Consumer Purchase Behaviour Regarding Sustainable Products: A Focus on Electronics

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***Abstract*— This study explores consumer purchase behaviour towards sustainable electronic products, focusing on satisfaction levels, buying motives and challenges. Findings show that lower electricity consumption is the primary motive for purchasing sustainable electronics, followed by longer product lifespan and environmental concerns. A chi-square test examining the relationship between age and satisfaction revealed no significant association. The study also highlights key challenges faced by consumers, with 42% indicating a lack of awareness about sustainable electronic products, along with concerns about high investment costs and time consumption. Overall, the results emphasize the need to improve consumer awareness and support to encourage sustainable electronic purchasing.**

I. INTRODUCTION

Sustainable electronic products have gained increasing attention as global concerns about environmental degradation, resource depletion, and electronic waste continue to rise. The shift toward sustainability in the electronics sector is driven by consumers' growing awareness of ecological issues and the desire to reduce long-term environmental impact. According to Dangelico and Vocalelli (2017), sustainable products appeal to consumers who value energy efficiency, reduced waste, and ethical production practices. In the electronics market, features such as lower electricity consumption, longer lifespan, and the use of recyclable materials significantly influence purchasing decisions (Peattie & Belz, 2010). However, despite this growing interest, many consumers still face barriers such as high initial costs, limited awareness, and lack of adequate support systems (Gupta & Ogden, 2009). Understanding these factors is essential for encouraging more environmentally responsible choices and promoting broader adoption of sustainable electronics.

Consumer buying behavior refers to the process by which individuals search for, evaluate, and purchase products or service to satisfy their needs and desires. It involves closely analyzing different interrelated factors such as factors that influence customers purchasing decisions like personal, social and cultural factors that influence customers in choosing one product over another. In current scenarios increasing awareness among people have shaped their buying behavior. People started relying more on sustainable products and companies that demonstrate eco-friendly and ethical practices. However, there is limited knowledge about what exactly influences customers to rely on sustainable products.

II. STATEMENT OF THE PROBLEM

In recent years, there has been an increasing global emphasis on sustainability due to the growing environmental concerns and the adverse effects of non-eco-friendly consumer practices. Despite the availability of sustainable electronic products, consumer adoption remains inconsistent and relatively low. Factors such as awareness, cost perceptions, product availability, and marketing effectiveness play critical roles in shaping consumer behavior. However, limited research exists on the specific behavioral patterns, attitudes, and decision-making processes influencing consumer preferences for sustainable electronic products. Understanding these factors is essential to address the challenges in promoting sustainability in the electronics industry.

III. OBJECTIVES

- To determine the extent to which consumers are satisfied about sustainable products.
- To know the buying motives of the consumers towards sustainable products.

- To determine the challenges of sustainable products

IV. REVIEW OF THE LITERATURE

Research on sustainable and green consumer behavior highlights several key determinants influencing consumer decisions. Sheoran and Kumar (2020) identified fourteen enablers of sustainable consumer behavior, noting that factors such as attitude, subjective norms, and perceived behavioral control act as dependent variables, while education, government policy, and advertising function independently. Complementing this, Yameen and Khanam (2024) found that these same psychological factors along with ethical obligation significantly shape purchase intention for green electronics, which in turn influences actual buying behavior. Studies on consumer awareness show mixed trends; Rastogi et al. (2022) observed a moderate level of awareness regarding sustainable marketing, whereas Chhabra and Trivedi (2014) reported low awareness and adoption in India despite consumers' positive perceptions of green electronics and strong belief in their environmental and health benefits. Barriers such as high prices, weak social influence, limited awareness, and low perceived environmental impact further hinder sustainable consumer behavior, as highlighted by Sheoran and Kumar (2022). Additionally, socio-personal factors and situational determinants play a major role in shaping electronic product purchase decisions, particularly in semi-urban contexts (Kushwaha et al., 2015). Overall, the literature suggests that while consumers increasingly value sustainability, behavioral drivers and structural barriers continue to influence the adoption of green and sustainable electronic products.

V. RESEARCH DESIGN

The study was conducted among consumers of sustainable electronic products, with a total sample size of 50 respondents. Convenience sampling was used as the sampling method, selecting participants who were easily accessible and willing to provide information for the research.

VI. RESEARCH METHODOLOGY

The present study aims to examine consumer purchase behavior regarding sustainable products, with a particular focus on electronic products. The research adopts a descriptive research design, which is appropriate for studying existing consumer attitudes, preferences, and behaviors (Kothari, 2022). Both primary and secondary data were used for the study. Primary data were collected using a structured questionnaire administered to consumers through Google Forms, capturing information on their awareness, motivations, preferences, and challenges related to sustainable electronics. Secondary data were obtained from scholarly journals, books, articles, and reports on sustainable consumer behavior to provide a theoretical framework and contextual understanding of the study (Chhabra & Trivedi, 2014; Yameen & Khanam, 2024).

A convenience sampling method was employed, targeting 50 respondents who were easily accessible and willing to participate, ensuring efficient data collection within the study constraints (Sekaran & Bougie, 2019). The data collected were coded and tabulated for analysis. Statistical tools such as the Likert scale, chi-square test, and percentage analysis were used to interpret consumer motivations, preferences, and challenges concerning sustainable electronic products (Sheoran & Kumar, 2020). The combination of descriptive statistics and inferential analysis allows for a comprehensive understanding of consumer behavior patterns and the identification of key factors influencing the adoption of sustainable electronics.

VII. DATA ANALYSIS

Table 1 Table showing the buying motives of sustainable electronic products using likert scale.

