

doi: [10.5821/conference-9788419184849.09](https://doi.org/10.5821/conference-9788419184849.09)

## ANALYSIS OF PERCEPTIONS OF SUSTAINABLE LABELING ACCORDING TO PRODUCT TYPE

Maria-Jesus AGOST<sup>a</sup>, Margarita VERGARA<sup>a</sup>, Vicente BAYARRI<sup>1a</sup>

<sup>a</sup> Mechanical Engineering and Construction Department, Universitat Jaume I, Castellón, Spain, [magost@uji.es](mailto:magost@uji.es), [vergara@uji.es](mailto:vergara@uji.es), [vbayarri@uji.es](mailto:vbayarri@uji.es)

### ABSTRACT

Sustainability labeling is commonly applied to consumer products. It is usual to find labels related to different sustainability aspects, such as environment, health or fair trade. Consumers with sustainability awareness will base their choices on how the product aligns with their values. However, consumer preferences about sustainability traits may depend on the specific type of product.

To determine if perceptions on labeling about sustainable aspects differ based on product type, a study was carried out in which 73 participants chose between three versions of a same product, each version containing a sustainable label (environmental, social or related to health). Three different products for daily use were chosen: food (a milk carton), clothing (a T-shirt) and a personal hygiene product (a bottle of shampoo). For each product and aspect of sustainability, the labels were chosen among the best known. Choices had to be made around various perceptions: quality, price, sustainability, trust, willingness to pay and general choice (preference).

The results show that, for some questions, the choice of the preferred sustainability aspect depends on the product. Therefore, it is concluded that the evaluation and decision criteria of sustainable labeling may vary, depending on the type of product to which it is applied.

**Keywords:** *product labeling, sustainability, perceptions, choice, type of product*

---

<sup>1</sup> Corresponding author.

## 1 INTRODUCTION

Consumers are increasingly aware of the environmental repercussions that their actions and purchase decisions have on the environment. This environmental awareness has been evolving and becomes a motivating and valued component in the purchase decision (Borin, Cerf, & Krishnan, 2011). Some authors have analyzed and evaluated the factors related to the environmental responsibility of consumers, highlighting aspects such as knowledge in this area and their awareness of the environment, attitude, ecological values, emotional affinity towards nature or their willingness to act in an environmentally friendly way (Taufique, Chamhuri, Talib, & Chamhuri, 2014). However, apart from the environmental aspects, the information related to the repercussions on their own health, or social conditions and local commerce, is increasingly valued by consumers and even decisive in the purchase decision, while it has been scarcely analyzed in the literature. According to Carvalho, Salgueiro, and Rita (2015), these global indicators constitute what they call sustainable consumer awareness, which increases as access to information does.

Although product information can be presented in different ways (packaging, instructions manuals, billboards, etc.) and formats (images, phrases, symbols, etc.), labels seem to be the most appropriate means of providing the information required by the consumer, generating greater transparency and confidence (Carvalho et al. 2015). According to Lamb, Hair, and McDaniel (2011), an informative label is understood as the symbols or text designed to help consumers properly select products by reducing their cognitive dissonance, unlike persuasive labels, whose main objective is focused on promotional aspects, where consumer information is secondary.

Regarding environmental considerations, the effectiveness of environmental product labeling has been widely used by companies to differentiate their products from others without environmental considerations (D'Souza, 2000). However, the information transmitted by these eco-labels is not always clear to the individual, and there are numerous studies available in the literature focused on analyzing their effectiveness in different products, such as clothing (Koszevska, 2011), food (Van Amstel et al., 2008), vehicles (Noblet, Teisl, & Rubin, 2006) or washing machines (Pérez-Belis, Bovea, Vergara, & Mondragón, 2015). Other aspects analyzed in the literature are related to the perception of labels related to product quality (Grunert & Aachmann, 2016) or those related to fair trade (Rousseau, 2015).

To ensure complete understanding, the information on product labels should be clear, reliable and understandable, allowing consumers to detect, read and understand this information, on which they base their purchase decision (Thøgersen, 2000; Leire, & Thidel, 2005). But beyond the information provided by these labeling systems or the consumer's understanding, it is necessary to know the way in which these types of labels are emotionally perceived, since according to Janssen and Hamm (2012) consumer's perception is of a subjective nature, not basing their purchase decision, in most cases, on objective knowledge. According to Brécard (2014), although consumers understand, for example, that an ecolabel is a symbol of environmental quality, most of them opt for one product or another, depending on what that symbol, information or label conveys to them, more than by the technical or environmental qualities that it communicates. That is why it is essential that labeling systems connect with the emotional part of consumers, in

the same way that big brands do (Berger & Hari, 2012). However, to gain insight about the connection between labels and the subjective impressions generated, more studies are needed. For example, it is essential to know if the same labels cause the same perceptions, depending on the type of product that displays them.

