The Effect of Sustainable Packaging Communication on Perceived Brand Ethicality

Christina Nguyen
Oxford Brookes University
Maheshan De Silva Kanakaratne
Oxford Brookes University

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Abstract:

This paper examines if sustainable packaging cues; material and ecolabel; can trigger perceived brand ethicality using a 2x2 experiment on breakfast cereal brands in Germany. Material was found to be a significant predictor for (1) perceived sustainability and (2) perceived brand ethicality. The second interaction was moderated by average and high environmental concern and, contrary to prior research, mediated by perceived packaging attractiveness. Ecolabel had a smaller impact on perceived sustainability and none on perceived brand ethicality. Extending prior research, demographics and social desirability bias were included as covariates. The findings contribute to the limited research on sustainable packaging cue effects and the discourse of multiple cue combination.

Keywords: sustainable packaging, perceived brand ethicality, cues

Track: Advertising & Marketing Communication

1. Introduction

Unsustainable packaging harms the environment at every step of its life-cycle, contributing to climate warming and marine pollution (Chamberlain & Timney, 2018). Consumers, increasingly aware of this, are willing to adjust their own behaviour but equally demand the industry to act (Kirienko & Schreiber, 2021). Brands that commit sustainably usually search for ways to communicate their efforts and establish an ethical brand image. At the point of purchase, packaging represents an essential brand communication tool delivering its own environmental friendliness. Thus, brands often rely on packaging cues as heuristics for consumers when making purchase decisions (Herbes, Beuthner, & Ramme, 2020). However, there is limited research on how eco-friendly packaging cues affect brand image, particularly perceived brand ethicality (PBE) (Magnier & Schoormans, 2017). This study intends to address this research gap and examines how selective sustainable packaging cues affect German consumers' perceptions of breakfast cereal brands' ethicality.

2. Literature Review

2.1 Perceived brand ethicality

Brunk (2010, 2012) was one of the first to conceptualise and create a measurement for consumer perceived ethicality of organisations, which has been applied in studies, including more recent ones (Das, Agarwal, Malhotra and Varshneya, 2019) as perceived brand ethicality (PBE). Beyond commonly measured general attitudes towards corporate ethics, the PBE scale evaluates experiences of specific situations based on the motivations for ethical behaviour according to the philosophy of morals (Brunk, 2010). Several scholars, including Das, Agarwal, Malhotra & Varshneya (2019), found PBE to affect brand trust, affection, loyalty, perceived quality, and purchase. Brunk (2010) named six sources for PBE, including an organisation's engagement with the environment, e.g., by recycling or searching for alternatives. This perceived environmental-friendliness could lead to (perceived) ethical behaviour. Thus, sustainable packaging as a form of eco-friendly behaviour can be considered an antecedent of PBE, but existing knowledge is lacking (Magnier & Schoormans, 2017).

2.2 Sustainable packaging cues

Since sustainability is a credence attribute, difficult to verify even after use (Herbes, Beuthner, & Ramme, 2020), cues can create communicational heuristics making sustainability (more) tangible. These cues must be trustworthy, yet, not necessarily adequate – it is more

important what consumers perceive and believe (Herbes, Beuthner, & Ramme, 2020). Research suggests that the visual impression of paper material alone is enough to enhance perceived sustainability and packaging/product ratings (Magnier & Schoormans, 2015, 2017). However, there has been limited research on whether sustainable packaging influences PBE (Magnier & Schoormans, 2017). From a brand communication perspective, consumers must first decrypt that the packaging is sustainable (Herbes, Beuthner, & Ramme, 2020). It was found that consumers thereby preferably rely on visual cues, especially the visual impression of the material (Magnier & Schoormans, 2015, 2017) and the implications of the packaging's beginning-of-life; i.e., the applied raw material, or end-of-life attributes; i.e., whether the material is compostable, biodegradable or reusable (Herbes, Beuthner, & Ramme, 2020). The perceived sustainability must then lead to consumers perceiving a brand as being ethical. This is because eco-friendliness could lead to greater PBE (Brunk, 2010). This is supported by Magnier and Schoormans (2017), who found packaging with material-colour combinations that were perceived as eco-friendly to have higher PBE ratings than those considered unsustainable. Therefore, it is hypothesised that:

H1: PBE will be higher if the packaging material is perceived as sustainable.

