Fashion and Its Environmental Impact: A Behavioural Physiology Validation of Fashion Influencers' Buying Decisions and Its Perceived Social Impact on Consumer Choices

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Abstract

The study uses mixed-method cross-sectional approaches to explore the use of behavioural physiology validation techniques to understand the fashion influencers' perspective on determinants of sustainable fashion to promote environmentally friendly choices. The study intends to assess the feasibility of designing and executing Behaviour Centered Design (BCD) interventions aimed at changing the buying decisions of fashion influencers toward promoting and adopting sustainable fashion choices to reduce textile waste and environmental depletion.

The study is based on the Behaviour Centered Design (BCD) (Aunger & Curtis, 2016), an approach that blends insights from behavioural science and approaches from design thinking to understand the underlying drivers of behaviour and the Social Norms Theory (Bicchieri & Mercier, 2014), which guides how to measure norms and what strategies to adopt to foster social change. The study aims to determine how and in what ways distinct neural circuits respond to product preferences and how fashion influencers react to decision-making in terms of sustainable fashion choices. The subjects will be chosen for conducting randomised control clinical trials to identify product preference and consideration. The

study intends to distinguish neural correlates of subjects' reactions to preference versus other reasons for buying. Through the characterization of neural predictors of buying, the study looks into how the ability of brain activation influences the purchasing decisions. The measurement variables are developed based on the physiological account of factors facilitating neutrally-constrained theories of human decision-making (Glimcher & Rustichini, 2004). The consulted theories will help future researchers decompose the components that go into decisions but also build behavioural physiology understandings to analyse and assess buying choices and inform policies.

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Introduction

A report published by the United Nations Environment Programme states that the fashion industry is the second biggest global consumer of water and creates nearly 10% of the global carbon emissions. Another report by Quantis International in 2018 stated that the three main drivers of the fashion and textile industry's global pollution impacts are dyeing and finishing (36%), yarn preparation (28%), and fibre production (15%). According to the UN Framework Convention on Climate Change, carbon emissions are projected to skyrocket by 60% in 2030.

Sustainable fashion, a process which is ecologically friendly, can be one way to take fashion production and consumption towards lesser resource consumption and pollution. Sustainable fashion comprises environmentally friendly ways to design, manufacture, distribute, and use clothing (Joanes et al., 2020; White et al., 2019). Globally, fast fashion by various entities in the fashion value chain has played a significant role in the present state of the world, with increasing environmental threats posing risks to lives and causing social injustice. Fashion brands like FabIndia have made a visible impact in the awareness of, and access to, sustainable fashion, with their eco-friendly methods of producing raw materials, original designs, and somewhat upmarket offerings (FabIndia, 2022; Rastogi, 2016; Saxena, 2020). Such fashion brands are increasingly proving to be connectors (not 'bridges' yet) between fast fashion and couture. However, the high prices (Babu, 2013) and effort required in maintaining their sustainably produced fabrics pose a major challenge to their acceptability in the fast fashion market (Consumer Complaints, 2020).

Clothing products meeting a primary need have continuous consumer demand due to aggressive marketing strategies by fast fashion brands. For some, the trigger to buy a new cloth can be after their wear is worn and torn, and for others, it can

be at the sight of something new making their existing wardrobe psychologically obsolete. That's why the fashion phenomenon, especially that of fast fashion, expedites psychological obsolescence.

Over the decades, fashion has evolved as a form of self-identity expression and an integral part of an individual's personality. However, seldom do people think about how their fashion choices impact the environment and its inhabitants. According to Mahatma Gandhi, "there is no beauty in the finest cloth if it makes hunger and unhappiness." This sentiment aptly echoes in the current discourse around the promotion of sustainable fashion choices. There are several factors that influence an individual's fashion choices, such as improved access to technology through social media platforms and websites, social norms as a result of socialization, psychological, economic, and aesthetic aspects, to name a few.

