



## Research report

## Impact of limited cognitive capacity and feelings of guilt and excuse on the endowment effects for hedonic and utilitarian types of foods



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## ABSTRACT

Consumer food choices may partly be explained by the endowment effect. Here, we focus on the influence of limited cognitive capacity on loss aversion related to food choices. We also investigate the effects of anticipated feelings on food choices. Experiments with 1614 pupils of secondary schools show that both cognitive constraint and anticipated feelings increases the overall endowment effect and that the impact of limited cognition is stronger for hedonic than for utilitarian food products.

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## Introduction

Several factors may cause consumers to make unhealthy food choices, e.g., discounting future health (Zhang & Rashad, 2008), thoughtlessly consuming food (Wansink & Sobal, 2007), and being influenced by social context and advertising (Hoek & Gendall, 2006; Seiders & Petty, 2004). This paper focuses on the effects of cognitive constraint, i.e., limited use of a consumer's cognitive resources, on food choices. By cognitive constraint, the analytic decision mode is impaired and the intuitive decision mode is favoured (Kahneman, 2011; Shiv & Fedorikhin, 1999). Cognitive constraint tends to reduce consumers' attention to the food choice process. Furthermore, limited working memory generally leads to more impulsive decisions (Hinson, Jameson, & Whitney, 2003). For example, several studies have shown that distraction during consumption resulted in higher food consumption (Boon, Stroebe, Schut, & Ijntema, 2002; Higgs & Woodward, 2009; Pothullil, 2002).

In addition to the environmental factors that influence consumer decisions, reluctance to change their food consumption might be caused by higher preference for goods in their endowment, leading to loss aversion. In general, due to loss aversion, consumers tend to keep a good in their possession rather than give it up for an alternative even if they did not select it themselves, a phenomenon indicated as the endowment effect (Kahneman, Knetsch, & Thaler, 1991; Knetsch, 1995, 2000). The endowment effect can be shown by reduced willingness to exchange a product in one's possession for an alternative product, as compared with a free choice between the products. Alternatively, the monetary

compensation demanded for the loss of a product in possession is generally higher than the amount one is willing to pay to acquire the product (Kahneman, Knetsch, & Thaler, 1990). Here, we will study the influence of cognitive constraint on the endowment effect for food products.

The endowment effect is relevant in situations where a food product is already owned (after purchase), where a food product is expected to be owned (e.g., in one's shopping cart), or when a mental predisposition to owning the product exists (e.g., from the habit of buying the good, or from a strong intention to buy the good, for example, because it is on the shopping list) (cf. De Groot, Antonides, Read, & Van Raaij, 2009; Knetsch & Wong, 2009). Here, we will study the influence of cognitive constraint on the endowment effect for food products.

The endowment effect may be different for hedonic and utilitarian types of goods (Cramer & Antonides, 2011). Consumption of hedonic goods can be characterized by an affective multi-sensory emotional experience, which is far more subjectively than objectively oriented (Batra & Ahtola, 1990; Hirschman & Holbrook, 1982; Strahilevitz & Myers, 1998). In the area of food, hedonic goods can be thought of as unhealthy type of food, or vices, since they provide immediate gratification but may be detrimental in the long run (Wertenbroch, 1998). Consumption of utilitarian goods is more cognitively driven, instrumental, and goal oriented than consumption of hedonic goods, and accomplishes a functional or practical task (Dhar & Wertenbroch, 2000). Utilitarian goods can be thought of as predominantly healthy types of food, or virtues, e.g., fruit. Hedonic goods are predominantly unhealthy types of food, or vices, e.g., snacks. Throughout this paper we used the utilitarian–hedonic distinction, which often coincides with healthy–unhealthy food types. However, in some cases utilitarian food

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types may not be classified as healthy, for example in the case of functional food, or certain weight loss diets. On the other hand, hedonic food types may not always classify as unhealthy, for example some types of smoothies, guacamole, pistachios, or low-percent Greek yogurt. However, the utilitarian–hedonic distinction is mostly gradual; most products cannot be classified as being entirely one type or the other but contain aspects of both types. Classifications may depend on product feature perceptions, which may be assessed empirically.

Specific decision processes may lead to explicit choices for goods with either predominantly utilitarian or predominantly hedonic aspects. Shiv and Fedorikhin (1999) found that a reduction of the consumer's cognitive capacity led to simplified decision processes and preference for hedonic types of food, but only if real alternatives were presented instead of pictures (Shiv & Fedorikhin, 2002). Cognitive constraint might therefore lead to a stronger preference for hedonic than utilitarian goods in choice situations because affective feelings rather than cognitive reasoning have a strong impact on consumer choices and decisions are made more intuitively. We expect that this effect also holds in the case of product ownership, thus affecting the endowment effect.

