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Comparing Sustainability Efforts of Different Footwear Brands: Analysing the Eco-friendly Practices of Various Companies

Module
Student Name

1.0 Introduction

1.1 Background

The footwear industry is a significant contributor to environmental pollution because the production of shoes generates a great amount of greenhouse gas (Mahmud *et al.* 2021). The manufacturing process of a shoe releases a large amount of carbon dioxide, which is responsible for around 1.4% of the total GHG emissions in the world, whereas making a pair of sneakers generates around 30 pounds of CO_2 emissions (DiNapoli, 2024). Consumers are increasingly aware of environmental issues and demand more eco-friendly products. This led to a shift in consumer behaviour for a growing need for sustainable practices in the footwear industry.

1.2 Research aim

The research aims to analyse the sustainability efforts of different footwear brands and identify the best practices that different companies use for eco-friendly practices.

1.3 Research Objective and Question

The main objective of the research is to analyse as well as summarise the sustainability efforts that are undertaken by different footwear brands and analyse their eco-friendly practices. The research questions are:

- What eco-friendly practices are undertaken by different footwear brands operating in the industry?
- What are the main reasons for the adoption of the eco-friendly and sustainable practices that have been undertaken in the footwear industry?
- What are the challenges of implementing eco-friendly practices in the footwear industry?

1.4 Research Rationale

The issue of sustainability in the footwear industry is a pressing issue nowadays because of its significant impact on environmental pollution. According to DiNapoli (2024), globally, around 20 billion shoes are manufactured every year, and the manufacturing process leads to 1.4% of the global GHG emissions.

GHG emission is a significant issue because it mainly changes the climate, making it warmer, which causes global warming (Yoro & Daramola, 2020). On top of that, with the rise of greenhouse gasses, the world is getting warmer which is beyond recovery, which changes the patterns of weather and disrupts the usual balance of nature. The greenhouse gas traps the earth like a blanket, which confines the heat produced by the sun (Robertson, 2021). As mentioned above, the world's climate is changing by trapping greenhouse gases, and the weather patterns are increasing.

The issue of sustainability is a pressing issue now because of the significant environmental impact it has on the increasing pollution of the environment. On top of that, the disposal of shoes contributed to the problem of waste management, where synthetic materials take years to disintegrate, releasing toxic materials that are harmful to the environment (Van Rensburg *et al.* 2020). On the other hand, the footwear industry uses non-renewable resources like petroleum to produce the synthetic materials of the shoes (Medium, 2023). This is a big issue because the world has only limited petroleum. Currently, the only remaining oil reserves are 1,650,585,140,000 barrels, and based on the current consumption rate, there are only "47 years of oil left" (Worldometer, 2024). This poses a significant problem for the world, including the footwear industry.

1.5 Significance

The significance of this research paper lies in its potential for companies operating in the footwear industry to mitigate the environmental pollution caused by the footwear industry. By analysing different sustainability efforts of the footwear brands along with the best practices this study mainly aims to provide valuable insights for the industry. The insights is mainly based on adopting more sustainable methods and the reduction of the carbon footprint of the organisations coupled with the environmental impact.

2.0 Literature Review

2.1 Eco-friendly practices of the footwear sector

In the footwear sector, a product can be considered sustainable because the materials and processes used in the manufacture do not affect sustainable practices (Van Rensburg *et al.* 2020). The footwear sector has been increasingly adopting eco-friendly practices to reduce the environmental impact. Different materials, such as recycled rubber and polyester, are frequently used to create sustainable shoes (Jadhav & Jadhav, 2020). Different sustainable shoe brands design their manufacturing facilities to limit the environmental impact and ensure fair wages for the workers. The adoption of responsible practices presents different challenges in various areas, from material sourcing coupled with manufacturing as well as consumer perspectives.

Eco-friendly footwear or vegan shoes have become a significant trend in the industry. The market for vegan footwear had a value of "$157,898.2 million in the year 2020", and it is estimated to reach around "$300,199.6 million by 2030", which is increasing with a CAGR of 6.8% (Khabiya, 2024). Different vegan footwear brands use highly bio-degradable and plant-based raw materials like cactus leather and Pinatex, made from pineapple leaf fibres and highly biodegradable (Khabiya, 2024). On the other hand, vegan shoes are now economical and can be affordable for consumers who want to purchase them and support sustainable practices.

In the footwear industry, companies use different alternatives to shift their manufacturing process to eco-friendly practices. Alternatives like vegan apple leather, coconut husk and sugarcane, recycled bottle lining, recycled polyester, and cork have been used to manufacture the shoes (Robinson, 2022). This shows that different footwear companies are undertaking alternative methods to provide shows made with eco-friendly materials.