Within this approach, a study has been carried out with the aim of analyzing the influence of the type of product and the sustainability dimension on certain meanings, emotions and preferences generated by the product.

## 2 METHODOLOGY

The study aims to analyze the assessment of some labels related to different sustainability dimensions (environment, health and social respect), in various perceptions or subjective impressions that they generate (meanings, emotions and product preference), depending on the type of product in which the sustainable labeling is shown.

### 2.1 Participants

Seventy-three individuals (32 women and 41 men) participated in the experiment. Most of them (94.5%) were students, while the remaining 5.5% was made up of University staff. Regarding age ranges, 86.3% were under 25 years old, 6.8% belonged to the group from 26 to 35 years, 5.5% from 36 to 45 years, and 1.4% from 46 to 55 years. None of them had specific knowledge about sustainability labels.

### 2.2 Stimuli

The selection of product types and labels has been made based on a previous review and classification. Preference has been given to those labels related to sustainability dimensions that are applicable to various types of product, and that may be familiar to consumers because they are frequently used. The types of product have also been chosen from among those commonly used. The chosen products are a food product (a milk carton), a textile product (a T-shirt), and a basic cosmetic product (a bottle of shampoo).

Regarding labels, efforts have been made whenever possible for products to share the same label for a given sustainability dimension, although this has not always been achieved. Next, the chosen labels are explained and summarized in Table 1.

Sustainability dimension of environmental respect

- FSC: The Forest Stewardship Council label shows a certification about products that come from well-managed forests, responsible sources or recycled materials (FSC, 2018).
- Ecolabel: This label from the European Union shows environmental excellence in products and services that meet high environmental standards throughout their life cycle (UE-E , 2020).

Sustainability dimension of health respect










- EU organic label: This label provides a visual identity for organic products that meet strict conditions of production, transformation, transport and storage (EU-OL, 2010).
- OEKO-TEX: This certification system promotes the development of sustainable products in the textile and leather industry, following quality controls and standards (OT, 2022).
- Eco-Cert: This certification guarantees, among others, ecological and healthy production, responsible use of natural resources, absence of certain ingredients and recyclable packaging. (EC, 2022).

Sustainability dimension of social respect

- Fairtrade: The Fairtrade labels are a guarantee that the products are independently audited according to rigorous standards (FT, 2022).

Thus, the Fairtrade label (social respect) is shared for the three products, and the Ecolabel label (environmental respect) for two of them.

**Table 1.** Label selected for each sustainability dimension

Sustainability dimension	Cosmetic (Shampoo)	Food (Milk Carton)	Textile (T-Shirt)
Environment respect			
Health respect			
Social respect			

### 2.3 Procedure

Six perceptions or subjective impressions (SIs) were selected for the analysis of their elicitation, based on the labels. Next, the SIs are shown, followed by the specific question required to participants:

- Sustainability: Select the most sustainable product.
- Trust: Select the product that generates more trust.
- Quality: Select the highest quality product.
- Willingness to pay: Select the product for which you would be willing to pay a higher price.
- Price: Select the most expensive product.
- Choose: Select the product you would choose first.

None of the SIs assessed is directly related to the specific meaning of the labels; that is, the level of knowledge or understanding of labeling is not being evaluated. Instead, emphasis is

placed on the impressions achieved with each of the labels, which will be analyzed according to the sustainability dimension, and the type of product.

Images of each type of product were created, and slides were prepared showing a product, repeated 4 times: one with each of the labels (3 sustainability dimensions), and also another image with the product without any label, representing an 'Indifferent' option. The order in which the labels appeared was randomized. For each type of product, 6 slides were made (Figure 1). In each one, participants were asked to select the version of the product considered to best meet one of the subjective impressions. It was also said that, in the event that there was no particular preference, the 'Indifferent' option should be indicated, although this choice was requested to be avoided as much as possible.



**Figure 1.** Three examples of the slides, one for each type of product, from among the 18 considered in the study (6 assessments per product).

### 3 RESULTS

Figure 2 shows, for each subjective impression, the times (percentage) that each of the 3 sustainability dimensions of products has been selected: health, environment and social. In most cases, the environmental label is the most chosen, especially for the question about sustainability. For this question, the percentage of cases in which the environmental label is chosen, is much higher than in the rest of the labels: 87.67% for the bottle of shampoo, and 71.23% both for the milk carton and the T-shirt. Thus, the concept of sustainability is mostly associated with the environmental dimension, for the 3 types of product analyzed.

