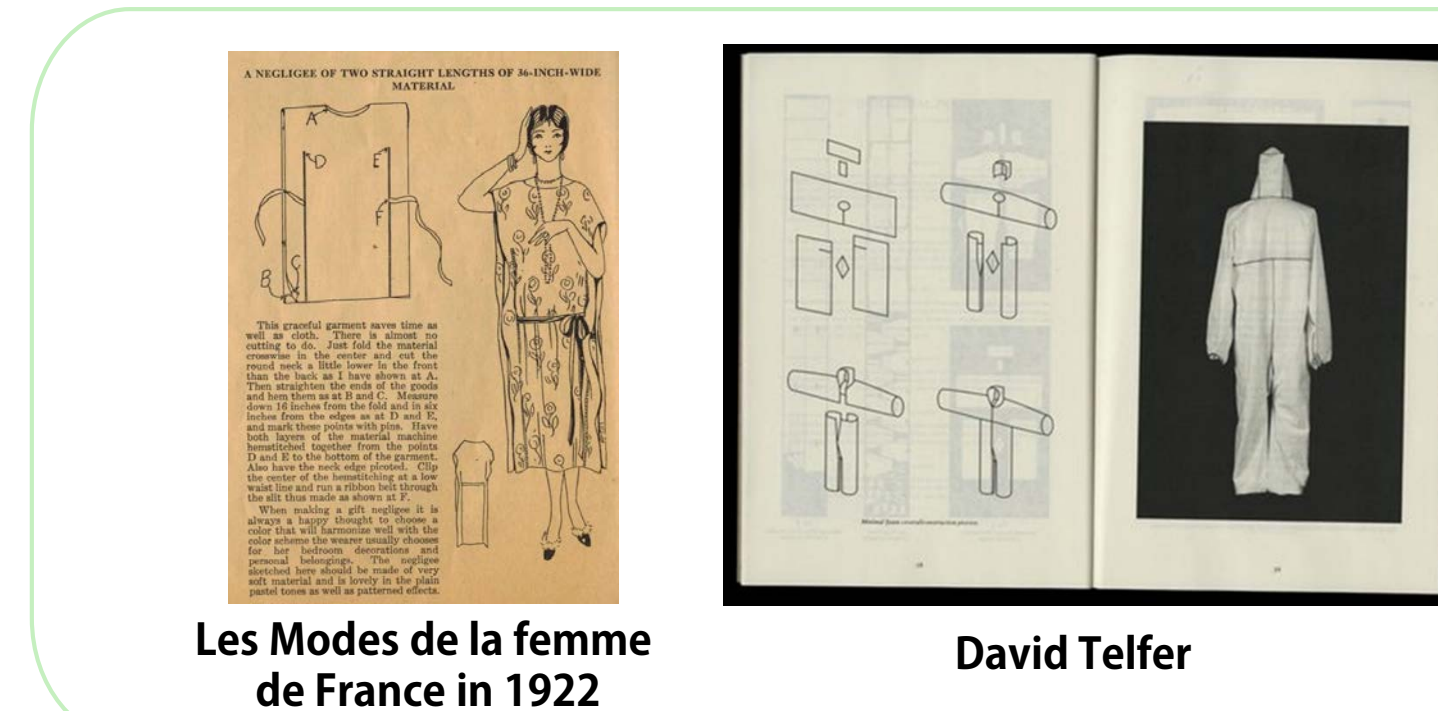
1 Drape and Cut

Draping

The original lengths and widths of fabric are used with no cutting that is draped on the body or minimum cutting to reduce fabric waste.



