Consumption and eco-conception: toward a new collaboration? A study among French consumers[1]

Laure LAVORATA, Professor
University of Paris Nanterre- CEROS, llavorata@parisnanterre.fr

Nawal TERRO SOULA, PhD Student nawal.terro@gmail.com
University of Paris Nanterre- CEROS

Abstract

In response to global environmental challenges, companies are increasingly offering "sustainable" products labeled organic, eco-designed, or produced through circular economy practices. Despite this growing eco-friendly sentiment, consumer behaviors regarding purchases and repurchases of these products remain inconsistent. This study investigates the factors influencing consumer behavior towards eco-designed products through qualitative analysis of three focus groups involving 25 students. Findings reveal that while there is generally positive regard for eco-design, factors like price, quality, and current trends significantly influence purchasing decisions. Education and age emerge as pivotal in fostering eco-conscious consumer behavior. The study underscores the potential for collaborative value co-creation between companies and consumers, emphasizing the integration of ecological considerations in product development. Limitations include the study's focus on young, university-level participants, warranting further research across broader demographics for comprehensive insights.

Keywords: *ethical consumption, consumer behavior, ecological products, sustainability, eco-conception*

[1] This research was carried out with the help of the French project ANR D-TechnoSS financed by the French Research Agency (https://anr.fr/Projet-ANR-20-CE10-0006)

Many companies offer "sustainable" products because they are labeled organic or eco-designed, or because production follows the circular economy approach. Sustainable development (SD), proposed by the 1987 Brundtland Report, emphasizes the need to balance current needs without compromising the ability of future generations to meet their own needs. Since then, French, and European regulations have pushed companies to produce according to responsible standards, such as the regulation establishing the eco-label in the EU in 2009 and the anti-waste law for a circular economy in 2020[2]. Consumers are increasingly sensitive to this approach: according to a study in 2024[3], sustainability remains a top- three purchase consideration for 64 percent of consumers with 54 percent now ready to pay a higher price (an increase from around 35 percent in previous years). However, although these products have a strong sustainability focus (changes to packaging, additives, reduced CO2 impact), purchases or re-purchases are not always forthcoming. Until now, works on ecological products focused mainly on perceptions by consumers (Padel & Foster, 2005; Pedro Pereira Luzio & Lemke, 2013) or the point of view of designers (Ricard et al, 2022) and less on the consumers' behavior. Berneman et al (2013, p.76) define eco-design as "*the method of designing a product that integrates environmental factors throughout its life cycle, including the choice of raw materials, the manufacturing process, transportation and storage, its use and disposal*". And for Brodhag (2014, p.33), there's a difference between eco-conception and circular economy because "*eco-conception is rather focused upstream, whereas the circular economy places greater importance on the downstream and the becoming of the product*".

In this research, we chose to focus on the upstream part and study consumers' perception of the eco product. Indeed, as underlined by Lehtimäki et al. (2022), there's a need to build a sustainable transition because many environmental problems are "*rooted in sustainable production and consumption patterns*" (p. 1) and the understanding of their behavior can help researchers to better understand the sustainable transition and be a driver to accelerate the change. According to Malhotra et al. (2024), a positive correlation between consumer perception and purchasing behavior toward eco-friendly products is crucial and proved, and it supports the central premise of the presented study. This study tends to explore the variables influencing consumers to buy ecological products and raise some key questions concerning factors shaping consumption patterns. Is it the price (as in the case of organic products), or the shape that no longer suits (too light a weight, as in the case of water bottles, etc.)? What are the barriers and drivers of consumers faced with an eco-designed product?

