

Understanding the importance of using circular design in the fashion and textiles industry to make a positive impact on the developing environment.

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Surface Pattern and Textiles

5331 words

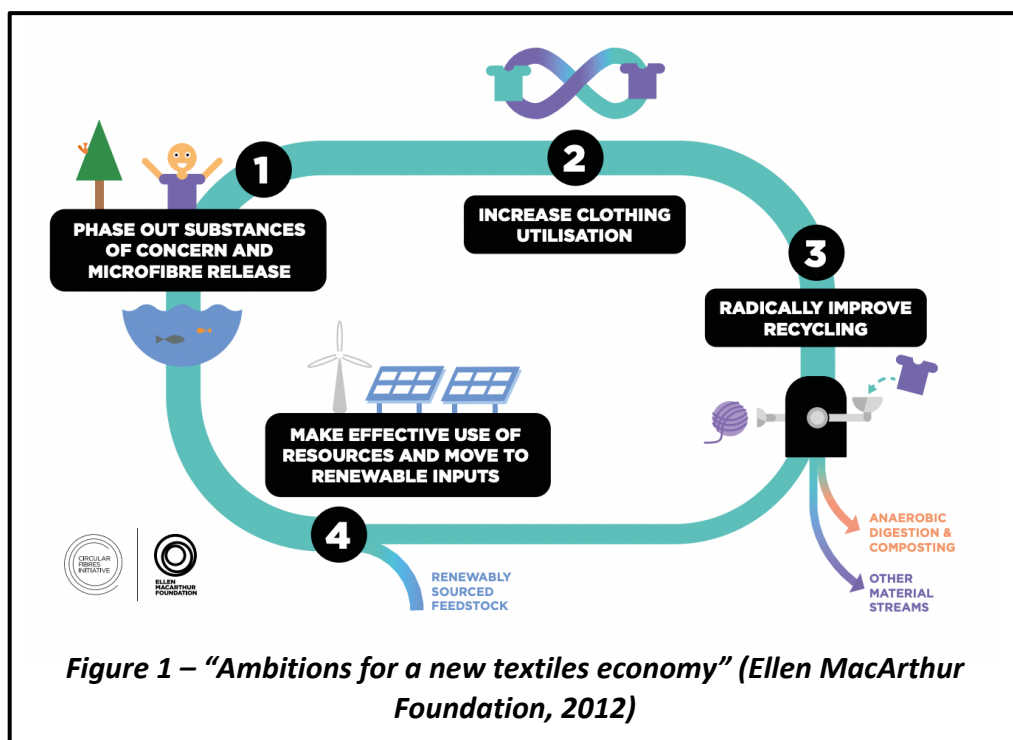
Georgia McKie

Introduction

I am going to discuss the importance of circular design in the growing fashion and textiles industry of today's society. The positive impact the circular design system has on the way fashion and textiles is and, will hopefully, continue to be produced, and how designers can incorporate it into their design thinking to create durable, sustainable, and environmentally friendly textiles items for now and the future. I will research design foundations and projects such as the Ellen MacArthur Foundation, the Jeans Redesign Project and Nigerian sustainable fashion designer NKWO Fashion. In contrast to this, I will be discussing the current linear design system, which is common today, the negative impact it has on the environment, the reason why it is used at such a demanding level, and why it needs to be changed.

I believe it is important to understand the current way designers, fashion and textiles companies think and produce products so there can be development and changes made to this system. This is so fashion and textiles can become more circular in the way they are produced and made to last. As a designer, understanding the current and future design system is very important. Being able to open our eyes to the way in which designers can make a change to the way the fashion and textiles industry is damaging the earth is the point I want to get across in this piece of writing.

Section 1 – What is circular and linear design and the differences between them?



Circular design is a way in which designers and creators can think in a more economical and sustainable way in curating their new and upcoming design ideas. The main point of circular design is to create a less linear way of thinking in the designer world. Over time, circular design's main aim is to design out waste to create a more sustainable and eco-friendly

fashion and textiles industry. On the other hand, linear design has been the only known design process across all design aspects and is being used more frequently now. Linear design is the idea of creating products from virgin, often manmade materials, fast and on demand, with no thought on the lifecycle of the garment and ultimately its end goal is to end up in landfill after a few years, and not using it to its full capacity.

