

AI meets Sustainable Choices in Brand Voices: Leveraging Artificial Intelligence in fostering Sustainable Consumption and Brand Loyalty

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Abstract - The world we live in is not what we have inherited from our ancestors but is something we have borrowed from our future generations. Thus, it is the responsibility of every individual to act extremely wise and careful in consuming the resources gifted by nature. Times have changed from brands trying to push sales excessively with the sole intent of making profits to brands educating their consumers on sustainable consumption habits and purchase practices of buying only when needed. This review paper analyses the sustainable consumption habits promoted by brands in practice by discussing real life green consumption campaigns. It provides updated insights to brands for leveraging artificial intelligence tools and strategies such as AI generated personalization, virtual influencers and chatbots, Green Gamification strategies, predictive analytics and supply chain optimization to foster sustainable consumption while still elevating the brands reputation and loyalty among consumers. This paper highlights that the coalition of artificial intelligence, sustainable consumption and brand marketing has led to a three-fold success to the consumers, brands and society. Further empirical research can validate these theoretical findings and enrich our understanding on the use of artificial intelligence by brands in promoting sustainable consumption habits among consumers.

Keywords: Sustainable Consumption, Artificial Intelligence, Brand Loyalty, Consumers, AI Strategies, Green Consumption Campaigns.

1. INTRODUCTION

Each time a product is produced or service rendered and consumed there is of course some impact on the environment in the form of resources utilised, energy consumed and waste generated thereby reducing the resource availability for the future generations (Lorek & Spangenberg, 2014). When any consumption takes places responsibly keeping in mind these elements then it is termed as sustainable consumption (Mont & Plepys, 2008). Sustainable consumption is all about consuming when there is a need and not just a want or desire (Quoquab & Mohammad, 2016). The United Nations Sustainable Development Goal 12 (UN SDG 12) also emphasizes the importance of responsible production and consumption highlighting the need to battle against the irreparable damage that would be caused to the environment due to climate change, pollution, resource depletion and degradation of ecosystem (Bengtsson et al., 2018).

Endorsing and Promoting Sustainable consumption is no more the sole responsibility of just government and non-governmental organisations (Prothero et al., 2011). The recent years have witnessed several brands indulging themselves in green consumption campaigns with the aim of harnessing responsible consumption and recycling habits among consumers. These green consumption campaigns have created a shift in advertising and marketing from being just a tool

for selling products and services to a platform for creating awareness, sustainability and green consumption habits among consumers (Bailey et al., 2016).

In this era of digital marketing, Artificial Intelligence plays an imperative role in shaping the way in which brands interact and communicate with their target audience (Ganesh et al., 2024). Artificial Intelligence can be used to analyse, predict and manipulate consumer behaviour (Davenport et al., 2020).

This review paper collates and synthesises the results and perspectives from the existing literature published in scholarly journals and reputed databases with the aim of colliding technology, sustainability and marketing by discussing the various AI strategies such as AI personalization, AI generated virtual influencers and chatbots, Green Gamification strategies, predictive analytics and AI generated supply chain optimization that can be used by brands to enhance the productivity and effectiveness of green marketing campaigns for promoting sustainable consumption habits while also successfully being able to differentiate themselves in the competitive market thereby enhancing customer satisfaction and brand loyalty.

2. LITERATURE REVIEW

Sustainable Consumption Practices can take several forms (Minton et al., 2018). Big or small any action taken by consumers keeping the environmental impact in mind is a step further towards a sustainable tomorrow. Right from using a recyclable carry bag, checking the product's label for any harmful and toxic ingredients, choosing second hand products over brand-new ones or altering and reducing the consumption and purchase habits are all stepping stones towards achieving the ultimate objective of sustainability (Ottman, 2017). It is always interesting to see how brands undertake green consumption campaigns in a creative way with the intent to grab consumer attention to promote sustainable consumption and purchase habits.

2.1. Real life examples of Green Consumption Campaigns by Brands

2.1.1. Slow Shopping: This practice of slow shopping encourages consumers to take their own time in analysing the pros and cons before making a purchase decision. Slow Shopping emphasizes mindful purchasing over impulsive buying behaviour (Sheth et al., 2011). If all impulsive purchases on days of sale and discount stop then there would be humongous positive impact on the environment in terms of resource and raw material savings, waste reduction and energy conservation (Dhandra, 2019).