However, other researchers found that (German) consumers primarily rely on labels to identify a packaging's sustainability (Herbes, Beuthner, & Ramme, 2020). This is because Germans highly trust environmental institutions (Rubik & Frankl, 2005), who, by awarding the label, approve the corporate sustainability claim. Furthermore, "recycled material", which consumers especially care for when judging a packaging's sustainability, is not a cue but an attribute that is perceived via other cues such as a recycling label (Herbes, Beuthner, & Ramme, 2020). Thus, ecolabels, as another essential visual cue for a packaging's eco-friendliness, should influence PBE, and it is hypothesised that:

H2a: PBE of packaging with conventional material will be higher with an added ecolabel.

However, the findings on the effect of multiple cues are ambiguous: While labels can enhance perceived product quality and naturalness of packaging with unsustainable material, cue contradiction, negative cues and material as an intrinsic packaging cue can overshadow the positive effect of extrinsic ecolabels (Kukar-Kinney & Xia, 2017; Magnier, Schoormans, & Mugge, 2016). Nevertheless, the agreement is that accumulating cues has no effect since it does not increase consumers' moral satisfaction (Magnier, Schoormans, & Mugge, 2016; Steenis, van der Lans, van Herpen, & van Trijp, 2018). Therefore, an ecolabel on packaging with sustainable material should have no significant effect on PBE. Thus, H2a is extended by:

H2b: PBE of packaging with sustainable material is unaffected by an added ecolabel.

The level of environmental concern (EC) is often found to moderate the effect of sustainability cues, as it influences the degree of interaction with and, thus, the effect of sustainability cues: Consumers with a higher degree of EC (HEC) would engage more with the presented ecological information/design, whereas those with low EC (LEC) are instead pressured by social norms to conform; they engage less with sustainability cues and, thus, are less sensitive to and affected by those (Magnier & Schoormans, 2015).

Similarly, packaging's attractiveness is found to impact consumers' expectations about and evaluation of a product and its sustainable alternatives (Magnier & Schoormans, 2017). In support, Szmigin, Carrigan and O'Loughlin (2007) describe aesthetics as part of brand ethicality. Thus, both EC and attractiveness may moderate the effect of sustainable packaging on PBE, or more formally:

H3: HEC reinforces the effect of (a) visually presented packaging material and (b) ecolabels on PBE.

H4: Packaging attractiveness reinforces the effect of (a) visually presented packaging material and (b) ecolabels on PBE.

As the degree of EC influences the level of interaction with packaging cues, this could affect consumers' perception of the packaging as a whole and, as a subset, the packaging's attractiveness. In fact, Magnier and Crié (2015) argue that consumers with HEC are more open-minded towards eco-friendly designs. Therefore, it is hypothesised that:

H5: HEC leads to higher attractiveness ratings of packaging with (a) visually presented sustainable packaging material and (b) ecolabels.

3. Methodology

A between-subjects, 2 (sustainable vs unsustainable material) x 2 (ecolabel vs no label) experiment with German participants above 18 years as sustainably mature and economically strong consumers was performed (Herbes, Beuthner, & Ramme, 2020). Data were collected through self-administered online questionnaires, and the sample was generated via self-selection and snowball sampling. Pilot and pre-testing confirmed the robustness of the items.

The study used muesli as an exemplary, frequently-purchased, low-involvement consumer goods, for which packaging protection and preservation is indispensable (MarketLine, 2021). Following Magnier and Schoormans' (2015, 2017) approach, the real but locally unfamiliar British brand "Mornflake Mighty Oats" was used to stay close to field

settings without bias by brand familiarity. Since Germans perceive plastic as least and brown paper as most sustainable (Herbes, Beuthner, & Ramme, 2020), they were chosen for the stimuli. Markedly, material is inseparable from colour, yet, the latter is not the focus of this study. Hence, the stimuli used one of the natural paper colours (brown) and a similar subtle shade without known eco-friendly nor unsustainable connotations (yellow) for plastic (Herbes, Beuthner, & Ramme, 2020). Finally, The Green Dot was selected as the representative ecolabel because it is commonly known in Germany and perceived as an indicator for sustainable packaging waste management (Herbes, Beuthner, & Ramme, 2020). The stimuli were numbered with *S1* = plastic without ecolabel, *S2* = paper without ecolabel, *S3* = plastic with ecolabel, and *S4* = paper with ecolabel.

