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Article

Perceptions of Sustainability vs. Quality Features – An Experimental Study on Young Consumers' Quality Perceptions of Foods and Beverages

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Perceptions of Sustainability vs. Quality Features

An Experimental Study on
Young Consumers' Quality Perceptions
of Foods and Beverages

This study explores young consumers' perceptions of ecological and social sustainability features in comparison to common quality features for foods and beverages. Two online experiments demonstrate that sustainability features – in contrast to common quality features – lead to higher perceived quality and purchase intention of associated products.

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Climate change and environmental degradation are two of the current challenges human societies are facing. Sustainable consumption is considered a key element for meeting these challenges. It encompasses three dimensions, namely the ecological, social, and economic dimensions. Ecologically sustainable consumption refers to the preference for products with a minimised environmental impact compared to conventional products. Socially sustainable consumption focuses on favouring products that respect human rights and guarantee decent working conditions along the entire value chain. Economically sustainable consumption focuses on the necessity of consumption expenditures and, thus, includes aspects such as frugality, sharing and budget control (Balderjahn, 2021).

However, promoting sustainable consumption is no simple task, a fact that both marketers and researchers agree upon. Known psychological barriers opposing sustainable consumption are numerous and include cognitive-emotional aspects such as sustainability attitudes (Luchs & Kumar, 2017), moral obligation and self-identity (Beldad & Hegner, 2018), scepticism regarding sustainability labels and claims (Goh & Balaji, 2016), lack of transparent and sufficient information regarding sustainability features (Terlau & Hirsch, 2015), limited availability (Joshi & Rahman, 2015), as well as high prices of sustainable products (Liobikienė et al., 2017). Further, and especially with respect to fast moving consumer goods (FMCG) such as foods and beverages, sustainable consumption often encompasses low involvement consumption situations. Correspondingly, little time is invested in purchase-related decision making, which is mostly habitualised with moderate to no comparison of alternatives and a minimum of information search (Homburg, 2017). Low involvement consumption relies heavily on targeted marketing measures and stimuli, which must be easy to detect on products. Based on these, a comparison with the consumer's attitudes

and needs is initiated, an interest in the product is aroused, and finally, a purchase decision is made (Loos et al., 2013).

Relevant marketing measures and stimuli usually involve product or service quality, which is one of the most important positioning instruments of strategic marketing. On the one hand, product or service quality represents the respective good's ability to fulfil its function while, on the other hand, it can also be interpreted as a generic term for positive characteristics such as reliability, durability, or precision (Kotler et al., 2007). Especially in Western societies, where there is an abundance of supply, characteristics of product and service quality are no longer determined by manufacturing or distributing companies, but by the consumers themselves. Therefore, the term 'perceived quality' has replaced the term 'product or service quality' and emphasises that quality judgments depend on the perceptions, needs, and goals of consumers (Steenkamp, 1990). Therefore, it is no longer just technical-functional characteristics and functions that shape the assessment of the quality of a product or service. Subjective judgments, which rely heavily on the personal background, attitudes, and experiences of the consumers (Rowley, 1998), directly affect quality perceptions.

Sustainability information can be seen as a product characteristic that influences perceived quality. While the effects of sustainability information on consumer preferences can differ depending on the product category and may even be negative (Luchs et al., 2010), sustainability seems to increase the perceived product quality for foods and beverages. For example, Magnier et al. (2016) conducted an experiment with three food products (raisins, chocolate bars, and coffee), which they presented to the test persons either in sustainable packaging or in conventional packaging. The study's results show that the perceived quality is higher when the food packaging indicates sustainability. Another study in Sweden



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found that, from the consumers' perspective, regionality, sustainable production methods, and organic farming are the most important parameters linking food with high quality (Bosona & Gebresenbet, 2018). These findings are reinforced by the experiment of Silva et al. (2017), who conducted blind tastings of chocolate with differing product information. A positive effect of sustainability features on the overall impression and purchase intention was observed.

However, prior research remains inconclusive regarding some important practical questions. One such aspect is the differentiation between sustainability features and common quality features of foods and beverages. While it is interesting that sustainability features might serve as a quality criterion when compared to products featuring no information at all (Magnier et al., 2016), in reality sustainable products have to compete with products displaying various other quality

features, such as best choice labels, controlled quality, and/or premium denominations. Regarding this, research findings so far remain unclear. For example, while Silva et al. (2017) found positive effects of sustainability features on overall impression and purchase intention, the chocolate displaying common quality features was rated better in the blind tasting than both organic variants. Further, both Luchs & Kumar (2017) as well as Pancer et al. (2017) showed that consumers feel like having to compromise on quality and effectiveness when buying sustainable product versions.

