A meaningful reminder on sustainability: when explicit and implicit packaging cues meet.

Giulia Granato
Wageningen University
Arnout Fischer
Wageningen University
Hans Trijp
Wageningen University

Cite as:
Granato Giulia, Fischer Arnout, Trijp Hans (2022), A meaningful reminder on sustainability: when explicit and implicit packaging cues meet.. *Proceedings of the European Marketing Academy*, 51st, (105699)

Paper from the 51st Annual EMAC Conference, Budapest, May 24-27, 2022

A meaningful reminder on sustainability: when explicit and implicit packaging cues meet.

Sustainable packaging innovations are becoming increasingly available in the marketplace. However, their communication to consumers remains a challenging task, as neither their distinctiveness nor their higher sustainability level is recognized. Contributing to research in environmental psychology, the current work conceptualized and tested the new concept of meaningful reminder as a strategy to communicate such distinctiveness and higher sustainability. To understand how a meaningful reminder can be created and used, this research investigated how eco explicit (logos, labels and statements) and implicit packaging design cues (auditory, tactile and visual elements) combine and interact and how such a combination can be used to the advantage of sustainability, to increase sustainability salience, perception and sustainable disposal behavior of the packaging and its content. Across three lab studies and different measures (lexical decision task, thought listing task, self-reported scales and observations of consumers' disposal behavior), we identify the conditions under which combining explicit and implicit cues can be counterproductive, not leading to any increase or even a decrease in sustainability salience and perception. However, under different conditions, we show how sustainability salience, perception of packaging sustainability and even consumer sustainable disposal behaviour can be positively affected.

sustainability communication, sustainability perception, sustainable behavior.

Track: Consumer behavior

1. Introduction

With the increasing demand for more sustainable production and consumption patterns (Esslinger, 2011; Peattie & Peattie, 2009), sustainable packaging technologies are rapidly becoming available in the marketplace (Boz et al., 2020; Guillard et al., 2018). These new eco-alternatives, such as biobased, biodegradable, compostable or recycled materials often come with different sensory properties compared to the conventional plastic, such as a different sound, opacity level, tactile sensation or look (Guillard et al., 2018; Sirviö et al., 2013). For the fear that consumers might not accept these different sensory cues (Simmonds & Spence, 2017), it is common practice, among packaging designers, to develop sustainable packaging's that resemble as much as possible the conventional ones (Guillard et al., 2018; Sirviö et al., 2013). As a result of this "imitation practice", consumers are often unable to recognize the newness and distinctiveness of the new packaging, perceive it as sustainable and dispose it accordingly (Magnier & Schoormans, 2015).

The current research conceptualizes and tests the new concept of *meaningful reminder*, as a strategy to improve the sustainability communication of eco (packaging) innovations. We argue that to be properly recognized (in terms of distinctiveness and improved sustainability) eco-packaging innovations need to include an optimal combination of design elements that function as a *reminder*, disrupting from consumers' automated behavior as reflected in routines and habits, and reminding the distinctiveness and newness of the packaging and, additionally, as a *meaning provider*, re-storing the cognitive flow by conveying the intended meaning (sustainability). In order to investigate how such a meaningful reminder can be created, a deep understanding of how diverse packaging design elements combine and interact in affecting sustainable responses and their underlying psychological processes is essential, as increasingly advocated in the environmental psychological literature (Bamberg, 2003; Carrus et al., 2008; Koenig-Lewis et al., 2014).

Although prior research has largely investigated how single (eco) packaging design elements affect consumers' responses (Ampuero & Vila, 2006; Creusen & Schoormans, 2005; Hultén, 2011; Pancer et al., 2017), either through an informational route or through an inferential belief formation route (Fishbein & Ajzen, 1977; Steenkamp, 1990), it has rather overlooked how eco explicit and implicit design cues combine and interact in affecting consumers' responses regarding sustainability (Orth & Malkewitz, 2008). Existing literature brings forward conflicting perspectives in this regard. On the one hand, building on the traditional

