
Consumers' evaluation of ethical food products

**THE EFFECT OF ENVIRONMENTAL AND SOCIAL ETHICAL
ATTRIBUTES ON THE EVALUATION OF HEALTHY AND
UNHEALTHY FOOD PRODUCTS**

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The effect of environmental and social ethical attributes on the
evaluation of healthy and unhealthy food products

Master thesis

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Abstract

This paper differentiates ethical attributes (EAs) and investigates the effect of environmental and social EAs, such as the use of environmentally friendly ingredients and child labour free business practises, on the Dutch consumers' evaluation of healthy and unhealthy food products. The results prove the value of this EA distinction as consumers evaluate environmental and social EAs differently. The use of a social EA has a positive effect on product evaluation, however, an environmental EA does not. While a mediating role of *perceived* healthiness was expected in the relationship of environmental EA on product evaluation, it is the *actual* healthiness of the product category that plays a strong significant role in how consumers evaluate a product endorsed with an environmental or social EA. Surprisingly, no interactions were found between consumers' ethical consumption behaviour and general health interest and the EAs. The results also show no influence of demographic characteristics in the evaluation of products endorsed with an environmental or social EA. However, when zooming into both EA and product category level, significant results come to light and give insight in what influencers affect product evaluation. The novelty of this paper lays in the differentiation of EAs and carries out the importance of measuring the effects of environmental and social EAs separately, creating new academic as well as practical insights for managers who position or manufacture food products.

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Chapter 1. Introduction

The dark side of consumption becomes more and more visible. Production of consumer goods leads to destruction of natural areas, depletion of fossil fuels, and exploitation of labour (European Environment Agency 2016; Human Rights Watch 2016). In the past, these issues were largely the concern of activist groups like Green Peace and Amnesty International. Recently, awareness of the ethical aspects of consumption has become more mainstream. A growing number of consumers is willing to pay extra for products that are produced in an environmental friendly or humane way (Nielsen 2015; PwC 2016), which opens new opportunities for business. Ethical production was until recently the realm of small, pioneering companies such as Innocent Drinks and Toms. Nowadays, also multinationals have discovered this growing billion-dollar market of ethical consumers (Unilever 2017).

Ethical consumption also has the attention of the academic research community. When factors leading to ethical consumption are better understood, ethical consumption can be made more attractive to consumers (e.g. Bodur et al. 2016; Devinney et al. 2013; Lin & Chang 2012; Luchs et al. 2010). Product attributes that reflect social or environmental issues are called ethical attributes (EAs) (Luchs et al. 2010). Thus far in studies on the influence of EAs on product evaluation, no real distinction has been made between different ethical issues. While some studies focus on EAs that deal with environmental aspects such as deforestation, CO2 emission, water pollution, and desertification (e.g. Bartels & Onwezen 2014; Luchs et al. 2010), other studies focus on EAs of social nature that refer to issues like child labour, slavery, and animal suffering (e.g. Paul, Modi & Patel 2016; Irwin & Naylor 2009). This distinction between environmental EAs and social EAs is relevant, because consumers might have different attitudes towards them. To some consumers, the social impact of the products they buy matter (i.e. they avoid stores that have a reputation of exploitation of labour), while they might care less about environmental issues. Other consumers have a stronger orientation towards environmental EAs. This difference in evaluation of environmental versus social EAs is also reflected in the choices people make when it comes to the donation of money or voluntary work. Some support Green Peace, others Amnesty International.

The division into environmental EAs and social EAs is also relevant when it comes to explaining the motivation behind the evaluation of products that carry-out a certain EA. A known phenomenon is that people believe products with an environmental EA are healthier

than products without them (Lazzarini et al. 2016). No empirical evidence yet directly supports this believe, and it is currently seen as a result of a halo-effect in which one positive trait (environmental friendliness) leads to the perception of another positive trait (beneficial to my health) (Sorqvist et al., 2015; Van Dam & Van Trijp 2007). This effect is largely absent for social EAs. Thus, the influence of environmental EAs on product evaluation might not always reflect ethical consumerism, but can also be the result of personal health interest.

On top of the influence of perceived healthiness of products endorsed with environmental EAs, the product category plays a role too. Some products are obviously healthier than others. Most consumers know an apple is healthier than a candy bar. Unlike perceived healthiness due to environmental EAs, this perception of health is empirically grounded (nutritiondata.self.org). When buying an apple, health can be one of the aspects behind the product's evaluation. And this conscious healthy choice could make the consumer more sensitive towards environmental EAs that (unjustified) communicate health. When buying a candy bar, health is a less important part of the equation. As a result, the consumer could be less sensitive to the perception of healthiness of environmental EAs. This study does the first attempt to investigate the potential influence of perceived healthiness on the evaluation of food products endorsed with environmental EAs or social EAs.

Furthermore, also differences between individual consumers could influence the relative evaluation of environmental versus social EAs. Some people are more ethically conscious than others and to some people a healthy lifestyle is an obsession, while others care much less about personal health. Also demographics play a role. Young people are more often aware of the ethical aspects of their consumption than older aged categories (Shah et al. 2012; Stolle et al. 2005). The same differences are found for gender (Hirsch 2012), income (Hughner et al. 2007) and level of education (Mancini et al. 2017).

This study focusses on the influence of EAs on the Dutch consumers' evaluation of food products. The distinction between environmental EA and social EA is made and studied in relation to the possible mediation of perceived healthiness and the possible moderating role of product category. The main question addressed in this study is:

Do environmental and social EAs influence the Dutch consumers' product evaluation, and is this effect mediated by perceived healthiness and/or moderated by the product category?

To answer this question, first the difference between environmental and social EAs and their influence on product evaluation will be established. Then, the mediating role of perceived healthiness and the moderating role of product category will be studied. Finally, the effects of consumer attitudes and demographic characteristics on the influence of environmental and social EAs on product evaluation will be studied. Leading to the following sub-questions:

1. What are environmental and social ethical attributes?
2. Do environmental and social ethical attributes have a positive effect on product evaluation?
3. Does perceived healthiness play mediating role in the evaluation of a (healthy) product endorsed with an environmental EA?
4. Does the (unhealthy) product category play a moderating role in the evaluation of a product endorsed with a social EA?
5. Does the consumers' ethical consumption behaviour and a healthy diet influence the evaluation of a product endorsed with an environmental EA or social EA?
6. Does the effect of environmental EA or social EA on product evaluation differ across demographic groups?