THEORETICAL BACKGROUND

Global consumer spending for 2024 amounted to $60,886.301.63 million, a trend that will continue in the next years and an increase of 26.61% until 2029 is planned[4]. This overconsumption represents a challenge in addition to the traditional problems of population, environment, and development (Liu et al, 2017). Consumer sensitivity to environmental concerns, sustainability, ethics, and the social impact of purchased products has also increased (Yue et al, 2020). This awareness influences their purchasing decisions and encourages them to search for responsible products. For Roberts (1995, p.98), "*the responsible consumer is one who buys goods and services which he perceives as having a positive or reduced impact on the environment, and who uses this power to express his social concerns*". The development of eco-designed products reflects a company's desire to integrate SD into its strategy, faced by consumers who are aware of environmental issues and act by purchasing environmentally friendly products (Pedro Pereira Luzio & Lemke, 2013). The consumer's purchase is often motivated by knowledge of a product's environmental effects, as well as the search for a healthy,

[2] https://environment.ec.europa.eu/topics/circular-economy/eu-ecolabel-home/about-eu-ecolabel_en
[3] https://www.simon-kucher.com/en/insights/sustainability-2024-navigating-consumer-behavior
[4] https://www.statista.com/forecasts/1160305/consumer-spending-forecast-in-the-world

environmentally friendly lifestyle (Matharu, 2020). Although most consumers recognize their concern for sustainability, this is not often expressed through sustainable consumption behavior (Hussain, 2000). This discrepancy between people's actual behaviors and their intentions can also be explained by cognitive dissonance (Festinger,1957). Defined as "*a feeling of psychological discomfort, caused by two discordant cognitive elements, and plunging the individual into a state that motivates him to reduce this uncomfortable feeling*" (Festinger, 1957, p. 3), cognitive dissonance can lead the individual to adjust his attitude to achieve coherence between his beliefs and behaviors. In the case of an eco-designed product, this dissonance can be very important and occurs frequently among consumers.

Consumers driven by ethical convictions often encounter difficulties when purchasing responsible products such as a lack of information on company practices, the high prices of these ecological products considered as a guarantee of quality (Husic & Cicic, 2009) or the scarcity of ecological or ethical products. But some consumers may buy ecological products not because of a sense of ethics, but to improve their social status and reputation within their community (Griskevicius et al, 2010). Price sensitivity can also have a significant impact on purchasing behavior and some consumers are willing to pay a higher price for green products because they feel they are worth it (Chekima et al, 2016). Others, however, may be less willing to buy eco-friendly products because of their higher cost, particularly if environmental awareness is lacking (Maheshwari, 2011). It is therefore vital to identify the criteria that guide consumers' choice and acceptance of sustainable products (Polyportis et al, 2022).

METHODOLOGY

A qualitative study was conducted between November 2021 and January 2022 among 25 French Master marketing and engineering students in the Eastern region. Indeed, the young population seems to be both the most reticent and the most interesting target to study in the case of eco-designed products. To facilitate interactivity, three focus groups were organized[5]: 2 groups with master's level students in university and the 3rd with engineers in training. This method was chosen because it was quick and easy, the subject was not sensitive and could be easily discussed. The aim of these focus groups was to gain a better understanding of consumers' attitudes and behavior towards ecological products. A moderator's guide was elaborated with questions about the eco-friendliness of products, attitudes towards them, the environmental concerns and consumers' perception of these products. These focus groups were transcribed and the data obtained was coded and analyzed according to qualitative data analysis procedures. We followed the methodology that focuses on thematic content analysis proposed by Braun and Clarke (2006) and Boyatzis (1998). We subsequently constructed a coding grid by selecting broad categories that corresponded to the main themes of the interview guide. The interviews were then analyzed by two coders to guarantee the reliability of the data.

RESULTS AND DISCUSSION

Most respondents (12 out of 22) provided precise definitions of eco-design and eco-responsible consumption (Table 1).

Table 1. Definition of eco-design by consumers

Respondents	Definition of eco-design (verbatims)
G2	"*I see a link between eco-design and the circular economy*"
H2	"*Eco-design is all products manufactured with ecology in mind, in a sustainable way recyclable stuff...*"
A2	"*It has to be done in a sustainable way*"

[5] Individuals without groups are identified by letters and by group (A1, group 1; A2, group 2 and A3, group 3).