psychological research (Eagly & Warren, 1976; Maddux & Rogers, 1980; Petty & Cacioppo, 1984), we could assume that the combination of eco explicit and implicit (sensory) cues would increase the amount of arguments to think about and so the persuasive impact of the packaging (so more is more). On the other hand, drawing from the theory on the embedding effect, suggesting that that items may be valued more highly when presented singularly than when they are combined (Cummings, 1986; Kahneman & Knetsch, 1992; Mitchell et al., 1989), we could assume that combining explicit and implicit cues would not create any additive effect, not necessarily leading to an increase in consumers' responses regarding sustainability (Irwin & Spira, 1997) (so more is not more). On a more extreme position, research on "green consumer confusion" or "green skepticism" (Aji & Sutikno, 2015; Magnier & Schoormans, 2015; Mitchell et al., 2005) have supported the idea of the "more is less" that the combination of explicit and implicit design cues might even have a backfire and counterproductive effect.

The present research has the interrelated aims of 1) providing more clarity on the controversial effect of the combination of eco implicit and explicit packaging cues, and 2) exploring how such a combination can be used to promote sustainability, through what we coin as " a meaningful reminder". To do so, the following research questions are addressed: *"How do eco implicit and explicit packaging design cues combine and interact in affecting sustainability salience, perception and sustainable disposal behavior?"* and *"How can this combination of implicit and explicit design cues be used to create a meaningful reminder, as a strategy to enhance sustainability communication?*

2. Methodology overview

Five studies (three main studies and two replications) were conducted in a lab controlled setting. Sustainable food packaging technologies (with or without implicit/explicit cues) were developed as mock-ups for the purpose of this research (within the European project MYPACK, in collaboration with different packaging and food companies across Europe) and presented to the respondents (non-student sample) who were asked to interact with them as much as possible (touch the packaging, look at them carefully, hold them in their hands).

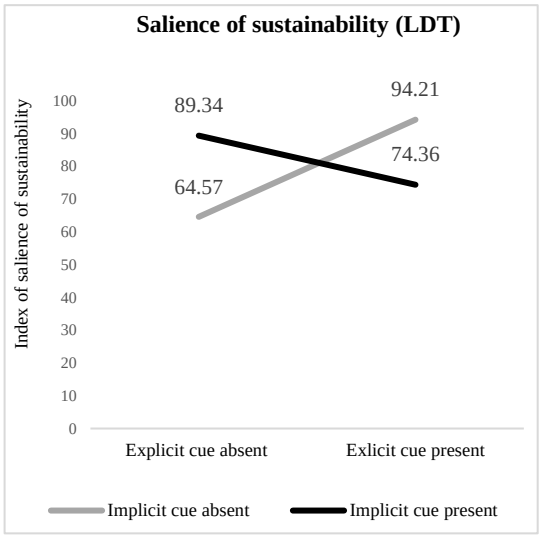
In study 1 (2x2 between subject design), we tested the general phenomenon, whether the combination of explicit and implicit design cues increases or decreases sustainability salience and sustainability perception of the packaging provided. After having provided evidence on this phenomenon both with an implicit (lexical decision task) and explicit method (thoughts

listing task, previously used by e.g. Edell & Keller, 1989; Shiv et al., 1997; Shiv & Fedorikhin, 1999) (study 1a), we replicated the findings with different stimuli (study 1b and study 1c). In study 2 (6x2 mixed design), we tested whether the general phenomenon might depend on the implicit cues provided: some sensory cues (e.g. green color, kraft paper material) might already (implicitly) signal sustainability to consumers, holding existing associations with nature and environment. These cues might be already "meaningful" by themselves. Thus, in this case, the addition of explicit cues, explaining the packaging technology/material, might not be needed and lead to no increase in sustainability salience and perception. Other sensory cues, instead, might not have any sustainability related association yet and so might be unable to activate a sustainability related construct in consumers' mind, unless their meaning is "loaded". In this case, the addition of an explicit cue to a "meaningless" implicit cue might actually benefit sustainability salience and perception. In study 3 (2x3 mixed design), we tested whether the general phenomenon might depend on the explicit cues provided and, specifically, on their ability to actually load a meaning to the (meaningless) implicit cue. In addition, study 3 tested whether the combination of implicit and explicit cues might have an effect beyond salience and perception, on actual consumers' disposal behaviour of the packaging.

3. Results

The results of the study 1 showed that the combination of explicit cues (e.g. verbal claim to explain the sustainability of a new recycled/biodegradable/compostable/biobased packaging material) and implicit sensory cues (e.g. tactile sensation of the material) might actually harm the communication of sustainability.