As shown in Figure 1, the circular design process is a four-part idea. The first point of the process is to assess the raw materials that are being brought into the design process. Making sure they are safe and clear of harmful substances that cause the negative impact on the environment. Secondly, ensuring that the durability and standard of the garments being produced is at a decent, lasting standard. Concepts of clothing rental services are becoming more prominent ways of refreshing wardrobes without contributing to waste and fast fashion demands. A current successful clothing rental service is 'Rent the Runway', it is a subscription-based company which has high-street to designer clothing options which you can rent out for a select amount of time, and then return once finished with so the next customer can make good use of the garment (Trinh and Donohue, 2019). Thirdly, improving recycling processes and making them understood and more well-known will influence a clearer sense of need for materials to be thought about before being thrown away to landfill. Finally, the last step of the process is to dispose of the small amount of waste necessary, and this will be renewable waste which can benefit the environment instead of causing more damage and issues. (Ellen MacArthur Foundation, 2017).

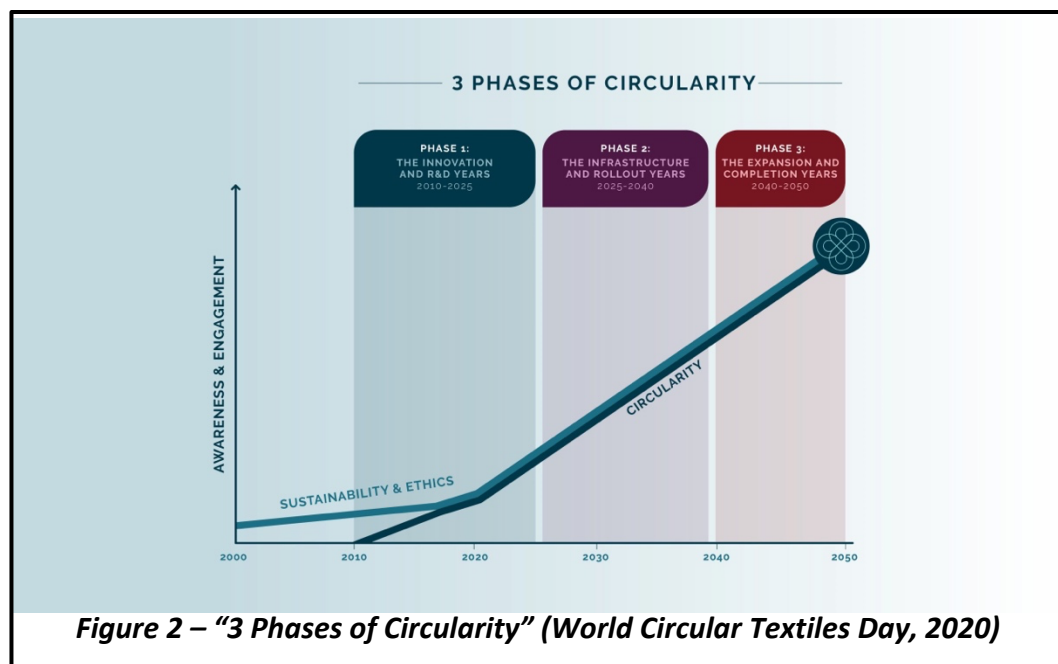


Figure 2 – "3 Phases of Circularity" (World Circular Textiles Day, 2020)

The circular design process is not going to be an instant fix to the sustainability issue we face in the fashion industry now, however this concept gives a hope for a more economical fashion industry in years to come. According to an article online about circular design in the fashion industry, "participants were brought together to vision and populate a textiles circularity roadmap to 2050" (Circular. For Research and Waste Professionals, 2022). The World Textiles Circular Day website produced a roadmap from 2020 to 2050, predicting the change and actions brands, companies, designers and consumers need to make to create a

more circular fashion and textiles design industry, as shown in Figure 2. The idea is that as time goes on, the number of facilities, hubs and producers will increase, but not in demand for fast fashion. As these resources increase, they will begin to form circular textiles hubs in each continent and different countries, with limited overseas shipping to cut down on the carbon emissions. Having circular textile hubs will encourage the idea of buying locally and will also offer “Diversity ... as local and regional hubs provide work and opportunities” (Ranson, 2020). This shows that it is expected that the circular design process will take at least twenty-five years to become a prominent and understood process. The main aim is to turn away from the linear design process to create a more circular and economical design process for all fashion and textile garments, which is beginning to happen as promoted by the Ellen MacArthur Foundation.