B1 et E1	"*Any manufacturing where recycled materials and products are used*"
I1	"*Eco-design also depends on the manufacturing process, i.e., manufacturing in such a way as to produce less waste and consume less energy*"
G1	"*Eco-design is about recyclable packaging, like glass. When you recycle it, it produces more energy than creating new packaging*"
B3 ; A3	"*There are two types of eco-design I'd say, either we focus directly on the product and try to improve, well reduce its environmental impact, and so we're really going to eco-design it in a way... by technology or improving its energy efficiencý or whatever, and then it's an eco-design more focused on use and so we'll try to review our relationship to a product or tò a service to fully integrate it into our environment, while reducing its environmental impacts and voilà, so there's more of a social side to it.*"

We can notice that the members of the third group were able to propose more advanced definitions than the other groups, as they had received prior training in eco-design. In addition, some participants saw eco-design as an opportunity for innovation and market differentiation.

Consumer behavior

Overall, eco-design was viewed favorably by the students, who highlighted the importance of taking environmental aspects into account from the beginning of the product creation. But opinions were split: "*for everything that's the big companies that have huge impacts on the environment. I think that's going to have an impact on my purchasing decision, but for others where we don't have our eyes open to it, I think not, not for me*" (A2); "*for me personally, the environmental criterion is important because I'm aiming to reduce my personal environmental impact*" (A3). However, students are becoming increasingly aware of environmental issues and the need to promote more ecological behavior through their purchasing choices: "*I'd say yes, we'd actually be more careful with a product that has been eco-designed, to use it for longer, to take care of the environment, than another one we use it afterwards we throw it away*" (I2).

The criterion of environmental impact is central in their consumption choices, as does the importance of organic food products and organic certification: "*The first thing, on food, I pay a lot of attention to whether it's organic or not, whether it's certified organic or not, there's also everything environmental, there's local*" (A3). The responses also reveal that consumer behavior towards eco-designed products differs from that of non-eco-designed products, as the former are perceived as more expensive, more fragile although of better quality. This prejudice determines the way consumers evaluate and interact with these products. The behavior of consumers after acquiring a product labeled "eco" or "organic" tends to be significantly different from that of a conventional product. Eco-conscious consumers consider that this type of product should be managed more responsibly than traditional products and furthermore, can influence their buying: "*I'm going to favor an eco-designed service, because I know that the finalitý is that it helps something*"(H2).

Factors influencing eco-designed product purchasing behavior

Price is a fundamental element in the consumers' purchasing decisions, as evidenced by the responses of several participants (B2, H2, I2, C and A3). This finding is of considerable importance in today's context, where consumers are increasingly cautious in their buying considering both financial and environmental factors. The fact that the sample is composed of students can also explain this importance. The quality of a product is also a crucial factor in its purchasing process: "*I pay much more attention to quality" (A3); "value for money"* (E1 and D2); *"if it's a product that's going to last over time, I'm going to pay more attention to qualitý, whereas when it's to throw it away quickly, I pay less attention*" (G1).

When it comes to consumer choice in terms of ecology, the trends play also a significant role: "*Afterwards, it depends on the trends*" (E1); "*we talk about it all the time in fact, we hear it everywhere, so all of a sudden we start tò pay more attention*" (I2). This notion generally refers to adopting a lifestyle consistent with the image the customer wishes to project and acting in favor of the environment (Grier et al, 2001). Being fashionable has positive effects on consumers, notably in terms of reputation and concern for sustainable practices (Griskevicius et al, 2010). In addition, the French Nutri-Score[6] and product composition were mentioned by several participants as purchase drivers: "*the nutriscore, ingredients and components of products (food and cosmetics)*" (G1); "*the components of cosmetic products*"; "*the materials used*" (C2). Packaging and brand awareness are also factors considered: "*yes, on the packaging, I look at the recycling note*" (G1).

We represented key results in a brief content analysis table (table 2).

Table 2. Key results

Theme	Key Points	Representative Quotes
Consumer Behavior	Eco-design is viewed favourably, with increasing awareness of environmental issues. Opinions are split on its impact on purchasing decisions. Eco-designed products are perceived as more expensive but of better quality.	" For me personally, the environmental criterion is important because I'm aiming to reduce my personal environmental impact" (A3).
Factors Influencing Eco-Designed Product Purchasing Behavior	Price and quality are fundamental elements in purchasing decisions. Trends, Nutri-Score, product composition, packaging, and brand awareness also play significant roles.	"I pay much more attention to quality" (A3); "The nutriscore, ingredients and components of products (food and cosmetics)" (G1).