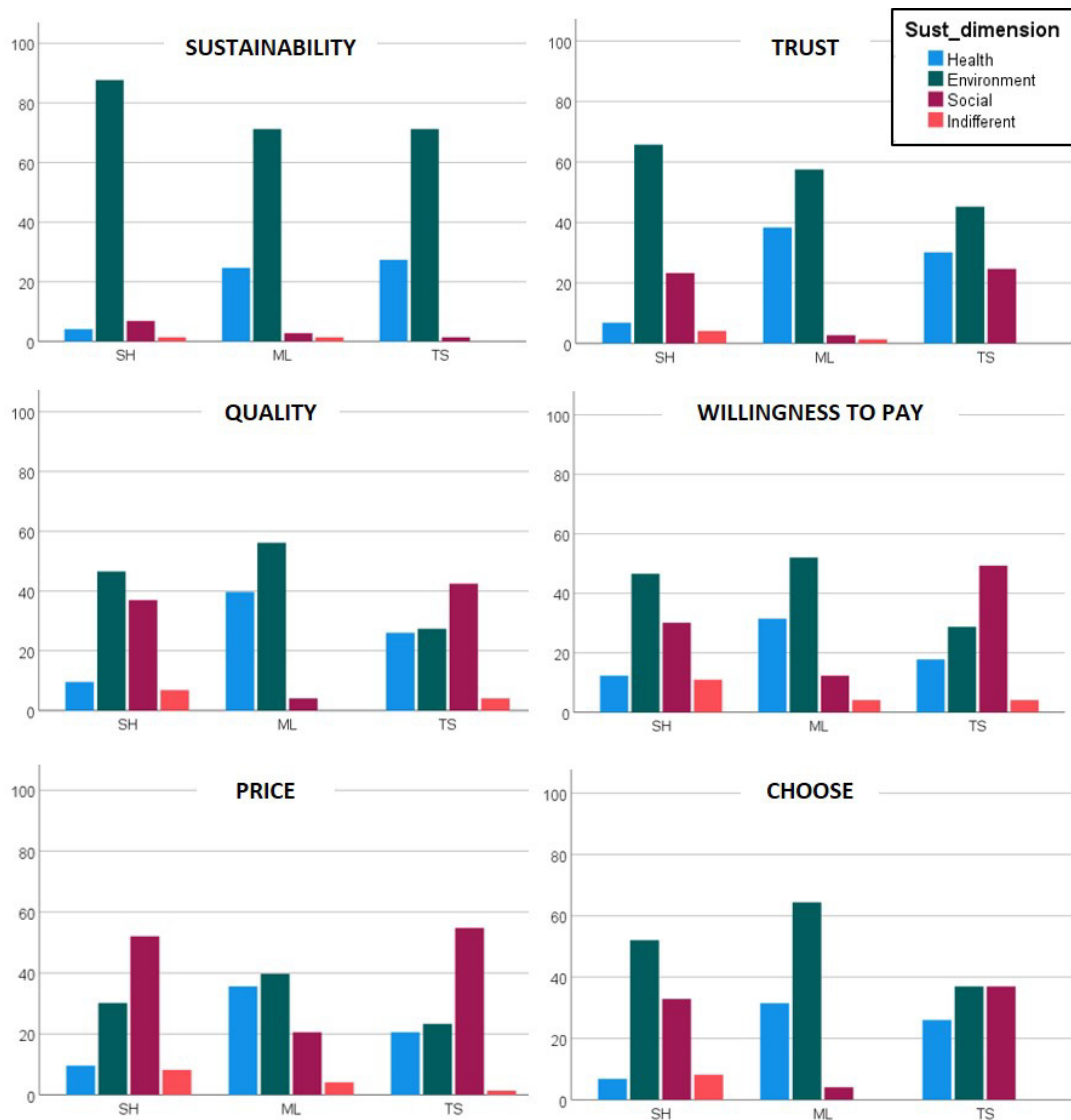


Figure 2. Selection percentage for each product (SH: bottle of shampoo; ML: milk carton; TS: T-shirt) and sustainability dimension, by subjective impression.