Circular design is only going to be beneficial and have an impact on the fashion and textiles industry if mindsets are changed. Not only is there the consumers mindset, but also the industries mindsets, the companies who sell the items, the designers who create the items which are for sale. The mindsets of the consumers are the desire to become more sustainable and efficient in the way they buy and consume new clothing and textile products. They look to the companies and brands they buy from to become informed of sustainability within the fashion and textiles industry. Industry mindsets focus on the actual process of creating more sustainable items to sell and the practicalities behind making this change. There will be both advantages and disadvantaged when making the change from a linear system to a circular system, however this can be foreseen to many benefits in the long run.

There is evidence shown in an online consumers sustainability report, that fashion and textile consumers are eager to make a change in items they are purchasing, consumers want to be more ethical and sustainable with the items they buy. It states “32% of consumers would pay more for a product from a brand that they believe is committed to sustainability” (Nosto, 2019). There is more of an understanding today of how serious fast fashion and textile waste is. It is an affective change we as consumers can make, which will have a long term, positive and lasting effect on the fashion and textiles industry (Blum, 2021, pp.59–62). Although the consumer and industry mindsets are different and have different focal points, they also work well together to encourage customers to be mindful of the products they are purchasing, and the damage unsustainable decisions is causing. Industries can use this knowledge to educate through labels and advertisements how important it is for consumers to start making the shift from buying unsustainable items to buying long lasting, durable and circular processed items instead.

The cradle-to-cradle approach is a sustainable way of thinking in the design world. It is a design process which works circularly, ensuring that raw materials are not going to waste and are being reused in a sustainable way. It is a process not only for textiles, but for many different areas of design too. William McDonough and Michael Braungart came up with the cradle-to-cradle theory, to oppose to the well-known cradle-to-grave concept used in many design industries. McDonough and Braungart could see the negative impact unsustainable materials are having on the world and wanted to make an impactful change. Previous generations began to use cheaper fuels and materials to save money, however these were not renewable meaning they eventually were going to run out and cause issues to the

environment we live in. The process in which these resources were being used in was the cradle-to-grave cycle, meaning all the resources being used were inevitably going to end up in landfill and go to waste at the end of their lifetime. We are currently at that stage now, where these fossil fuels are running out and causing issues to the atmosphere and materials like plastic are overpopulating landfill, causing more harm than good.

As a generation, we have not been educated to think in a circular way. The process of fast fashion and a linear design way of thinking arose in the 1990's when "the founder of Zara spun the fast fashion wheel into motion." (Nguyen, 2021) It became an easier way of designing due to the number of items that could be produced in such a short amount of time. This process of design took away from the sustainable mindsets previous generations had, when they would hand down clothes, darn their socks and make full use out of every item of clothing they own. Now it is a necessity for us to shift our mindsets to think in a sustainable way. We must be mindful of the future to benefit the eco system in years to come. There needs to be an understanding for the way items are being designed and invented and how they can be recycled in the future, potentially reused, or redesigned in ways that will not damage the environment (Kälin, 2020).

In the Cradle-to-Cradle book, a design situation called "monstrous hybrids" is explained. This is where materials and processes are both mixed and cause the once sustainable material, to become unsustainable after the treatment process it has been put through. The example given is of a leather shoe, which used to go through the process of "vegetable tanning" and then got changed to a faster, and more 'efficient', but less sustainable tanning process called "chromium exposure". The dangerous particles of the shoe sink into the ground when being worn, causing unseen damage to the human eye, and then the entire shoe gets thrown to landfill once it reaches the end of its life due to the unsustainable materials and processes used to create the shoe (Braungart and McDonough, 2009, p.99). The cradle-to-cradle movement would improve this linear lifecycle of a shoe to a more circular cycle which would prevent strong, durable materials ending up as waste and instead use them to either upcycle the original garment or be used to create a completely different product.