Particulars	No.	W	No.	w	No.	W	No.	w	No.	w
Environmental issue	5	25	2	8	0	0	2	4	0	0
Longer life span	7	35	1	4	0	0	1	2	1	1
Lower electricity consumption	12	60	3	12	2	6	2	4	3	3
Availability of repair and upgrade options	2	10	2	8	0	0	0	0	0	0
Use of recycled or biodegradable materials	3	15	1	4	0	0	1	2	0	0

Particulars	Total	Mean score	rank
Environmental issue	37	0.74	3
Longer life span	42	0.84	2
Lower electricity consumption	85	1.7	1
Availability of repair and upgrade options	18	0.36	5
Use of recycled or biodegradable materials	21	0.42	4

From the table, it can be seen that lower electricity consumption is the main motive behind purchase of sustainable electronic products.

Testing hypothesis about age and level of satisfactionregarding the purchase of sustainable electronic products.

H0: There is no significant relationship between age and satisfaction level

H1: There is significant relationship between age and satisfaction level

Table 2 Chi-square test of age and satisfaction level of consumers

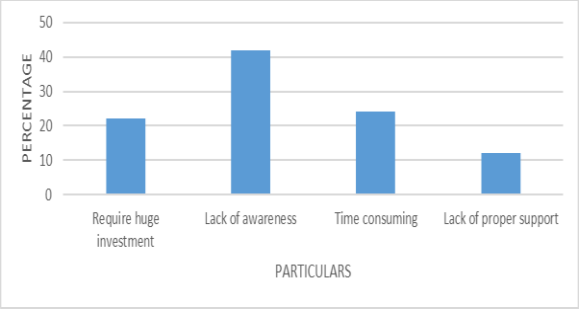
Age	Satisfied	Not satisfied	Total
20-40	8	4	12
40-60	18	6	24
Above 60	8	6	14
Total	34	16	50

O	E	$(O-E)^2$	$(O-E)^2/E$
8	8	0	0
4	4	0	0
18	16	4	.25
6	8	4	.5
8	10	4	.4
6	4	4	1
TOTAL			2.15

Degree of freedom = (r-1) (c-1) =2
Level of significance =.05
Table value = 5.991
As the calculated value is less than the table value, we accept Ho. There is no significant relationship between age and satisfaction level.

Table 3 Table showing the challenges faced by the respondents

Particulars	No. of respondence	Percentage
Require huge investment	11	22
Lack of awareness	21	42
Time consuming	12	24
Lack of proper support	6	12
Total	50	100



Interpretation: From the above it is clear that 42 percent of respondents are not aware about the sustainable electronic products.

VIII. FINDINGS

The study reveals that a majority of respondents are aware of sustainable electronic products, with most obtaining information primarily through social media and the internet. Smartphones and Samsung brand

electronics are the most preferred products, with purchases often driven by product features and the perception that these products enhance quality of life. Respondents generally recognize the environmental benefits of sustainable electronics, such as reduced resource consumption and lower environmental harm, and many have observed variations in electricity usage after adoption. However, high cost and lack of awareness in usage remain key challenges, with more than half of respondents expressing neutral willingness to pay a higher price. Overall, most consumers are satisfied with sustainable electronic products and tend to purchase them based on need, while opinions on the social impact of switching to such products remain largely neutral.

IX. DISCUSSION

The findings of this study suggest several practical strategies to enhance the adoption of sustainable electronic products. A cost reduction strategy can make these products more affordable, addressing one of the key barriers identified by respondents. In addition, consumer education should be promoted to increase awareness about the environmental and health benefits of sustainable electronics, as well as to clarify misconceptions that may hinder purchase decisions. Finally, improving the availability and accessibility of sustainable products in retail outlets and online platforms can encourage adoption by reducing the effort and inconvenience associated with purchasing them. Collectively, these measures can help bridge the gap between consumer awareness and actual buying behavior, fostering more sustainable consumption patterns in the electronics sector.

X. LIMITATIONS OF THE STUDY AND FURUTE RESEARCH

This study on consumer buying behaviour toward sustainable electronic products has several limitations that present opportunities for future research. The findings are based on a limited sample from a specific geographic area, which may affect the generalizability of the results, and the use of self-reported data introduces the possibility of response bias. The study also considered only a narrow set of variables and focused solely on sustainable electronic products, leaving out other influential factors such as income, lifestyle, environmental values, and technological awareness. Additionally, the cross-sectional design restricts the ability to observe changes in consumer behaviour over time. Future research can address these gaps by expanding the sample size and geographical scope, incorporating a wider range of psychological and socio-cultural variables, and employing longitudinal or experimental designs to better understand behavioural changes. Researchers may also use advanced analytical techniques, explore the impact of marketing and policy interventions, and conduct comparative studies across demographics or product categories to provide deeper insights into the adoption of sustainable products.

XI. CONCLUSION

Based on the findings of the study on consumer buying behavior towards sustainable products, particularly electronic products, the analysis reveals that there is no significant relationship between age and satisfaction level. This suggests that age does not significantly influence consumer satisfaction with sustainable electronic products. Furthermore, the primary motive for purchasing sustainable electronic products is lower electricity consumption, indicating that consumers are highly driven by the potential for cost savings and environmental benefits. Most of the respondents believe that sustainable products are less harmful to the environment, reflecting a growing consumer awareness and preference for eco-friendly options.

Ultimately this study highlights that to bring better change we need more awareness campaigns and need to develop electronic products that are eco-friendly and affordable. By understanding consumer buying behavior towards sustainable electronic products, businesses and policymakers can develop effective strategies to promote sustainable consumption and contribute to a greener and more fair future.

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