



## Consumers' choice-blindness to ingredient information



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### ABSTRACT

Food manufacturers and policy makers have been tailoring food product ingredient information to consumers' self-reported preference for natural products and concerns over food additives. Yet, the influence of this ingredient information on consumers remains inconclusive. The current study aimed at examining the first step in such influence, which is consumers' attention to ingredient information on food product packaging. Employing the choice-blindness paradigm, the current study assessed whether participants would detect a covertly made change to the naturalness of ingredient list throughout a product evaluation procedure. Results revealed that only few consumers detected the change on the ingredient lists. Detection was improved when consumers were instructed to judge the naturalness of the product as compared to evaluating the product in general.

These findings challenge consumers' self-reported use of ingredient lists as a source of information throughout product evaluations. While most consumers do not attend to ingredient information, this tendency can be slightly improved by prompting their consideration of naturalness. Future research should investigate the reasons for consumers' inattention to ingredient information and develop more effective strategies for conveying information to consumers.

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## 1. Introduction

When it comes to food products, many consumers often report preferring natural products (Rozin et al., 2004), and assume that products based on natural ingredients without additives are healthier (Bredahl, 1999; Dickson-Spillmann, Siegrist, & Keller, 2011; Evans, de Challemaison, & Cox, 2010; Shim et al., 2011). In response food manufacturers have spent substantial efforts in tailoring the presentation of ingredient list information on food packaging with the underlying assumption that consumers infer the 'naturalness' of a food product by its ingredients. Similarly, policy makers have increasingly focused on providing objective information about the naturalness of ingredients in food products. Nonetheless, the effect that ingredient list information has on consumers remains unclear,

as there is a lack of scientific evidence demonstrating that consumers actually prefer products with more 'natural' ingredients. Accordingly, the first objective of the current study is to examine the degree to which consumers take the initial step to actually attend to ingredient information on food packaging. Contrasting the previously employed self-report measures, the novelty of this study is the employment of the choice-blindness paradigm (Johansson, Hall, Sikström, & Olsson, 2005) to investigate whether consumers pay attention to ingredient information on product packaging. Given consumers' limited attention to product labels (Grunert, Wills, & Fernández-Celemín, 2010), we furthermore explore whether the provision of subtle reminders could encourage consumers' attention to ingredient lists. By investigating the effectiveness of reminders to consider naturalness, the current findings are relevant for both policy makers and food manufacturers' efforts in enhancing consumers' consideration of ingredient list information.

### 1.1. Favoring 'natural' over 'unnatural' ingredients

While consumers report having a preference for more natural food (Rozin et al., 2004), it is unclear whether they actively seek out

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information to evaluate the 'naturalness' of different food products. Existing literature has mainly focused on examining consumers' use of ingredient list information on packaging for nutritional value (see [Grunert & Wills, 2007](#) for review), but not for deducing the naturalness of food products. In order to address this research gap, the current research adopts a novel approach by examining consumers' consideration of E-numbers on ingredient lists of food packaging. E-numbers, which are reference numbers given to identify food additives in the EU, (e.g., pectin is a gelling agent that is commonly used in jam and identified by the code E440), is a topic highly discussed in contemporary media and public discourse, as it captures the increasing trend amongst consumers for more 'natural' food products and concerns over food additives, as well as the responses of food authorities and food manufacturers ([Evans et al., 2010](#)).

While E-numbers were initially designed by the European Food Safety Authority to identify all food additives that have been extensively tested against potential health risks ([Van Dillen, Hiddink, Koelen, de Graaf, & van Woerkum, 2003](#)), ironically, consumers often associate them with undesirable, harmful, and unhealthy chemicals ([Evans et al., 2010](#); [Hoogenkamp, 2012](#); [McCarthy et al., 2007](#); [Varela & Fiszman, 2013](#)). Moreover, despite previous findings show that only a minority of consumers look at food labels for nutritional information ([Grunert et al., 2010](#)), manufacturers have been increasingly pushing for clean label products ([Bobe & Michel, 2011](#); [Hoogenkamp, 2012](#)), which are defined by being free of 'chemical' additives, having easy-to-understand ingredient lists, and being produced by use of traditional techniques with limited processing ([Edwards, 2013](#)). Indeed, between 2003 and 2012 the number of products with such clean labels has more than quadrupled universally ([Edwards, 2013](#)). In spite of all the initiatives taken to satisfy consumers' seemingly growing preference for more natural products, there is a pressing need for scientific evidence to justify these initiatives.