Figure 3 shows a shoe brand which has taken on the cradle-to-cradle approach is Wildling Shoes. They go by the phrase "nature uses waste as a resource" (Wildling Shoes, 2022), and do not advocate for their shoes to go to landfill. The idea is that once the shoes have been worn to their full extent, the customer can send the shoes back to Wildling and they will be deconstructed, recycled and recreated into a new pair of shoes. They take the cradle-to-cradle approach very seriously and take full advantage of the use of strong, durable and reliable materials (Wildling Shoes, 2021). The



Figure 3 – "The Most Flexible Barefoot Shoes"
(Any, 2022)

more design companies and brands that take on a circular design approach, the more necessary sustainable fashion and textiles items are likely to become.

Although it seems like becoming sustainable and more circular in the way we as consumer handle our textile and fashion items is easy and a simple change to make, it is more difficult than it seems. Naturally, we as consumers, create “a clothing care and maintenance routine based on personal patterns of use” (Gwilt, 2020, p.5). It has been made known that during the ‘use’ phase of a garment, is where the most economic issues arise. This is because of the amount of chemicals, water and energy used per consumer during the washing process of fashion and textiles items. The fashion industry has many negative impacts on the environment, adding to pollution and climate change. Some statistics are that “The fashion industry produces 1.2 million metric tons of CO₂ each year”, “53 million metric tons of discarded clothing are incinerated” and “35 percent of the microplastics in the ocean come from the fashion industry” (Cho, 2021). A complex change needs to be made and both the industry and consumer influences how and when this change will be made. “changes ... have to be implemented by the manufacturers and big companies that control the fashion industry. But as consumers the changes we all make in our behaviour not only add up, but can drive change in the industry, too.” (Ro, 2020). It is not an easy change to be made but if consumers have a determined mindset to want to be more sustainable, industries will have to listen to what is on demand and over time, hopefully there will be a more environmentally friendly textiles and fashion industry.

In 2014, Anna Brismar who is the owner of Green Strategy, and sustainability staff at H&M Sweden, both separately started to think of a less linear design concept which over the years linked to the idea of circular fashion. It was a concept that hadn’t been widely thought of and considered up until this point (Brismar, 2022). Linear design was a way in which designers and consumers had been brought up with and educated on, as stated in the article ‘Cradle-to-Cradle principles change how products are designed’ (Kälin, 2020). This shows that only in the past eight years has circular design been in thought. It gives society a hope as different brands and companies are supporting and complying to the circular design process, such as the Ellen MacArthur Foundation and the jeans redesign project. The hope that society is given, is that eventually the textiles and fashion industry will become circular and not have such a negative impact on the world.

There are many ways that designers can create textile and material products in an environmentally friendly way. Designers Helen Wood and Erin Tabrar came up with sustainable and ethical strategies to create fashion garments for the brand Amana. These strategies are buying fabric and materials with the least impact on the environment, using suppliers that obtain safe working conditions and believe in fair and equal pay and the brand also tries to minimise their carbon emissions by donating to projects in third world countries (Sass Brown, 2010, pp.18–19). Some designers and fashion brands such as Shein, opt for cheaper options in the fashion industry like low paid, sweat shop workers, using unsustainable materials and pretend that carbon footprint does not exist. However, designers like Helen Wood and Erin Tabar have a heart for the environment and care about design, sustainability and equality. They work with fair-trade guidelines to ensure the way they go about pay, production and shipment is correct and the most beneficial to the environment it possibly can be.

Preloved is a brand which creates unique clothing from old, found, vintage materials. By using a wide range of different styles of pre-loved clothing, it opens a huge opportunity to create many styles of quirky clothing. The brand doesn't only produce fashion items, but also homeware textile products also made from recycled materials (Sass Brown, 2010, pp.124–125).