Chapter 2. Theory

To build upon the posed research question, this chapter first focuses on the literature behind ethical consumption behaviour, the attitude-behaviour gap, product evaluation and the identification of environmental and social EAs. Secondly, the theory about perceived healthiness and product categories presents their mediating and moderating role in the main conceptual model in measuring the evaluation of products endorsed with an environmental or social EA. Third and final, the theoretical role behind ethical consumption behaviour, healthy diet attitude and demographic characteristics illustrates how they are expected to influence the evaluation of products endorsed with environmental or social EAs.

2.1 Ethical consumption behaviour

Ethical consumption is on the rise. Consumers are increasingly aware of the consumption-related impact on the planet and its people. If everyone on this earth would copy the Western consumption pattern, five planets would be needed to provide for all resources and to absorb all waste. Meanwhile, the size of the global middle class is increasing rapidly from 1.8 billion in 2009 to 3.2 billion by 2020 and even 4.9 billion consumers by 2030 (The World Counts 2017). This leads to a rapid adoption of the Western consumption pattern worldwide. In reaction to this unsustainable trend, consumers become more and more aware of consumption-related environmental and social issues in the world (Devinney et al. 2013), such as global warming, air and water pollution, child labour practices, or the inhumane treatment of animal (Bartels & Onwezen 2014; Paul, Modi & Patel 2016). This awareness slowly influences consumers' purchase behaviour (Paul, Modi & Patel 2016) into ethical consumerism where consumers purchase products that are produced in neutral environmental, social and moral protecting manners (Bartels & Onwezen 2014; Uusitalo & Oksanen 2004; Cambridge Dictionary). Although this trend applies to many sectors, this study focuses on the food industry.

Despite the growing ethical consumerism, a large inconsistency between consumers' purchase intention and actual ethical purchase behaviour exists. This is also known as 'The Attitude-Behaviour Gap in Ethical Consumption' (Shaw et al. 2016; Signori & Forno 2016; Devinney et al. 2013; Carrington et al. 2010; Auger et al. 2008). The phenomenon is an important topic to the industry, policy makers, and the academic field in understanding what holds consumers back from purchasing ethical products. As a variety of theories describe this

gap, the main argument is that consumers overestimate their ethical-mindedness, and this perception does not match their actual ethical consumption behaviour (Shah et al. 2016; Carrington et al. 2010). Due to the gap, measuring purchase intention has a strong bias and does not reflect actual purchasing behaviour. As the fundamentals of preference and choice are strongly affected by the evaluation of a product (Schwarz 2004), product evaluation will have the focus in this study. Product evaluation is defined as the perceived attractiveness of a product prior to choice (Van Osselaer & Janiszewski 2012) in which consumers evaluate a product based on its benefits (Meyvis & Janiszewski 2002; Chandon et al. 2000).

Although many consumers say they consume more ethically than they actually do, ethical consumerism in The Netherlands is gaining grounds with a 12% growth in sustainable food sales from 2015 to 2016, resulting a retail value size of €3 billion (Logatcheva & Van den Puttelaar 2015). Companies and brands are acting on this growing demand by launching new ethical products. By doing so, they create a more positive image for their business (Bodur, Duval & Grohmann 2015; Devinney et al. 2013; Sen & Bhattacharya 2001) and branded products (e.g. Bodur et al. 2016; Bodur, Duval & Grohmann 2015; Lin & Chang 2012; Luchs et al. 2010; Auger et al. 2008; Sen & Bhattacharya 2001). Products can show their ethicality in various ways such as through labelling (e.g. eco-labelling, FSC certification, Fairtrade), textual communication on the packaging or both (Gulbrandsen 2006; Aschemann-Witzel 2015). This study focuses on ethical textual communication on a product's packaging.

2.2 Ethical attributes

More and more consumer food products are carrying a so-called ethical attribute (EA) on their packaging: fruit juice containers saying "natural ingredients", coffee that is 'Fairtrade' or chocolate claiming on their packaging to be "slave free". EAs are product attributes reflected in two main concerns; environmental and social aspects (e.g. Bodur, Gao & Grohmann 2012; Luchs et al. 2010). Environmentally related EAs include topics such as air and water pollution reduction (Bartels & Onwezen 2014; Luchs et al. 2010), recycling (Luchs et al. 2010), environmentally friendly ingredients (Lin & Chang 2012; Luchs et al. 2010), natural ingredients (Bodur, Gao & Grohmann 2014; Irwin & Naylor 2009) and more. EAs of social nature address subjects such as comprising fair labour practices (Luchs et al. 2010), child labour free production (Bodur, Gao & Grohmann 2014; Irwin & Naylor 2009), fair distribution of wealth

and fair trade (Paul, Modi & Patel 2016; Irwin & Naylor 2009), humane treatment of animals (Luchs et al. 2010; Irwin & Naylor 2009) and cause-related marketing (i.e. support of a cause that is linked to product sales; Varadarajan & Menon 1988).

Despite the value consumers assign to EAs, in some cases, EAs can also create a negative consumer response towards a product. This is based on the perception that product-related EAs (i.e. have implications for product performance; e.g., natural ingredients; Bodur, Gao & Grohmann 2014) have a certain trade-off that will reduce product effectiveness and thus the product evaluation (Bodur et al. 2016; Lin & Chang 2012; Luchs et al. 2010). Consumer awareness of the modern marketplace in which manufacturers operate under budgetary, product development, and manufacturing constraints, creates the perception that products that are superior on one attribute will be relatively inferior on another attribute (Luchs et al. 2010). Bodur's (2016) study also shows a quality trade-off effect when low-priced products are ethically endorsed in which EAs create a negative effect on the brand evaluation.