- **Patagonia's Do Not Buy This Jacket Campaign:** This clothing brand ran an ad in the New York times in 2011 on Black Friday asking the customers to avoid over consumption by detailing the environmental cost of one jacket in terms of energy, carbon foot print, water etc. This campaign encouraged customers to repair their old jackets than purchasing new ones (Hwang et al., 2016).
- **Recreational Equipment Inc. (REI)'s Opt Outside Campaign:** This outdoor retail cooperative launched this initiative in 2015 by closing their retail stores on Black Friday, the day known for shopping spree. This initiative encourages its employees and consumers to spend time with their family and friends outdoor instead of shopping on Black Friday just because everybody does (Demirel, 2020).

2.1.2. Recycling and Upcycling: Recycling and Upcycling involves converting waste and discarded products into reusable products (Bridgens et al., 2018). This practice aims at extending the lifecycle of each product leading to

conservation of natural resources thereby reducing the landfills and environmental pollution due to dumping of waste (Coppola et al., 2021).

- **IKEA'S Buy Back Campaign:** Under this campaign IKEA encourages its customers to bring back and exchange used and old furniture for cash. IKEA either repairs and re-sells the furniture under the reuse or re-shop section of their stores or recycles this furniture into new ones. This initiative is aimed at giving the used products a new life rather than discarding them into landfills (Chakraborty, 2025).
- **Adidas Parley for the Oceans Campaign:** This campaign was aimed at combating ocean plastic pollution by producing high performance sportswear from recycled plastic. This campaign promoted the use of ecofriendly materials and recycled products (Liu & Xie, 2022).

2.1.3. Green/ Eco Friendly Ingredients: Green or ecofriendly materials are substances that are derived from the natural or renewable sources which are abundantly available. These materials can be sourced, processed and recycled easily with minimal impact on the environment (Sheth et al., 2011). Green materials being free from harmful chemicals are non-toxic and safe for humans and wildlife (Ottman, 2017)

- **Unilever's Clean Future campaign:** This campaign is aimed at transforming Unilever cleaning products by replacing the petrochemical and fossil fuel-based ingredients in it with renewable and recyclable plant-based ingredients and biodegradable materials. This initiative, launched in 2022, is aimed at achieving 100% Biodegradable formulations in its home care products (Lim & Kwon, 2023).
- **Nike's Move to Zero campaign:** This campaign launched in 2019 aims at Zero carbon emissions through 100% renewable energy in operations and zero waste through sustainable manufacturing and recycling practices. Nike's Space Hippie is a collection of sneakers that is made using factory waste and recyclable material thereby promoting environmental sustainability (Kim & Oh, 2020).

2.2. Artificial Intelligence in Fostering Sustainable Consumption and Brand Loyalty

With Sustainable Consumption becoming a pressing need of the day majority of the consumers have become aware of the need for responsible consumption and demand ecofriendly products from brands (Ottman, 2017). Today marketing is not just about identifying and satisfying the needs and expectations of consumers but is also about undertaking these activities without harming the eco system by justifying the brand's sustainable operations and practices (Doppelt, 2012). To sustain and remain competitive in such a market, manually analysing and understanding consumer behaviour and preferences is nowhere close to smart or efficient marketing (Kumar et al., 2021). In this epoch of artificial intelligence, brands can make use of machine learning algorithms, predictive analysis, chatbots, Virtual Influencers and other AI strategies to analyse and understand huge data sets relating to consumer opinions and reactions, to interact with and predict future needs and demands of consumers and to influence consumer behaviour thereby attaining sustainability, customer satisfaction, market competitiveness and brand loyalty (Davenport et al., 2020; Sharma & Sharma, 2024).

2.2.1. AI Personalization: Marketing has evolved from Mass Marketing to Individual Marketing on understanding the fact that different people have different preferences (Ganesh et al., 2024). Even among sustainable consumers not all may need or demand same or similar products. Few may be interested in sustainable clothing and fashion brands while few others in sustainable footwear or cosmetics. Artificial intelligence can be used to identify and analyse the consumer buying

patterns, browsing history, most surfed and shared products based on which brands can segment and target consumer groups by sending tailored messages that align with their interests and values thereby making the consumers feel valued (Sharma & Sharma, 2024). When the right green messaging is done to the right consumers at the right time it would enhance both sustainable consumption and consumer engagement with the brand. For instance, Amazon uses Artificial Intelligence and Machine Learning Algorithms to generate the size fit prompt (M will fit you best based on your previous purchases) and also the Would you like to repeat the order? prompt in case of repeat orders to reduce the excessive consumption or product returns thereby promoting sustainable consumption

