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Let's turn our heavy-weighted ecological footprint into a light-weighted one

A study on the potential of crossmodal correspondences in affecting consumer's choices for sustainable foods

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Abstract

Consumer's interest in sustainability is growing. Since the size of our ecological footprint has become one of the biggest problems in the world, consumers seem to be increasingly aware of environmental problems (Cherian & Jacob, 2012). Although they show a growing awareness of these problems, this seems not to be automatically translated into positive attitudes towards sustainability. Moreover, if consumers do have positive attitudes towards sustainability, they struggle in translating this into actual sustainable purchasing behaviour. To respond to this 'attitude-behaviour gap', this study attempted to investigate whether crossmodal correspondences may be a potential tool in evoking automatic sustainable purchasing behaviour among consumers. Crossmodal correspondences are systematic associations between certain (product) properties across our senses (Spence, 2011).

This study focuses on the effect of a products' weight and visual cue on quality perception, sustainability perception and purchase intention. Individual differences in need for touch were included in the experiment as well to find out to what extent people's differences in need for touch affected potential effects of weight and visual cue.

Results showed that heavy-weighted products were perceived as higher quality than medium-weighted products. Besides, products supplied with a neutral visual cue were evaluated as products of higher quality. However, this effect was only found for the lightweight condition and heavy-weight condition and depends on individual differences in need for touch. No effects of weight or visual cue were found on sustainability perception and purchase intention.

This study provides evidence for the relationship between a product's weight and perceived quality. More research in the domain of sustainability is needed to find well-suited strategies to overcome the attitude-behaviour gap that keeps consumers from making sustainable food choices.

1. Introduction

Today, our food consumption has become one of the main problems in the world (Reisch, Eberle & Lorek, 2013). The ecological footprint of a European consumer has been estimated at 4.87 hectares per person in 2013 (Global Footprint Network, 2013). As a result, sustainability has become a hot topic for governments, as well for food industries (Vermeir & Verbeke, 2006). Brands are also increasingly expected to operate in a sustainable way, which contributes to the increasing popularity of green marketing among marketers (Chamorro, Sergio Rubio & Miranda, 2009). Likewise, consumers' interest in sustainable food consumption and production is growing (Cherian & Jacob, 2012), but as it turns out, this does not necessarily mean that they have positive attitudes towards sustainable products. And if they do have positive attitudes towards sustainable products, it seems to be difficult for them to translate those attitudes into actual sustainable purchase behaviour (Young, Hwang, McDonald & Oates, 2010). This attitude-behaviour gap may be explained by the fact that human behaviour is mostly automatic (Aarts & Dijksterhuis, 2000). A potential strategy for brands to respond to automatic behaviour and to encourage automatic sustainable purchasing behaviour, is using heuristics.

This study investigates the potential of crossmodal correspondences as heuristic cues with the goal to affect people in an unconscious way in making sustainable food choices. Crossmodal correspondences are systematic associations between, for example, certain product properties (flavour, sound, material etc.) across our senses (Spence, 2011; Spence & Deroy, 2013). Those correspondences are able to trigger automatic associations that can affect product perceptions, evaluations and consumer's behaviour (Krishna, 2012). Although a lot of research has been done on crossmodal correspondences, only a small part of it has focused on associations in the sense of touch (Peck & Childers, 2003). As earlier research shows that weight affects perceived product quality (e.g. Piqueras-Fiszman & Spence, 2011), the current study focuses on the potential influence of a product's weight on sustainability perception, quality perception and purchase intentions. Additionally, the role of visual heuristic cues is investigated as well. In the next sections the concept of sustainability will be explained as well as the way in which brands may try to respond to the attitude-behaviour gap. Also, the concept of crossmodal correspondences will be explained and its potential role in helping consumers making sustainable food choices.

1.1. Sustainability

Sustainability is a process with the aim of realizing development that responds to human's requirements in their needs and ambitions without causing damage to economic, environmental and social resources and without reducing accessibility of those resources for future generations (WCED, 1987, p.43). To achieve sustainable development, it is important to develop strategies which focus on economic growth and on preventing environmental issues and social issues (World Bank, 2003, p.1). Products are considered sustainable if they contribute to at least one of these three aspects (Maxwell & Van der Vorst, 2003; Reheul, Mathijs & Relaes, 2001).

Since brands are increasingly expected to operate eco-friendly, environmental marketing or 'green marketing' gains popularity among marketing academics and practitioners (Chamorro, Sergio Rubio & Miranda, 2009). Green marketing encloses all actions designed to improve and support exchanges intended to meet human needs and desires with minimal harmful consequences for the environment (Polonsky, 2011). Concretely this means for brands to implement their marketing in a 'green' way by green positioning (e.g. considering the firms' environmental values and behaviour), green pricing (e.g. higher prices for products in exchange for less environmental harm), green logistics (e.g. reducing the amount of trucks by developing smaller and lighter packages to distribute more products at the same time), marketing waste (e.g. reducing waste or developing recycling strategies), green promotion (e.g. the way in which a brand communicates about its green marketing) and green alliances (e.g. getting help from alliances in implementing green marketing) (Polonsky & Rosenberger, 2001).

However, sustainability not only involves performance of brands, consumers also show an increasing awareness of environmental problems (Cherian & Jacob, 2012). Interestingly, consumers' increasing awareness of the importance of sustainability is not obviously translated into positive attitudes towards sustainable products. Research has shown that generally only 30% of the consumers have actual positive attitudes towards sustainable products (Reheul et al., 2001). A possible explanation for this might be that consumers usually do not want to compromise on product properties they are used to experience like quality, availability and price (Ginsberg & Bloom, 2004). Thus, it is likely that sustainable products, in comparison with non-sustainable products, must at least contribute to those properties and preferably add supplementary advantages like less environmental impact. As sustainable products are usually more expensive than non-sustainable products (Polonsky & Rosenberger, 2001), and price turns out to play a crucial role in purchase-decision making (Reisch et al., 2013), it is imaginable that the higher prices of sustainable products negatively affect consumers' attitudes towards sustainable products.

Hence, it is valuable for brands to get insight into product properties that are important for consumers who do have a positive attitude towards sustainable foods. In this way, brands can respond to this by making their products more attractive with as a goal to stimulate consumers in buying sustainable products. Earlier research showed that those consumers mainly claim to pay attention to whether packaging materials are ecological and where the product comes from. They distinguish sustainable products from non-sustainable products based on different product properties like taste, quality and freshness and on certain health – and environment benefits (Vermeir & Verbeke, 2006).

Beside getting insight into those product properties to encourage consumers in purchasing sustainable products, it is crucial for brands to overcome another obstacle that probably keeps consumers from buying sustainable products namely, translating their positive attitudes into actual sustainable purchase behaviour (Young et al., 2010). The fact that human behaviour is mostly automatic (Aarts & Dijksterhuis, 2000) and determined by environmental factors (Bargh & Chartrand, 1999) may be an explanation for this attitude-behaviour gap. Automatic behaviour is based on processes that are achieved in an unconscious, effortless way without any control or intent (Bargh, 1994). This is in line with dual processing theory which suggests that people process information in two different ways: cognitively and noncognitively. Where cognitive processing is based on thoughtful decision-making in a conscious way, non-cognitive processing refers to automatic responses guided by heuristics (Cohen & Babey, 2012). Mormann, Koch & Rangel (2011) found that people make fooddecisions very quickly, mostly based on heuristic decisions like shapes, brand name or price. This means that brands may benefit from using heuristics on their products to encourage automatic purchasing behaviour for sustainable products. It is interesting to investigate whether products supplied with subtle heuristic cues with respect to sustainability can truly affect people's purchase intentions for sustainable products. Based on the fact that people usually fail in completely controlling their senses, which often results in their food choices being influenced by contextual factors (Cohen & Babey, 2012), it is relevant to have a closer look at associations between senses and products. These associations are called crossmodal correspondences and may function as heuristic cues to stimulate automatic purchasing behaviour for sustainable products.

1.2. Crossmodal correspondences

Using crossmodal correspondences as heuristic cues may be an effective method in unconsciously affecting people to make sustainable food choices. Crossmodal correspondences are systematic associations between specific properties or aspects of stimuli across our senses (Spence, 2011; Spence & Deroy, 2013). Our senses (smell, taste, hearing, touch and sight) work together very closely and they are triggered throughout the whole day by processing unisensory signals our brain tends to combine (Spence, 2011). Those crossmodal correspondences implicitly make us prefer certain sensory combinations over others (Simner, Cuskley & Kirby, 2010). Previous research showed that crossmodal correspondences can play a crucial role in consumers' perception of products and the way consumers experience those products. For example, Piqueras-Fiszman & Spence (2011) showed that people get confused when the colour of a crisp package is not corresponding to the colour people are used to link to a certain flavour. Other research showed that people often make shape-taste associations or sound-shape associations and associate round shapes with sweet tastes and soft-sounded pitches, while more angular shapes are associated with bitter and sour tastes and sharp-sounded pitches (e.g. Velasco, Woods, Deroy & Spence, 2015; Turoman, Velasco, Chen, Huang & Spence, 2017; Ngo, Misra & Spence, 2011). Knowing this, it may not be surprising that crossmodal correspondences are also popular in the marketing field. Sensory marketing is used to trigger automatic associations which can affect product perceptions, evaluations and even consumers' behaviour (Krishna, 2012). In terms of the current study this means that it is relevant to investigate whether crossmodal correspondences are able to affect one's quality perception, sustainability perception and eventually purchase intentions of a product.

Lately, in the domain of crossmodal correspondences, marketers have mainly focused on visual aspects of packaging and product, like shape and colour (Peck & Childers, 2008). The sense of sight has been investigated the most (Peck & Childers, 2008). Interestingly, the sense of touch is less investigated while touch is the first fully developed sense in human's life, and the last sense people lose as they get older (Peck & Childers, 2008). This is why more research on the sense of touch with respect to crossmodal correspondences is needed. However, it should be noted that crossmodal correspondences related to touch may be less powerful than visual associations because in case of visual associations, contact with a certain product is not necessarily needed, while it is in case of touch. Associations between visual elements and a product may function as a tool triggering people to touch a product, which may eventually evoke crossmodal correspondences between certain haptic elements and the

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product. To get insight into the potential role of a visual cue, the current study aims to investigate the potential of visual cues as well.