Table 1: Textual Information Presented per Experimental Condition

	Condition 1 (Sustainability features)	Condition 2 (Quality features)	Condition 3 (No features)
Minced meat	<ul style="list-style-type: none"> • 500 g • From sustainable animal husbandry • Meat from the region • Certified animal welfare • For conscious meat consumption 	<ul style="list-style-type: none"> • 500 g • Quality meat • Particularly tasty • Controlled quality • Selected suppliers 	<ul style="list-style-type: none"> • 500 g
Coffee capsules	<ul style="list-style-type: none"> • 10 capsules • 100% ecological • No aluminum or plastic • Made from Mexican and Peruvian beans • Fair trade certified • Recyclable packaging 	<ul style="list-style-type: none"> • 10 capsules • 100% arabica coffee • From selected Mexican and Peruvian beans • Expressive taste 	<ul style="list-style-type: none"> • 10 capsules
Coffee beans	<ul style="list-style-type: none"> • 1000 g coffee beans • From fair trade • Support for smallholder farmers in Ethiopia • Coffee for fair enjoyment 	<ul style="list-style-type: none"> • 1000 g coffee beans • Handpicked quality beans • Careful selection and optimal roasting • Expressive taste 	<ul style="list-style-type: none"> • 1000 g coffee beans
Chocolate	<ul style="list-style-type: none"> • 100 g • From fair trade Peruvian cocoa beans • Support of the project #chocolate4change 	<ul style="list-style-type: none"> • 100 g • Chocolate from selected cocoa beans • Intense and unique taste • Quality product according to the international food standards IFS and the Swiss quality standards for chocolate 	<ul style="list-style-type: none"> • 100 g
Orange juice	<ul style="list-style-type: none"> • 1 liter tetrapak • Tasty oranges from fair plantations • Regulated working conditions on the orange plantations according to the guidelines of the international labor organization ILO 	<ul style="list-style-type: none"> • 1 liter tetrapak • From selected Spanish oranges • Controlled quality for an intense and particularly fruity taste 	<ul style="list-style-type: none"> • 1 liter tetrapak

Source: Authors.

Consequently, it remains unclear whether consumers perceive product quality of foods and beverages to be higher or lower based on sustainability features, especially in comparison to common quality features. This relates to ecological, and even more to social sustainability. Possible explanations for this imbalance can be found in the fact that most people primarily think of the ecological dimension when sustainability is concerned and that the concepts of fair trade and organic farming are often confused (Rousseau, 2015). This study sets out to empirically explore consumer perceptions of sustainability features in comparison to common quality features, focusing on foods and beverages and both the ecological and the social sustainability dimensions.

Methods

In order to answer the research question, two online experiments were conducted. In both experiments, participants evaluated different sets of product pictures and corresponding product information based on a questionnaire (in German). Three experimental groups assessed the same products (e.g., coffee beans), however, with different associated product pictures and information (sustainability features vs. quality features vs. no features). Study 1 was conducted in September and October 2020, encompassed 143 participants,

Fig. 1: Illustration of the Experimental Conditions, Exemplified by the Coffee Beans in Study 2



Source: freepik, 2023, adapted by the authors.

and focused on ecological sustainability features such as ecolabels applied to the products minced meat and coffee capsules, while study 2 took place in May 2022, encompassed 231 participants and focused on social sustainability features such as fair trade labels applied to the products chocolate, coffee beans, and orange juice. Each participant was assigned randomly to one condition and assessed either two (study 1) or three (study 2) products within that condition. Table 1 displays all textual information given to the participants per product and experimental condition.

As mentioned above, the product picture generally remained the same across all three experimental conditions. However, different additional information was added via Adobe Photoshop in conditions 1 and 2. In condition 1 (sustainability features), the product picture always included a suitable ecolabel (German or EU Bio label, German husbandry label, fair trade label), while in condition 2 (quality features) design elements indicating quality were added (e.g., the word “premium” or a best choice label). Figure 1 shows the presented pictures of the coffee product in study 2.