Furthermore, we investigate the possibility that anticipated feelings of guilt and excuse influence the endowment effect. Anticipated feelings have been shown to influence consumer choice (e.g., Baumgartner, Pieters, & Bagozzi, 2008; Mellers & McGraw, 2001; Okada, 2005) and may be associated with the possibility of considering the exchange of an endowment good as rejecting the experimenter's choice of good (Plott & Zeiler, 2007). When hedonic and utilitarian goods are presented together, the utilitarian alternative is chosen more frequently. Okada (2005) explains this fact by anticipated feelings of guilt when justifying a hedonic choice and by the difficulty of quantifying the benefits of hedonic goods. When a food product is already owned, we expect that feelings of guilt and excuse may arise if one switches to the alternative good, and that the effect is larger for hedonic than utilitarian food products.

## Methods

An experiment has been designed to test the influence of cognitive capacity on the endowment effect for different types of food among secondary school pupils. We believe this group is relevant for studying food choices because their preferences are already well-developed, they have access to pocket money for making small purchases, and they are likely to become family decision makers in the future. In this experiment we have studied consumer behavior with respect to choices between hedonic and utilitarian food products. The experiment was the second in a series of unrelated experiments conducted during two-hour economics classes at a number of secondary schools. The schools could apply for experimental practicals from a small university in the Netherlands aiming for improved familiarity of school staff with economic experiments in the classroom. The experiments were run by trained student assistants who visited the schools only once.

### Participants and products

A 2 (hedonic vs utilitarian product endowment)  $\times$  2 (high vs low cognitive constraint) between-subjects experiment was designed. We provided 1614 pupils, aged 16–18 years old at different secondary schools in the Netherlands with either a utilitarian food product (either a mandarin or an apple) or with a hedonic food product (either a Mars bar or potato crisps). When the experiment started it was announced that both goods were to be distributed arbitrarily in the classroom while the pupils were at their desks. Every other pupil obtained the one good and their neighbor the

other good on their desks. Pupils in a single classroom received either one of two goods from one of the following combinations (only one combination was used in a classroom): a mandarin combined with a Mars bar ( $N = 405$ ), a mandarin combined with potato crisps ( $N = 410$ ), an apple combined with a Mars bar ( $N = 527$ ), or an apple combined with potato crisps ( $N = 272$ ). These combinations were selected in order to study choices from different categories (both fruit and snacks) rather than from the same category (either fruit or snacks). The former type of choices may be more related to differential health effects than the latter type of choices. Product retail prices were approximately €0.13 for a mandarin, €0.23 for an apple, €0.45 for potato crisps, and €0.51 for a Mars bar.

Next, the participants each were given a number to recall, and then received a written questionnaire. In half of the classes participants were asked to remember a seven-digit number, thus reducing their cognitive capacity. Participants in the other half of the classes were asked to remember a two-digit number, not influencing their cognitive capacity. This method has been tested successfully in the literature (Gilbert, Giesler, & Morris, 1995; Gilbert & Hixon, 1991; Gilbert & Osborne, 1989; Shiv & Fedorikhin, 1999, 2002).

### Procedures

When distributing the goods among the pupils, it was simply announced that the good that they obtained was theirs to keep (the good was not indicated as a gift in order to avoid signaling effects, cf. Plott & Zeiler, 2007). The first item in the questionnaire actually asked which good was obtained. The questionnaire continued with the evaluation of ten aspects (rated on seven-point scales with both end points labeled), related to both goods, serving as a manipulation check concerning the hedonic value and utility of both goods (based on Cramer & Antonides, 2011). Next, the questionnaire presented the possibility of exchanging the good for the alternative product, and they were asked to indicate their choice of keeping the product or to exchange it for the other product (the choice was made individually, without other pupils being able to observe or influence the choice). Although pupils made their choices in private, participants might have expected others to become aware of their selection subsequently.

The questionnaire ended with the number recall and then several questions about the influence of cognitive load on their feeling of control and responsibility for the choice they had made: two items on responsibility for the choice made (adapted from Schoorman & Holahan, 1996), one item on control, one on influence, and one on feeling helpless (adapted from Cramer & Perreault, 2006), a question about feeling guilty (“I feel guilty when exchanging a given product for another product”), and a question about feeling excused (“Having been given the product is a good excuse to keep it”), all answered on seven-point Likert scales with end points labeled “disagree” and “agree.” The control and responsibility information served as a manipulation check of the number recall task and indicated whether subjects in the high cognitive load condition felt less in control when making their choice compared to the low cognitive load subjects concerned pupils' decisions to keep the food product that they had obtained or to exchange it for the other good that was handed out in the classroom. After finishing the questionnaire, exchange transactions were made with the testers.

## Results

### Manipulation checks

Table 1 shows the attitude judgements (on bipolar seven-point scales, with different end points for each scale, for example, “not tasty” and “very tasty”) regarding ten product attributes that

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