Regardless of the fact that literature makes a clear distinction between environmental and social EAs and the mechanism behind it, EAs are generalized and studied as a whole (e.g. Bodur et al. 2016; Bodur, Goa & Grohmann 2016; Yang et al. 2015; Gupta & Sen 2013; Pelozo, White & Shang 2013; Lin & Chang 2012; Luchs et al. 2010; Irwin & Naylor 2009). This generalization does not reflect the difference in nature between environmental versus social issues and the potentially varying attitudes consumers have towards them. While some consumers value environmental concerns more, others attach more value to social issues (Rousseau 2015). This study is the first to measure the effects of environmental and social EAs separately.

Although prior studies did not split environmental and social EAs, most of them found that EAs have a positive effect on product evaluation. Together with the modern ethical consumption trend, environmental and social EAs are expected to both have a positive effect on product evaluation. Therefore, the first main hypotheses that will be tested in this study are:

H1a. Environmental ethical attributes have a positive effect on product evaluation.

H1b. Social ethical attributes have a positive effect on product evaluation.

2.3 Perceived healthiness

An aspect in which the effect of environmental EAs and social EAs on product evaluation might differ, is perceived healthiness. Environmentally friendly and clean label products are perceived to be healthier than conventional products (Lazzarini et al. 2016; NPD Group 2016; Rousseau 2015; Kriwy & Mecking 2012; Koos 2011). When it comes to organic food consumption, which can be considered sustainable as well as environmentally friendly, no chemicals and pesticides are used in the production process and the product is therefore perceived to be healthier (Foster 2005). The unconscious assumption is that what is good for the planet is also good for personal health. This is the result of a halo-effect effect (Sorqvist et al., 2015; Van Dam & Van Trijp 2007), which could occur when there is a true relationship between sustainability or ethicality and health, but also when an ethical attribute has no influence whatsoever on the nutritional value and therefore healthiness of the product (Lazzarini et al. 2016; Rozin et al. 2012; Luchs et al. 2010). When it comes for example to the relation between the ethical value of organic products and nutritional value, this perception is not justified. Research has not proven that organic food is truly healthier to the consumers' body (Dilner 2016; Zukerman 2016; Milne, Petch & Caulfield 2016; Sorqvist et al. 2015; Hughner et al. 2007).

Whether true or not, perceived healthiness has a positive effect on product evaluation as consumers evaluate healthier products higher than unhealthy products (Ronteltap et al. 2012; Nielsen 2015; PWC 2016). This means that the positive product evaluation of environmental EAs can be based upon health concerning motivations instead of ethical motivations. Perceived healthiness could thus play a mediating role and replace the effect of ethical considerations. When it comes to social EAs (e.g. a pack of coffee that is 'Fairtrade' or a chocolate bar that is 'slave free') this mediation via perceived healthiness will not play a role, since social EAs do not necessarily enhance the Earth's environmental situation. Research of Rousseau (2015) suggests that social EAs much less create a halo-effect or raise the perception of healthiness than environmental EAs. Uncovering this possible mediation would give insight in the true motivations leading to the consumers' choice for environmental EAs and would indicate a fundamental difference in the effect between environmental and social EAs. The two following hypothesis will test this mediating role of perceived healthiness:

H2a. Perceived healthiness mediates the relationship of environmental EA on product evaluation.

H2b. Perceived healthiness does not mediate the relationship of social EA on product evaluation.

2.4 Product category

Consumers can perceive a product as healthy based upon an (unjustified) idea of the healthiness of environmental EAs, but also because of the product category. An apple is perceived as healthy, a lollipop as unhealthy. According to Nielsen's (2015) report on health attitude, product attributes that enhance the product's healthiness (e.g. freshness, naturalness and minimal processing) are important positive factors in purchase intention. In contradiction to the perceived health effect in case of environmental EA endorsement, the healthiness of these food categories is justified, since backed by empirical evidence (nutritiondata.self.org n.d.). Seeing a healthy food product triggers a 'health mind-set' that could be amplified by the unjustified perceived healthiness of an environmental EA as there is a strong synergy between the two (Verain et al. 2016; Sautron et al. 2015; Aschemann-Witzel 2015). Together, they communicate a stronger 'health message' to the consumer. For example, when an apple (justified healthy food category) is also endorsed with an environmental EA (unjustified perceived healthiness), the product has two attributes that would trigger the perception of healthiness. This combined effect could lead to a higher product evaluation. As previously stated, when it comes to social EAs this mediation of perceived health does not play a role. Thus, one could expect that for healthy food categories the product endorsed with an environmental EA is evaluated relatively higher than a product endorsed with a social EA due to the mediating role of perceived healthiness, resulting in the following hypothesis:

H3. Healthy product categories amplify the by perceived healthiness mediated relationship of environmental EA on product evaluation relative to the effect of social EA on product evaluation.

On the other hand, a lollypop is an obvious unhealthy product. Seeing a lollypop does not trigger a healthy mind-set, and health becomes a relatively less important aspect in the product evaluation (Ronteltap et al. 2012). This makes the potential consumer of an unhealthy product less sensible for the perception of health in case of a social EA. As a result, no mediation of perceived healthiness will occur, resulting in a different evaluation of products endorsed with environmental EA versus social EA. Rousseau (2015) even suggested that when it comes to unhealthy products, environmental EAs play a less important role in product evaluation than social EAs. However, Rousseau (2015) does not test this and suggests further research on the topic. Leading to the following hypothesis:

H4. In case of unhealthy product categories, the effect of social EA on product evaluation is stronger relative to the effect of environmental EA on product evaluation.

2.5 Consumer characteristics

Besides product categories, also differences in consumer lifestyle and demographic characteristics potentially influence the evaluation of products with EAs. These aspects are important to take into consideration in regard to the validation of the research model, since they could distort the outcomes.

Two consumer lifestyle elements of interest are a healthy diet and ethical consumption behaviour. Ethical consumption behaviour grows rapidly in The Netherlands. In 2015, ethical consumption grew from 10% to 15% of the population (Sociaal en Cultureel Planbureau 2016). This ethical consumption behaviour reflects purchasing ethical products or refusing non-ethical products (Sudbury-Riley & Kohlbacker 2016; Papaoikonomou, Valverde & Ryan 2012). Most likely, individuals scoring high on ethical consumption behaviour evaluate a product endorsed with an environmental EA or social EA more positive than individuals who score low on ethical consumption behaviour. Therefore, the following hypothesis is added:

H5. The effect of environmental EA and social EA on product evaluation is stronger for individuals with ethical consumption behaviour.

