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Chosen question: **Question 4: Outline a current environmental, political or social issue that requires re-design. Explain how you will solve this issue over the duration of your future design career. Underline the tools and approaches you will use and discuss how and why.**

The over-arching issue the fashion industry has is that it runs on a linear business model (RSA, 2021). Named the 'take-make-dispose' model by the Ellen MacArthur Foundation (2017), clothes are produced using virgin materials, sold and worn, sometimes only once, then landfilled or incinerated, having a detrimental effect on the environment due to greenhouse gas emissions and polluting of water ways with harmful dyes and microfibres. Furthermore, these harmful effects are exacerbated by how large-scale this model operates on, highlighting that in order to become more sustainable, the industry needs to adapt to a more circular business model where existing materials can be utilised more readily (Ellen MacArthur Foundation, 2017)

Before a garment is even made, it exists in the mind of the designer, so although the biggest environmental issues are recognised as being caused by the growing and processing of virgin material on a mass scale, over-consumption, and 'throw-away fashion' (Fletcher and Grose, 2012), highlighting areas where production and consumers need to change, designers being the first step of the garment creation process indicates that they have scope to cause change (Dan and Østergaard, 2021, p. 3)., not only at their stage, but also a further down the line of the garments life.

As a designer of the future I will be looking to establish this change through not only my use of materials, but through thinking about the whole life cycle of the garment at the design stage (Timo Rissanen, 2016). Considering how the garment can be constructed in a way that utilises the most materials, making use of waste materials, and also extending the use consumers will get out of it once bought, are all starting points explored by existing and emerging designers and researchers of sustainable fashion, inspiring and providing tools I can use and explore as a future designer to help solve the fashion fuelled environmental crisis.

By oxford dictionary definition, and as it generally perceived, a designer is someone who "plans the look or workings of something prior to it being made, by preparing drawings or plans" (Oxford Dictionary, 2021) Design is a realm where boundaries can be pushed and elaborate creations can be made, which to many is just understood in an aesthetical sense. However, the environmental impact and *role* design, especially fashion design has in society, indicates that to be a good designer you must consider the implications and effects your designs will have in a greater sense, beyond aesthetics. 'A Designers Code of Ethics' devised by designer and author Mike Monteiro (2017), captures this greater role that a designer has, highlighting that before you are a designer, you are a human, and are responsible for what you put out into the world through your work. Due to the idea

of a circular business model being so foreign within the fashion industry, a designers knowledge on their ability to enforce a more circular operation through their design process may be limited. This sort of “attitudinal barrier” (Dan and Østergaard, 2021, p. 3) further highlights what a beneficial tool ‘A Designers Code of Ethics’ (Mike Monteiro, 2017) would be to a designer as it is a reminder that when designing, producing something that has a positive impact on society and the environment is equally important as producing something aesthetically pleasing, your designs should not only reflect your style, but also your morals, putting into the world what you want to see out of it.