Not only visual cues may play a role in one's motivations to touch a product, also individual differences in need for touch have a certain impact on the degree to which haptic cues are able to affect product evaluations (Peck & Childers, 2003). Peck & Childers (2003) developed the 'Need for Touch scale', where a distinction was made between high need for touch and low need for touch, between high instrumental need for touch and low instrumental need for touch and between high autotelic need for touch and low autotelic need for touch. According to Peck & Childers (2003), people with a high need for touch are tended to be more motivated to obtain information through the haptic system than people with a low need for touch. Additionally, people with a high need for touch have higher confidence in their product judgments if they can touch a product directly and they get more frustrated when they are not able to. However, the ability to touch a product directly does not affect confidence in product judgments or frustration levels for people with a low need for touch (Peck & Childers, 2003). Autotelic need for touch includes aspects of hedonism and fun, while instrumental need for touch is related to functional aspects, which often concern the purchase of a product (Krishna, 2012). Peck and Wiggins (2006) showed that consumers have higher intentions to make unplanned purchases when products are provided with signs encouraging touch (e.g. 'feel the freshness'), than when they are not provided with any sign. In the current study, individual differences in need for touch are measured to discover whether people with a high need for touch differ in their receptivity for haptic cues compared to people with a low need for touch. Besides, individual differences in instrumental need for touch are measured to determine whether these differences affect purchase intentions.

It may be clear that haptic cues can function as a tool to stimulate consumers' purchasing behaviour (e.g. Peck & Wiggins, 2006). A study from Peck & Childers (2008) confirms this finding. They found that consumers are more tended to buy products that differ in a characteristic way in material properties like texture, softness, shape and weight (Klatzky & Lederman, 1992; Peck & Childers, 2008). For this reason, the current study focuses on one of these properties, namely the weight of a product. Earlier research showed that weight influences one's perception of product quality. Heavier products are perceived as products of higher quality. For example, a study of Piqueras-Fiszman & Spence (2011) revealed that people eating their yoghurt with a heavier (stainless steel) spoon reported a significantly higher quality perception of the yoghurt and liked the yoghurt more than people eating with a lighter (plastic metallically polished) spoon. Comparable results were found in other studies

(e.g. Piqueras-Fiszman et al., 2011; Piqueras-Fiszman & Spence, 2012): a product's weight influenced perception of density, price and liking. By increasing the weight of a product, perceived density, expected price and product preference increased as well. It is likely that the heavier the product, the higher the perceived quality, the higher the purchase intentions. Based on the fact that several studies found correlations between the weight of a product and perceived quality (e.g. Piqueras-Fiszman & Spence, 2011; Spence & Gallace, 2011), it is assumed to be a well-established relationship. However, as far as it is known, until now research has never examined the potential relationship between a product's weight and perceived sustainability. It is likely to assume that one's sustainability perception of a product may also be influenced by a product's weight, since light-weighted products probably require less packaging material which reduces production costs and makes them more sustainable. By reducing product's weight, this study attempts to respond to the environmental aspect of sustainability (Vermeir & Verbeke, 2006).

Summarized, although the importance of sustainability may be crystal clear, a large majority of consumers is still not buying sustainable products. It is important to find strategies that overcome the attitude-behaviour gap for people who do not buy sustainable products. Crossmodal correspondences can be used to stimulate automatic purchase behaviour for sustainable products. By manipulating a haptic cue (weight differences) and a visual cue (sticker with respect to sustainability vs. neutral sticker) this study aims to find a well-suited strategy to make consumers increasingly buy sustainable products. Besides, it is interesting to examine whether there is a relationship between perceived quality and perceived sustainability of a product by influencing a product's weight. Since heavier products seem to be associated with higher perceived quality (e.g. Piqueras-Fiszman & Spence, 2011; Spence & Gallace, 2011), and lighter products are expected to be associated with higher perceived sustainability, outcomes on perceived quality and perceived sustainability may be contradicting. This research is scientifically relevant because earlier research in this domain has never focused on a potential relation between a product's weight and sustainability perception. Thereby, as far as known, only little research has been done on a combination of visual cues and haptic cues in crossmodal correspondences. This research is practically relevant because it provides insight for marketers in the efficacy of product design with regard to the perception of quality and sustainability, with as the main goal elevating their profits on sustainable products and with that contributing to a more sustainable world. Especially for marketers it is relevant to know if consumers' purchase intentions are stronger predicted by their quality perception of a product, by their sustainability perception of a product or by both

perceptions combined. Also, it is useful to get insight into the potential role of individual differences in need for touch. This leads to the following research questions and hypotheses:

Research Question 1: To what extent is consumer's quality perception, sustainability perception and purchase intention affected by a product's weight and a visual heuristic cue?

H1: Heavier-weighted products will be evaluated as products of higher quality than light-weighted products.

H2: Effects of heavier-weighted products being perceived as products of higher quality are stronger for products supplied with a neutral visual cue (vs. sustainable visual cue).

H3: Light-weighted products will be evaluated as more sustainable than heavier-weighted products.

H4: The heavier the product, the higher the purchase intention.

H5: Effects of products being perceived as more sustainable will be stronger for products supplied with a sustainable visual cue (vs. neutral visual cue).

Research Question 2: To what extent is the potential relationship between a product's weight, quality perception, sustainability perception and purchase intentions affected by people's differences in need for touch?

H6: People with a high need for touch will have a higher quality perception of the presented product than people with a low need for touch.

H7: Effects of heavier-weighted products being perceived as products of higher quality are stronger for people with a high need for touch than for people with a low need for touch.

H8: People with a high instrumental need for touch will have higher purchase intentions for the presented product than people with a low instrumental need for touch.

H9: Effects of higher purchase intentions for heavier-weighted products are stronger for people with a high instrumental need for touch than for people with a low instrumental need for touch.

2. Method

2.1. Pre-test

A pre-test was conducted in order to determine the mass of the supplemental weight for the medium-weighted conditions and the heavy-weighted conditions. This pre-test aimed to determine whether participants were able to experience (consciously or unconsciously) the weight differences between the packages. Also, the visual heuristic cues (sustainable / neutral) to be used in the experiment were chosen with help of this pre-test.

10 participants took part in the pre-test: 7 females and 3 males. The average age was 30.5 years (SD = 14.10; range = 22-57). The pre-test took place at the researcher's home and the mean duration was 7.53 min. 70% of the participants were University schooled and 30% were HBO-schooled. Data was collected by using Qualtrics. As all participants were Dutch, the questionnaire was in Dutch.

Weight manipulation

Nine different packages supplied with a double bottom were developed. The pre-test procedure was based on a study of Kampfer, Leischnig, Ivens and Spence (2017). Participants were asked to arrange the different packages in order of ascending weight. They did this for all three conditions (Light, Medium, Heavy) in three different weight classes:

- Minimal weight differences (Light: 1 kg (0%)– Medium: 1.06 kg (6%) Heavy: 1.12 kg (12%))
- Medium weight differences (Light: 1kg (0%) Medium: 1.12 kg (12%) Heavy: 1.24 kg (24%))
- Maximal weight differences (Light: 1kg (0%) Medium: 1.24kg (24%) Heavy: 1.48 kg (48%))

The pre-test revealed that in weight class 1 (Minimal weight differences) 40% (n = 4) of the participants failed to arrange the packages in the right order. In weight class 2 (Medium weight differences) 20% (n = 2) failed. Weight class 3 (Maximal weight differences) was the only weight class in which all participants succeeded in arranging the packages in order of ascending weight. As a result, weight class 3 was chosen for the experiment.

Visual heuristic cue

After participants finished the test on weight-manipulation, they were asked to evaluate eight different pictures in terms of sustainability (see appendix 1, Figure A-D for sustainability pictures and Figure E-H for neutral pictures). Participants were requested to answer the following question: '*To what extent do you associate this image with sustainability*?'. Answers were given on a 7-point likert scale (1= not at all, 7= very much). The picture that was most associated with sustainability was chosen as the sustainable visual cue in the experiment and the picture that was associated the least with sustainability was chosen as the neutral visual cue. To keep conditions during the pre-test and during the experiment the same, those pictures were attached on the same sort of packages as used in the experiment.

As to be seen in table 1, the pre-test revealed that Figure A was most associated with sustainability (M = 6.60, SD = .52), and Figure E (M = 2.20, SD = 1.03) was associated the least with sustainability. A repeated measures analysis for Sustainability Association with Figure A and Figure E as within-subject factors showed that Figure A and Figure E differed significantly on Sustainability Association (F(1,9) = 140.52, p < .001). This means concretely that Figure A was chosen as the sustainability visual cue and Figure E was chosen as the neutral visual cue in the experiment.

	М	SD
Figure A	6.60	.52
Figure B	6.10	.57
Figure C	5.90	.74
Figure D	5.90	.99
Figure E	2.20	1.03
Figure F	3.40	1.17
Figure G	4.00	1.25
Figure H	4.10	.99

Table 1- Associations with sustainability per Figure (n = 10) (1 = not at all, 7 = very much)



2.2.Experiment

2.2.1. Design

A 3 (weight: light vs. medium vs. heavy) x 2 (visual heuristic cue: sustainable vs. neutral) within-subject design was developed. All participants tasted one spoonful of muesli from all six different packages. Half of the packages was supplied with a visual heuristic cue with respect to sustainability. The other half was supplied with a neutral visual heuristic cue. This resulted in six different conditions:

- 1. Weight: Light / Heuristic visual cue: Sustainable
- 2. Weight: Medium / Heuristic visual cue: Sustainable
- 3. Weight: Heavy / Heuristic visual cue: Sustainable
- 4. Weight: Light / Heuristic visual cue: Neutral
- 5. Weight: Medium / Heuristic visual cue: Neutral
- 6. Weight: Heavy / Heuristic visual cue: Neutral

Independent variables:

- 1. Weight: Ordinal 3 levels (Light / Medium / Heavy)
- 2. Visual heuristic cue: Ordinal 2 levels (Sustainable / Neutral)
- **3.** Need for Touch: Interval (Continuous variable)

Dependent variables:

- 1. Quality perception: Interval (7-point Likert-scale)
- 2. Sustainability perception: Interval (7-point Likert-scale)
- 3. Purchase intention: Interval (7-point Likert-scale)
- 4. Behavioural measure (exploratory variable)

2.2.2. Materials

The product that was used in this experiment was muesli. This product was chosen because it is a neutral product that does not contain a lot of sugar. In this way, this study attempted to prevent results from being affected by people's preference for sugar.

The manipulation of the different weight conditions was realized as follows: all packages were made of Barleduc water cartons (see Figure 1) and were filled with one kilo of muesli (see figure 2). Barleduc water cartons were the most suited cartons to use in this experiment as there were no traces of odour or bacteria (as it is in case of milk packages or yoghurt packages for example). Additionally, the inner side of the carton is covered with an aluminium layer that prevents the product (muesli) from oxygen damage and/ or moisture uptake. This has a positive effect on the freshness of the muesli. The packages were covered with white paper and they were provided with a double bottom. All packages had the same height.