Also, the consumers' general health interest (i.e. the interest of eating healthily; Roininen 2001) has a potential influence on the evaluation of products endorsed with EAs. Reports from

Nielsen (2015) and PwC (2016) state that the awareness of the importance of both a healthy diet (part of a general health attitude) and EAs grows. This does not automatically imply a causal relation between a healthy diet and ethical consumption. Aschemann-Witzel (2015) found a negative relation between healthy diet and ethical consumption, as some healthy dieters perceive sustainable attributes to have a trade-off on the nutritional value of the product and therefore evaluate a product less positively. Other studies found a positive relation between a healthy diet and ethical consumption behaviour. A healthy diet and environmental consciousness are the most valued motivations for purchasing organic products (Kriwy & Mecking 2012) and positive synergies are found between consumers with a healthy diet and the contribution to ethical consumption (Ghvanidze et al. 2016). However, as both the importance of healthy diet and actual ethical consumption grows, the effect of a healthy diet (or the lack of it) on the evaluation of products with EAs is yet unclear. This leads to the following hypothesis:

H6. The effect of environmental EA and social EA on product evaluation would be stronger for individuals following a healthy diet.

As consumer lifestyle choices are potentially of influence on the evaluation of products with EAs, so are demographic characteristics. Research shows that young people are more likely to be ethical consumers (Shah et al. 2012; Stolle et al. 2005; ethicalconsumer.org) and once they purchased ethical items a few times, they are more likely to start a long-term commitment (Quintelier 2014). Nielsen (2015) also shows a generation gap when it comes to the importance of ethical and healthy products in which the generations Millennials (21-34 years old) and Generation Z (<20 years old) value ethicality and healthiness most. Therefore, one could expect younger individuals to evaluate ethical product more positively than older individuals, resulting in the following hypothesis:

H7. The effect of environmental EA and social EA on product evaluation would be stronger for younger individuals.

Also gender influences the evaluation of products with EAs. Hirsch (2010) showed that women have a higher concern for the environment than men. In The Netherlands, this translates into

more women being ethical consumers than men (Sociaal en Cultureel Planbureau 2015). The ethical consumer movement (ethicalconsumer.org) as well found a positive relationship between women and ethical consumption. Given this difference, the following hypothesis is formulated:

H8. The effect of environmental EA and social EA on product evaluation would be stronger for women.

Another demographic characteristic that potentially influences the evaluation of products with EAs is income. A study by the Sociaal en Cultureel Planbureau (2016) shows that income is even the most important demographic in ethical consumerism. This may partly be explained by the fact that consumers with a higher income can better afford the often higher priced ethical products than consumers with a lower income (Andorfer 2013). Also consumers with a higher income have a larger desire to economically help vulnerable groups (Hughner et al. 2007). For this reason, individuals with a higher income are expected to evaluate products with EAs more positively; resulting in the following hypothesis:

H9. The effect of environmental EA and social EA on product evaluation would be stronger for individuals with a high income.

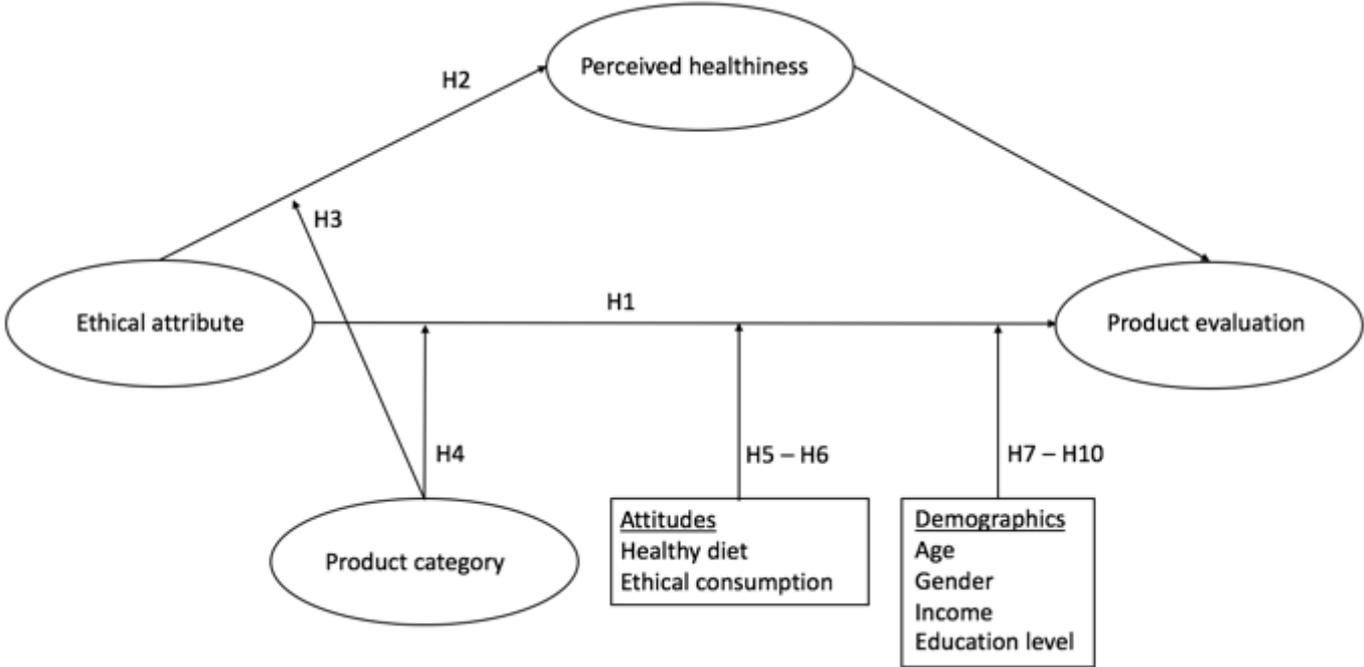
Finally, education is also expected to influence the effect of EAs on product evaluation. The study of Sociaal en Cultureel Planbureau (2016) shows that ethical consumers are for the most part highly educated. The European Social Survey 2012 (ethicalconsumer.org) confirms this finding. The positive effect of education on ethical consumerism is partly due to the effect of related higher incomes, but well-educated individuals are also better informed about and more sensitive to ethical issues (Mancini et al. 2017). Higher educated people have more knowledge about the environmental and social consequences of their consumption, leading to more ethical-minded consumption behaviour. Taking the effect of education level into account, the following hypothesis is formulated:

H10. The effect of environmental EA and social EA on product evaluation would be stronger for highly educated individuals.