H1: AI Personalization positively influences Sustainable Consumption and Brand Loyalty

2.2.2. AI generated Virtual Influencers and Chatbots: There always exists a minority of ignorant consumers who are not yet aware of the need for sustainable consumption. Brands will have to approach this consumer group differently by planning creative green consumption campaigns showcasing the detrimental impact of unsustainable consumption on the environment and ecosystem at large thereby stressing the need for responsible consumption (White et al., 2019). AI generated Virtual Influencers and Chatbots are a good source of educating consumers by disseminating sustainability focused communications and advocating green consumption. These digital influencers can connect with consumers on social media and can effectively influence them towards green consumerism by promoting the brand's green consumption and cause related marketing campaigns through ingenious, engaging and trustworthy narratives (Allal-Chérif et al., 2024). Chatbots on the other hand increases consumer trust and loyalty towards the brand by instantly handling consumer queries on green products such as ingredients used, recycling or repairing methods, product lifecycle and tips on sustainable usage (Shahzad et al., 2024) . This efficiency and transparency would have been extremely hard to achieve through human customer service professionals.

H2: AI generated Virtual Influencers and Chatbots positively influence Sustainable Consumption and Brand Loyalty

2.2.3. AI driven Supply Chain Optimisation: Artificial Intelligence can be used in all parts of supply chain right from sourcing the raw materials to inventory handling and storage to product distribution (Helo & Hao, 2022). Artificial Intelligence can be used to identify shorter or sustainable routes or modes of transportation aimed at reducing carbon emissions and renewable energy usage (Belhadi et al., 2024). For instance, Swiggy's Eco saver provides the consumers the option of receiving their food 5 Or 10 minutes late than the standard time with a small discount or reward for the consumer with the intent of grouping orders to reduce the carbon emissions and the number of vehicles for delivery on road.

H3: AI driven Supply Chain optimization positively influences sustainable consumption and Brand Loyalty

2.2.4. AI powered Predictive Analytics: Machine Learning Algorithms and Predictive Analytics can be used to predict the future trends by analysing the consumer patterns and trends in the past. Sentiment Analysis can be used to predict how consumers would react to new sustainable products and campaigns (Hossain & Rahman, 2023). Brands can adjust their manufacturing, supply and pricing based on the predicted demand thus ensuring that there is no excess or shortage of inventory thereby leading to optimum utilisation of resources and waste reduction. Brands can make use of artificial

intelligence to remain competitive in the market by anticipating and working towards any changes in consumer behaviour or any new sustainable product expectations even before their competitors can (Davenport et al., 2020)

H4: AI powered predictive analytics positively influences sustainable consumption and Brand loyalty

2.2.5. AI generated Green Gamification: Green Gamification involves using artificial intelligence for developing interesting games, contests, challenges and rewards for influencing people positively towards sustainable habits in a fun and enjoyable manner (Ganesh et al., 2024; Mulcahy et al., 2021; White et al., 2019). Green gamification is aimed at reducing wastage, promoting recycling habits, switching to ecofriendly traveling and consumption practices (Boncu et al., 2022). For Instance, Too Good To Go is an app that is designed for preventing food wastage by connecting consumers with restaurants and cafes that sell surplus food at discounted rates. This app uses gaming strategies like unlocking badges or levels on achieving certain number of purchases, leader boards among consumers to promote competitiveness and also encourages the sustainable consumption habits in consumers by showcasing the amount of surplus food that they have consumed which might have otherwise become waste (Vo-Thanh et al., 2021).

H5: AI generated green gamification positively influences sustainable consumption and Brand Loyalty.

3. PRACTICAL IMPLICATIONS

Sec 135, of the Companies Act 2013 mandates all organisations to invest in CSR spending provided their profits, turnover or net worth exceed the specified limit (De Freitas Netto et al., 2020) . To fulfill this regulation by undertaking sustainable operations is much easier for brands but conveying these messages to the right audience at the right time in the right context seems to be the most difficult task. But why is a brand very interested in making their consumers aware of their sustainable operations? The foremost reason is that these green campaigns project the brands as a crusader or altruist in the eyes of the consumers (De Freitas Netto et al., 2020; Doppelt, 2012). Brands can make use of Artificial Intelligence to target and reach an audience set whose values are aligned with the brands thus making the brand more trustworthy and dependable in their view leading to brand loyalty(Gündüzyeli, 2024).