Figure 1



Figure 2

Both light-weighted conditions (visual cue: sustainable and visual cue: neutral) were only filled with approximately one kilo of muesli (total package weight: 1 kg). Both mediumweighted conditions (visual cue: sustainable and visual cue: neutral) were supplied with approximately one kilo of muesli and a medium-loaded bottom (total package weight: 1.24 kg). Both heavy-weighted conditions (visual cue: sustainable and visual cue: neutral) were supplied with approximately one kilo of muesli and a heavy-loaded bottom (total package weight: 1.48 kg). The loaded material was placed and attached in the double bottom. This kept the material from moving. Due to the double bottom, the weight-manipulation was not visible to participants.

The loaded material was made out of aluminium plates (see figure 3) and coated stainless steel plates (see figure 4). All plates were 9x9 cm so that they fitted in the bottom of the package. Thickness of the plates was approximately 1 mm and their weight was circa 30 grams (aluminium) and 60 grams (coated stainless steel). To make sure the packages in each condition had the same weight, little differences in weight were filled up by adding or removing a few grams of muesli.



Figure 3



Figure 4

As to be seen in Figure 5, the heuristic visual cue was manipulated by using two different stickers, based on the outcomes of the pre-test. One with a sustainable image and one with a neutral image respectively.



Figure 5

2.2.3. Participants

Fifty-three participants took part in the experiment. 52.8% of the participants were male (n = 28) and 47.2% were female (n = 25). The average age was 34.42 years (SD = 16.38, range = 18-66). 9.4% were MBO-schooled (n = 5), 45.3% were HBO-schooled (n = 24) and 45.3% were University-schooled (n = 24). All participants had a Dutch nationality, except from two participants who were German with an excellent knowledge of the Dutch language.

2.2.4. Instrumentation

In the next section, the instruments that were used to measure the dependent variables (Quality Perception, Sustainability Perception and Purchase Intention) and the independent variables (Need for Touch High / Low; Need for Touch Instrumental High / Low and Need for Touch Autotelic High / Low) are discussed. The validation of each instrument is reviewed as well.

Quality Perception

Quality perception was measured on the basis of five items on a seven-point Likert scale (1 = totally disagree, 7 = totally agree) from Ryu, Lee & Gon Kim (2012). Originally, this scale was used in a study about food serving in restaurants. Therefore, item 3 and 5 were adapted so that they fitted in the current study (originally: (3) The restaurant offered fresh food; (5) The food presentation was visually attractive).

Items Quality Perception scale

- 1. The food was delicious
- 2. The food was nutritious
- 3. The food was fresh
- 4. The smell of the food was enticing
- 5. The food was visually attractive

The scale reliability was measured for each package separately, as to be seen in table 2. The scale reliability was acceptable – good ($\alpha = .70 - .83$).

	Cronbach's alpha
Package 1	α = .81
Package 2	$\alpha = .70$
Package 3	α = .73
Package 4	$\alpha = .83$
Package 5	$\alpha = .70$
Package 6	$\alpha = .71$

Table 2 - Cronbach's alpha (a) QualityPerception scale per package

Sustainability Perception

Sustainability perception was measured on the basis of 6 items on a seven-point likertscale. (1 = totally disagree, 7 = totally agree). Those items were based on the Food Choice Questionnaire (Steptoe, Pollard & Wardle, 1995) and on the extended Food Choice Questionnaire (Lindeman & Väänänen, 2000). 6 items that measured different elements of sustainability (natural content, ecological welfare, environmental protection and price) were taken together into a new 'Sustainability Perception scale'.

Items Sustainability Perception scale

'I think this product ... '

- 1. Contains natural ingredients (Factor: 'natural content', Steptoe et al., 1995)
- 2. Contains no artificial ingredients (Factor: 'natural content', Steptoe et al., 1995)
- **3.** Is packaged in an environmentally friendly way (Factor: 'ethical concern', Steptoe et al., 1995)
- Has been prepared in an environmentally friendly way (Factor: 'ecological welfare environmental protection', Lindeman & Väänänen, 2000)
- 5. Is good value for money (Factor: 'price', Steptoe et al., 1995)
- 6. Is not expensive (Factor: 'price', Steptoe et al., 1995)

Since this Sustainability Perception scale was composed of different aspects from the (extended) Food Choice Questionnaire, Principle Component analyses with one component extracted were conducted for each package separately. Results of these analyses showed that item 5 and 6 loaded poorly or even negatively on component 1 (see table 3). This has led to the decision of removing item 5 and 6.

	Component 1	Communalities	% Total variance explained
Packago 1			38.00
I uchuge I	052	490	56.70
	.833	.480	
Item 2	.693	.402	
Item 3	.634	.394	
Item 4	.628	.727	
Item 5	.504	.254	
Item 6	.276	.076	
Package 2			42.62
Item 1	.830	.587	
Item 2	.800	.405	
Item 3	.766	.640	
Item 4	.637	.690	
Item 5	.405	.072	
Item 6	.268	.164	
Package 3			40.25
Item 1	.887	.468	
Item 2	.870	.347	
Item 3	.684	.757	
Item 4	.589	.787	
Item 5	176	.024	
Item 6	.154	.031	

 Table 3- Factor loading, communalities and percentage of total variance explained for one component, displayed per package

	Component 1	Communalities	% Total variance explained
Dackass 4			20.12
Package 4	820	272	38.13
Item I	.820	.373	
Item 2	.722	.478	
Item 3	.684	.521	
Item 4	.611	.672	
Item 5	.477	.227	
Item 6	.164	.027	
Package 5			42.03
Item 1	.891	.554	
Item 2	.806	.278	
Item 3	.745	.649	
Item 4	.528	.793	
Item 5	.473	.224	
Item 6	.151	.023	
Package 6			39.89
Item 1	.851	.629	
Item 2	.809	.228	
Item 3	.793	.655	
Item 4	.477	.724	
Item 5	352	.034	
Item 6	184	.124	

Eventually, after removal of item 5 and 6, the Sustainability Perception-scale consisted of 4 items:

'I think this product...'

- 1. Contains natural ingredients (Factor: 'natural content', Steptoe et al., 1995)
- 2. Contains no artificial ingredients (Factor: 'natural content', Steptoe et al., 1995)
- **3.** Is packaged in an environmentally friendly way (Factor: 'ethical concern', Steptoe et al., 1995)
- Has been prepared in an environmentally friendly way (Factor: 'ecological welfare environmental protection', Lindeman & Väänänen, 2000)

Factor analyses revealed that the total variance explained was approximately 58%. The scale reliability was measured for each package separately, as to be seen in table 4. The scale reliability was acceptable ($\alpha = .70 - .77$).

	Cronbach's alpha
Package 1	α = .71
Package 2	$\alpha = .77$
Package 3	$\alpha = .74$
Package 4	$\alpha = .70$
Package 5	$\alpha = .73$
Package 6	$\alpha = .73$

Table 4 - Cronbach's alpha (α) Sustainability Perception scale per package

Purchase Intention

Purchase Intention was measured on the basis of three items on a seven-point likert scale (1= totally disagree, 7 = totally agree) (Chiu, Hsieh & Kuo, 2012). Originally this scale included questions about purchase intentions and certain brands. Those questions were adapted to this study. Originally: Item (1) 'I am likely to purchase the products from this company', item (2) 'I would consider buying the product from this company if I need a product of this kind', item (3) 'It's possible for me to buy the product from this company'.

Items Purchase Intention scale

- 1. I will probably buy this product
- 2. I will consider buying this type of product when I need it
- 3. For me it is possible to buy this product

The scale reliability was measured for each package separately, as to be seen in table 5. The scale reliability was acceptable – good ($\alpha = .69 - .86$).

	Cronbach's alpha
Package 1	$\alpha = .80$
Package 2	$\alpha = .82$
Package 3	α = .69
Package 4	$\alpha = .81$
Package 5	$\alpha = .86$
Package 6	α = .75

Table 5 - Cronbach's alpha (α) Purchase Intention scale per package

Need for Touch

Need for touch (high/low) was measured on the basis of twelve items on a seven-point likert scale (1 = totally disagree, 7 = totally agree) (Peck & Childers, 2003). Originally this scale was ranged from -3 to +3 but as the other scales were all ranged from 1-7, this scale had been changed into 1-7 to prevent participants becoming confused. Need for touch (Instrumental high/low and Autotelic high/low) was measured based on the same 12 items. 6 items were related to Instrumental need for touch (I), and 6 items were related to Autotelic need for touch (A).

Items Need for Touch scale

- 1. When walking through stores, I can't help touching all kinds of products. (A)
- 2. Touching products can be fun. (A)
- 3. I place more trust in products that can be touched before purchase. (I)
- 4. I feel more comfortable purchasing a product after physically examining it. (I)
- 5. When browsing in stores, it is important to me to handle all kinds of products.(A)
- 6. If I can't touch a product in the store, I am reluctant to purchase the product. (I)
- 7. I like to touch products even if I have no intention of buying them. (A)
- 8. I feel more confident making a purchase after touching a product. (I)
- 9. When browsing in stores, I like to touch lots of products. (A)
- 10. The only way to make sure a product is worth buying is to actually touch it. (I)
- 11. There are many products that I would only buy if I could handle them before purchase. (I)
- 12. I find myself touching all kinds of products in stores. (A)

Scale reliability for Need for Touch (High / Low) was excellent ($\alpha = .93$). Scale reliability for Need for Touch (Instrumental High / Low) was good ($\alpha = .88$). Scale reliability for Need for Touch (Autotelic High / Low) was excellent ($\alpha = .92$).

Although in this study no specific hypothesis on Autotelic Need for Touch was formulated, it is still included in different analyses. Since Peck & Childers (2003) developed the Need for Touch scale and Autotelic Need for Touch has been proven to be an important component of this scale, it might be interesting to see whether results are affected by Autotelic Need for Touch.

Behavioural Measure

An exploratory variable (behavioural measure) was added to this study as well. Participants were asked which of the six mueslis they liked the most and wanted to take home as a sample. In this way, insight into participants' actual behaviour and their potential preference for a certain package was provided.

2.2.5. Procedure

Since all participants were Dutch (except from 2 participants, who had an excellent level in Dutch), the questionnaire was presented in Dutch. Participants were invited to the experiment through social media advertisements and by personal invitations. An online questionnaire was designed by using Qualtrics. Each participant participated individually (i.e. one at a time). The researcher was continuously present during the experiment to provide participants with the right package at the right time, as the order was randomized.

Participants first signed a consent form and were then asked to get seated and read the instructions. They were told that they would be tasting 6 mueslis that differed slightly. Participants had to serve themselves from all six packages one-by-one (randomized) so that they were forced to touch the packages and got confronted with the weight differences.