Figure 4 shows an example of three fashion garments made from reused and recycle materials. It is important to have brands like this in the fashion and textiles industry as it will encourage and inspire other upcoming designers and creatives to start reusing and recycling their preloved garments and materials, to create new, modern designs. Some people will be able to upcycle their own old clothes and others may donate them as fabric scraps to design companies that use the upcycling process to create clothes, like Preloved.



Figure 4 – “Candy Cane Bundle” (Preloved, 2022)

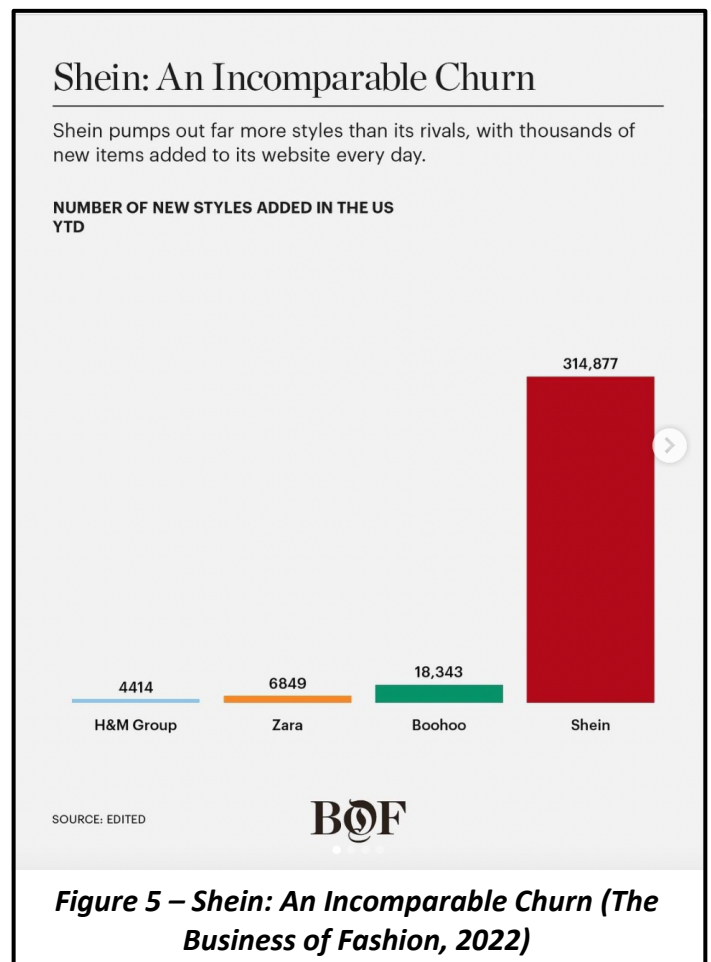
Although upcycling is a positive way to recycle and reuse old clothes and textile items, it does come with some disadvantages such as having to use extra materials and resources to upcycle an item, could take some time and not being able to create a garment which would be at the same or more value than the original piece (Erakina, 2022). Due to this, it is not a solution I will focus on in this piece of writing as I personally do not think it will be a largely beneficial part of change in the textiles and fashion industry.

Designing for a society which is constantly changing, developing, and evolving isn't an easy process to go through. Designers must have a very open mindset and think broadly and realistically about the future and how the product they are creating can adapt and work. Many designs start out in one way, like textiles being designed in a linear way, and gradually change over time to suit the new, modern consumer and to not conform to the economic issues which gradually arise over time. Therefore, the circular design process is becoming more prominent in the fashion and textiles industry, as linear design is proving to be a large downfall and have a negative impact on the world. “Designing in times of rapid change then is clearly more difficult than designing for a stable and predictable world.” (Lawson, 2006, p.85) This shows the real conflicts designers go through when trying to design for an ever-changing society.