Also, in the question about the trust generated by the product, the environmental label was chosen first for the three products, although in this case the percentages are not so high (65.75%, 57.53% and 45.21%, for the bottle of shampoo, the milk carton and the T-shirt, respectively). For the milk carton, the health label is chosen a much higher percentage of times (38.36%) than the

social one (2.74%). However, in the case of the T-shirt, the difference between both labels is not high (30.17% and 24.66%, respectively). The health label also maintains in other questions a high relative percentage of answers for the milk carton, probably because the milk carton is a food product, and health is prioritized to a greater extent, while in the T-shirt or the bottle of shampoo, more value is given to social aspects.

Regarding the perception of quality, for the bottle of shampoo, this is fundamentally transmitted by the environmental label (46.58%), although closely followed by the social one (36.99%), while for the milk carton, quality is represented by the environmental label (56.16%), followed by the health one (39.72%). In the case of the T-shirt, the social label is the most representative of quality (42.47%), while the environmental and health labels maintain very similar percentages. These proportions are similar to those obtained for the question about willingness to pay, which may mean that the participants associate more the willingness to pay for products that they perceive to be of higher quality, above other subjective impressions, such as sustainability.

However the results of willingness to pay does not match with its assumed price, especially for the bottle of shampoo, for which the social label is chosen first (52.05%) as the most expensive version, despite participants had said they would pay more for the environmental one. The social dimension is also the most identified with price for the T-shirt, even with a higher percentage (54.79%), while for the milk carton it is the third dimension, below environmental and health labels.

Finally, the question 'Select the product you would choose first' denotes the general preference of the product. In this case, the environmental label is the most chosen for the bottle of shampoo (52.05%) and the milk carton (64.38%), while for the T-shirt, it is selected by the same percentage of participants than the social label (36.99% each). Following the pattern seen previously in other questions, the health label for the milk carton is chosen by a higher percentage of participants than for the other products, although as the second option, after the sustainability label.

#### **4 DISCUSSION AND CONCLUSION**

The results show that, in general, consumer's final decision related to sustainability factors is mainly guided by information from environmental issues, which agrees with the most studied type of sustainable consumer responsibility (Taufique et al, 2014). Probably this result is because sustainable labeling on environmental aspects has been widely used in products (D'Souz, 2000). In fact, the question about sustainability is the one where the results are more focused on this label: for the products with the lowest choice of the environmental label (the milk carton and the T-shirt), this dimension represents the 71.23% of the total selection. Thus, it can be concluded that the environment is the sustainable dimension that consumers most identify with the global concept of sustainability.

For the T-shirt the preference is shared equally between the environmental and social labels. Besides, reviewing the rest of the questions, it can be seen that, except for the question about

sustainability and the one about trust, the social label is always the first option in the "T-shirt" product. This result is consistent with the fact that clothing is a type of product for which much has been said about the need to recover a sustainable system, in which excessively cheap labor and poor social conditions are not used.

Also for the bottle of shampoo, the social label is more selected than the health dimension. However, in the case of the milk carton, the health dimension is always the second option, after the environmental one, and above the social label. Considering that the questions are not directly related to the specific meaning of the labels (no question refers to care of health, environment or social conditions), this shows that the type of product considered is capable of modifying the relative meaning of the sustainable labeling. Thus, a T-shirt with social labeling has achieved a greater impression of quality than another one including health labeling. On the contrary, the carton of milk is considered to have more quality in its version with healthy labeling than with the social one.

As previously mentioned, for each product and dimension, the label considered best known by the participants has been included in the study, and this has led to use the same label in some cases (social or environmental aspect, as seen in Table 1). However, different results are obtained between products for the social dimension, which shares labeling in all of them. Differences have also been found for the bottle of shampoo and the T-shirt, between the social and environmental dimensions, even though they share representative labels. For example, for the questions about quality, willingness to pay and choose, the bottle of shampoo with the environmental label (*Ecolabel*) is considered more representative than the social one (*Fairtrade*), and just the opposite occurs with the same labels for the T-shirt. This shows that the differences found are due to the sustainability dimension, and not to the specific label used in each case. Brécard (2014) indicated that consumers are affected by the perceptions that a label conveys to them, more than by real information communicated by the label.

The results of this study allow enriching previous statements, as it can be concluded that perceptions and decision criteria of sustainable labeling may vary, depending on the type of product to which it is applied. Future work could consider the study of the consumers' behavior, based on specific labels of each sustainable dimension.

## ACKNOWLEDGMENTS

We thank the Universitat Jaume I for the economic support of the project Ref. 16I342.01/1.