They answered the questions about Quality perception, Sustainability perception and Purchase intention after each tasting round by clicking on 1 (totally disagree) to 7 (totally agree) on a visual scale. Once they finished tasting, they were asked which muesli they liked the most and they answered the questions about Need for Touch by clicking on 1 (totally disagree) to 7 (totally agree) on a visual scale. The last questions of the questionnaire were about age, gender and education level. After participants finished the questionnaire, they were asked if they had noticed anything special and they were asked about the goal of the experiment in their opinion.

In the end, all participants were told that they had tasted six times the same muesli and they were informed about the goal of the experiment. Once participants were dismissed, all packages were re-filled until the original weight was reached. All participants tasted all mueslis with the same sort of spoon to prevent results from being influenced by (for example) weight and material differences in spoons. The experiment took place in the CLS-lab at Radboud University as well as at the researcher's home. The experiment took around 15 minutes.

2.2.6. Statistics

Data was analysed by using SPSS 25. Scores on Quality Perception, Sustainability Perception and Purchase Intention were calculated for each package separately (i.e. six different scores were calculated for each of these variables). Those scores were obtained by calculation of the mean-score of the items for each separate scale. Scores on Need for Touch (High / Low, Instrumental High / Low and Autotelic High / Low) were obtained by using a median split. Scores on Need for Touch were used as continuous variables.

3 (Weight: Light / Medium / Heavy) x 2 (Visual Cue: Sustainable / Neutral) repeated measures ANOVAs were conducted on each dependent variable. Furthermore, 3 (Weight) x 2 (Visual Cue) repeated measures ANCOVAs were conducted on each dependent variable. Scores on Need for Touch (High / Low, Instrumental High / Low and Autotelic High Low) were separately used as continuous variable (covariate).

In case of significant two-way interactions of the ANCOVAs, simple regression analyses were performed to assess whether Need for Touch was a significant predictor for the dependent variable.

Finally, a binominal measure analysis and binary logistic regression analyses were performed to assess the behavioural measure.

3. Results

3.1. Quality Perception

A 3 (Weight) x 2 (Visual Cue) repeated measures ANOVA for Quality Perception showed a significant main-effect of Weight ($F(2,104) = 3.09, p = .050, \eta_p^2 = .056$). This effect was only found for the medium weight class compared to the heavy weight class ($F(1,52) = 5.07, p = .029, \eta_p^2 = .089$). The Quality Perception for heavy weighted products was significantly higher (M = 4.31, SD = 0.89) than for medium weighted products (M = 4.03, SD = 0.84), see also Figure 6.

No significant main-effect of Visual Cue on Quality Perception was found ($F(1,52) = 1.77, p = .190, \eta_{p^2} = .03$). Also the interaction between Weight and Visual Cue on Quality Perception was not significant (F(2,104) < 1).



Figure 6 - Mean ratings of Quality Perception (1 = strongly disagree, 7 = strongly agree)

To find out whether individual differences in Need for Touch play a role in the potential effects of Weight and / or Visual Cue on Quality Perception, Need for Touch¹ was included as a continuous variable (covariate) in a 3 (Weight) x 2 (Visual Cue) repeated measures ANCOVA. This analysis will be described in the next section. In order to improve the interpretability of potential effects that occur when including the continuous variable, this covariate was centred (M = 0).

3.1.1. Need for Touch as continuous variable

A 3 (Weight) X 2 (Visual Cue) repeated measures ANCOVA for Quality Perception with Weight and Visual Cue as within-subject factors and Need for Touch as continuous variable, showed a significant three-way interaction between Weight, Visual Cue and Need for Touch (F(2,102) = 7.36, p = .001, $\eta_p^2 = .13$). The interaction between Weight and Need for Touch was significant for the sustainable Visual Cue condition (F(2,102) = 3.59, p =.031, $\eta_p^2 = .07$) as well as for the neutral Visual Cue condition (F(2,102) = 3.08, p = .050, $\eta_p^2 = .06$).

To follow up this interaction, the effect of Need for Touch was tested at each level of Weight for both Visual Cue conditions by conducting three separate repeated measures ANCOVAs. In this way, the sustainable Visual Cue was compared to the neutral Visual Cue for each level of Weight separately. It turned out that the effect of Need for Touch existed only in the Light-weight – and the Heavy-weight condition since the interaction-effect between Visual Cue and Need for Touch was significant in the Light-weight condition (F (1,51) = 5.83, p = .019, η_p^2 = .10) and the Heavy-weight condition only (F (1,51) = 4.03, p = .050, η_p^2 = .07). Concretely, Quality Perception for light-weighted products was significantly higher when the product was supplied with a neutral Visual Cue (M = 4.16, SD = 1.13). Also, Quality Perception for heavy-weighted products was significantly higher when the product was supplied with a sustainable Visual Cue (M = 4.16, SD = 1.12) than when this product was supplied with a sustainable Visual Cue (M = 4.16, SD = .98) (see also Figure 7). No effect of

¹This study focuses on results with Need for Touch (overall) as continuous variable only.

Analyses were performed with Need for Touch (overall), Autotelic Need for Touch and Instrumental Need for Touch as continuous variables separately. It turned out that results with Autotelic Need for Touch and Instrumental Need for Touch as continuous variables were practically equal to results with Need for Touch (overall) as continuous variable. In addition, Autotelic Need for Touch and Instrumental Need for Touch (overall) as continuous variable. In addition, Autotelic Need for Touch and Instrumental Need for Touch correlated highly with Need for Touch (overall) (r(53) = .931, p < .001) and (r(53) = .904, p < .001). This has led to the decision to focus on Need for Touch (overall) only.

Need for Touch was found in the Medium-weight condition since the interaction between Visual Cue and Need for Touch was not significant ($F(1,51) = 2.68, p = .108, \eta_p^2 = .05$).



Figure 7 - Mean ratings of Quality Perception with Need for Touch as continuous variable (1 = strongly disagree, 7 = strongly agree)

In order to get more insight into the role of Need for Touch in the interaction between Weight, Visual Cue and Need for Touch on Quality Perception, simple regression analyses were performed. It turned out that in none of the conditions Need for Touch was a significant predictor for Quality Perception (see table 6). However, a possible explanation for still finding a significant interaction for Quality Perception between Visual Cue and Need for Touch in the Light-weight – and Heavy-weight condition, might be the direction of the slopes that differs per level of Visual Cue. More concretely, as to be seen in table 6 (β) and Figure 8 and 11, the direction of the slope for the sustainable Visual Cue in the Light-weight condition is negative, while it is positive for the neutral Visual Cue (i.e. for products supplied with a sustainable Visual Cue: the higher Need for Touch, the lower Quality Perception; for products supplied with a neutral Visual Cue: the higher Need for Touch, the higher Quality Perception). On contrary, as to be seen in table 6 (β) and Figure 10 and 13 the direction of the slope for the sustainable Visual Cue in the Heavy-weight condition is positive, while it is negative for the neutral Visual Cue (i.e. for products supplied with a sustainable Visual Cue in the Heavy-weight condition is positive, while it is negative for the neutral Visual Cue in the Heavy-weight condition is positive, while it is the higher Need for Touch, the higher Quality Perception; for products supplied with a neutral Visual Cue: the higher Need for Touch, the lower Quality Perception).

Visual Cue / Weight	β	F	р	Explained variance (%)	
Neutral / Light	.19	1.91	.173	17%	
Neutral / Medium	10	<1	.498	_*	
Neutral / Heavy	15	1.21	.277	4%	
Sustainable / Light	18	1.73	.194	14%	
Sustainable / Medium	.15	1.11	.298	2%	
Sustainable / Heavy	.13	<1	.347	_*	

 Table 6 - Regression analyses on Quality Perception for each condition of Weight and Visual Cue with Need for Touch as

 predictor | * = negative percentage



Figure 8 - Mean ratings of Quality Perception for a light-weighted package with a sustainable visual cue



Figure 11 - Mean ratings of Quality Perception for a lightweighted package with a neutral visual cue



Figure 9 - Mean ratings of Quality Perception for a medium-weighted package with a sustainable visual cue



Figure 12 - Mean ratings of Quality Perception for a medium-weighted package with a neutral visual cue



Figure 10 - Mean ratings of Quality Perception for a heavy-weighted package with a sustainable visual cue



Figure 13 - Mean ratings of Quality Perception for a heavy-weighted package with a neutral visual cue

3.2. Sustainability Perception

A 3 (Weight) x 2 (Visual Cue) repeated measures ANOVA for Sustainability Perception showed no significant main-effect of Weight (F(2,104) < 1), no significant maineffect of Visual Cue (F(1,52) = 1.58, p = .214, $\eta_p^2 = .03$) and no significant interaction between Weight and Visual Cue (F(2,104) = 1.43, p = .244, $\eta_p^2 = .03$).

In order to determine whether Need for Touch influences the potential effects of Weight and / or Visual Cue on Sustainability Perception, Need for Touch was included as continuous variable (covariate) in a 3 (Weight) x 2 (Visual Cue) repeated measures ANCOVA. This analysis will be described in the next section. In order to improve the interpretability of potential effects that occur when including the continuous variable, this covariate was centred (M=0).

3.2.1. Need for Touch as continuous variable

A 3 (Weight) x 2 (Visual Cue) repeated measures ANCOVA for Sustainability Perception with Weight and Visual Cue as within-subject factors and Need for Touch as continuous variable, showed no significant interaction between Weight, Visual Cue and Need for Touch (F(2,102) < 1).

3.3. Purchase Intention

A 3 (Weight) x 2 (Visual Cue) repeated measures ANOVA for Purchase Intention showed no significant main-effect of Weight (F(2,104) < 1), no significant main-effect of Visual Cue (F(1,52) < 1) and no significant interaction between Weight and Visual Cue (F(2,104) = 1.14, p = .321, $\eta_p^2 = .02$).

To find out whether Need for Touch influences the potential effects of Weight and / or Visual Cue on Purchase Intention, Need for Touch was included as a continuous variable (covariate) in a 3 (Weight) x 2 (Visual Cue) repeated measures ANCOVA. This analysis will be described in the next section. In order to improve the interpretability of potential effects that occur when including the continuous variable, this covariate was centred (M=0).

3.3.1. Need for Touch as continuous variable

A 3 (Weight) x 2 (Visual Cue) repeated measures ANCOVA of Purchase Intention with Weight and Visual Cue as within-subject factors and Need for Touch as continuous variable, showed no significant interaction between Weight, Visual Cue and Need for Touch $(F(2,102) = 2.31, p = .105, \eta_p^2 = .04).$

3.3.2. Potential predictors for Purchase Intention

To find out whether Quality Perception and/ or Sustainability Perception are potential significant predictors of Purchase Intention, a simple regression analysis was performed. This analysis showed that the variables entered, Quality Perception and Sustainability Perception explained 27% of the variance in Purchase Intention (F(2,50) = 10.75, p < .001). Quality Perception was shown to be a significant predictor of Purchase Intention ($\beta = .57, p = <.001$), but Sustainability Perception was not ($\beta = -.13, p = .282$).