If designs are being created in more ethical ways, we as consumers will naturally begin to buy more sustainable items, sometimes without even realising. Stella McCartney is a designer who has been mindful of sustainability since day one in 2001. She focuses on sustainable fashion, circular design, designing out waste, using renewable materials and processes that are not harmful to the environment and is an inspiration for other textile and fashion designers. A quote from the Stella McCartney website states “What is really exciting about The New Textiles Economy Report is that it’s providing solutions to an industry that is incredibly harmful to the environment, these are problems that people are not even aware of.” (Stella McCartney, 2017). This shows that as a designer, she focuses on educating herself in the environmental issues of the fashion industry and wants to ensure others are well educated in this area too. She is a strong influence others should look to when it comes to sustainable fashion and textiles design.

Section 2 - How and why is linear design so destructive and what is the fast fashion impact on the environment?

Shein is a brand which thinks and designs in a very linear way. Even though society is beginning to learn and care more about sustainability in fashion today, Shein has managed to become a well-known online fashion brand due to the cheap, low-quality garments they make. The evidence of the number of products they produce can be found by the click of a few buttons on the Shein website. The website is currently showing that the variety of jeans on their site is over 4712 styles of denim jeans alone. There is no way the production of this many jeans, ready to buy, can be sustainably made and considered when designed. “Shein generated \$15.7 billion in 2021, a 60 percent increase on the \$9.8 billion it made in 2020” (Curry, 2022). This shows that the online brand is growing fast, and sales are becoming a lot higher. This is a worrying statistic to know, as the more unsustainable fashion items that sell each day means there will be more waste ending up in landfill.



In a Channel 4 documentary, called Inside the Shein Machine, a graph of statistics for clothes being sold by online brands, Figure 5, shows that Shein sold over seventeen times the amount of clothes than the online brand of Boohoo. The sustainability campaigner from TikTok explaining the graph on the documentary states “our planet can’t sustain this amount of clothes” (Channel 4, 2022). This is a scary realisation, as Shein’s main aim is to target a younger audience of people who can only afford cheaper items and may not know about sustainability in the fashion industry. The damage being made to the environment

seems as if it is being encouraged to the younger generation by companies like Shein. One of the main ways Shein reaches its audience is through influences on social media like YouTube, TikTok and Instagram (Kollbrunner, 2021).

Shein is very much a linear design fashion company, who focus on making the most on trend fashion items, in the cheapest possible way to get more orders and ultimately make more money. The thought process through most of the company is mainly on the money aspect. There is minimal care for the workers, and minimal care for the environment, materials used and where the items end up at the end of its lifetime. “In a good month, he earns up to 10,000 yuan or approximately CHF 1,400 to take home; in bad months it can be only a third of that. There is no overtime premium.” (Kollbrunner, 2021). This is approximately £164.68 a week and £658 a month. This is shockingly low; it is less than half of the UK’s minimum wage and leaves families in desperate need for necessities. According to an online article, “the clothing on Shein comes from several wholesale warehouses around the world” (Devlin, 2021), which shows that the brand will use the cheapest possible location and workers to be able to mass produce the number of items they are selling each day.

The image on the right, Figure 6, shows the awful conditions in which the waste clothes are sent to for landfill. The Greenpeace website suggests that all faulty or returned items are sent straight to landfill as it’s cheaper to dispose of them than try to solve the issue. They also stated “producers like Shein should be made financially responsible for the cost of cleaning up the environmental and health damage caused throughout the supply chain, regardless of the geographical extent of the damage.”



Figure 6 – “A Waste Picker at the Dandora Dumpsite in Nairobi. Due to the Heavy Loads They Have to carry, Many of Them Suffer from Physical damage.” (McElvaney, 2022)

(Wohlgemuth, 2022). I agree with this statement made, as it is unfair for places like Nairobi, where the image in Figure 6 is taken, to have to deal with the issue this waste is causing. Not only does it cause issues for the entire country of Kenya, but it also causes issues for the people having to clean up the landfill site as it is such a physically demanding job to have.

Section 3 – A Denim Case Study

I am going to discuss two different ways in which designers, organisations and companies have used the circular design process to create new garments with denim. One fashion

design brand I have researched into is NKWO Fashion. On a recent trip to the V&A Museum in London, I attended an 'Africa Fashion' exhibition which is where I discovered the NKWO fashion brand.