## REFERENCES

- Berger, V. & Hari, J. (2012, July). *Consumers and Eco - labelling: A Repertory Grid Study*. Academy of Marketing Conference, Southampton University.
- Borin, N., Cerf, D. C., & Krishnan, R. (2011). Consumer effects of environmental impact in product labeling. *Journal of Consumer Marketing*, 28(1), 76–86. DOI: 10.1108/07363761111101976
- Brécard, D. (2014). Consumer confusion over the profusion of eco - labels: Lessons from a double differentiation model. *Resource and Energy Economics*, 37, 64 - 84. DOI: 10.1016/j.reseneeco.2013.10.002
- Carvalho, B., Salgueiro, M.F. & Rita, P. (2015). Consumer sustainability consciousness: a five dimensional construct. *Ecological Indicators*. 58, 402 - 410. DOI: 10.1016/j.ecolind.2015.05.053
- D'Souz, C. (2000). Bridging the communication gap: dolphin - safe ecolabels. *Corporate Communications An International Journal* 5(4):185-190. DOI: 10.1108/13563280010379129
- EC, (2022). Eco-Cert. Retrieved from: <https://www.ecocert.com/es/home>
- EU-OL, (2010). Europe Organic label. Retrieved from: [http://www.agencebio.org/sites/default/files/upload/documents/3\\_Espace\\_Pro/RCE\\_BIO\\_271\\_2010.pdf](http://www.agencebio.org/sites/default/files/upload/documents/3_Espace_Pro/RCE_BIO_271_2010.pdf)
- FSC, (2018). Forest Stewardship Council. Retrieved from: <https://fsc.org/en/news/fsc-publishes-revised-trademark-standard>
- FT, (2022). Fair Trade. Retrieved from: <https://fairtrade.es/es/comerciojustofairtrade/sellosfairtrade.html>
- Grunert, K. G. & Aachmann, K. (2016). Consumer reactions to the use of EU quality labels on food products. A review of the literature, *Food Control*, 59(1), pp. 178 - 187. DOI:10.1016/j.foodcont.2015.05.021.
- Janssen, M. & Hamm, U. (2012). Product labelling in the market for organic food: consumer preferences and willingness - to - pay for different organic certification logos. *Food Quality and Preference* 25(1), 9–22. DOI: 10.1016/j.foodqual.2011.12.004.
- Koszevska M. (2011). Social and Eco - labelling of Textile and Clothing Goods as a Means of Communication and Product Differentiation. *Fibres & Textiles in Eastern Europe*, 19, 4(87): 20 - 26. Retrieved from: <https://api.semanticscholar.org/CorpusID:55445125>
- Lamb, C.W., Hair, J. F. & McDaniel, C. (2011). *Marketing*. (11<sup>th</sup> ed.): Cengage Learning
- Leire, C. & Thidell, A. (2005). Product - related environmental information to guide consumer purchases - a review and analysis of research on perceptions, understanding and use among Nordic consumers. *Journal of Cleaner Production*, 13, 1061 - 1070. DOI:10.1016/j.jclepro.2004.12.004
- Noblet, C.L., Teisl, M.F. & Rubin J. (2006). Factors affecting consumer assessment of eco - labeled vehicles. *Transportation Research Part D. Transport and Environment* 11(6), 422 - 431. DOI:10.1016/j.trd.2006.08.002
- OEKO-TEX, (2022). Retrieved from <https://www.aitex.es/certificado-oeko-tex-standard-100/>

Pérez - Belis, V., Bovea, M.D. & Simó, A., (2015). Consumer behaviour and environmental education in the field of waste electrical and electronic toys: a Spanish case study. *Waste Manage*, 36, 277–288. DOI:10.1016/j.wasman.2014.10.022

Rousseau, S. (2015). The role of organic and fair trade labels when choosing chocolate. *Food Quality and Preference*, 44, 92–100. DOI:10.1016/j.foodqual.2015.04.002

Taufique, K., Chamhuri, S., Talib, B.A. & Chamhuri, N. (2014). Measuring consumers' environmental responsibility: a synthesis of constructs and measurement scale items. *Current World Environment*, 9(1), 27-36. DOI:10.12944/CWE.9.1.04

Thøgersen, J., (2000). Psychological determinants of paying attention to eco - labels in purchase decisions: Model development and multinational validation. *Journal of Consumer Policy*, 23(3), 285 - 313. DOI:10.1023/A:1007122319675.

UE-E, (2020). UE Ecolabel Retrieved from <https://ec.europa.eu/environment/ecolabel/>

Van Amstel, M., Driessen, P. & Glasbergen, P. (2008). Eco - labeling and information asymmetry: a comparison of five eco - labels in the Netherlands. *Journal of Cleaner Production*, 16(3), 263 - 276. DOI:10.1016/J.JCLEPRO.2006.07.039