The results of a lexical decision task (LDT) (to measure the activation of the sustainability construct) showed that consumers had faster reaction times when they were primed with packaging containing only explicit or implicit cues (rather than with the combination of both cues). This indicated that the combination of implicit and explicit cues might actually decrease salience of sustainability (picture on the right). Similar results were obtained when salience of sustainability was measured through a thoughts listing task (self-reporting task).

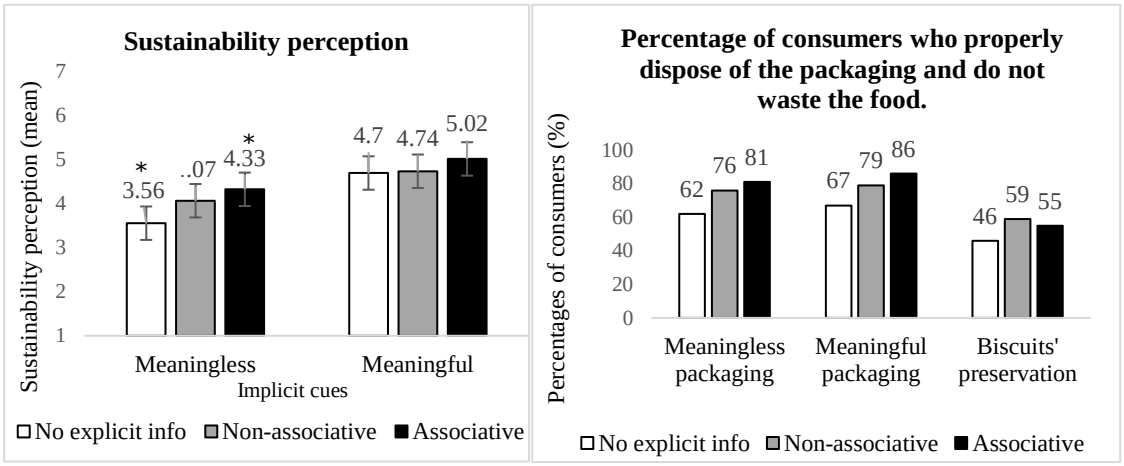


In addition, the combination of explicit and implicit cues significantly decreased perception of sustainability, as well. Results were replicated with different stimuli in study 1b and 1c and similar results were obtained. Results of study 2 re-confirmed the general phenomenon, demonstrated in study 1. In addition, study 2 showed that differences exist between different sensory cues: some sensory cues such as a green colour and natural looking of the packaging material are perceived as more sustainable then others, i.e. a packaging with a loud sound (PLA) or different touch feeling. This suggest that some cues are more able to implicitly communicate sustainability already by themselves (they are meaningful), while other implicit cues can benefit from the addition of an explicit cue that might load them with a meaning. Therefore, the effect of the combination of explicit and implicit cue on sustainability perception of the packaging depends on the implicit cues provided (meaningful/meaningless).

Study 3 showed two main additional results: first, the effect of the combination of explicit and implicit cues on sustainability perception depends on the ability of the explicit cue to load a meaning to the meaningless implicit cue. If the explicit cue (a verbal message explaining the sustainability of the packaging) is associative, so able to create a link between the different sensory properties and its sustainability, (e.g. “Recycled packaging can come with different sensory properties, such as a different touch, sound..”) then such a combination is effective. Adding an explicit cue to a meaningless implicit cue can significantly increase sustainability perception. No effect was observed with an already meaningful implicit cue. If instead, the

explicit cue is non associative, so explain the sustainability of the packaging in generic terms (e.g. " this packaging is made of recycled material"), not creating any link between the different sensory property and the higher sustainability of the packaging, then combining an explicit with an implicit cue does not lead to any increase in sustainability perception.

Second, study 3 measured actual consumers' disposal behaviour of the packaging (consumers were unaware to be observed). The results showed that the addition of an associative explicit cue not only affect sustainability perception but also the actual disposal behaviour: more consumers disposed the packaging in a sustainable way (separating the paper from the plastic part, instead of throwing the paper and the plastic in the same bin) when they were provided with associative explicit cues, so able to create a link between the different sensory properties and its sustainability (compared to when they were provided with non-associative and none explicit cues).