2.8 Conceptual model

All the hypotheses of this study are combined into the conceptual model depicted in Figure 1. The circled variables represent the main model, the squared boxed serve as covariates, and the arrows represent the relations between the concepts.

Figure 1. Conceptual model



Chapter 3. Methodology

In order to test the hypotheses, a survey-experiment with 2x3 between-subject full-factorial design is used. First, a pre-test determines the healthy and unhealthy product category for the study. Second, the variables in the model are explained. Finally, the data collection, questionnaire and statistical models are described.

3.1 Research design

The study employs a 2x3 full factorial between-subject experimental design. The two factors are: 'product category' (levels: healthy and unhealthy) and 'ethical attribute' (levels: environmental EA, social EA and control).

3.2 Choice of product category

A pre-test determines what product category consumers perceive as healthy and unhealthy. The pre-test, based on Carels et al. (2006), consists of two parts. First, consumers are asked to name five supermarket foods that they consider 'very healthy' and five foods they consider 'very unhealthy'. Second, out of the mentioned products, respondents rate on a 7-point scale "How healthy is this food?" (1 = very unhealthy, 7 = very healthy). The two products for the main study are chosen based on the results of the pre-test.

In the first part of the pre-test (N = 10, 60% female, M_age = 30.2 years, SD_age = 9.37), the most frequently mentioned healthy supermarket food categories are: vegetables, fruit, whole-wheat bread, fish, nuts, milk, eggs and meat. Most frequently mentioned unhealthy supermarket food categories are: crisps, chocolate, candy, soda and cookies. As some of the food categories are not packaged foods, and a package is in this study needed to hold an EA, these food categories are eliminated from the selection (e.g. vegetables and fruit). Leaving for the second part of the pre-test the healthy products: nuts, milks and eggs; and for the unhealthy products: crisps, chocolate, candy, soda and cookies.

On the question "How healthy is this food?" (N = 9, 56% female, M_age = 31 years, SD_age = 9.45) **nuts** are considered the healthiest product (M = 6.6, SD = 0.5), followed by eggs (M = 5.9, SD = 0.8) and milk (M = 5.2, SD = 1.6). Candy is considered the unhealthiest (M = 1.4, SD = 0.7), followed by soda (M = 1.6, SD = 0.7), crisps (M = 1.7, SD = 1.0), **chocolate** (M = 2.1, SD = 1.3) and cookies (M = 2.2, SD = 1.0).

Nuts are considered very healthy and multiple relevant EAs can endorse the product. As all unhealthy options are considered significantly unhealthy, not all categories can carry the same EAs - that are relevant to the product - as the nut category. Chocolate and nuts could carry the same relevant EAs and chocolate is therefore used in the study as the unhealthy product category.

3.3 Choice of ethical attribute

The selection of environmental and social EAs is based on the literature of Bodur et al. (2016), Bodur, Gao & Grohmann (2014) and Irwin & Naylor (2009). In Bodur's (2016) study, a pre-test measures the ethicality of multiple EAs where 49 respondents rate the EAs on a scale of 1 to 7 (1 = very unethical, 7 = very ethical). The EAs with the highest scores are: 'Made with environmentally friendly ingredients' and 'Made by a company that is child labour free'. These highest scoring EAs are environmentally and socially orientated and applicable for both of the product categories, nuts and chocolate. Therefore, these EAs are selected for the experiment.

3.4 Variables

Below, the variables in the study are described.

Product evaluation: This is the dependent variable and reflects consumers' evaluation of the chocolate and nuts product. In the questionnaire, the product evaluation is measured on a 7-point Likert-scale through three questions: "I evaluate this product positively", "I find this product attractive" and "I evaluate this product favourably" (Bodur et al. 2016; Sar 2013). The goal is to measure the change in product evaluation when a product is endorsed with an environmental EA or social EA.

Ethical attribute: This independent variable reflects the environmental and social ethical phrase that is added to the chocolate and nuts product in order to measure the effect of the ethical attribute on the product evaluation. The EAs used in this study are pre-tested in previous literature. The environmental EA is "Made with environmentally friendly ingredients" and the social EA is "Made by a company that is child labour free". The EAs are the factor with three levels in the 2x3 full factorial experiment: environmental EA, social EA and no EA (control level).

Product category: This independent variable represents a healthy and an unhealthy product. A pre-test determined the healthy and unhealthy product categories, nuts and chocolate (Carels et al. 2006). The product categories are the factor with two levels in the 2x3 factorial design. The goal is to measure if the effect of social EA on product evaluation will be stronger for unhealthy product categories; and that for healthy product categories, the effect of environmental EA on product evaluation is stronger due to the mediating role of perceived healthiness.

Perceived healthiness: This independent variable reflects the perception of health consumers have on products endorsed with ethical attributes. The respondents are asked to rate the healthiness of the exposed condition on a 7-point Likert scale: "I perceive this product to be healthy" (Provencher et al. 2009). No nutritional information is presented as the study wants to measure the respondents' perception of the products' healthiness.

Healthy diet: This covariate reflects the respondents' general health attitude (healthy diet). Measuring the health attitude in this study is interesting for explanatory reasoning, meaning the consumers' diet can say a lot about how this individual evaluates a certain product. It can also limit the effect of individual differences, as for example a respondent scoring high on general health will perceive nuts and chocolate differently from a low scoring respondent. Two questions on general health attitude from Roininen's (2001) Health and Taste Attitude Scales (HTAS) are included in the study. The two questions selected from the HTAS to measure the respondents' healthy diet are the ones with the highest factor score: "I'm very particular about the healthiness of food" and "I follow a healthy and balanced diet". The goal is to explore if the consumers' healthy diet influences how consumers evaluate a product endorsed with an environmental or social EA.