To start with brands can make use of AI generated Virtual influencers on social media to grab the **attention** of a large set of consumers by communicating their sustainability operations and green consumption initiatives. Based on the people who have viewed, liked or shared this content brands can use AI to identify, segment and target the audience for sending personalized messages to consumers in a large scale. When brands reach the consumers with the most relevant products and campaigns, they feel valued and hence develop **interest** and curiosity towards the brands products and campaigns. Further converting this interest into **desire** involves providing the consumers with all the required information and resolving their queries and doubts relating to the sustainable products and practices of the brand. Chatbots can be used to enhance quick and effective communication which would help in maintaining a positive relationship with the consumers. Some consumers may still need a push to indulge and start practicing sustainable consumption. AI generated gamification strategies can be used to motivate them to **act**.

Taking constant initiatives and efforts without analysing its **results** and impact is futile and meaningless. Brands are suggested to make use of Artificial Intelligence to measure their results by assessing performance indicators such as click through rates, social media interaction, feedback analysis through surveys and reviews, long term consumer behavioural changes like repeat purchases etc (Bag et al., 2022).

4. SCOPE FOR FUTURE RESEARCH

This review paper provides updated insights and tentative hypotheses on the use of Artificial intelligence for enhanced brand communication on sustainable consumption based on theoretical evidences from literature review. However, there is a need for empirical research using both quantitative and qualitative data on the following research questions to enrich and deepen further understanding on leveraging artificial intelligence by brands in promoting sustainable consumption and brand loyalty.

- Do brands truly undertake all the sustainable consumption practices they preach with the intent to reduce the environmental damage or are they just greenwashing by exaggerating facts in order to use this as a media stunt to attract consumers? (De Freitas Netto et al., 2020).
- How can Artificial intelligence be used efficiently without undermining the ethical considerations of data privacy, safety and security issues, transparency and accountability issues?(Davenport et al., 2020) There is an underlying need for enforceable polices and regulations relating to ethical use of Artificial Intelligence
- Are AI tools as effective as expected? Though Virtual Influencers and Chatbots are swift and speedy, are they proficient than humans in developing consumer interest and trust?(Belanche et al., 2024) Do consumers really feel valued and become loyal customers of the brand?
- Can AI predictive analytics make accurate forecasts and predictions on inventory management and supply chain optimization thereby leading to renewable energy conservation and resource maximization? (Culot et al., 2024)
- Are consumers aware of apps that promote sustainable consumption through innovative AI generated gamification strategies? Do consumers feel motivated through these gamification strategies and practice sustainable consumptions in the long run? (Boncu et al., 2022).

5. CONCLUSION

This review paper has thrown light on how Artificial intelligence can be used by brands in promoting sustainable consumption amongst consumers. The literature indicates that AI generated tools like Virtual Influencers, Chatbots, Predictive Analytics, Supply chain optimization, Personalization and Green gamification can be used by brands to effectively attract and influence consumers in practicing sustainable consumption along with promoting the brand's reputation and loyalty amongst consumers (Davenport et al., 2020; Sharma & Sharma, 2024). However, brands will have to remember to leverage artificial intelligence keeping in mind that the ethical considerations should not be compromised at any cost (Ganesh et al., 2024).

This paper also highlights that the answer to the question, will the reduction in consumption and sales as a result of brands promoting responsible consumption amongst its consumers lead to reduced profits to brands is a big No. Today brands are privileged to make use of artificial intelligence right from identifying and targeting their audience set to using predictive analytics to produce, store and distribute products by accurately forecasting the future demand (Belhadi et al., 2024; Helo & Hao, 2022). This would in turn result in reduced resource wastage, storage and distribution expenses thereby leading to better profits and reputation for the brand (Belhadi et al., 2024; Hossain & Rahman, 2023). On the other hand, the consumers also feel valued when brands approach them with relevant green products and campaigns thus fostering

customer satisfaction leading to brand loyalty (Bailey et al., 2016). This sustainable consumption habits saves the environment from resource depletion and energy mismanagement thereby benefitting the society at large (Mont & Plepys, 2008; Quoquab & Mohammad, 2016). Thus, to conclude this paper provides updated conceptual insights on the use of Artificial intelligence in promoting Sustainable Consumption practices as a triple win for the Brands, Consumers and Society at large.

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