Participants were then asked to indicate how they perceive the quality of the presented product (“How would you rate the quality of the product after looking at the product photo and reading the related information?”) and their purchase intention (“Would you buy the product as you see it here?”). Answers were collected on a 5-point Likert-scale, ranging from 1 (very low/not at all) to 5 (very high/absolutely).

Participants were recruited via university e-mail lists and the personal networks of the second and third authors of the study. In sum, 374 participants filled out the online questionnaire. All participants

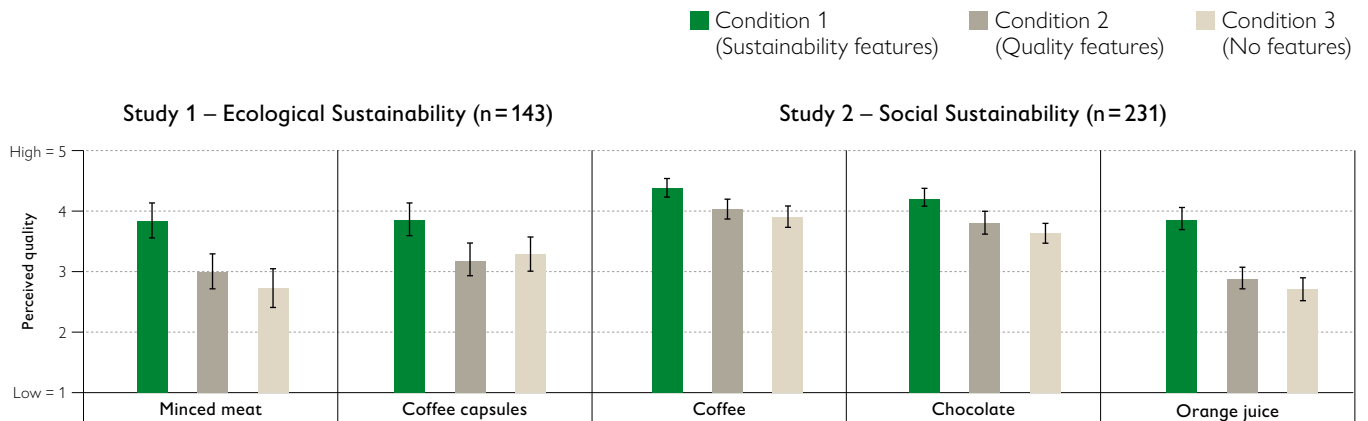
were between 18 and 35 years old; the mean age was 25 years. The gender distribution was as follows: 227 participants identified themselves as female (61%), 146 as male (39%), and one as diverse.

The survey instrument also included an item measuring participant attitude towards ecological and social sustainability in general, ranging from 1 (very negative) to 5 (very positive). The results indicated rather positive sustainability attitudes in the sample: mean = 3.78 regarding ecological sustainability in study 1, and mean = 4.06 regarding social sustainability in study 2. The standard deviations (SD) were

Management Summary

In two online experiments, three experimental groups consisting of young participants (18–35 years old) assessed food and beverage products (e.g., coffee) with differing associated product information. The product information encompassed either sustainability features, quality features, or no features (control condition). Results show one clear trend: sustainability features always led to the highest perceived quality and the highest purchase intention, even when directly compared to common quality features.

Fig. 2: Perceived Quality per Condition



Error bars indicate 95% confidence interval. Source: Authors.

0.64 and 0.66, respectively, indicating that the participants were not very divided on this issue. Importantly, the sustainability attitudes did not differ much between the three experimental conditions, minimizing the risk of confounding effects. Also, attitude towards sustainability was assessed after participants had indicated their perceived quality ratings and purchase intentions to minimize consistency bias (e.g., Leising, 2011).

Results

Results regarding perceived quality are displayed in figure 2, while results regarding purchase intention are displayed in figure 3. The results show one clear trend: sustainability features always lead to the highest perceived quality and the highest purchase intention. With the exception of purchase intention regarding the products coffee beans and chocolate, analyses of variance (ANOVA) showed significant differences between the three experimental conditions for all products and both dependent variables (10 ANOVAs conducted, independent variable = experimental condition, dependent variable either perceived quality or purchase in-

tention; $p < .01$ for all conducted analyses except purchase intention of coffee beans, $p = .052$, and chocolate, $p = .132$; see the [online Appendix](#) for details). For significant effects, explained variance (based on η^2) ranged from 8% to 29%, indicating medium effect sizes (Cohen, 1988). Planned contrasts revealed that regarding perceived quality, the sustainability condition was always rated significantly more positively than both the quality and control conditions ($p < .05$). Also, regarding purchase intention, the sustainability condition was always rated significantly more positively than both the quality condition and the control condition ($p < .05$), except for the products coffee beans and chocolate, as indicated above.