3.4. Behavioural Measure

To get insight into participant's actual behaviour, a behavioural measure was added to this study. To determine whether certain packages were significantly more or less chosen than chance, participants were asked what muesli they liked the most and what muesli they would like to take home. A binominal test showed that only package 2 (medium / neutral visual cue) was significantly less chosen than chance (n = 4, p = .040).

Besides, it is interesting to examine whether Quality Perception, Sustainability Perception, Purchase Intention and Need for Touch are potential predictors of participant's behaviour (i.e. the extent to which each of these potential predictors is able to predict participant's preference for a certain package). Hence, binary logistic regression analyses were performed for each variable separately. These analyses showed that none of the potential predictors turned out to be a significant predictor for participant's behaviour. See table 7 for an overview.

B SE p Package 1 (Light/Sustainable)		D	<u>CE</u>	
Package 1 (Light/Sustainable) Quality Perception .26 .30 .390 Sustainability Perception .12 .39 .764 Purchase Intention .27 .23 .249 Need for Touch 168.92 6835.55 .980 Package 2 (Medium/Neutral)		В	SE	р
Quality Perception .26 .30 .390 Sustainability Perception .12 .39 .764 Purchase Intention .27 .23 .249 Need for Touch 168.92 6835.55 .980 Package 2 (Medium/Neutral) Quality Perception .48 .57 .393 Purchase Intention 23 .35 .508 Need for Touch -85.02 5063.91 .987 Package 3 (Light/Neutral) Quality Perception 14 .34 .680 Purchase Intention .03 .26 .896 .896 Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral) Quality Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 4 (Heavy/Neutral) Quality Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch	Package 1 (Light/Sustainable)			
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Purchase Intention .27 .23 .249 Need for Touch 168.92 6835.55 .980 Package 2 (Medium/Neutral) Quality Perception 08 .53 .880 Sustainability Perception .48 .57 .393 Purchase Intention 23 .35 .508 Need for Touch -85.02 5063.91 .987 Package 3 (Light/Neutral) Quality Perception 14 .34 .680 Purchase Intention .03 .26 .896 Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral) Quality Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) Quality Perception 16 .36 .655 Package 5 (Heavy/Sustainable) .39 .441 .441 Sustainability Perception 30 .39 .441 Sustainability P	Sustainability Perception	.12	.39	.764
Need for Touch 168.92 6835.55 .980 Package 2 (Medium/Neutral) Quality Perception 08 .53 .880 Sustainability Perception .48 .57 .393 Purchase Intention 23 .35 .508 Need for Touch -85.02 5063.91 .987 Package 3 (Light/Neutral) Quality Perception 14 .34 .680 Purchase Intention .03 .26 .896 Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral) Quality Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) Quality Perception 16 .36 .655 Package 5 (Heavy/Sustainable) .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch .135.6	Purchase Intention	.27	.23	.249
Package 2 (Medium/Neutral) Quality Perception 08 .53 .880 Sustainability Perception .48 .57 .393 Purchase Intention 23 .35 .508 Need for Touch -85.02 5063.91 .987 Package 3 (Light/Neutral) Quality Perception 42 .36 .241 Sustainability Perception 14 .34 .680 Purchase Intention .03 .26 .896 Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral) Quality Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch .16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch .68.92 6835.55 .980 Package 5 (Heavy/Sustainable) Quality Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch .18 .25 .480 Need for Touch <td< td=""><td>Need for Touch</td><td>168.92</td><td>6835.55</td><td>.980</td></td<>	Need for Touch	168.92	6835.55	.980
Quality Perception 08 .53 .880 Sustainability Perception .48 .57 .393 Purchase Intention 23 .35 .508 Need for Touch -85.02 5063.91 .987 Package 3 (Light/Neutral) Quality Perception 14 .34 .680 Purchase Intention .03 .26 .896 Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral) .04 .30 .903 Quality Perception .16 .36 .655 Package 4 (Heavy/Neutral) .04 .30 .903 Quality Perception .16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch .18 .25 .480	Package 2 (Medium/Neutral)			
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Purchase Intention 23 .35 .508 Need for Touch 85.02 5063.91 .987 Package 3 (Light/Neutral) 42 .36 .241 Quality Perception 14 .34 .680 Purchase Intention .03 .26 .896 Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral) 16 .36 .655 Purchase Intention .04 .30 .903 Sustainability Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) 30 .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch .18 .25 .480 Need for Touch .135.66 .9841.35 .984	Sustainability Perception	.48	.57	.393
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Sustainability Perception 14 .34 .680 Purchase Intention .03 .26 .896 Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral)	Quality Perception	42	.36	.241
Purchase Intention .03 .26 .896 Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral) .04 .30 .903 Quality Perception .04 .30 .903 Sustainability Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch .18 .25 .480 Need for Touch .135.66 6841.35 .984	Sustainability Perception	14	.34	.680
Need for Touch -158.09 7111.33 .982 Package 4 (Heavy/Neutral) .04 .30 .903 Quality Perception .04 .30 .903 Sustainability Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) .30 .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch .135.66 6841.35 .984	Purchase Intention	.03	.26	.896
Package 4 (Heavy/Neutral) Quality Perception .04 .30 .903 Sustainability Perception 16 .36 .655 Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) Quality Perception 30 .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch -135.66 6841.35 .984	Need for Touch	-158.09	7111.33	.982
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Purchase Intention .21 .24 .376 Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) 30 .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch -135.66 6841.35 .984	Sustainability Perception	16	.36	.655
Need for Touch 168.92 6835.55 .980 Package 5 (Heavy/Sustainable) 30 .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch -135.66 6841.35 .984	Purchase Intention	.21	.24	.376
Package 5 (Heavy/Sustainable) Quality Perception 30 .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch -135.66 6841.35 .984	Need for Touch	168.92	6835.55	.980
Quality Perception 30 .39 .441 Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch -135.66 6841.35 .984	Package 5 (Heavy/Sustainable)			
Sustainability Perception 12 .39 .754 Purchase Intention .18 .25 .480 Need for Touch -135.66 6841.35 .984	Quality Perception	30	.39	.441
Purchase Intention .18 .25 .480 Need for Touch -135.66 6841.35 .984	Sustainability Perception	12	.39	.754
Need for Touch -135.66 6841.35 .984	Purchase Intention	.18	.25	.480
	Need for Touch	-135.66	6841.35	.984

Package 6 (Medium/Sustainable)

Quality Perception	32	.49	.512
Sustainability Perception	55	.49	.265
Purchase Intention	.03	.34	.940
Need for Touch	-167.79	6552.40	.980

Table 7 - Binary logistic regression analyses on Behavioural Measure per package with Quality Perception, SustainabilityPerception, Purchase Intention and Need for Touch as potential predictors
4. Conclusion

In this section, results that were found in this study will be presented on the basis of the two research questions that were formulated.

Research Question 1: 'To what extent is consumer's quality perception, sustainability perception and purchase intention affected by a product's weight and a visual heuristic cue?'.

Research Question 2: 'To what extent is the potential relationship between a product's weight, quality perception, sustainability perception and purchase intentions affected by people's differences in need for touch?'.

To a certain degree, quality perception was affected by a product's weight. Heavyweighted products were evaluated as products of higher quality than medium-weighted products.

Additionally, quality perception for light-weighted and heavy-weighted products was higher when the product was supplied with a neutral visual cue (vs. sustainable visual cue). This effect was dependent on individual differences in need for touch. For the light-weighted product supplied with a neutral visual cue, it turned out that the higher the need for touch, the higher the quality perception. For the light-weighted product supplied with a sustainable visual cue it turned out that the higher the need for touch, the lower the quality perception. This effect was reversed for heavy-weighted products: quality perception of the product supplied with a neutral visual cue appeared to be lower as need for touch was higher, where quality perception of the product supplied with a sustainable visual cue turned out to be higher as need for touch was higher.

Also, people's purchase intention for a certain product was predicted by their quality perception of this product. People's sustainability perception of a product did not play a role in predicting their purchase intention. Furthermore, when people were asked what muesli they liked the most and which muesli they would like to take home, the medium-weighted package supplied with a neutral visual cue was less chosen than chance.

Eventually, people's actual behaviour was not predicted by their quality perception, sustainability perception, purchase intention or need for touch.

5. General Discussion

This study attempted to get insight into the potential relationship of a product's weight and visual heuristic cue on quality perception, sustainability perception and consumer's purchase intentions. The visual heuristic cue used in this study was a sticker (neutral sticker vs. sustainability sticker) that was attached on the package with as a main goal triggering associations between the image and product evaluations.

In the next section, potential explanations, limitations and suggestions of improvement will be provided for effects that were found in this study due to manipulations of weight and visual cue.

Based on the findings in this study, the role of a product's weight on quality perception has been partially supported. This finding fits (largely) with findings in previous studies (e.g. Piqueras-Fiszman & Spence, 2011; Spence & Gallace, 2011). Quality perception was expected to be affected by a product's weight, in a positive direction (i.e. the heavier the product, the higher the quality perception). In the current study, this effect was found for heavy-weighted products compared to medium-weighted products: the perceived quality of heavy-weighted products was higher than for medium-weighted products. This finding is in line with similar findings in other studies (e.g. Piqueras-Fiszman & Spence, 2011; Spence & Gallace, 2011). Thus, partial support for the relationship between weight and perceived quality was found. Indeed, this relationship seems to be well-established.

Additionally, another effect on quality perception was found in this study. A difference in quality perception was found due to the manipulation of the visual cue: quality perception of light-weighted products as well as heavy-weighted products was higher for the product supplied with a neutral visual cue (vs. sustainable visual cue). This effect was affected by people's individual differences in their need for touch. In the light-weight condition, quality perception of the product supplied with a sustainable visual cue was lower as need for touch increased and quality perception of the product supplied with a neutral visual was higher as need for touch increased. However, in the heavy-weight condition this effect was found in the opposite direction: quality perception of the product supplied with a sustainable visual cue was higher as need for touch was higher and quality perception of the product supplied with a sustainable visual cue was higher as need for touch was higher as need for touch was higher as need for touch was higher and quality perception of the product supplied with a sustainable visual cue was higher as need for touch was higher and quality perception of the product supplied with a sustainable visual cue was higher as need for touch was higher and quality perception of the product supplied with a sustainable visual cue was higher as need for touch was higher and quality perception of the product supplied with a sustainable visual cue was higher as need for touch was higher and quality perception of the product supplied with a neutral visual cue was lower as need for touch was higher.