Sustainable fashion comprises environmentally friendly ways to design, manufacture, distribute, and use clothing (Joanes et al., 2020; White et al., 2019). Globally, the unsustainable ways of production by fast fashion industries have played a significant role in the present state of the world, with increasing environmental threats posing risks to lives and causing social injustice. Clothing products meeting a primary need have continuous consumer demand from every strata of society, but the style they prefer changes consistently due to changes in fashion trends driven by fashion influencers. For some, the trigger to buy a new cloth can be after their wear is worn and torn, and for others, it can be at the sight of something new, making their existing wardrobe psychologically obsolete. That's why the fashion phenomenon, especially that of fast fashion, expedites psychological obsolescence. The demand for newer clothes tracks the fashion value chain to respond to market demand. More demand for clothes implies more production of clothes, fabric, yarn, fibre and the like. Thus, in the fast-paced competitive fashion world, brands are continuously working towards newer collections throughout the year to meet this high demand and consumption. This results in their choice of fibres and materials, dyes used, low waste design, processes that engage human resources and systems to manage industrial waste. It also implies increased requirements of resources, some that are immediately irreplaceable, some that pollute the water, air, habitat, and the entire ecosystem. Thus, there is a compelling need for consumers to alter their fashion consumption, as environmentalism and equitable practices are intricately linked.

Fashion brands, though sensitive to the environmental aspects, tend to be more concerned about their bottom line of profit-making. Their actions are termed as greenwashing, and such measures offer no solutions to climate change, biodiversity loss, and other larger environmental issues. Even the so-called sustainable brands are sold at a premium, thus tilting the demand towards brands that are the output of unsustainable processes. Consumers are easily lured by cheap prices offered during sales and are seldom aware that these clothes are a result of inaccurate forecasts. In other words, brands' inability to gauge consumers' preferences ends up in overproduction and forced sales. The items that remain unsold, despite all those efforts, end up in landfills and oceans.

A study conducted in Sweden (Roos et al., 2015) aimed to clarify what sustainable fashion meant for the Swedish fashion industry using the Life Cycle Assessment (LCA), to examine raw material extraction, material processing, product manufacture, distribution, use, disposal, and recycling. The study found that an examination of scenarios which reduced the pre-user environmental burden of clothing was more feasible. Another study (Joanes et al., 2020) employed the comprehensive action determination model (CADM) to identify psychological factors linked to reduced clothing

consumption across five different countries. The study results showed that personal and social norms are key determinants of fashion choices. An increase in perceived personal norms could potentially be reached with focused messages on the environmental impact of choices and the possibilities to lessen it through one's own reduced consumption (outcome efficacy). A review of literature on shifting consumer behaviours to be more sustainable found that people are more likely to engage in pro-environmental behaviours when the message or context leverages psychological factors such as social influence, habits, feelings, cognition, and tangibility (White et al., 2019).

While businesses shall thrive, the planet must maintain its ecological balance. The responsibility is with the industry to ensure brand transparency so that consumers are better equipped to make more ethical purchasing decisions, and in the hands of consumers, the single umbrella under which all human beings converge. Perusing the annals of history, there are instances where changes in human behaviour made possible through effective communication and suitable interventions. Advertisements to control population, to reduce waste, and to mitigate health risks during Covid and other pandemics yielded positive results. Such communication, which engaged communities, was largely led by governmental bodies or non-governmental bodies supported by government funds, with some effort from the private players.

The key research questions that this study aims to answer are as follows:

1. How do influencers define fashion and what determines their fashion choices?
2. According to influencers, how do fashion trends influence people's buying choices?
3. How and in what ways do behavioural physiology validation techniques assess the promotion of sustainable fashion through fashion influencers?
4. Are there successful industry intervention models of sustainable fashion and how do they perform?

The Theoretical Approaches of the Study

The study is based on the Behaviour-Centered Design (BCD) (Aunger & Curtis, 2016), an approach that blends insights from behavioural science and approaches from design thinking to understand the underlying drivers of behaviour and the Social Norms Theory (Bicchieri & Mercier, 2014), which guides how to measure norms and what strategies to adopt to foster social change. Through these approaches, the study looks into the possibilities of making fashion choices and consumption more sustainable.