The perceived sustainability of the material was examined via two items by Magnier and Schoormans (2015, p. 56) ("This packaging is eco-friendly" and "This is a good example of an environmentally friendly packaging"). PBE was measured via Brunk's (2010) six-item scale and EC through the New Ecological Paradigm by Dunlap, Van Liere, Mertig and Jones (2000) and shortened by Cruz and Manata (2020). The measure for attractiveness was adapted from Magnier and Schoormans (2017), who applied four items from Bell, Holbrook and Solomon's (1991) scale for aesthetic responses towards a product design in a sustainable packaging context. Six-point Likert scales were applied for all questions (with 1 = strongly disagree, and 6 = strongly agree). Brand familiarity and the sample were controlled via self-formulated filter questions. Finally, demographics and social desirability bias (SDB) were measured, the latter using the Marlow-Crown Social Desirability scale shortened by Fischer and Fick (1993). Data analysis was adjusted for these as covariates that possibly affect (EC) measurements, which has been neglected in prior studies (Magnier and Schoormans, 2015, 2017), even though questions on EC are sensitive to SDB (Roxas & Lindsay, 2012).

4. Findings and Discussion

4.1 Sample and manipulation check

The 210 valid responses (M_{age} = 32.53, SD_{age} = 12.75, 66.18% female and 0.97% third-gender/non-binary participants) were almost equally distributed across the four stimuli (n_{S1} = 55, n_{S2} = 53, n_{S3} = 51, n_{S4} = 51). Compared to data from the Federal Statistical Office and possibly due to the sampling method, the sample was slightly skewed towards a young, female, well-educated, German-born audience.

An EFA established five factors; *Sustainability* (Cronbach's α = .93), *PBE* (α = .91), *EC* (α = .77), *Attractiveness* (α = .91), and *SDB* (α = .53, inter-item correlation = .22; corrected

item-total correlations between 0.2-0.4). Two SDB items were removed due to critical factor loadings below 0.4; the remaining basic assumptions were met.

The stimuli manipulation was evaluated via t-tests (Welch-test for heteroscedasticity). The basic assumptions were met. The manipulation of the material was considered successful because mean ratings for plastic (M_{S1} = 2.46, SD_{S1} = .92) were considerably lower than those for paper (M_{S2} = 4.06, SD_{S2} = 1.26), $t(95.762)$ = -7.489, p < .001, $|d|$ = 1.448 (Levene's test p = .04). The ecolabel did not significantly increase perceived sustainability of paper packaging, $t(102)$ = -0.46, p = .65, and only impacted plastic at an average effect size, $t(104)$ = -3.01, p = .003, $|d|$ = 0.59. However, the Green Dot was named the primary indicator for considering the plastic packaging S3 as sustainable. Nevertheless, S3 was still perceived less sustainable than the paper packaging without the label, $t(102)$ = 2.33, p = .02, $|d|$ = 1.04, indicating that material had a greater effect on perceived sustainability than the ecolabel.

4.2 Hypothesis testing of the main effect

H1 and H2 were tested via an ANCOVA that adjusted for the participants' age, gender, general and vocational education level, duration of German residency in relation to the participant's age, and SDB as covariates. The basic assumptions were met, and following Howell (2009), the categorical nature of some covariates was accepted. Unadjusted PBE for plastic (M_{S1} = 3.39, SD_{S1} = .76) was lower than for paper (M_{S2} = 3.95, SD_{S2} = 1.03) and plastic with an ecolabel (M_{S3} = 3.55, SD_{S3} = .7). PBE for paper with an ecolabel (M_{S4} = 3.68, SD_{S4} = .9) was lower than without. The ANCOVA detected a significant between-group difference, even after adjusting for covariates, $F(3,181)$ = 3.52, p = .002, partial η^2 = .06. The Bonferroni-corrected post hoc test confirmed the significant divergence only between S1 and S2, p = .01, $MDiff$ = -.557, 95%-CI[-1.02;.09]. Therefore, H1 and H2b are supported, whereas H2a is not, meaning material affects PBE whereas ecolabels do not, independent of the material.

The results confirm Magnier and Schoormans' (2017) findings with new material-colour combinations, industry, and market. Conversely, the marginal effect of eco-labels contradicts prior research (Herbes, Beuthner, & Ramme, 2020). Compared to material, the ecolabel was a less appropriate message carrier for sustainability and PBE. The marginal effect ecolabel had on perceived sustainability possibly decreased when converted to PBE until it was unnoticeable. Consumers might interpret using the Green Dot as abiding by recycling laws instead of acting voluntarily and ethically. Recycling could be a hygiene factor for PBE, and the positive effect of material might root in its ability to (additionally) communicate PBE motivators like the active search for sustainable alternatives (Cohn, 2010). Supporting prior

research (Kukar-Kinney & Xia, 2017; Magnier, Schoormans, & Mugge, 2016; Steenis et al., 2018), accumulating sustainability cues, especially by adding an extrinsic cue and possibly overcommunicating sustainability, did not increase their impact but decreased PBE. Contradicting cues, as in S3, might have decreased packaging and brand affection (Magnier and Schoormans, 2015), affecting brand image and PBE.