### 1.2. The validity of self-report measures

Previous studies have indeed reported negative attitudes towards additives and E-numbers ([Drichoutis, Lazaridis, & Naygar Jr., 2006](#); [Edwards, 2013](#); [Holm & Kildevang, 1996](#)), but the majority of these studies are based on self-report measures. There are of course observational studies investigating how consumers use information on packaging, yet these studies have focused on front of package or nutrition value information rather than ingredient lists that provide information on the naturalness of the ingredients ([Grunert, Fernandez-Celemin, & Wills, 2010](#)). However, self-report measures have been criticized for being vulnerable to task demands and social desirability influences, which result in low predictive power of reported attitudes for actual behavior ([Azjen & Fishbein, 2005](#); [Hebert, Clemow, Pbert, Ockene, & Ockene, 1995](#); [Vermeir & Verbeke, 2006](#)). Previous research has shown that, particularly in the realm of health, responses are assimilated towards the socially desired answer ([Herbert et al., 1995](#); [Klesges et al. 2004](#); [Kristiansen & Harding, 1984](#)) due to people's motivation to consider and present themselves as healthy individuals ([Bailis, Segall, & Chipperfield, 2003](#); [Lindeman & Stark, 1999](#); [Malhotra, 1988](#)). As such, using self-report measures that require participants to provide opinions to topics they do not have stable opinions about further increase the influence of strongly negative discourse, such as the media attention to food additives that has mostly framed food additives in terms of risks involved in consuming additives and the contamination of an otherwise natural product ([Evans et al., 2010](#)), to bias opinions and preferences ([Reed II, Wooten, & Bolton, 2002](#); cf. [Dijksterhuis, 2004](#)). Consequently, when opinions are spontaneously formed under the influence of such external sources it is not surprising that the resulting opinions do not correspond with behavior.

These issues suggest that product evaluations may depend on whether consumers are specifically asked about whether unnatural-appearing ingredients in the product are appreciated (i.e. where the consumer is directly pointed at the fact that the naturalness is the key factor in the evaluation) or whether consumers are asked to evaluate a product that comes with ingredient information but without the trigger to judge the product on its naturalness. For example, as shown by the study by [Noussair, Robin, and Ruffieux \(2001\)](#), self-reported negative attitudes toward genetically modified food did not translate into decreased purchasing of genetically modified food. On one hand, part of this lacking association could be explained by influences on the self-reports in terms of demand characteristics, social desirability, and self-concepts as discussed earlier. On the other hand, it may be that consumers genuinely hold concerns with genetically modified food, but at the actual point of purchase these negative perceptions and attitudes are not acted upon.

Accordingly, the current study aims to overcome these shortcomings of self-report assessments by firstly avoiding the direct reporting of attitudes on E-numbers and by manipulating the degree to which participants are guided towards including naturalness as a factor in their product evaluations. In order to achieve these ends the choice blindness paradigm is used in the current study.

### 1.3. The choice-blindness paradigm

It has recently been shown that people often fail to detect a mismatch between a previously expressed attitude and a (different) attitude they are subsequently presented with as their own, a phenomenon known as choice-blindness ([Johansson et al., 2005](#)). In this research paradigm participants are asked to make choices but are subsequently presented with the rejected option as being their selected option. Interestingly, participants often not only fail to detect the mismatch between their initial, actual choice and the presented choice, but they spontaneously confabulate reasons for having made the presented (never made) choice. The lack of detection of such a mismatch has been shown on various dimensions, such as attractiveness of faces, in which participants choose a more attractive face, and are subsequently asked to justify their choice of the originally not chosen other face ([Johansson et al., 2005](#)); product preference, in which participants firstly, do not detect a swap of their chosen product and, secondly, confabulate reasons for having chosen the product they never actually chose ([Hall, Johansson, Tärning, Sikström, & Deutgen, 2010](#)); as well as moral and political attitudes ([Hall, Johansson, & Strandberg, 2012](#); [Hall et al., 2013](#)). To illustrate a few examples of the low detection rate, from the aforementioned studies participants only concurrently detected 13% of the trials in which their chosen face had been changed ([Johansson et al., 2005](#)), demonstrated a 33% detection rate when the unchosen product was returned ([Hall et al., 2010](#)), and correctly identified 41% of the trials when their moral attitude ratings had been manipulated ([Hall et al., 2012](#)).

While these previous studies were designed to examine the stability of choices and attitudes, the current study employs the choice-blindness paradigm to investigate the attention to ingredient lists and its importance for product evaluation while overcoming the above-mentioned disadvantages of self-report assessments. The choice-blindness paradigm allows us to infer the degree of attention that is paid towards ingredient lists by presenting the participants with the supposedly same physical product, while in fact changing the ingredient information on the product. We infer that the participant would need to have initially looked at the ingredient list and processed the information to some sufficient degree before they could notice the discrepancy and detect the change on the manipulated ingredient list presented later on in the experiment.

Capturing these advantages of the choice-blindness paradigm,

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