The BCD framework draws on evolutionary psychology and is used for designing behaviour change interventions (Aunger & Curtis, 2016). To facilitate behaviour change, BCD interventions leverage emotional aspects or modifications in the environment of the target population to influence, inspire, and cause behaviour change. This could be done through a stimulus as a first step, which is an event in the environment of the target audience capable of influencing behaviour. BCD postulates that exposure to this stimulus or event is likely to grab the attention (surprise) of the target audience so that they find it appealing and can identify and associate with the intervention and its message/s. This exposure is likely to trigger people psychologically and lead to the perception of something that is capable of producing the expected behaviour. Repeated exposure to this environmental change is anticipated to influence the psychology of those in the

target population and strengthen or increase the likelihood of the performance of the target behaviour.

BCD explains behaviour based on a set of human motives which can therefore be assumed to reflect the particular set of evolutionarily important tasks humans must solve to survive and reproduce. Drives are those motives which provide direct changes to the state of the body; Emotions are motives that modify the state of the environment in ways that facilitate later satisfaction of evolved needs, while Interests are motives whose primary function is to provide information to the brain that can be used to eventually satisfy needs.

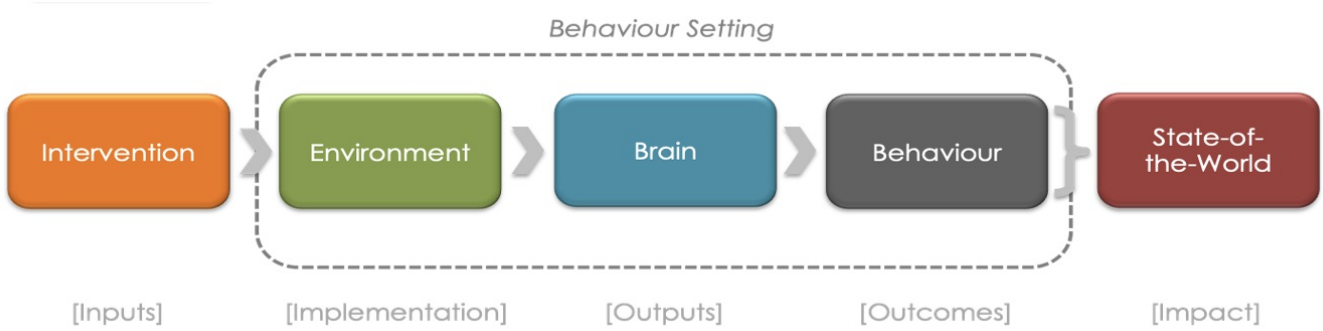

Figure 1. Behaviour-Centered Design Theory of Change (Aunger & Curtis, 2016)

Thus, according to BCD, changes in behaviour are viewed as the consequence of a reinforcement learning process (Sutton & Barto, 2017), whereby an individual learns to behave in an environment by performing actions and seeing the results (forming a feedback loop), both positive and negative, of those actions. The feedback based on these interactions with the environment or the behaviour setting causes revaluation and affects (touches the feelings, moves emotionally) the performance of the behaviour in its setting. However, the new valuation of behaviour must be strong enough to continue until the moment when the target behaviour should occur. According to BCD, an output should be considered a psychological change, and an outcome should be a change in target behaviour.

The BCD framework outlines five steps to behaviour change: '**A**ssess' (what is already known - literature and experiences), '**B**uild' (field research to gather new insights), **C**reate' (intervention development), '**D**eliver' (implementation of intervention), and '**E**valuate' (process and impact assessment) which requires a multidisciplinary team as each step draws on specific expertise. This study concerns the Assess and Build steps of the BCD process.

The Study Design

The study will use mixed-method cross-sectional approaches to explore the use of behavioural physiology validation techniques to understand the fashion influencers' perspective on determinants of sustainable fashion to promote environmentally friendly choices. The study intends to assess the feasibility of designing and executing Behaviour Centered Design (BCD) interventions aimed at changing consumer behaviour towards the demand for and adoption of sustainable fashion to reduce textile waste and environmental depletion.