CONTRIBUTIONS AND IMPLICATIONS

Our results show the importance of two factors: education and age. Previous studies (Roberts, 1995) have considered education to be a significant variable in the eco-purchasing decision, because a well-informed consumer is more sensitive to a subject. Others point out that consumer intention and actual purchase of green products are favorably influenced by the consumer's understanding of environmental issues (Eze et al, 2013). But lack of knowledge can also have a negative impact on consumers' green purchasing decision-making (Padel & Foster, 2005). In our study, we found that the eco-design training received by the 3rd group of students raised their awareness of ecology and eco-designed products and demonstrated thus the link between these variables and education. This result has societal implications because it shows the importance of integrating awareness of sustainable development and ecology into schools, colleges, and universities as suggested by another research (Ricard et al, 2022). This is the current orientation chosen by the Ministry of Education and Higher Education in France.

The second result of our study is to underline the importance of age and the need to integrate it into models to develop sustainable practices. Indeed, according to the literature, young people would be more willing to follow a lifestyle based on sustainability principles, and Generation Z's declared intention to include sustainability in its activities distinguishes it from

[6] The French nutriscore is a logo on the front of the packaging that informs about the nutritional quality of the products (A, B, C, D, E)

previous generations (Valentine & Powers, 2013). Given their high level of education and clear understanding of how human activity affects the environment, members of this generation believe that businesses have a responsibility to respond to today's environmental problems (Adnan et al, 2017).

A third result is the need to develop collaboration between companies and consumers and to act beyond it by establishing a co-construction strategy. Developed by Prahalad & Ramaswamy (2000), the term of co-creation is defined as the fact of integrating consumers in the firms' strategies and has become a major topic of discussion in literature. Vargas & Lush (2004) separate co-creation of value and co-production which is the participation of consumers in the core offering itself but acknowledge that the second is subordinate to the co-creation of value. For Etgar (2008, p.98), "*the co-creation of value takes place in the usage/consumption stage and the co-production take place within the production process which precedes the usage stage*". Co-creation offers companies a promising path not only to enhance consumer buy-in for eco-responsible products, but also to cultivate a sense of shared ownership likely to promote consumer loyalty and advocacy. It would be interesting to develop this collaborative approach in the case of eco conception: to promote co-creating value by integrating ecological considerations and by nurturing shared values can leverage the product's overall value proposition. It will highlight transparency, consumer engagement and sustainability between companies and consumers throughout the product life cycle (Elliot et al., 2023).

CONCLUSION

The aim of this study was to identify consumers' perceptions of eco-design, and the different variables that can influence their behavior towards these products. While these findings provide valuable insights, relying on a sample of students presents a methodological limitation, as it reflects a quite limited demographic group, which restricts the possibility of generalizing the results to larger, more diverse consumer populations. Despite this limitation, there exist some ways of research. Future research must examine, for example, these dynamics in more extensive samples and explore how co-creation strategies can be optimized for different consumer segments and socio-cultural contexts. Such studies might lead to a better insight into how age, education and collaborative approaches affect consumer behavior. Another way of research would be to explore the impact of cognitive dissonance on behavior's consumer because even if we can suppose there's an influence, we've found no indications of this in our study.

References

Adnan, A., Ahmad, A., & Khan, M. (2017). Examining the role of consumer lifestyles on ecological behavior among young Indian consumers, *Young Consumers,*18(4), 348-377.

Berneman, C., Lanoie, P., Plouffe, S., & Vernier, M.-F. (2013). Démystifier la mise en place de l'écoconception. *Gestion,* 38(3), 75-83.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development.* Sage Publications, Inc.

Braun, V., Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101.

Brodhag, C. (2014). L'écoconception, un outil au cœur de l'économie circulaire. *Annales des Mines - Responsabilité et environnement*, 76, 33-37.