In order to properly understand the difference between people with a high need for touch vs. people with a low need for touch, it is important to give a brief description of both types of need for touch. People with a high need for touch generally have a higher need to experience products directly before purchasing (Peck & Childers, 2003) and they attach more value to haptic cues than people with a low need for touch. Examples of questions in the Need for Touch-scale are: '*When walking through stores, I can't help touching all kinds of products', 'I place more trust in products that can be touched before purchase', 'I feel more comfortable purchasing a product after physically examining it' and 'I like to touch products even if I have no intention of buying them'*. People with a high need for touch (largely) agree with these statements, while people with a low need for touch (largely) disagree with these statements.

The finding of products supplied with a neutral visual cue (vs. sustainable visual cue) being perceived as products of higher quality in the light-weight and heavy-weight condition (depending on people's need for touch) fits partially with the expectations in this study. Since it was expected that effects of heavy-weighted products being perceived as higher quality are stronger when the product is supplied with a neutral visual cue (vs. sustainable visual cue), it seems likely that the neutral visual cue is stronger associated with high quality than the sustainable visual cue, even though the expected effect of weight did not occur. The difference in quality perception between the visual cue conditions within the light-weight and heavy-weight condition when taking need for touch into account, may be explained by the fact that people depending on their need for touch evaluate quality differently over different visual cues (e.g. people with a low need for touch have a higher quality perception of the light-weighted product supplied with a sustainable visual cue and a lower quality perception of the light-weighted product supplied with a neutral visual cue and vice versa for people with a high need for touch). However, no consistent explanation for this can be provided since explanations for the light-weight condition would contradict explanations for the heavyweight condition and vice versa. This is because the direction of the relation between need for touch and visual cue is reversed in the light-weight condition compared to the heavy-weight condition (e.g. people with a low need for touch have a higher quality perception of the lightweighted product supplied with a sustainable cue, but their quality perception of the heavyweighted product supplied with a sustainable cue is lower). Nevertheless, since no effects of weight were found and need for touch turned out not to be a predictor of quality perception, different weight conditions cannot be compared and no conclusions can be made.

No effects of weight and/ or visual cue were found on sustainability perception. There are several potential explanations for the absence of effects on sustainability perception.

Firstly, people with positive attitudes towards sustainability claim to pay mainly attention to the eco-friendliness of packaging materials and to the origin of the product when distinguishing sustainable products from non-sustainable products (Vermeir & Verbeke, 2006). Since the packages that were used in this study were quite big, this may have evoked the feeling that a lot of material was needed for the development of the packages, which is not related to sustainability. Also, the packages were supplied with a plastic cap, which is presumably not associated with sustainability. Moreover, taste, quality and freshness are important elements of sustainable products (Vermeir & Verbeke, 2006). However, since the package was probably not associated with sustainability due to the height, the amount of materials needed and the plastic cap, people may have paid less attention to these elements and had a low sustainability perception of the product even before tasting.

Additionally, in a similar study of Piqueras-Fiszman & Spence (2011) the differences in weight between products were relatively bigger than the weight differences between the products in the current study. The proportional difference in weight between the conditions in the study of Piqueras-Fiszman & Spence (2011) was 80%, where it was 24% in the current study. The smaller proportional weight difference in this study was due to the weight in the lightweight-condition, which was 1 KG (compared to 375 grams in Piqueras-Fiszman & Spence, 2011). Larger differences in weight would probably have revealed the manipulation, but it seems plausible to assume that weight differences across the different conditions were proportionally small and therefore may have negatively affected sustainability perception. Also, the lightweight-condition in the current study was 1 KG, which might be relatively 'heavy' for a lightweight condition. It is possible that this has caused low scores on sustainability perception as well.

Another explanation for the lack of effects on sustainability perception might be that consumers often do not relate sustainability to food choices. This suggestion fits with findings based on a study of Grunert, Hieke & Wills (2014). They showed that consumers indicated medium high to high levels of involvement with sustainability concerns, but not when related to food choices. Grunert (2011) developed a framework including six possible barriers that may prevent people from making sustainable food choices. Grunert (2011) argues that actual sustainable behaviour depends on many factors (e.g. perception of an eco-label, understanding, liking, one's motivations, awareness etc.). Although a sustainable visual cue was used in the current study, it turns out that there are many factors that might influence the

evaluation of this visual cue. It is likely that the presence of a visual heuristic cue does not naturally affect sustainability perception.

This study attempted to respond to the environmental aspect of sustainability. Therefore, the Sustainability Perception scale that was used in the experiment was composed of elements with respect to the environmental aspect (natural content, ecological welfare, environmental protection). However, it is possible that people associate sustainability with other elements than these elements which may have caused a lack of effects on sustainability perception. Nevertheless, it turns out that people associate sustainability more often with the environmental dimension of sustainability and less often with other dimensions (Grunert et al., 2014). This results in support for the suitability of the Sustainability Perception scale as used in this study.

Finally, it turns out to be extremely difficult to realise sustainable food consumption due to several reasons (e.g. attitude-behaviour gap, barriers that prevent people from making sustainable food choices etc.) (Young et al., 2010; Vermeir & Verbeke, 2006; Grunert, 2011). Therefore, a strategy to trigger crossmodal correspondences between product properties and our senses, as proposed and tested in this study, may be not a well-suited strategy at this moment. Once people are more aware of sustainability and they have a better understanding of this concept, the usage of crossmodal correspondences may be helpful to encourage automatic sustainable food choices.

Although no effects of weight and / or visual cue on purchase intention were found in this study, quality perception turned out to predict purchase intention (i.e. the higher the quality perception, the higher the purchase intention). This finding fits with results based on earlier studies (e.g. Chang & Wildt, 1994; Tsiotsou, 2006). For example, Tsiotsou (2006) found that quality perception was a direct and an indirect predictor of purchase intention. The relationship between quality perception and purchase intention seems to be legitimate since people are expected to prefer purchasing products of good quality. On the contrary, sustainability perception did not predict purchase intention. This is probably a result of the lack of a consistent concept of sustainability perception among people, as described above.

It was expected that people with a high instrumental need for touch would have higher purchase intentions for the presented product than people with a low need for touch. In order to understand properly the difference between people with a high instrumental need for touch vs. people with a low instrumental need for touch, it is important to give a brief description of both types of instrumental need for touch. Examples of questions in the Need for Touch-scale to measure instrumental need for touch are: '*I place more trust in products that can be touched before purchase'*, '*I feel more comfortable purchasing a product after physically examining it*' and '*If I can't touch a product in the store, I am reluctant to purchase the product'*. People with a high instrumental need for touch (largely) agree with these statements, while people with a low instrumental need for touch (largely) disagree with these statements.

Since instrumental need for touch is related to functional aspects, which often concern the purchase of a product (Krishna, 2012), people with a high instrumental need for touch were expected to have higher purchase intentions. A possible explanation for not finding this effect may be that the lab-setting in which the experiment took place, is not comparable to most naturally occurring environments. Questions about the generalisability of experiment outcomes arise often, especially when it comes to laboratory experiments (e.g. Levitt & List, 2007). Particularly when focussing on instrumental need for touch, the environment in which effects of instrumental need for touch are expected to occur (e.g. supermarket) differs highly from a lab-setting. During the experiment that was conducted in this study, people were forced to touch all packages, and were asked about their purchase intention. Usually, such actions are not likely to happen in a more natural environment. It is reasonable that this may have caused discrepancy in answers. Consequently, the generalisability of outcomes can be questioned.

Limitations

Although potential explanations for (not) finding effects are provided, it is important to note some limitations as well.

First of all, the muesli that was used in this experiment contained raisins and hazelnuts to prevent participants noticing that they tasted six times the same muesli. However, results of quality perception may have been influenced by this. A spoonful of muesli with raisins and/ or hazelnuts was probably evaluated as better quality than a spoonful of muesli without raisins and/ or hazelnuts, simply because it tasted sweeter and/ or different. Not every spoonful of muesli contained muesli with raisins or hazelnuts since this was based on coincidence.

In addition, participants tasted dry muesli without any yoghurt or milk to prevent results from being influenced by the taste of the yoghurt or milk. However, this is not how people usually eat muesli and since muesli is kind of a 'dry' product, this may have influenced quality perception of the products. Participants indicated that the products tasted 'dry' and that they were not used to eat muesli without a dairy product. This may have caused an experience of taste and texture that participants were not used to experience, which may in turn have affected their quality perception.

Thirdly, since the total number of participants in this study was 53, this may have caused a lack of significant results that were expected to be found in this study. I.e. potential effects caused through the different manipulations, would perhaps have been significant when the total number of participants would have been bigger. Thereby, effect sizes of significant effects were relatively small, thus conclusions on the basis of significant findings may be carefully questioned. Also, the within-subject design of this study (i.e. all participants were exposed to all conditions) can be seen as a limitation. Namely, even though the order of the stimuli was randomized, it seems reasonable that participants started answering questions more automatically after they were exposed to a certain number of stimuli, which may have caused random noise in results.

Finally, participants tasted six times the same muesli. It is possible that they noticed this and started answering more automatically. Additionally, it is likely that participants compared the product they tasted with previous products they tasted. This may also have influenced results.

Implications and future research Theoretical implications

This study contributes to scientific insights with respect to crossmodal correspondences and sustainability in different ways. Firstly, in the domain of crossmodal correspondences, the sense of touch is less investigated than other senses (Peck & Childers, 2008). Consequently, the current research has focused on the sense of touch with the aim of extending knowledge on this subject. Also, this study contributes to the little research that has been done on a combination of visual cues and haptic cues in crossmodal correspondences. Finally, since sustainability is gaining popularity among people and marketers, it is important to find strategies that help people in making sustainable food choices. This study is, as far as known, one of the first studies that investigates the potential of crossmodal correspondences as a tool for people in making sustainable food choices.

Based on the findings in this study, evidence that crossmodal correspondences can truly trigger automatic associations across our senses is provided. Krishna (2012) argued that those associations can affect people's perceptions, evaluations and behaviour. This statement

has been partially supported in the current research since a relationship between weight and quality perception was found. Like findings in previous studies (e.g. Piqueras-Fiszman & Spence, 2011; Spence & Gallace, 2011) heavier products were perceived as products of higher quality. Although in the current study this relation was only found for heavy-weighted products compared to medium-weighted products, it seems plausible to assume that the relation between weight and quality perception is well-established.