With the objective to investigate the effects of emotion and logically driven dispositions of studied subjects on their affective and cognitive responses toward sustainable fashion, the study intends to look into the effects of cognitive and affective responses on personal clothing consumption behaviour tendencies of the fashion influencers. The study will assess neuro-physiological and psycho-physiological markers by creating, comparing, and contrasting randomly ordered images of fast fashion and its environmental consequences and how sustainable fashion can help to deal with the problem. The metrics of the duration of reaction time, direction bias, and visual attention will be noted for further observations. Functional near-infrared spectroscopy (fNIRS) techniques will be used to map the neuroimaging of the brain blood flow changes and the validating reward area once it gets activated. It provides scope to measure the automatic parameters by wireless recording to understand how these bring forth physical, mental, emotional well-being. A data science training set will help to evince buying preferences, choices, and decisions and their further sustainability in terms of promoting sustainable fashion.

Physiological validation techniques designed and practiced for this study will also look into how to obtain socio-demographic data related to anxiety, depression, and stress through a standard questionnaire to understand the informed practices of marketing positioning of sustainable fashion brands/products and how they can be further popularized through predictive analytics and machine-learning models to calibrate branding and supply chain domains for optimal allocation of resources.

The study will also use interventional approaches of classical and operant conditioning and cognitive behaviour therapy to have a deeper understanding of memory response and choice-making related to sustainable fashion products.

The study centered on the idea that adopting sustainable fashion choices and buying decisions can be validated through neuro-scientific techniques. There is evidence in support of the claim that distinct neural circuits related to anticipatory affect provide critical input into subsequent decisions (Bechara et al., 1996; Kuhnen & Knutson, 2005). Mounting neuroimaging evidence suggests that activity in different neural circuits correlates with positive and negative anticipatory affect (Knutson et al., 2007).

Any decision to purchase clothing often recruits common anticipatory affective mechanisms. A number of studies on the validation of behavioural physiology trends to identify individual differences in terms of the need for variation, fashion interest, sustainability, and social consciousness, affective and cognitive responses, behaviour tendencies, price, and effort required in maintenance & upkeep of fabrics have explored neural correlates of product preference. Newman, Gorlin, and Dhar (2014) propose that consumers tend to associate sustainable production or ‘green’ products with a high price and low performance. Lee et al. (2020) suggest that consumers who prioritize their personal values regarding environmental consciousness and responsibility do so at the cost of less than acceptable quality of sustainably produced goods and services.

The study aims to determine how and in what ways distinct neural circuits respond to product preferences and how consumers react to decision-making in terms of sustainable fashion choices. The subjects will be chosen for conducting in-depth interviews and neuro-physiological tests to identify product preferences and considerations. The study intends to

distinguish neural correlates of the reactions of the fashion influencers' to preference versus other reasons for buying. Through the characterization of neural predictors of buying, the study looks into how the ability of brain activation influences the buying decisions. The measurement variables are developed based on the physiological account of factors facilitating neutrally-constrained theories of human decision-making (Glimcher & Rustichini, 2004). The consulted theories will help future researchers decompose the components that go into decisions but also to build behavioural physiology understandings to analyse and assess buying choices and inform policies.

Analysis

As a first step, the study will analyze the qualitative and quantitative datasets separately.

The study will use the Framework Analysis method (Gale et al., 2013) for the exploration of qualitative data. The rationality of the method allows one to recognize commonalities and differences in qualitative data, and helps to identify relationships between different parts of the data, providing an explanation around key themes emerging from the information collected. Data analysis will include 5 steps: *Transcription* of audio recordings of the interviews; *Familiarisation* with the data; *Coding and Indexing* according to the BCD checklist to paraphrase and label the data according to pre-defined categories; *Charting* summaries of data from each transcript according to the BCD categories, and interesting quotations will be referenced to retain the original meanings and 'feel' of the interviewees' perspectives; and *Interpreting* to explore emergent ideas and concepts. Discussions will be held with co-authors and co-investigators to identify characteristics of data, mapping connections between various categories to explore.

Quantitative analysis of perceptions and beliefs among participants will be done by calculating means / descriptive statistics. In the final analysis, the findings from the qualitative and quantitative datasets will be integrated to draw inferences.

Ethical Approvals

Ethical approval for this study will be obtained from the institutional ethics review committees of NIFT, AIIMS, and CUHP. Study participants will be asked for informed verbal consent prior to any data collection.

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