As seen in Figure 7, the main materials used to create the abstract and quirky garments in the NKWO Fashion brand are denim, cotton and other found and recycled materials. These are then woven together to create a strong, durable material to create garments with. Nkwo Onwuka has a motivation to remain sustainable in her work and to prove that sustainable fashion can exist. Her aim was to create whilst staying loyal to traditional techniques she had learnt growing up in Nigeria over the years, also to remain as eco-friendly as possible to reduce the amount of new, raw materials coming into the fashion industry and ultimately ending up in landfill (Palzenberger, 2021).

Weaving is a favoured technique in Nigeria. Many different materials are woven such as textiles, fibres and bark from trees. The weaving technique can create a solid structure for many different things like baskets and clothing. NKWO uses weaving to create Dakala cloth which is her signature material to work with in each of her collections (Wright, 2022). It combines the recycling and reusing idea to make the most out of a material's lifetime. In the Nigerian culture, weaving is a skill which is learnt at a young age and is passed on through the generations (Leal Filho, Pretorius and Sousa, 2021, p.65). By NKWO including this process within her work, it shows she is proud of her culture and appreciates the skills she has been taught and learnt through the years.



**Figure 7 – “NKWO Fashion V&A Museum”
(Parkins, 2022)**

Alison Jose is the director of the Circular Centre and has a passion for true sustainable textiles. A large problem faced today is some materials are believed to be sustainable as they are made from recycled waste products. However, this is not the case as reports show and prove that some fabrics such as viscose is having a huge negative impact on deforestation world-wide (Jose, 2019). To everyday consumers, viscose may seem like a more sustainable material because it is sourced from a natural organism. However, this is not the case as farming viscose, and other materials from trees cause a very negative impact on deforestation. “Loss of our last remaining intact forest landscapes is an issue that touches everyone ... habitat loss for endangered animals, right down to the air that you and I breathe and the climate stability that regulates our food production.” (Sullivan and Carr, 2019). When designers become more educated on the materials they use, the more they

can talk about and discuss the ethical issues behind fast fashion and build up a sustainable fashion brand.

Stella McCartney's fashion brand has been gradually improving in sustainability since 2001 and continues to improve as she learns and discovers more about how to be a sustainable designer and fashion brand. Designers and companies who are in the world of fashion and textiles and have an open mind to learning about sustainability in fashion and textiles will have more of an understanding on the negative impact textile waste is having on the world (Fletcher, Grose and Hawken, 2012, p.157). As the fashion design brand NKWO continues to sell upcycled fashion garments, and exhibit work in largely attended exhibitions, like the one at the V&A London, the message about upcycled and sustainable fashion will get across to more people and will likely have an impact on the way people choose to go about disposing old and buying new clothes.

However, it is unfortunate that some brands and design companies, like Shein, are ignorant and oblivious to the issues of fast fashion and only focus on making money and creating cheap, poor-quality items to sell.

The jeans redesign project, as shown in Figure 8, was founded by the Ellen MacArthur Project. The main idea and moral behind the Jeans Redesign Project are to "ensure jeans last longer, can easily be recycled, and are made in a way that is better for the environment and the health of garment workers." (Ahmed, 2019). The aim of this redesign is to create jeans which are comfortable and fashionable but also durable and recyclable.

It is understood by the designers that sometimes, we throw away items of clothing because we have had enough of them or want to change them up a bit. This jean redesign still allows us to change our clothing and 'get rid' of the items we are potentially bored of. However, the difference in doing this when the garment has been made to be recycled is that it doesn't go to landfill waste. Instead, the recycled jeans are given back to select recycle points and are re designed into a new garment with no waste. The jeans are designed in a way they can be recycled and reused by having printed labels, no metal and thinner seams (MacArthur, 2021, p.66).