Since no effects on sustainability perception were found in this study, this raises many questions that may be interesting for future research. Although the current research can be seen as a first step in developing strategies to encourage more sustainable food consumption, it is still important to get more insight into the concept of sustainability and on the relationship between consumer behaviour and sustainable food choices. It is likely that sustainability is not a well-funded concept we think of when it comes to food choices and purchasing behaviour, especially since the popularity of sustainability is relatively recent. Future research may elaborate the current research by seeking for well-suited strategies that contribute to more sustainable food consumption.

No effects of weight and / or visual cue were found in this study. This is contradicting expectations based on previous studies (e.g. Piqueras-Fiszman et al., 2011; Piqueras-Fiszman & Spence, 2012). However, quality perception turned out to be a predictor of purchase intention. This is in line with findings in earlier research (e.g. Chang & Wildt, 1994; Tsiotsou, 2006). This finding suggests that there may be an indirect effect of weight on purchase intention. Future research is needed to examine if there is a potential indirect effect of weight on purchase on purchase intention.

Finally, according to Peck and Childers (2003) individual differences in need for touch have a certain impact on the degree to which haptic cues are able to affect product evaluations. The current study confirms this finding as an effect of weight and visual cue on quality perception was found only when taking need for touch into account. This shows that need for touch truly plays a role in the effectiveness of haptic cues.

Practical implications

The relationship of weight on quality perception has been partially supported in this study. Since the relationship of a product's weight and perceived quality was supported more often in different studies (e.g. Piqueras-Fiszman & Spence, 2011; Spence & Gallace, 2011), it may be relevant for marketers to keep this in mind for product design or development. As heavier-weighted products are perceived as higher quality than lighter products, which has

been partially supported in this study, and quality perception predicts purchase intention, brands are recommended to develop heavy-weighted packages instead of light-weighted packages. The higher the quality perception, the higher purchase intentions among consumers.

Also, as quality perception of light-weighted and heavy-weighted products supplied with a neutral visual cue turned out to be higher compared to quality perception of products supplied with a sustainable visual cue, when taking people's need for touch into account, marketers are recommended to use neutral visual cues instead of sustainable visual cues on packages. These visual cues contribute to a higher quality perception of the product, which may in turn increase purchase intentions.

Based on the findings in this study, no recommendations can be provided in order to increase consumer's sustainability perception of a product.

Future Research

Future research is suggested to mainly focus on methods that could stimulate consumer's awareness and understanding of sustainability. Since awareness of sustainability turns out be an important predictor for intentions (Rezai, Teng, Mohamed & Shamsudin, 2012), this may help in decreasing the attitude-behaviour gap for making sustainable food choices. Besides, it turns out that consumers have to overcome many barriers before showing actual sustainable (purchasing) behaviour (Grunert, 2011), thus research on potential tools facilitating overcoming these barriers is needed.

Another suggestion for future research may be a simulation of the current study, while using another product than muesli and while increasing the number of participants. A power analysis is recommended to determine how many participants are needed.

It may also be interesting to investigate whether there is an indirect effect of a product's weight, via quality perception, on purchase intention. Furthermore, as marketers were advised to develop heavy-weighted packages instead of light-weighted packages, it may be interesting to investigate whether the relationship of weight and quality perception has a turning-point. In this way, positive effects of weight on quality perception can be optimally used.

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Images used in the pre-test and during the experiment (visual cue) are retrieved from: www.pixabay.com (copyright-free).

Appendix 1 – Pre-test pictures

Sustainability pictures



Figure A



Figure B



Figure C



Figure D

Neutral pictures



Figure E



Figure G



Figure H

Appendix 2 – Survey Pre-test

Pretest masterthesis

Start of Block: Welkom

Q1 Beste deelnemer,

Je staat op het punt om deel te nemen aan een pilottest als onderdeel van mijn Masterscriptie voor de Master Communicatie & Beïnvloeding aan de Radboud Universiteit Nijmegen.

Je krijgt straks van de onderzoeker twee opdrachten. De eerste opdracht is het beoordelen van afbeeldingen in termen van jouw associaties met duurzaamheid. Deze afbeeldingen dien je te beoordelen aan de hand van een 7-puntsschaal. Het gaat hier om jouw eerste ingeving; er zijn geen goede of foute antwoorden. Deze antwoorden vul je in aan de hand van deze online vragenlijst.

Vervolgens krijg je van de onderzoeker de opdracht om verschillende verpakkingen te sorteren op volgorde van oplopend gewicht. Ook je antwoorden op deze vragen vul je in aan de hand van deze vragenlijst.

Het is belangrijk te weten dat deelname aan dit onderzoek volledig vrijwillig is en volledig anoniem.

Alvast hartelijk dank voor je deelname!

Voor vragen kun je mailen naar: jette.bergen@student.ru.nl

End of Block: Welkom

Start of Block: Block 3

Q15 Taak 1 - Je krijgt acht verschillende verpakkingen te beoordelen. Het gaat om de mate waarin je de afbeeldingen op de verpakkingen associeert met duurzaamheid.

End of Block: Block 3

Start of Block: Block 1

	Helemaal oneens (1)	Oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Eens (6)	Helemaal eens (7)
Ik associeer deze afbeelding met duurzaamheid (1)	0	0	0	0	0	0	0

Q2 [D1] Geef aan in welke mate je de volgende afbeelding associeert met duurzaamheid:

Q3 [D2] Geef aan in welke mate je de volgende afbeelding associeert met duurzaamheid:

	Helemaal oneens (1)	Oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Eens (6)	Helemaal eens (7)
Ik associeer deze afbeelding met duurzaamheid (1)	0	0	0	0	0	0	0

Q4 [D3] Geef aan in welke mate je de volgende afbeelding associeert met duurzaamheid:

	Helemaal oneens (1)	Oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Eens (6)	Helemaal eens (7)
Ik associeer deze afbeelding met duurzaamheid (1)	0	\bigcirc	\bigcirc	\bigcirc	0	0	\bigcirc

	Helemaal oneens (1)	Oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Eens (6)	Helemaal eens (7)
Ik associeer deze afbeelding met duurzaamheid (1)	0	0	0	0	0	0	0

Q5 [D4] Geef aan in welke mate je de volgende afbeelding associeert met duurzaamheid:

Q6 [N1] Geef aan in welke mate je de volgende afbeelding associeert met duurzaamheid:

	Helemaal oneens (1)	Oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Eens (6)	Helemaal eens (7)
Ik associeer deze afbeelding met duurzaamheid (1)	0	0	0	\bigcirc	0	0	0

Q7 [N2] Geef aan in welke mate je de volgende afbeelding associeert met duurzaamheid:

	Helemaal oneens (1)	Oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Eens (6)	Helemaal eens (7)
Ik associeer deze afbeelding met duurzaamheid (1)	0	0	0	0	0	0	0

	Helemaal oneens (1)	Oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Eens (6)	Helemaal eens (7)
Ik associeer deze afbeelding met duurzaamheid (1)	0	0	0	0	0	0	0

Q8 [N3] Geef aan in welke mate je de volgende afbeelding associeert met duurzaamheid:

Q9 [N4] Geef aan in welke mate je de volgende afbeelding associeert met duurzaamheid:

	Helemaal oneens (1)	Oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Eens (6)	Helemaal eens (7)
Ik associeer deze afbeelding met duurzaamheid (1)	0	0	0	0	0	0	0

End of Block: Block 1

Start of Block: Block 2

Q14 Taak 2 - Je krijgt nu drie keer een set van drie pakken aangereikt. Het is de bedoeling dat je deze verpakkingen op volgorde van oplopend gewicht sorteert. Begin met de lichtste verpakking en eindig met de zwaarste verpakking.

End of Block: Block 2

Start of Block: Block 4

Set1 Set 1

 1(1)
 2 (2)
 3 (3)

Set 2 S	et 2
	1(1)
	2 (2)
	3 (3)

Set 3 Set 3 _____1 (1) _____2 (2) _____3 (3)

End of Block: Block 4

Start of Block: Block 5

Q20 Dit is het einde van de vragenlijst. Hartelijk dank voor je deelname!

End of Block: Block 5

Appendix 2 – Survey Experiment

Masterthesis Jette van Bergen

Start of Block: Default Question Block

Intro Beste deelnemer,

Je staat op het punt deel te nemen aan een experiment als onderdeel van mijn Masterscriptie voor de Master Communicatie & Beïnvloeding aan de Radboud Universiteit Nijmegen.

Je krijgt zometeen zes verschillende producten te proeven uit verschillende verpakkingen. Het is de bedoeling dat je wat van dit product uit het pak op een lepel giet en dit vervolgens proeft. Telkens na het proeven van het product uit een van de zes verpakkingen krijg je een aantal vragen over het zojuist geproefde product. Het is belangrijk te weten dat er geen goede of foute antwoorden zijn en je uit moet gaan van je eerste ingeving. Kies het antwoord dat jij het meest van toepassing vindt op het product dat je geproefd hebt.

De onderzoeker zal gedurende het experiment in de ruimte aanwezig zijn om de verpakkingen aan te geven. Vragen kun je voor of na het experiment stellen.

Het is belangrijk te weten dat de te proeven producten sporen van noten en sesam kunnen bevatten. Gelieve niet deel te nemen aan dit onderzoek als er sprake is van een allergie.

Deelname aan dit onderzoek is volledig vrijwillig en anoniem. Gegevens zullen niet aan derden worden verstrekt. Voor eventuele overige vragen kun je mailen naar: jette.bergen@student.ru.nl. Het onderzoek duurt 15-30 minuten.

Alvast hartelijk dank voor je deelname!

End of Block: Default Question Block

Start of Block: Intro

Q10 - Gelieve je smartphone nu op stil te zetten om storen te voorkomen -

Je krijgt zometeen de eerste verpakking aangereikt. Bekijk de verpakking en giet vervolgens wat muesli op de lepel. Proef deze muesli goed en beantwoord vervolgens de vragen over het product in deze vragenlijst.

Daarnaast krijg je pen en papier aangereikt. Telkens na het proeven uit een van de verpakkingen staat boven de eerste vraag een getal tussen haakjes (..). Noteer dit getal en zet ze onder elkaar.

Je kunt nu starten.

End of Block: Intro

Start of Block: Block 1

QP1 (1)

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Het product is lekker (1)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is voedzaam (2)	0	\bigcirc	\bigcirc	0	\bigcirc	\bigcirc	\bigcirc
Het product is vers (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
De geur van het product is lekker (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is visueel aantrekkelijk (5)	0	0	\bigcirc	0	\bigcirc	\bigcirc	0

Geef aan hoeverre je het eens bent met onderstaande stellingen

SP1 Geef aan hoeverre je het eens bent met onderstaande stellingen

Ik denk dat dit product...