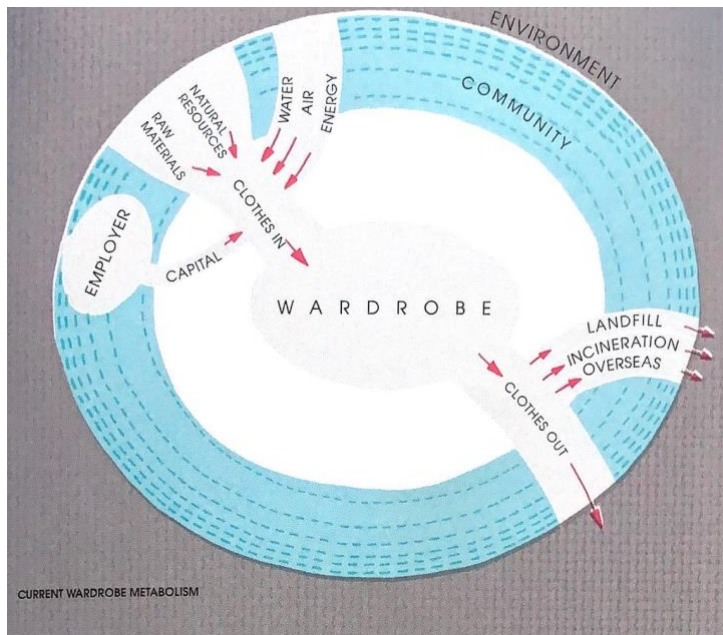


Figure 1: Current Wardrobe Metabolism, Fletcher and Grose 2012

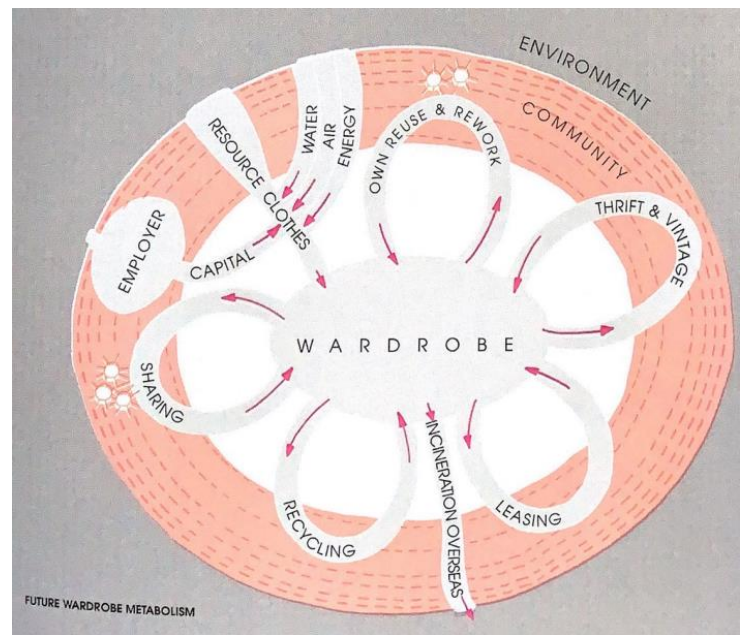


Figure 2: Future Wardrobe Metabolism, Fletcher and Grose, 2012

In ‘Design for Change’, Kate Fletcher and Lynda Grose (2012, p. 88) presents this idea of the ‘Metabolism of a Wardrobe’, as can be seen in the above diagram, they highlight that the current metabolism of most people’s wardrobes are ‘clothes in’ through buying new, consuming virgin materials, and ‘clothes out’ where clothes are chucked away, landfilled or incinerated, highlighting that the current wardrobe metabolism is what is fuelling the environmental impacts the fashion industry is having due to over-consumption and the culture of ‘throw away fashion’. The second diagram demonstrates how we need to ‘Recalibrate the Metabolism of our Wardrobe’ by reusing and reworking the clothes already in there, buying second hand, and sharing and swapping with others, this ‘circular’ nature of the ‘future wardrobe metabolism’ is a reminder of the idea of a circular economy, keeping materials and garments in circulation for longer, and increasing the output you get out of the same input. (Fletcher and Grose, 2012, p. 76)

Although this provides a tool for how consumers can change their habits to move towards more sustainable fashion consumption, it also highlights to designers what the future of fashion consumption will look like at a sustainable level. In the diagram ‘future wardrobe metabolism’ it indicates there is still room for ‘clothes in’, this is where the responsibility is on the designer to ensure the clothes coming in are sustainably designed, through techniques presented in other parts

of the diagram such as re-working and recycling, going back to the idea of making the fashion industry a more circular operation (Ellen MacArthur Foundation, 2021).