2.2 Reason for the adoption of eco-friendly and sustainable practices in the footwear sector

There are various reasons behind adopting sustainable materials and practices in the footwear industry. As specified by Robinson (2022), more than 20 billion pairs of shoes are produced each year, and the shoe industry is responsible for 1.4 % of global greenhouse gas emissions. This is one of the main reasons behind adopting sustainable practices in the shoe industry. On top of that, 73 % of Gen Zs, 68 % of millennials and 55% of Gen X expressed their willingness to consume sustainable footwear products (Andersen, 2023). This shows that people are becoming aware of sustainable products and need new products that value sustainability.

Different companies use various sustainable strategies to remain eco-friendly in the footwear sector. One of the examples of sustainable strategies is Bloom, which is used by Native Shoes. ***Native Shoes*** is a company that uses Bloom technology, a natural material made from overgrown algae taken from freshwater (Native Shoes, 2024). Native Shoes uses algae to manufacture their shows because of their high regenerative rate, and this process also helps the environment by keeping the fresh waters clean.

Moreover, one of the sustainable strategies adopted by the footwear sector is reusing old shoes. Many companies, such as Nike and Adidas, have adopted a take-back policy for their products (Zero Waste Sonoma, 2024). This process allows customers to return used pairs of shoes so that the companies can disintegrate and recycle them for making new shoe products. This is an effective strategy for the footwear sector that will improve its adoption of eco-friendly practices.

With the increased level of demand, the sustainable footwear industry is also increasing. By the year 2030, the revenue of sustainable shows is expected to reach $ 13.3 billion, and according to the "Footwear Distributors and Retailers of America (FEDRA)", a shoe should contain natural leather and 20 % of recycled content on leather (Andersen, 2023). This is also a driving factor behind adopting sustainable practices in the footwear industry.

2.3 Challenges for implementing Eco-friendly practices

There are different challenges to the implementation of eco-friendly practices in footwear manufacturing. First of all, designing footwear involves intricate details and the usage of complex materials coupled with various manufacturing processes. So, in terms of the sustainable and circular footwear industry, reuse coupled with recovery along with recycling and regeneration cuts down the waste, making the shoe-making process challenging (MIT News, 2023). This is one of the main challenges behind the implementation of sustainable practices. The production of footwear is heavily dependent on water usage. To make a pair of shoes, around 8 thousand litres of water are needed, and different tanning chemicals and adhesives are used (certilogo, 2022). This shows that implementing sustainable practices in the footwear industry is a great challenge for different companies.

The material supply chain is also one of the main challenges in terms of the implementation of sustainable practices in the footwear industry. In the footwear sector, the material supply chains are frequently long coupled with complex as well as opaque, which lack information about the origin of the products along with production conditions (Conrad, 2024). This aspect confronts the designers, in addition to the product developers, to increase their knowledge about the materials that are going to be used in the manufacturing process. On top of that, footwear designers need to choose the chemicals based on the properties of the materials so that they can ensure that the decisions are based on product quality, material and cost-effectiveness (Nouri *et al.* 2023).