Ethical consumption behaviour: This covariate reflects the ethical-minded consumption behaviour when it comes to environmental and social product-related issues. Measuring the ethical consumption behaviour is interesting for explanatory reasoning, meaning the ethical consumption behaviour of a respondent can say a lot about how this individual evaluates a certain ethical or unethical product. Two question from the Ethically Minded Consumer Behaviour scale (Sudbury-Riley & Kohlbacher 2016) are included in the study; one

environmental and one social consumption-related issue: “If I understand the potential damage some product can cause to the environment, I do not purchase those products” and “I buy products from companies that I know use sweatshop labour, child labour or other poor working conditions”. The goal is to explore if ethical consumption behaviour interactively influences how consumers evaluate a product endorsed with an environmental or social EA.

Demographics: The covariates nationality, age, gender, income and educational level reflect the demographics of the respondents. As this study focuses on the Dutch population only, ‘Nationality’ is collected to eliminate all non-Dutch respondents from the sample. ‘Age’ indicates the age variation in the sample and measures the difference in effect on the evaluation of ethically endorsed products between age groups. The same accounts for ‘Gender’, in which the differences between men and women is measured when it comes to the evaluation of ethically endorsed products. The variable ‘Income’ indicates the wealth of the sample, in which the effect on the evaluation of ethically endorsed products may differ per income category. ‘Educational level’ indicates the highest achieved scholar degree of the sample, in which the effect on the evaluation of ethically endorsed products may differ per educational level.

3.5 Manipulation check

Respondents are asked to rate the relevance of the environmental EA and social EA to the product category. This is important because when the EA-phrases are not perceived to be relevant to the product, this would be a huge explanatory factor in the study. Therefore, in the exposed condition, respondents are asked to rate on a 7-point Likert-scale: “I think the term 'Made with environmentally friendly ingredients' is relevant to the product group [product]” and “I think the term 'Made by a company that is child labour free' is relevant to the product group [product]”. Respondents answer both questions for either nuts or chocolate, regardless of their exposed condition.

3.6 Product description

Figure 2 illustrates two out of the six possible product descriptions (see Appendix 'Questionnaire' for all conditions). Each product description first describes what the product is, in case of nuts: "Raw, unsalted mix of nuts". As the study wants to measure differences between a healthy product and an unhealthy product, the nuts must describe a healthy variant of the category (e.g. sugar-coated almonds are a relatively unhealthy variant of the category). "Raw and unsalted" is the healthiest way to consume nuts (Voedingscentrum.nl; Notenspecialist n.d.; Nierstichting 2017). To rule-out the possible consumer preference for a certain type of nut, the description "mix of nuts" is used.

Relative to nuts, chocolate is described in an unhealthy way "Creamy chocolate bar, 32% cocoa"; in which "creamy" may raise the association to a high fat and sugar content and chocolate with 32% cocoa generally contains more sugar and fat than dark chocolate with a larger amount of cocoa.

"Great in-between snack" and "Average priced" are constant throughout all conditions. "Great in-between snack" is simply an extension of the product description. "Averaged priced" is added to eliminate the consumer perception that ethical products are more expensive, resulting a possible lower product evaluation as price is one of the most important negative influencers in ethical purchase behaviour (Ethicalconsumer.com, n.d.). The image of the mixed nuts package and the chocolate bar are added to the product description for a more realistic product representation. Besides, the added images make the product rating a bit livelier and therefore limits a respondents' fatigue bias.

Figure 2. Product description



3.7 Data collection

The method used for data collection is an online questionnaire. The data-collecting tool Qualtrics randomly assigned participants to one out of the six conditions. The online survey is spread two ways: publicly in certain Facebook and LinkedIn groups and on the researcher's personal social media networks kindly requesting friends, family and acquaintances to fill in the survey; and privately by sending messages on Facebook-messenger, WhatsApp and LinkedIn-chat. The anonymous link to the survey is also shared in the social circle of certain friends and family members.

The minimum sample size for a statistically reliable result from the factorial design is 30 respondents per condition, meaning (30 respondents x 6 conditions) a minimum of 180 respondents is needed according a rule of thumb. To obtain a stronger reliability and to have some room for respondents dropping out, being non-Dutch or missing values; 40 respondents per condition, 240 respondents is the goal. For a reliable regression analysis, another rule of thumb occurs in which 10-15 respondents are needed per predictor (Fields, 2013). In the case of this study, where multiple regression is applied, there will be 10 independent variables resulting in a minimum sample size of 100-150. All together, the target number for a reliable study is 240 respondents.

3.8 Questionnaire

The questionnaire is divided into three parts, first the subjects are exposed to one out of six factorial conditions, followed by a set of general questions and ending with demographic questions. See appendix 'Questionnaire' for the full survey. The participants start the questionnaire with a short introduction in which the participation in the study is appreciated. After clicking 'Next' the participant is told that on the next page they will see a description of a product and are kindly asked to answer the questions about that product. As the participant continues, he or she is exposed to one of the 6 experimental conditions and rates on a 7-point Likert-scale (1=strongly disagree, 7=strongly agree) three statements about product evaluation, one about perceived healthiness and two statements about the ethical attribute relevance (manipulation check). In the second set of statements the respondent rates on a 7-point Likert-scale two statements on ethical consumption behaviour and general health attitude. In the third part the participant answers five demographic multiple-choice questions: age, gender, nationality, income and highest achieved educational level.

The respondents were obliged to answer the questions in order to avoid non-response bias. Also, the option ‘No answer’ (N/A) is presented for the first two parts of the questionnaire and the demographic question about income to avoid a bias of forced response when a respondent is unsure or not willing to answer a question. Two questions in the questionnaire are reversed to indicate if respondents are speeding or cheating (Smith 2013). Below, in the Table 1, a summary of the survey structure can be found.