_ _ _ _

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Natuurlijke ingrediënten bevat (1)	0	0	0	0	\bigcirc	\bigcirc	0
Geen kunstmatige ingrediënten bevat (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Verpakt is op milieuvriendelijke wijze (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Is bereid op milieuvriendelijke wijze (4)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	0	\bigcirc
Een goede prijs- kwaliteitsverhouding heeft (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Niet duur is (6)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik zal dit product waarschijnlijk kopen (1)	0	0	0	0	\bigcirc	\bigcirc	0
Ik zal overwegen dit type product te kopen als ik het nodig heb (2)	0	0	0	\bigcirc	\bigcirc	0	\bigcirc
Voor mij is het mogelijk dit product te kopen (3)	0	0	0	\bigcirc	\bigcirc	0	0
End of Block: Blo	ock 1						

PI1 Geef aan hoeverre je het eens bent met onderstaande stellingen Een Niet mee

Start of Block: Block 2

QP2 (2)

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Het product is lekker (1)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is voedzaam (2)	0	\bigcirc	\bigcirc	0	\bigcirc	\bigcirc	\bigcirc
Het product is vers (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
De geur van het product is lekker (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is visueel aantrekkelijk (5)	0	0	0	0	\bigcirc	\bigcirc	0

Geef aan hoeverre je het eens bent met onderstaande stellingen

SP2

Geef aan hoeverre je het eens bent met onderstaande stellingen

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Natuurlijke ingrediënten bevat (1)	0	\bigcirc	\bigcirc	0	\bigcirc	0	\bigcirc
Geen kunstmatige ingrediënten bevat (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Verpakt is op milieuvriendelijke wijze (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Is bereid op milieuvriendelijke wijze (4)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Een goede prijs- kwaliteitsverhouding heeft (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Niet duur is (6)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

Ik denk dat dit product...

_ _

_ _ _ _ _ _ _ _ _

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik zal dit product waarschijnlijk kopen (1)	0	0	0	0	\bigcirc	\bigcirc	0
Ik zal overwegen dit type product te kopen als ik het nodig heb (2)	0	0	0	\bigcirc	\bigcirc	0	\bigcirc
Voor mij is het mogelijk dit product te kopen (3)	0	0	0	\bigcirc	\bigcirc	0	0
End of Block: Blo	ock 2						

PI2 Geef aan hoeverre je het eens bent met onderstaande stellingen

Start of Block: Block 3

QP3 (3)

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Het product is lekker (1)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is voedzaam (2)	0	\bigcirc	\bigcirc	0	\bigcirc	\bigcirc	\bigcirc
Het product is vers (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
De geur van het product is lekker (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is visueel aantrekkelijk (5)	0	0	\bigcirc	0	\bigcirc	\bigcirc	0

Geef aan hoeverre je het eens bent met onderstaande stellingen

SP3

Geef aan hoeverre je het eens bent met onderstaande stellingen

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Natuurlijke ingrediënten bevat (1)	0	\bigcirc	\bigcirc	0	\bigcirc	0	\bigcirc
Geen kunstmatige ingrediënten bevat (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Verpakt is op milieuvriendelijke wijze (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Is bereid op milieuvriendelijke wijze (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Een goede prijs- kwaliteitsverhouding heeft (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Niet duur is (6)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

Ik denk dat dit product...

.....

_ _ _ _ _ _ _ _ _ _ _ _

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik zal dit product waarschijnlijk kopen (1)	0	0	0	0	0	\bigcirc	0
Ik zal overwegen dit type product te kopen als ik het nodig heb (2)	0	0	0	\bigcirc	\bigcirc	0	\bigcirc
Voor mij is het mogelijk dit product te kopen (3)	0	0	0	\bigcirc	\bigcirc	0	0
End of Block: Blo	ock 3						

PI3 Geef aan hoeverre je het eens bent met onderstaande stellingen

Start of Block: Block 4

QP4 (4)

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Het product is lekker (1)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is voedzaam (2)	0	\bigcirc	\bigcirc	0	\bigcirc	\bigcirc	\bigcirc
Het product is vers (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
De geur van het product is lekker (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is visueel aantrekkelijk (5)	0	0	\bigcirc	0	\bigcirc	\bigcirc	0

Geef aan hoeverre je het eens bent met onderstaande stellingen

SP4

Geef aan hoeverre je het eens bent met onderstaande stellingen

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Natuurlijke ingrediënten bevat (1)	0	0	\bigcirc	0	\bigcirc	0	\bigcirc
Geen kunstmatige ingrediënten bevat (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Verpakt is op milieuvriendelijke wijze (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Is bereid op milieuvriendelijke wijze (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Een goede prijs- kwaliteitsverhouding heeft (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Niet duur is (6)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

_ _ _

_ _ _ _ _ _ _ _ _

Ik denk dat dit product...

_ _ _ _

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik zal dit product waarschijnlijk kopen (1)	0	0	0	0	\bigcirc	\bigcirc	0
Ik zal overwegen dit type product te kopen als ik het nodig heb (2)	0	0	0	\bigcirc	\bigcirc	0	\bigcirc
Voor mij is het mogelijk dit product te kopen (3)	0	0	0	\bigcirc	\bigcirc	0	\bigcirc
End of Block: Blo	ock 4						

PI4 Geef aan hoeverre je het eens bent met onderstaande stellingen

Start of Block: Block 5

QP5 (5)

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Het product is lekker (1)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is voedzaam (2)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is vers (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
De geur van het product is lekker (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is visueel aantrekkelijk (5)	0	0	0	0	\bigcirc	\bigcirc	0

Geef aan hoeverre je het eens bent met onderstaande stellingen

SP5

Geef aan hoeverre je het eens bent met onderstaande stellingen

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Natuurlijke ingrediënten bevat (1)	0	0	\bigcirc	0	\bigcirc	0	\bigcirc
Geen kunstmatige ingrediënten bevat (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Verpakt is op milieuvriendelijke wijze (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Is bereid op milieuvriendelijke wijze (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Een goede prijs- kwaliteitsverhouding heeft (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Niet duur is (6)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

Ik denk dat dit product...

_ _ _ _ _ _ _ _ _ _ _ _

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik zal dit product waarschijnlijk kopen (1)	0	0	0	0	\bigcirc	0	0
Ik zal overwegen dit type product te kopen als ik het nodig heb (2)	0	0	\bigcirc	\bigcirc	\bigcirc	0	\bigcirc
Voor mij is het mogelijk dit product te kopen (3)	0	0	0	\bigcirc	\bigcirc	0	0
End of Block: Block 5							

PI5 Geef aan hoeverre je het eens bent met onderstaande stellingen

Start of Block: Block 6

QP6 (6)
	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Het product is lekker (1)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is voedzaam (2)	0	\bigcirc	\bigcirc	0	\bigcirc	\bigcirc	\bigcirc
Het product is vers (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
De geur van het product is lekker (4)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Het product is visueel aantrekkelijk (5)	0	0	\bigcirc	0	\bigcirc	\bigcirc	0

Geef aan hoeverre je het eens bent met onderstaande stellingen

SP6

Geef aan hoeverre je het eens bent met onderstaande stellingen

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Natuurlijke ingrediënten bevat (1)	0	\bigcirc	\bigcirc	0	\bigcirc	0	\bigcirc
Geen kunstmatige ingrediënten bevat (2)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Verpakt is op milieuvriendelijke wijze (3)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Is bereid op milieuvriendelijke wijze (4)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Een goede prijs- kwaliteitsverhouding heeft (5)	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Niet duur is (6)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

Ik denk dat dit product...

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik zal dit product waarschijnlijk kopen (1)	0	0	\bigcirc	0	\bigcirc	\bigcirc	\bigcirc
Ik zal overwegen dit type product te kopen als ik het nodig heb (2)	0	0	0	0	\bigcirc	0	\bigcirc
Voor mij is het mogelijk dit product te kopen (3)	0	0	\bigcirc	\bigcirc	\bigcirc	0	0
End of Block: Blo	ock 6						

PI6 Geef aan hoeverre je het eens bent met onderstaande stellingen

Start of Block: Block 7

Q23 Geef hieronder aan welke muesli je het lekkerst vond en van welke muesli je een sample mee naar huis zou willen nemen. Gebruik de lijst met getallen die je hebt opgeschreven om te weten welke muesli je wanneer hebt geproefd.

▼ Muesli uit verpakking 1 (1) ... Muesli uit verpakking 6 (6)

End of Block: Block 7

Start of Block: Block 8

NFT Geef aan in hoeverre je het eens bent met onderstaande stellingen

	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Niet mee eens, niet mee oneens (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Als ik door een winkel loop, voel ik drang allerlei producten aan te raken (1)	0	0	0	\bigcirc	\bigcirc	0	0
Het aanraken van producten kan plezierig zijn (2)	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	0
Ik heb meer vertrouwen in producten die ik heb kunnen aanraken voordat ik ze koop (3)	0	0	0	0	\bigcirc	0	0
Ik voel me comfortabeler als ik een product fysiek heb kunnen onderzoeken alvorens ik het koop (4)	0	0	0	0	\bigcirc	0	\bigcirc
Als ik in een winkel rondneus vind ik het belangrijk om allerlei producten aan te raken (5)	0	0	0	\bigcirc	\bigcirc	0	0

Als ik een product niet kan aanraken in een winkel, dan kan ben ik terughoudend het product te kopen (6) Ik vind het leuk producten aan te raken, zelfs als ik niet van plan ben ze te kopen (7) Ik voel me meer overtuigd een product te kopen nadat ik het product heb aangeraakt (8) Als ik in een winkel rondneus, vind ik het leuk veel producten aan te raken (9) De enige manier om er zeker van te zijn dat een product het waard is om te kopen, is door het eerst aan te raken (10)

 \bigcirc \bigcirc

Er zijn veel producten die ik alleen zou							
kopen als ik ze kan aanraken voor ik ze koop (11)	0	0	0	\bigcirc	\bigcirc	\bigcirc	0
In winkels raak ik allerlei producten aan (12)	0	0	0	0	0	0	0
End of Block: Bl	ock 8						
Start of Block: B	lock 9						
Q26 Vul tot slo	ot onderstaand	e vragen in	:				
GSL Geslacht							
○ Man (1	.)						
○ Vrouw	(2)						
LFT Leeftiid							
OPL Opleiding	gsniveau						
○ мво ((1)						
⊖ HBO (2)						
○ WO (3)						
End of Block: Bl	ock 9						

Start of Block: Block 10

Q29 Dit is het einde van de vragenlijst. Hartelijk dank voor je deelname!

Klik op de rode knop rechts onderaan de pagina om je antwoorden op te slaan.

End of Block: Block 10