2.5 Theoretical Perspectives

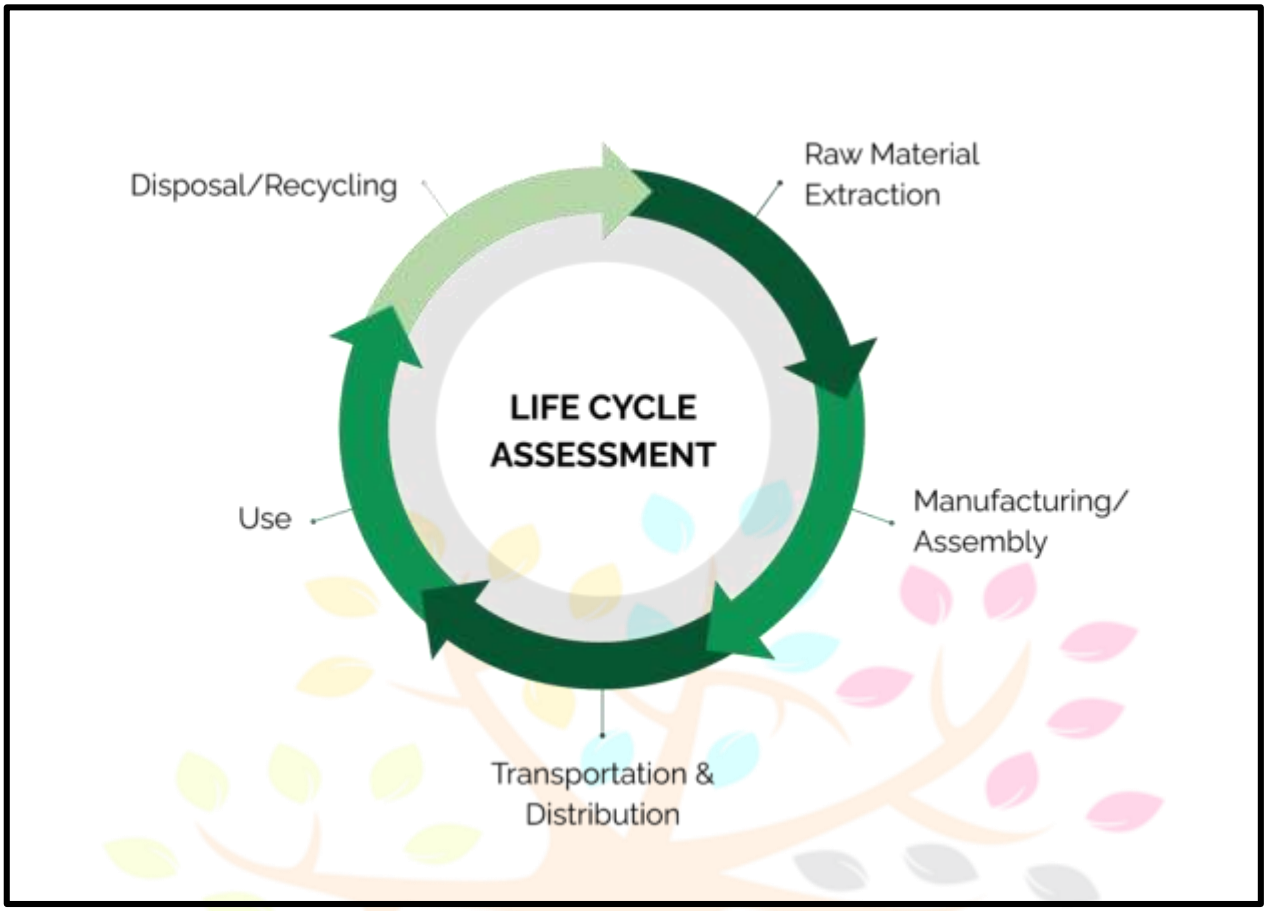

Figure 1: Life Cycle Assessment Model

(Source: Sacchi *et al.* 2022)

The life Cycle Assessment Model is one of the most common methodologies that is used to quantify sustainability (Sacchi *et al.,* 2022). The Life Cycle Assessment model is a systematic analysis of the environmental impact that measures the entire life cycle of the product coupled with material and process. The LCA models the environmental implications of different interacting systems that help to provide different valuable data that the decision-makers can use so that they can support sustainable initiatives. The results of LCA help different businesses and policymakers to make informed decisions. LCA helps with improving the process and product design along with the marketing (RIT.edu, 2022). It also helps organisations with hot-spot analysis, which helps to facilitate improvement processes and goal-setting. These inadvertently help organisations change their policies towards sustainable practices and reduce the environmental impact.

2.6 Literature gap

In spite of the substantial progress in the literature review, there are certain gaps that need further investigation. One of the literature gaps is the lack of identification of consumer insights, which explains how many consumers want to incorporate sustainable and eco-friendly footwear products in their daily lives. On top of that, more research is needed on the impact of sustainable practices on the pricing of the products and the affordability of eco-friendly footwear. The literature review does not talk about the supply chain issues that the companies might face in terms of the incorporation of sustainable practices in their regular business process. Moreover, different technologies, such as Pinatex and Bloom technologies, are mentioned in the literature review, but the feasibility coupled with the overall efficiency of the process is still not clarified.

3.0 Research Methodology

3.1 Research Philosophy

This study has adopted a ***pragmatic research philosophy*** for the research. The pragmatic research philosophy had been chosen when the research focuses on practical solutions to real-life problems, allowing the usage of multiple

methods (Ugwu *et al.* 2021). To understand the pragmatism philosophy of the researcher needed to understand the eco-friendly practices that are used in the footwear industry.

3.2 Research approach

This research has utilised a qualitative research approach. A qualitative research approach is selected for the holistic understanding of the sustainability efforts that are done in the industry (Stanitsas *et al.* 2021). The qualitative approach in this study has involved an in-depth secondary research on different companies in the footwear industry that have incorporated different sustainable practices in their regular business process.

3.3 Research design

This research has used an ***exploratory*** research design to explore eco-friendly practices along with the challenges of using them in the industry (Tiwari *et al.* 2020). With the help of the exploratory research design, the research finds the practices that are done in the footwear industry. This approach has helped the researcher to systematically gather different detailed information to analyse the trends of sustainable practices.

3.4 Research Approach

This study has used a ***deductive approach*** to understand the theories in the existing hypothesis. The deductive approach had allowed the researcher to understand the existing frameworks and strategies that have been used in the footwear industry (Velasquez *et al*. 2021).

3.5 Data Collection Method

The data collection method defines the steps that are used in the research to collect the data of the research (Taherdoost, 2021). In this research, the secondary data collection method has been used to analyse the existing research papers coupled with the industry report.