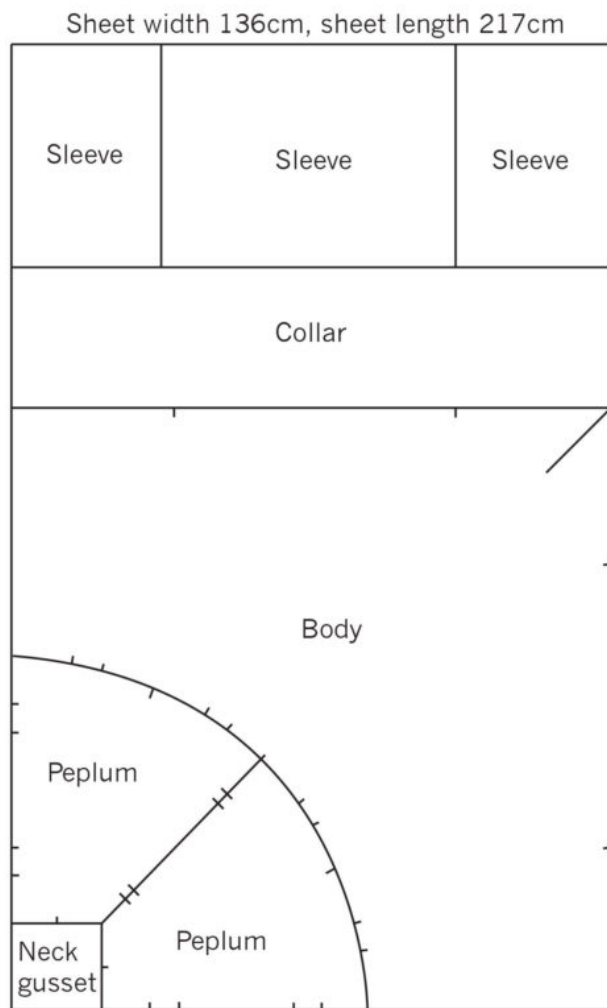


Figure 3: Zero-Waste Pattern, courtesy of Timo Rissanen, Jessica Yen, 2016

An emerging strategy used by designers seeking to become more sustainable in their practise is the use of ‘zero-waste patterns’ (Jessica Yen, 2016) A pioneer of this technique is Timo Rissanen, a designer and educator who is also a part of the Union of Concerned Researchers in Fashion, alongside Kate Fletcher and Lynda Grose. He identifies that designers have become completely separate to the pattern cutting process so actually don’t have much idea about how much material is being wasted, highlighting the “attitudinal barrier” (Dan and Østergaard, 2021, p. 3) amongst designers, as highlighted earlier, so in order to reduce wastage at this stage, “you have to bring the patternmaking and the cutting and the making into the design process.” (Timo Rissanen, 2016) This highlights a tool that as a future designer I will have to use to combat the issue of wastage in the fashion industry, as well as breaching on the idea of the ‘slowing down’ of fashion, as it requires much more thoughtful design by designers.

Zero-waste patterns are an interlocking puzzle of pattern pieces, designed to generate as little waste as possible (Jessica Yen, 2016), meaning they require thoughtful design and problem solving to create and identify the most effective layout of pieces. For a designer, creating these zero waste patterns could pose as a challenge, especially as pattern making has become separate to the design stage (Timo Rissanen, 2016). However, this highlights the responsibility designers have to take on at their stage to ensure the longevity of their practise and the planet (Mike Monteiro, 2017), and that pattern making itself is an essential tool.

New York fashion designer ‘Zero-Waste Daniel’ bases his brand around the idea of zero waste design, utilising zero-waste patterns to create his garments, and make accessories and embellishments out of excess material. He states that his design process prevents roughly a pound of material from ending up in landfill with each design (2021), indicating that zero waste patterns are an effective tool designers can use to innovate their industry to become more sustainable by combatting the issue of textile waste.



Figure 4: poinsettias for holiday sweatshirt, Zero-Waste Daniel, 2021

At Zero Waste Daniel they name their technique ‘Re-Roll’ (2021), where they keep and use all their scraps, often using them to create embellishments in their designs; a strategy of zero-waste design (Jessica Yen, 2016) (Sara Kahn, 2018) . Not only does this eliminate waste, but is also quite an exciting element for designers to consider; creating an accessory out of an existing piece of material that would otherwise go to waste, rather than designing an accessory and creating a separate pattern for it, going back to the idea presented by Timo Rissanen that the pattern making stages become part of the design process (2016).

Previous to the environmental *need* for zero-waste design, producing garments so they utilise the most material is tradition in the cultures of Japan with the kimono and Sari in India, highlighting how they value their material (Jessica Yen, 2016) (Sara Kahn, 2018). It is evident that material has little to no value in the culture of fast-fashion, with a vast amount of it going to waste every second (RSA, 2021). Researchers of zero-waste design such as Timo Rissanen recognise its historic and cultural references, using it to inform the future of the practise and how it can help innovate the fashion industry. These traditional practises can be used as a tool by myself and other future designers to combat the issue of an unsustainable fashion industry by being reminded to value the material through a more thoughtful design process, remembering the ethical role I have as a designer, provided by another part of my toolkit “Designers code of ethics” Mike Monteiro (2017)

Bringing together these ideas from cultural knowledge of zero-waste design, and the evidence based knowledge of the environmental effects waste in the fashion industry is having, to inform where the industry needs to improve, and how as a designer you can improve it, highlights how the philosophy of epistemology applies to design (Chapman, 2015, p. 9). This refers back to the ethical role design has (Mike Monteiro, 2017) indicating that knowledge will inform the tools I require as a designer to solve the unsustainability issue in the fashion industry.