Discussion

It is known that sustainability features of food and beverage products serve as powerful stimuli that are part of the product evaluation process if they are easily identified by consumers. Consequently, sustainability features on product packaging increase the perceived quality of such products (Bosona & Gebresenbet, 2018; Magnier et al., 2016; Silva et al., 2017).

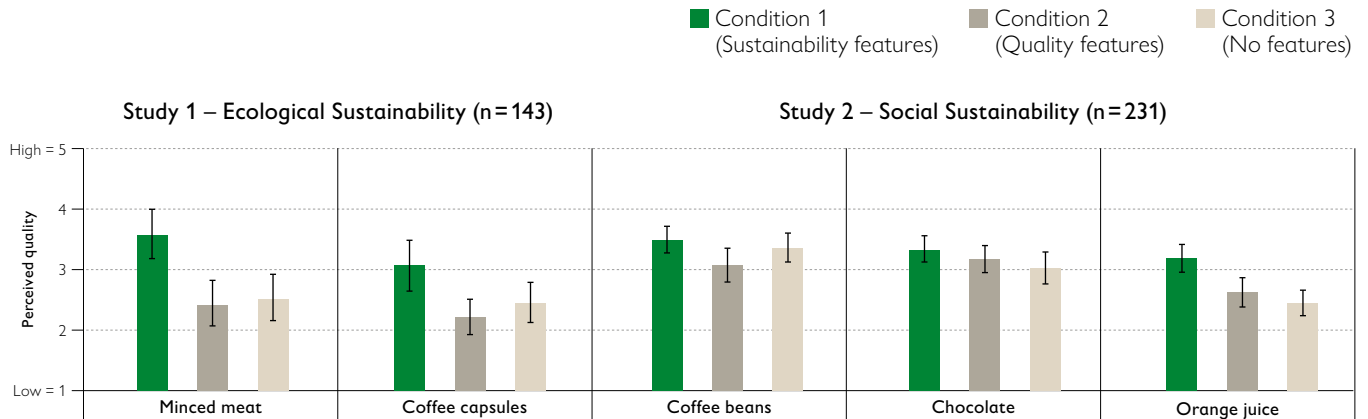
This study adds to this knowledge by demonstrating that sustainability features have more positive effects on consumer perceptions and purchase intention than common quality features. The results were quite clear regarding this issue. Participants in two online experiments rated five food and beverage products with differing product features. Sustainability features always led to a higher perception of quality and a higher purchase intention than common quality features (though the differences in purchase intention were only significant for 3 out of 5 researched products). This is in contrast to the results of Weber (2019), according to which consumers do not differentiate between different quality signals and seals and focus on the quantity of displayed information instead, as well as those of Luchs and Kumar (2017) and Pancer et al. (2017) who showed that consumers feel they have to compromise on quality and effectiveness when buying sustainable product versions.

Even more interestingly, positive effects of sustainability features on perceived quality and purchase intention could be shown for both the ecological and social sustainability dimensions. This is an important insight, since so far consumer

Fig. 3: Purchase Intention per Condition



For a further supplementary table to the article, visit: unisg.link.mrsg-walter-et-al



Error bars indicate 95% confidence interval. Source: Authors.

research has mostly centred on ecological sustainability while social sustainability features have been rather underrepresented (Rousseau, 2015).

This study has clear implications for marketing management and activities regarding food and beverages. It seems advisable to focus on sustainability features of both the ecological and social dimensions. Such information should be displayed clearly and prominently to maximise the effect on the consumers' decision-making processes. Furthermore, it does not seem to be necessary to complement sustainability information with other quality information (e.g., the word "premium" or a best choice label). Consumers apparently consider sustainability features as quality criteria in their own right. Of course, in doing so, corporations should avoid greenwashing and 'walk the talk' when it comes to sustainable product information, both for ethical reasons and so as not to alienate more informed consumers.