3.6 Data Analysis Method

In this research, ***thematic*** analysis has been used to analyse the transcripts and the sustainable changes in the industry.

3.7 Ethics

The research had followed ethical guidelines and maintains confidentiality of all the resources that are used. All the data and the databases has been securely kept in a hard disk with quality encryption as security.

4.0 Data Analysis and Findings

There are different footwear brands that use eco-friendly materials and sustainable practices in their manufacturing process. ***Allbirds*** is a company that is renowned for its commitment towards sustainability and using natural materials in the manufacturing process. Allbirds is undertaking different measures to replace “petroleum-based synthetic materials with natural alternatives” (Allbirds, 2024). Allbirds invented SweetFoam, which is their shoe sole material that is derived from a carbon-negative EVA, and the company also has invested in plant leather which is 100% natural (Allbirds, 2024).

Adidas is one of the companies that have undertaken sustainable practices to manufacture shoes. The partnership of Adidas X Parley resulted in the Ultra Boost prototype, which is made up of illegal deep-sea gillnets and recycled ocean waste (Hatherill, 2023). ***Veja*** is a company that uses Peruvian and Brazilian organic cotton to make the canvas and the laces of a shoe in addition to using Amazonian rubber to make the soles (VEJA, 2024). Veja also uses different innovative materials made from recycled plastic bottles and recycled polyester (VEJA, 2024). ***Nike*** uses Nike Flyleather, which looks and feels like natural leather and is made with 50 % recycled leather fibres by the usage of a water-powered process (Nike, 2024). Nike Flyknit uses lightweight fabric that generates 60 % less waste than the traditional footwear manufacturing process (Nike, 2024).

Native Shoes is a company that uses Bloom technology, which is a natural material that is made from overgrown algae that is taken from freshwater (Native Shoes, 2024). Wiht the usage of bloom technology, the company has repurposed algae from freshwater sources and made shoes with them so that they can keep the earth and the water clean. Native Shoes has taken this approach because Algae is a naturally generative resource that cans double its size in 24 hours, which proves to be environmentally friendly (Native Shoes, 2024). With the innovative blend

made from algae that grow into the freshwater the process of Bloom helps with keeping the lakes clean and the rivers in style.

TOMS is a company that is committed to making decisions that will benefit the environment by expanding the usage of sustainable cotton and ensuring that its products are constructed from 80 % recycled materials (Dillon, 2022). This shows a significant impact in terms of the sustainable practices that the company has incorporated into their organisational practices. On top of that, TOMS sources 100% of its packaging materials from the forests that are sustainably managed (Toms, 2024). Not only that, but the company also aims to measure their carbon footprint and establish carbon reduction targets by the year 2025, where it will track their record and report the progress on its annual impact report (Toms, 2024).

Rothys is a company that has used over 179 million single-use plastic bottles and turned them into their signature thread (Rothy's, 2024). The usage of single-use plastic materials helps with the process of waste management, makes the company eco-friendly and makes them an advocate of sustainable practices. The signature outsole of shoes of Rothys is made with 35% natural and renewable fibres coupled with minerals, whereas the insole material of the shoes contains around 30% bio-based materials along with recycled rubber (Rothy's, 2024). This makes the footwear of Rothys more sustainable because the materials which are bio-degradable, in turn, lessen the impact on the environment.

Saola Shoes is a company that uses sustainable practices for product development. Saola Shoes uses recycled as well as bio-based materials to make the majority part of the shoes, making the shoes more sustainable which only release about 3.5 kg of CO_2 per pair (Saola Shoes, 2024). This process helps the company reduce 70% of its carbon footprint (Saola Shoes, 2024). These are some of the companies that actively incorporated sustainable practices in their business process to become more eco-friendly.

5.0 Conclusion

The study analyses the sustainability efforts of various footwear brands that highlight the adoption process of different eco-friendly practices. Different companies like Allbirds, along with Adidas and Nike coupled with Veja and Native Shoes, implemented different sustainable practices in their business. All these companies utilised the natural process of recycled materials along with different innovative technologies that made them achieve sustainable practices. The overall shift towards the process of sustainability is crucial for the footwear sector to minimise the problem of environmental pollution.

6.0 Recommendations

The companies operating in the footwear industry can invest in the R&D process, which is crucial for the creation of sustainable products (Rodrigues *et al.* 2020). With this, the companies can achieve cost savings through more efficient production, which would help them to get a competitive edge by offering sustainable products. On top of that, footwear companies can ensure supply chain transparency by making sure that the raw materials that they use come from ethically sourced origins (Brun *et al.* 2020). This practice will help the company to build the trust of the consumers in addition to reducing the risks that are associated with unethical sourcing. On top of that, setting clear sustainability goals will help the company to reduce its carbon footprint and track the progress to commit to sustainability practices.

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