The idea of 'Re-calibrating the metabolism of our wardrobe' (Fletcher and Grose, 2012 p. 88) is targeted at a specific demographic of consumers that feed into fast-fashion. Despite the issue being over-consumption of material goods, it is discussed that the reasoning behind what drives this demographic to consume in the way that they do is due to the desire they have to be their 'ideal self' (Chapman, 2009, p. 34) and believing that having the latest, on trend clothing will fulfil that. Clothing companies recognise and fuel this by producing a quick turnover of goods, in turn fuelling the environmental crisis through mass production and unsustainable practises (Ellen MacArthur Foundation, 2017) . In an interview with faircompanies.com, eco-designer and activist Lynda Grose recognises that due to this desire fuelled over consumption of fast fashion, designing a garment to be durable and long lasting isn't the best strategy (2008). This is equally recognised by Johnathan Chapman (2005) who states "when physical materials grossly outlive our desire for them, the result is waste", a quote by him, also used by Fletcher and Grose (2012) in 'Design for Change', highlighting that the best strategy for making fashion consumption more sustainable would be through designing garments around the idea of recycling, reworking (Fletcher and Grose, 2012 p. 88) and zero waste design (Jessica Yen, 2016) (Sara Kahn, 2018), to prolong their use, reduce production and processing of virgin materials, and reduce waste (Fletcher and Grose, 2012 p.76) (Grose, 2008).



Figure 5: Modular Series, Galya Rosenfeld, 2021

Another innovative strategy, used by designer Galya Rosenfeld, is creating garments and accessories that can change form (Fletcher and Grose, 2012, p. 84). Her designs are made up of pieces that slot together without the need of stitching or gluing, meaning they can be taken apart and put together in different ways. She draws upon the idea of consumer desire, indicating that she creates her designs so they can change as the consumers desire changes (Galya Rosenfeld, 2001). This is a good

example of how as a designer, in order to achieve more sustainable design, you need to take into consideration what is making the industry unsustainable, and think of a way to combat it through your design approach, going back to the philosophy of epistemology and how it is a base of design (Chapman, 2015, p. 9). The idea of creating clothes that can be altered and re-styled in numerous ways by the consumer is a really useful tool for designers to operate more sustainably as it prolongs the use the consumer will get out of the garment, as well as prolonging the emotional attachment the consumer has to it through continuing to spark their desire every time they are able to alter the garment themselves, referring back to Johnathan Chapmans idea of designing for emotional durability (2009).

Not only are both Galya Rosenfeld and Zero Waste Daniel designing and creating clothes that are sustainable in themselves, but through how they communicate their designs, they are informing consumers how their design process is reducing the environmental effects conventional fashion design is having. This in turn, makes them a sort of activist and educator for sustainable fashion design, informing consumers of strategies such as reworking and restyling, that they can do to the existing clothing in their wardrobe, kickstarting the 'recalibration of the wardrobe metabolism' (Fletcher and Grose, 2012, p. 84). Communicating your design process is a tool, maybe not previously considered by designers as, as previously discussed, their role is viewed as creating a garment with focus only on its aesthetical existence, and there is mis-understanding on how they can help solve the unsustainability issue during their design process (Dan and Østergaard, 2021, p. 3). Referring back to 'A Designers Code of Ethics' (Mike Monteiro, 2017) and the ethical responsibility you have as a designer, this educator role a designer can take on highlights communication of and being transparent about your design process as an essential tool designers can use to help solve the environmental issues the industry is causing.

The designers and researchers explored above highlight that in order to solve the environmental issues the fashion industry is causing due to the mass-production, consumption, and wastage of materials, a redesign of the system from a linear, to a circular approach is required. Zero-waste pattern design, utilising existing material, and innovative ideas such as 'clothes that change shape' (Fletcher and Grose, 2012, p. 84) are all strategies that ensure garments stay in circulation for longer, in turn reducing the amount of waste going to landfill and production of new materials. Fundamentally, recognising the epistemological base design sits on (Chapman, 2015, p. 9), and our role as designers to release something positive into the world through our work (Mike Monteiro, 2017), provides the tool to kickstart the move to a more circular business model within fashion, as it will inform and inspire innovative ways to design garments, as it has done for the strategies outlined throughout.

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