4.3 Hypothesis testing of the moderation effect

To examine H3, H4, and H5, moderation regression analyses were performed using model 1 in Hayes' PROCESS v.3.5 macro. To compute confidence intervals and offset possible non-normality of residues and heteroscedasticity as possible, bootstrapping with 5000 samples and heteroscedasticity consistent standard errors (HC3, Davidson-MacKinnon) were applied. The conditional values for the moderators were split into mean and ± 1 SD, and mean-centering was employed to ease interpretation. If not stated differently, the reported analyses included covariates, as interpretation was similar with and without covariates.

The moderation model of EC (M = 5.12, SD = .71) on the interaction of material and PBE was significant, R^2 = 17.47%, $F(9,91)$ = 3.08, p = .03. Material was a significant predictor of PBE, b = .54, $t(91)$ = 2.76, p = .007. and a considerable moderating effect of EC was observed, $F(9,91)$ = 3.96, p = .0495, 95%-CI[.01,1.15]. The Johnson-Neyman-Plot revealed that the conditioned effect of material on PBE became significant with p < .05 for EC ≥ 4.98, i.e., for participants with medium and high EC. H3a was therefore supported.

Other moderation analyses turned out insignificant. Without any main effect of ecolabels, no moderation of EC (H3b) nor attractiveness (H4b) was observed. Furthermore, EC did not predict attractiveness significantly, neither in the model with ecolabel, b = .33, $t(85)$ = 1.22, p = .23, nor material, b = -.13, $t(91)$ = -.53, p = .59. Thus, H5a and H5b were not supported.

Finally, there was no significant moderation effect by attractiveness on the interaction between material and PBE, ΔR^2 = .39%, $F(1,91)$ = .37, p = .53, 95%-CI[-.26,.47]. Thus, H4a was not supported. However, attractiveness was a significant positive predictor of PBE, p = .001, indicating that attractiveness might be a mediator. Perceived attractiveness can root in the product style (Bell, Holbrook and Solomon, 1991), which could include material in the case of packaging. To test the revised hypothesis, a mediator analysis was employed using model 4 within the PROCESS v3.5 macro, including bootstrapping with 5000 samples and heteroscedasticity consistent standard errors (HC3, Davidson-MacKinnon). Again, the effect of material on PBE was observed, b = .52, p = .003. After including the mediation in the model, material predicted attractiveness significantly, b = .52, p = .02, which in turn predicted

PBE significantly, $b = .29$, $p < .001$. The mediational effect of attractiveness was supported as assessed by the confidence intervals, indirect effect $ab = .15$, 95%-CI[.03,.29]. This identifies material beyond its communicating function as an additionally aesthetic cue. It contradicts previous studies' practice of including attractiveness as a covariate (Magnier & Schoormans, 2015, 2017; Magnier, Schoormans, & Mugge, 2016) and provides a new research approach.

5. Conclusion

5.1 Theoretical contributions

The findings confirm the effect of material on PBE (Magnier and Schoormans, 2017) with new material-colour combinations, industry, and market. Beyond prior studies, it considered demographics and SDB as covariates and specified EC as a moderator and attractiveness as a mediator. The marginal effect of eco-labels contradicted prior research (Herbes, Beuthner, & Ramme, 2020) and confirmed the ineffectiveness of accumulating cues (Magnier, Schoormans, & Mugge, 2016) and the negative brand impact of incongruent cues (Magnier and Schoormans, 2015).

5.2 Managerial implications

The findings affirm that brand managers must pick suitable sustainability and ethicality cues carefully. Brown, fibre-based material should be preferred for its substantial impact on PBE and perceived sustainability, especially on a growing consumer group with HEC (Kirienko & Schreiber, 2021), moreover for its aesthetic influence. However, practitioners should be mindful of consumers' awareness of greenwashing and consider multiple brand touchpoints (Kirienko & Schreiber, 2021). Finally, combining multiple cues is not necessarily advocated for it having none or adverse effects.

5.3 Limitations and future research

This study contributed to the limited, timely research of sustainable packaging. However, it is acknowledged that there were some limitations to the study, firstly, due to the voluntary sampling method, laboratory nature, and cue, brand, industry, and market/cultural focus. Furthermore, the study considered selected demographic characteristics as covariates. Future research could expand in this regard, moreover, examine communication disruptors, cross-cultural contexts, and other sources of PBE.

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