Minimal Cutting



2 Creative Pattern Cutting

Subtract Cutting

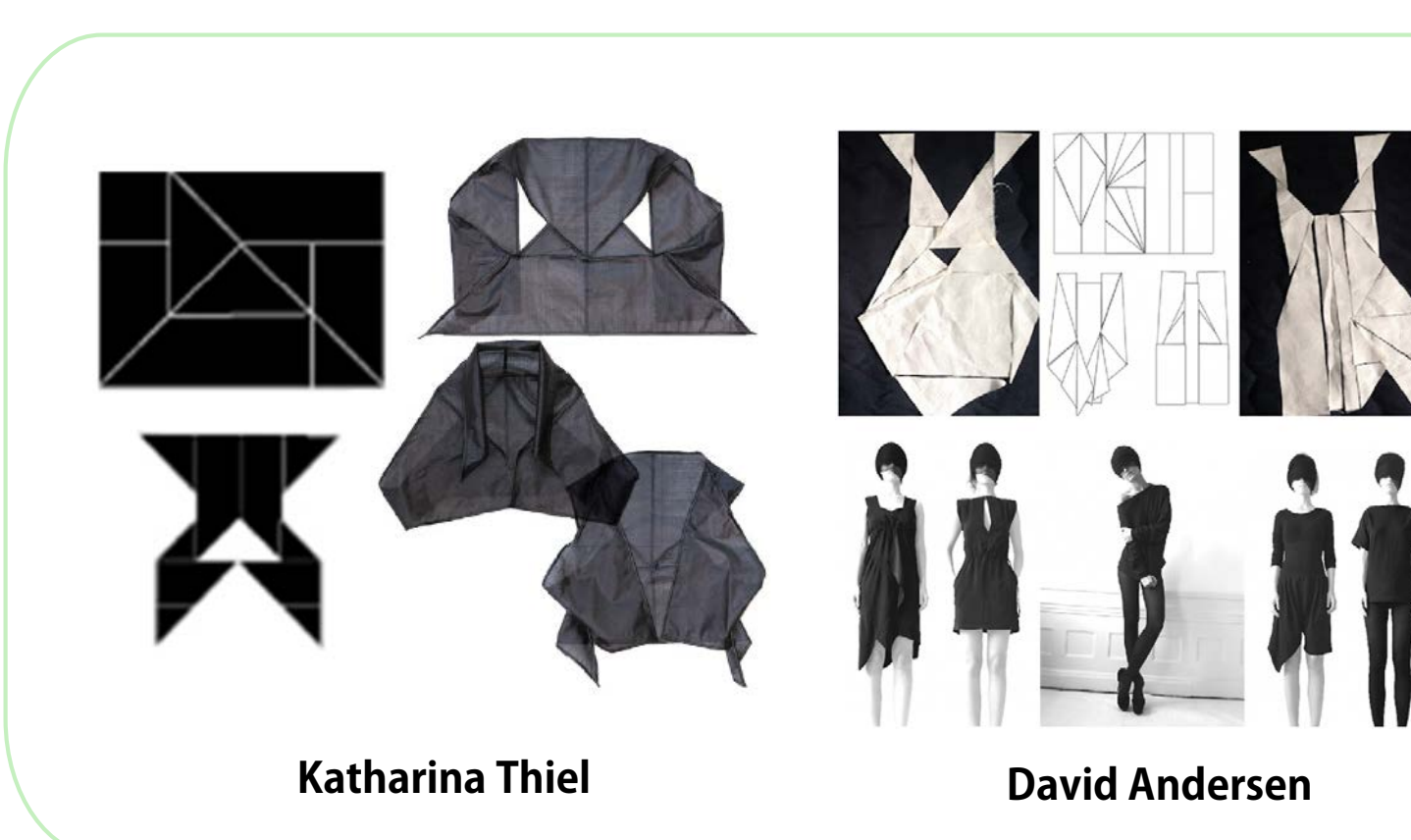
This technique makes the most of the negative spaces that can be opened up in fabric and falls somewhere [3].



3 Geo Cut

Tessellation

Tessellation consists of one shape that repeats by fitting perfectly together without gaps between the shapes [4].



Jigsaw

This approach is the same for embedded designs as for traditional jigsaw approaches [3].