However, limitations of this study's findings exist. First of all, the sample was restricted to the younger generation (18–35 years) that generally has more positive attitudes towards sustainability

in general and sustainable consumption in particular (Heyn & Kochhan, 2016). Second, the study exclusively focused on foods and beverages. Results of an equivalent experimental setup with durable consumer goods (e.g., thermos flask, cutting board) did not lead to results that were as clear as for food and beverages. Luchs et al. (2010) already showed that a

higher ethicality of products only led to better product evaluations if 'gentleness' was a relevant factor in the respective product category (e.g., baby shampoo as opposed to car shampoo). It seems likely that foods and beverages involve factors strongly influenced by sustainability criteria in the consumers' eyes (e.g., healthy ingredients), and that these factors may be absent in other product categories.

Furthermore, it has to be kept in mind that the experimental conditions reflect fictitious product evaluation situations and cannot be equated with actual consumer behaviour. The focus of the present study was on realistic product examples and not on full standardization over all products and experimental conditions. This led to the following limitations:

Main Propositions

- 1 Quality perceptions are affected by subjective judgments and depend on the consumers' personal background, attitudes, and experiences.
- 2 Sustainability information can influence perceived quality.
- 3 Sustainability features on food and beverage packages have a positive effect on the overall quality impression and the purchase intention, especially among younger people.

- (1) The product focus of the displayed sustainability information (Sen & Bhattacharya, 2001) as well as information depth and label quality varied over products and experimental conditions. For example, the brown paper packaging of the coffee beans displayed in figure 1 might imply a certain level of sustainability over all three experimental conditions.

- (2) Ecological and social sustainability information were not sharply delineated. In one case (coffee capsules), the ecological sustainability condition included a fair trade certification, which, of course, is a social sustainability information.
- (3) Neither the brand nor any pricing information were given.
- (4) Social desirability might have confounded our findings.
- (5) Neither personality variables such as abstract vs. concrete construal levels (Reczek et al., 2018) nor previous product experience and interests of participants were considered in the analysis.

However, the presented experimental findings were quite consistent over five different food and beverage products. It seems plausible that the results will prove

to be valid in practical contexts as well. We strongly encourage further research efforts in this important area of sustainable consumption, building on and substantiating our findings. These efforts should include choice experiments which allow

participants to directly compare products with either sustainability features or common quality features, as well as implicit association tests (IAT), which are quite robust regarding the potential confounding effects of social desirability. ■

Lessons Learned

- 1 In young consumers (18–35 years old), food and beverage packages with sustainability features led to higher quality ratings and higher purchase intentions than packages with common quality features.
- 2 This result could be observed for both the ecological (e.g., ecolabel) and social (e.g., fairtrade label) sustainability dimensions.
- 3 Marketers of food and beverage products should therefore display sustainability features clearly and prominently on product packages.

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Perceptions of Sustainability vs. Quality Features

An Experimental Study on Young Consumers' Quality Perceptions of Foods and Beverages

Table 1: Results of 10 conducted analyses of variance
with the dependent variables 'perceived quality' and 'purchase intention' and the independent variable 'displayed product information' (sustainability features, quality features, no features)

Dependent Variable	Product	F	p	η^2	Sig. group differences ^b
Perceived quality	Minced meat	13.90	0.00	0.17	Sustainability features > quality features Sustainability features > no features
	Coffee capsules	6.89	0.00	0.09	Sustainability features > quality features Sustainability features > no features
	Coffee beans	9.37	0.00	0.08	Sustainability features > quality features Sustainability features > no features
	Chocolate	15.77 ^a	0.00	–	Sustainability features > quality features Sustainability features > no features
	Orange juice	46.18	0.00	0.29	Sustainability features > quality features Sustainability features > no features
Purchase intention	Minced meat	10.86	0.00	0.13	Sustainability features > quality features Sustainability features > no features
	Coffee capsules	6.04 ^a	0.00	–	Sustainability features > quality features Sustainability features > no features
	Coffee beans	3.00	0.05	0.03	Sustainability features > quality features
	Chocolate	2.04	0.13	0.02	–
	Orange juice	12.20	0.00	0.10	Sustainability features > quality features Sustainability features > no features

^a If the Levene test for variance homogeneity was significant ($\alpha = 5\%$) and thus evidence of heteroskedasticity was found, Welch's ANOVA was calculated.
In these two cases, no effect size η^2 was determined.

^b Differences between groups were tested using planned contrasts ($\alpha = 5\%$).

Source: Authors.