Table 1. Questionnaire structure

Question type	Source	Structure
Product evaluation Q1, Q3, Q4	Bodur et al. 2016 Sar, 2013	7 point Likert-scale
Perceived healthiness Q6	Provencher et al. 2009	7 point Likert-scale
Relevance of EA on product Q7, Q8	Bodur et al. 2016; Bodur, Gao & Grohmann 2014	7 point Likert-scale
Ethical consumption behaviour Q9, Q10	Sudbury-Riley & Kohlbacher 2016	7 point Likert-scale
General health attitude Q11, Q12	Roininen et al. 2001	7 point Likert-scale
Demographics Q15, Q16, Q17, Q18	Age, gender, nationality, income, education level	Multiple choice

After the questionnaire was designed, a small group of five individuals tested the questionnaire on question formulation and clarity. After receiving the feedback, some elements were slightly adjusted.

3.9 Statistical modelling

Multiple regression is used for analysing the data. Below, all the models are displayed. First, the main effects of environmental EA and social EA on product evaluation is analysed. Second, the mediating effect of product healthiness is measured. Third, the product categories are introduced into the model, analysing their moderating and moderated mediating role. Fourth, the moderating effect of ethical consumption behaviour, general health attitude and demographic characteristics are tested.

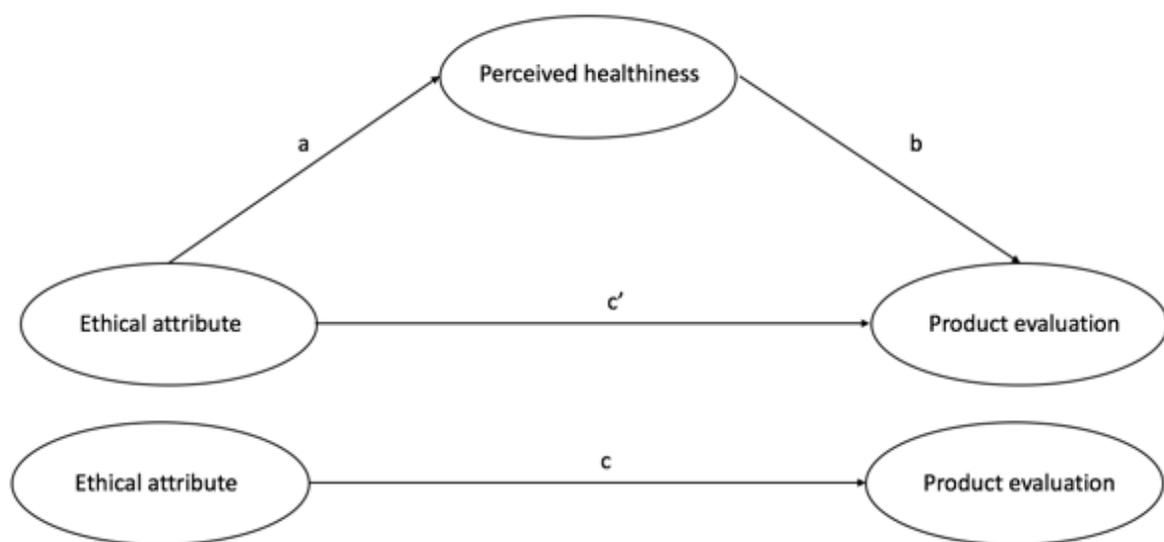
H1. Main effect

$$Product\ evaluation = \beta_0 + \beta_1 EnvEA + \beta_2 SocEA + \varepsilon$$

H2. Mediating role perceived healthiness

For analysing the mediating role of perceived healthiness, Baron and Kenny's (1986) four step mediation approach is applied in which four regressions are conducted in the following order: c, a, b and c'; see Figure 3 Mediation paths.

Figure 3. Mediation paths



Step 1: Path c $Product\ evaluation = \beta_0 + \beta_1 EnvEA/SocEA + \varepsilon$

Step 2: Path a $Perceived\ healthiness = \beta_0 + \beta_1 EnvEA/SocEA + \varepsilon$

Step 3: Path b $Product\ evaluation = \beta_0 + \beta_1 PercHealthiness + \varepsilon$

Step 4: Path c' $Product\ evaluation = \beta_0 + \beta_1 EnvEA/SocEA + \beta_2 PercHealthiness + \varepsilon$

H3. Moderated mediation

Using the ability in SPSS to split the data file by product category, the moderated mediation is measured using the same Baron and Kenny (1986) steps as stated above.

H4. Moderated product category

Splitting the data set by product category, the main effects of environmental EA and social EA on product evaluation are tested and the results compared.

H5-H10. Covariates

The attitudes and demographics are tested for their moderating role in the relationship of both environmental EA and social EA on product evaluation in two separate models. The variables are also tested in separate models, to rule-out a possible lack of statistical power.

The following dummy variables are created:

- Ethical consumption behaviour is for both the environmental as social issue divided in low ethical consumption behaviour (<4.49) and high ethical consumption behaviour (>4.5) on a scale of 1 to 7.
- General health attitude is divided in low (<4.49) and high general health attitude (>4.5) on a scale of 1 to 7; reflecting no healthy diet and healthy diet, respectively.
- The variable age is divided in young (<34 years old) and older (>35 years old).
- The variable gender reflects men and women.
- The variable net income has been split up in three categories: low (<€1000), mid (€1000-€3000) and high income (>€3000).
- The variable education is split up in low (\leq community college) and high education (\geq applied science university).

Establishing the following equation:

Product evaluation

$$\begin{aligned} &= \beta_0 + \beta_1 EA + \beta_2 HealthyDiet + \beta_3 HealthyDiet_{EA} \\ &+ \beta_4 EnvEthicalConsumption + \beta_5 EnvEthicalConsumption_{EA} \\ &+ \beta_6 SocEthicalConsumption + \beta_7 SocEthicalConsumption_{EA} \\ &+ \beta_8 Young + \beta_9 Young_{EA} + \beta_{10} Female + \beta_{11} Female_{EA} + \beta_{12} MidInc \\ &+ \beta_{13} MidInc_{EA} + \beta_{14} HighInc + \beta_{15} HighInc_{EA} + \beta_{16} HighEdu \\ &+ \beta_3 HighEdu_{EA} + \varepsilon \end{aligned}$$

Chapter 4. Results

This chapter presents the results of the regression analysis and answers the hypotheses. In the appendix 'Results', the data transformation, dummy coding, data description, manipulation test, reliability tests, and all regression output are found.