4. Discussion and research implications

The current research conceptualized and tested the new concept of meaningful reminder as a strategy to improve sustainability communication. To understand how such meaningful reminder can be created and used, this study investigates how cues combine and interact in affecting consumer sustainable responses. Across three studies and two replications (for study 1), we showed how explicit and implicit packaging design cues can be used to the advantage of sustainability, increasing sustainability salience, perception and sustainable behaviour.

The effect of the combination varies depending on whether implicit cues are inherently meaningful or meaningless and whether explicit cues can load a meaning to the meaningless reminder, when this is missing. Our results show that combining explicit cues to an already

meaningful implicit cue can be counterproductive, not leading to any (or substantial) increase or even a decrease in sustainability salience and perception. In other words, more cues lead to lower levels of sustainability ("more is less" or "more is enough"). This result supports prior research suggesting that the demand for external information decreases when information about a product is already present in consumers' mind (Schmidt & Spreng, 1996; Vos, 2017), as in the case of meaningful cues with a priori sustainability association. These findings are also in line with research on green confusion, green skepticism and green washing indicating that an overload of "green" information can lead consumers to question the real environmental efficiency and to perceive the product as less sustainable (Aji & Sutikno, 2015; Magnier & Schoormans, 2015; Mitchell et al., 2005).

Combining explicit cues to a meaningless implicit cue can increase sustainability salience, perception and even sustainable disposal behavior of the packaging. In other words, more cues contribute to sustainability. This depends on the ability of the explicit communication to create an association between the meaningless implicit cue (e.g., a different packaging sound) and the higher level of sustainability. In this case, the combination of design elements creates a meaningful reminder: the explicit information provides a reason (sustainability) to believe and understand the distinctive sensory properties that, thus, become meaningful. Vos (2017) similarly suggested that the effectiveness of sustainability claims depends on the extent to which they explain (or make understandable) packaging sustainability. Claims without such explanation were considered less credible and required a higher level of trust from consumers (Vos, 2017). Similarly, we showed that combining non-associative explicit information makes consumers more skeptical and doubtful about the sustainability of packaging, interpreting such combination as "too much to be true" or harmful for the actual sustainability.

Our findings contribute to research in environmental psychology, innovation and product design by addressing the controversial perspectives on the interaction between explicit and implicit communication and its effect on sustainability. To our knowledge, this is the first (publicly available) research to systematically study how explicit and implicit cues combine and interact in affecting a different range of sustainable responses, such as sustainability salience, perception and sustainable behaviour. We demonstrate the conditions under which such combination of cues can increase, leave unaffected or even decrease sustainability, adding clarity to a phenomenon with conflicting perspectives.

Contributing to the research in communication strategies and new product design, this paper conceptualizes and tests the new concept of meaningful reminder. Such a concept encompasses what an innovation should have to be recognized and understood as intended: a reminder and a meaning provider. Our findings show how such meaningful reminders can be created, as a one-step or two-steps process, depending on whether the "automatic flow of business as usual" is disrupted (through the reminder) and re-stored (by providing a meaning) through a meaningful reminder (one-step) or by combining a meaningless reminder with an explicit cue that transfers the intended meaning (two-steps).

The current work also adds to the understanding of the inferential and informational processes in packaging belief formation, relevant to sustainability communication within and beyond the packaging domain (Koenig-Lewis et al., 2014; Magnier & Schoormans, 2017; Steenis et al., 2017; Vos, 2017). Our focus on the interaction effect contributes to this literature that has mainly studied these processes separately, based on single implicit and explicit cues (Chan & Lau, 2004; Steenis et al., 2017).While previous studies investigated how informational beliefs are formed through on-packaging cues, as logos and labels (Rettie & Brewer, 2000), our research shows similar effects with external information provided by an authoritative third-party, suggesting that explicit communication works regardless of the channel.

Last, our research provides contributions to environmental psychology and eco- design by exploring the linkage between packaging design and sustainable behavior. Prior studies have often overlooked this phenomenon, predominantly focusing on pre-purchase stages (Lindh et al., 2016; Magnier & Schoormans, 2017; Steenis et al., 2018; Steg et al., 2013) and missing real life set-ups (Borgman, 2018). The current study demonstrates an effect on sustainable behavior, both in terms of disposal of the packaging and sorting.

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