4 Multiple Approaches

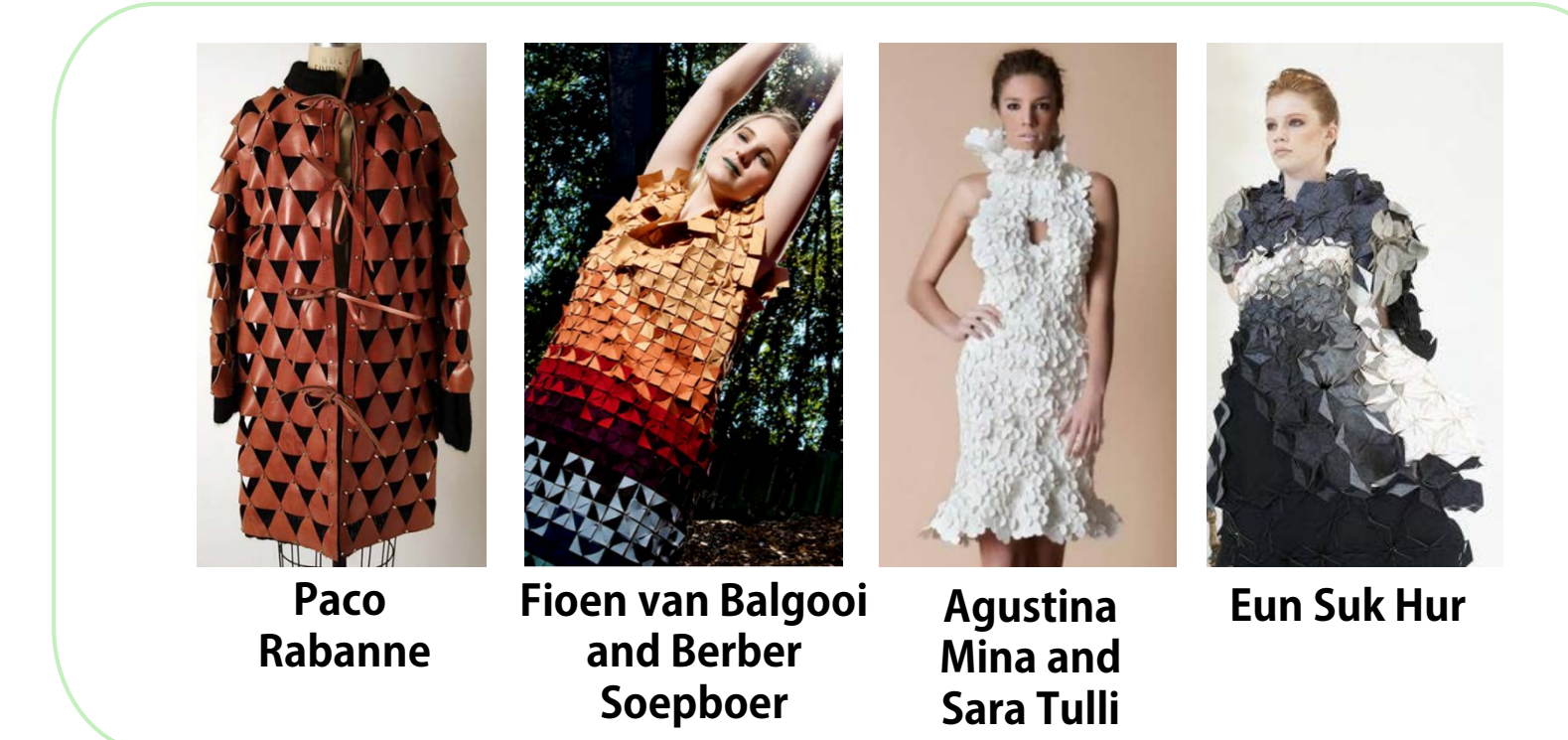
Multifunctional Clothing

This technique is designing design a garment which can be worn in multiple ways including reversible design or editable components [4].



Modular Design

This construction approach is that fabric is subdivided into smaller parts called modules and modules are used differently by mix and match to switch up the look [5].



5 Technologies

Apparel Pattern CAD Adobe software 3D simulation

Technologies enable speed, efficiency and cost savings and also can enhance creativity and drive innovation.



Conclusion

This systematic review provided the opportunities to re-think and re-organise the zero waste fashion construction techniques to bring a new logic and for fashion design and the fashion sector as a whole. This study also presented the parameters to the sustainable demands of the fashion industry by highlighting various zero waste construction techniques.

References

[1] McQuillan, H. and Rissanen, T. (2011) YIELD: making fashion without making waste / [curated by Timo Rissanen and Holly McQuillan]. Brooklyn, N.Y.: Textile Arts Center.
[2] Greenhalgh, T. (1997) How to read a paper: Papers that summarise other papers (systematic reviews and meta-analyses) BMJ ; 315 :672.
[3] Park, H. (2012) Eco-Fashion Industry Trend and Creative Fashion Design Technique for Zero-Waste. Journal of Fashion Business 16:4, pp. 29-45.
[4] Carrico, M. and Kim, V. (2014) Expanding zero-waste design practices: a discussion paper, International Journal of Fashion Design, Technology and Education, 7:1, pp.58-64.
[5] Hur, E. S. (2014) Design and optimisation of a user-engaged system for sustainable fashion. PhD thesis, Leeds; University of Leeds.