Figure 8 – “The Jeans redesign” (Primark, 2021)

This project has got over one hundred different brands supporting the cause which shows they too want to make a difference in the products they are selling to become more sustainable. Some of these brands include H&M, Bershka, Primark, Pull & Bear and Zara (Remington, 2022). Primark have advertised that they are joining the jeans redesign campaign and shared the image, Figure 8, on their website. As well as stating, “the absence of synthetic blends and hazardous chemicals in these pieces will enable them to age beautifully and be recycled at the end of their lives.” (Martin, 2021). This is a big indication to the fact that normally cheaper, unsustainable materials give off hazardous chemicals, resulting in damage to the earth. Primark are one of the known brands to use the cheapest materials and labour costs to mass produce fast fashion. To see that they are in on this campaign and want to make a change to the fashion being produced today is a massive step in the right direction for the high-street.

Conclusion

After discussing the differences between circular and linear design and looking into solutions in which designers and companies are suggesting how to create a more circular and sustainable fashion and textiles industry, I feel there is a sense of hope and positive affect on the environment for the future.

According to Business of Fashion, “An animistic approach ... will gradually transform people into collectors and collaborators versus consumers” (Edelkoort, 2022). This article shows that designers like Edelkoort are encouraging young designers to understand the full lifecycle of a textiles item, from the growth to farming and development of a material, so that sustainable approaches can be taken and understood in future designers. It is promising to read that there are designers out there who are aware of the unsustainable reality and are willing to try and make a change.

Creating a circular economy will not be an instant fix and change, it will take a lot of time, trial and error and will take a lot of encouraging from both the industry and consumer. As well as this, a larger impact on what processes the fashion and textiles industries promote in selling depend on the government making rules, regulations and standards on what is acceptable to sell. The way that circular design is most likely to become the more encouraged process of design is by governments across the world getting on board with promoting a circular economy. “COP is an international climate summit” (International Rescue Committee, 2022) where leaders from countries across the world will gather to discuss the issues on climate change and try to figure out solutions to take forward to improve the crisis we are currently facing. The reason why this concept is a promising idea is because governments from different nations are working together to come up with the same protocols we all need to take. This needs to happen with the sustainability approach in the fashion and textiles industry, to give a sense of hope in combatting the main issues we face such as landfill waste, overworked and underpaid workers and harmful chemicals and processes being used. Working together to face these issues is a promising way forward.

Throughout my research and discussion, as a designer, I have been challenged to recognise and change my personal buying and disposing habits, both for my own clothing and for the materials and processes I use whilst completing my practical university projects. From my

essay I want to take on a sustainable approach in my practice and allow this research and discussion to be evident in the work I produce practically. I hope this too will challenge each reader to consider their habits and recognise if there is a change to be personally made.

Figures:

Figure 1 - Ellen MacArthur Foundation (2012). *Ambitions for a New Textiles Economy*.

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Figure 2 - World Circular Textiles Day (2020). *3 Phases of Circularity*. [Online Image] *World Circular Textiles Day*. Available at: <https://worldcirculartextilesday.com/2050-vision/>

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Figure 3 - Anya (2022). *The Most Flexible Barefoot Shoes*. [Online image] *Anya's Reviews*.

Available at: <https://anyasreviews.com/wildling-crane-review/> [Accessed 12 Dec. 2022].

Figure 4 - Preloved (2022). *Candy Cane Bundle*. [Online image] *Preloved*. Available at:

<https://getpreloved.com/collections/spring-bundles/products/candy-canes-bundle-1> [Accessed 12 Dec. 2022].

Figure 5 - The Business of Fashion (2022). *Shein: An Incomparable Churn*. [Online Image]

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Figure 6 - McElvaney, K. (2022). *'A Waste Picker at the Dandora Dumpsite in Nairobi. Due to the Heavy Loads They Have to carry, Many of Them Suffer from Physical damage.'* [Online Image] *Greenpeace*. Available at:

<https://www.greenpeace.org/international/story/54429/ultrafast-fashion-giant-shein-takes-greenwashing-to-new-low-charitywash/> [Accessed 21 Nov. 2022].

Figure 7 - Parkins, E. (2022). *NKWO Fashion V&A Museum*. [Photograph] *V&A Museum London*.

Figure 8 - Primark (2021). *The Jeans redesign*. [Online Image] Primark. Available at: <https://www.primark.com/en-gb/a/inspiration/fashion-trends/primark-x-the-jeans-redesign-project> [Accessed 30 Oct. 2022].

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