Chekima, B., Wafa, S. A. W. S. K., Igau, O. A., Chekima, S., & Sondoh Jr, S. L. (2016). Examining green consumerism motivational drivers: does premium price and demographics matter to green purchasing? *Journal of Cleaner Production*, 112, 3436-3450.

Elliot, E. A., Adams, R., & Tsetse, E. K. K. (2023). Customer Value Co-Creation: Environmental Sustainability as a Tourist Experience. *Sustainability*, 15(13), 10486.

Eze, U. C., & Ndubisi, N. O. (2013). Green buyer behavior: Evidence from Asia consumers. *Journal of Asian and African Studies*, 48(4), 413-426.
Festinger, L. (1957). *A theory of cognitive dissonance.* Stanford University Press.
Grier, S. A., & Deshpandé, R. (2001). Social dimensions of consumer distinctiveness: The influence of social status on group identity and advertising persuasion. *Journal of Marketing Research,* 38(2), 216-224.
Griskevicius, V., Tybur, J. M., & Van den Bergh, B. (2010). Going green to be seen: status, reputation, and conspicuous conservation. *Journal of personality and social psychology*, 98(3), 392-404.
Husic M., & Cicic M. (2009). Luxury consumption factors, Journal of Fashion Marketing and Management: *An International Journal,* 13, 231-245.
Hussain, S. (2000). Green Consumerism and Ecolabelling: A Strategic Behavioural Model. *Journal of Agricultural Economics*. 51. 77-89.
Lehtimäki, H., Aarikka-Stenroos, L., Jokinen,A., Jokinen, P., & Kotilainen,J. (2022). Circular economy catalysts in sustainability transition, in *The routledge handbook of catalysts for a sustainable circular economy,* Routledge: London.
Liu, Y., Qu, Y., Lei, Z., & Jia, H. (2017). Understanding the evolution of sustainable consumption research. *Sustainable Development,* 25(5), 414-430.
Maheshwari, A., & Malhotra, G. (2011). Green marketing: A study on Indian youth. *International Journal of Management and Strategy*, 2(3), 1-15.
Malhotra, Rashmi & Garg, Vidhan & Aggarwal, Pranav & Aggarwal, Anirudh & Bansal, Omisaa & Tusnial, Bhavya. (2024). Consumer Perception and Buying Behaviour Regarding Eco-Friendly Products. *Journal of Business Management and Information Systems*. 11. 54-65.
Matharu, M., Jain, R., & Kamboj, S. (2020). Understanding the impact of lifestyle on sustainable consumption behavior: a sharing economy perspective. *Management of environmental quality: An international Journal,* 32(1), 20-40.
Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *British food journal,* 107(8), 606-625.
Pedro Pereira Luzio, J., & Lemke, F. (2013). Exploring green consumers' product demands and consumption processes: The case of Portuguese green consumers. *European Business Review,* 25(3), 281-300.
Prahalad, C.K. & Ramaswamy, V. (2000). Co-opting customer competence, *Harvard Business Review*, 78, 79–87.
Polyportis, A., Mugge, R., & Magnier, L. (2022). Consumer acceptance of products made from recycled materials: A scoping review. *Resources, Conservation and Recycling*, 186.
Ricard, M-L., Hybel, S-B., & Jofre, S. (2022). Design as a catalyst for the circular economy. *In The routledge handbook of catalysts for a sustainable circular economy,* Routledge: London
Roberts, J. A. (1995). Profiling levels of socially responsible consumer behavior: a cluster analytic approach and its implications for marketing. *Journal of marketing Theory and practice*, 3(4), 97-117.
Valentine, B.D., & Powers, L.T. (2013). Generation Y values and lifestyle segments. *Journal of consumer marketing*, 30(7), 597-606.
Vargo, S., & Lusch, R. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing,* 68, 1–17.
Yue, B., Sheng, G., She, S., & Xu, J. (2020). Impact of consumer environmental responsibility on green consumption behavior in China: The role of environmental concern and price sensitivity. *Sustainability*, 12(5), 2074-2090.