4.1 Data description

In total, 340 Dutch respondents completed the questionnaire from which 56% female. The sample is relatively young as 79.8% of the respondents is between 18 and 34 years old. Over one third of the sample (34.1%) has a low income level (< €2,000.00) and are 81.7% is highly educated and has achieved an applied science university degree (HBO) or higher. This indicates that a large proportion of the respondents is either student or recently graduated from university or applied science university. See Table 2 for the demographic data.

Table 2. Demographic data

Variable	Category	Frequency	(%)
Gender	Women	192	56.5%
	Men	148	43.5%
Age	<18	6	1.8%
	18-24	124	36.5%
	25-34	148	43.5%
	35-44	31	9.1%
	45-54	15	4.4%
	55-64	15	4.4%
	64+	1	0.3%
Income	<€1,000	116	34.1%
	€1,000-€2,000	72	21.2%
	€2,000-€3,000	83	24.4%
	€3,000-€4,000	24	7.1%
	€4,000-€5,000	9	2.6%
	>€5,000	1	0.3%
	N/A	35	10.3%
Education	Primary school	0	0%
	High school	38	11.2%
	MBO	24	7.1%
	HBO	117	34.4%
	BSc	64	18.8%
	MSc	94	27.6%
	PhD/Doctorate	3	0.9%

4.2 The effect of EAs on product evaluation

EAs do have an effect on product evaluation. On a scale of 1 to 7, the average product evaluation of products without EAs is 3.93 (SD = 1.27) while products with EAs have an average product evaluation of 4.26 (SD = 1.31). This effect of EAs on product evaluation is significant ($\beta = .325$, $t(335) = 2.171$, $p = .031$), but describes only a very small proportion of the variation (Adj. $R^2 = 0.011$). When split into environmental EA and social EA, a difference in product evaluation occurs. The mean product evaluation of products endorsed with social EAs is 4.52 (SD = 1.23) and the mean of products endorsed with environmental EAs is 3.95 (SD = 1.34). Endorsement with the environmental EA does not lead to a significant higher product evaluation ($\beta = -.284$, $t(335) = -1.845$, $p = .066$), while endorsement with a social EA does result in a significant higher product evaluation ($\beta = .577$, $t(335) = 3.975$, $p < .001$).

This means hypothesis 1a is not supported, while hypothesis 1b is supported.

4.3 The effect of perceived health

Perceived healthiness influences the general evaluation of a product positively (Figure 3, mediation path b). This effect is highly significant ($\beta = .266$, $t(335) = 8.257$, $p < 0.001$). However, perceived healthiness does not play the expected mediating role in the relation between environmental EA and product evaluation. As, while following Baron & Kenny's (1986) mediation approach, no initial significant effect of environmental EA on product evaluation (Fig. 3, mediation path c) is found. In case of social EA, the initial effect of social EA on product evaluation is validated (Figure 3, mediation path c), but no significant relation ($\beta = .280$, $t(338) = 1.226$, $p = 0.221$) is found between social EA and perceived healthiness (Fig. 3, mediation path a). Meaning, for both social and environmental EAs, perceived healthiness does not play a mediating role in the product evaluation.

Therefore, hypothesis 2a is not supported and hypothesis 2b is supported.

4.4 The effect of product category

The product evaluation of nuts is higher than for chocolate. On a scale of 1 to 7, the average product evaluation of the healthy product category nuts is 4.34 (SD = 1.29); while the average product evaluation of chocolate is 3.95 (SD = 1.29). This difference is significant ($\beta = 0.391$, $t(335) = 2.777$, $p = 0.006$).

The average product evaluation of nuts (the healthy product category) endorsed with the social EA is 4.76 (SD = 1.25). This is significantly higher ($\beta = 0.652$, $t(167) = 3.229$, $p = 0.001$) than when no social EA is present. On the other hand, the average product evaluation of nuts endorsed with environmental EA is lower 3.86 (SD = 1.32) and this has a significant negative effect ($\beta = -0.688$, $t(167) = -3.261$, $p = 0.001$).

The average product evaluation of chocolate endorsed with the social EA is 4.27 (SD = 1.17). This is significantly higher than when not endorsed with social EA ($\beta = 0.497$, $t(166) = 2.430$, $p = 0.016$). The average product evaluation of chocolate endorsed with environmental EA is 4.04 (SD = 1.36). However, this is not significantly higher than not endorsed with environmental EA ($\beta = 0.125$, $t(166) = 0.577$, $p = 0.565$).

Therefore, hypothesis 4 is supported, as in case of chocolate, the effect of social EA on product evaluation is stronger relative to the effect of environmental EA.

4.5 Perceived healthiness meets product category

The perceived healthiness of nuts (M = 5.37, SD = 1.45) is much higher than the perceived healthiness of chocolate (M = 2.39, SD = 1.26). This difference is highly significant ($\beta = 2.979$, $t(338) = 20.218$, $p < 0.001$). The effect of perceived healthiness on product evaluation (Figure 3, mediation pathway b) is significant for both nuts ($\beta = 0.511$, $t(167) = 8.515$, $p < 0.001$) and chocolate ($\beta = 0.364$, $t(166) = 4.909$, $p < 0.001$). Perceived healthiness plays an important role in the product evaluation of nuts and chocolate as it explains (Adj. R^2) 29.9% and 12.1% of the variance, respectively.

Environmental EA does not have a significant effect on the perceived healthiness (Fig. 3, mediation path a) of nuts ($\beta = -0.353$, $t(170) = -1.468$, $p = 0.144$) or chocolate ($\beta = 0.192$, $t(166) = 0.910$, $p = 0.364$). Social EA also does not have a significant effect on the perceived healthiness of nuts ($\beta = 0.220$, $t(170) = 0.953$, $p = 0.342$) and chocolate ($\beta = 0.357$, $t(166) = 1.770$, $p = 0.078$). This means that product category does not moderate the (for environmental EA supposed but not existing) mediation of perceived healthiness between environmental EA/social EA and product evaluation. Therefore, hypotheses 3 is not supported.

4.6 Consumer characteristics

Consumer attitudes healthy diet, ethical consumption behaviour and the demographic variables age, gender, income and education level do not significantly moderate the effect of

environmental EA and social EA on product evaluation. See Table 3 for a summary of the output of the model. The variables are additionally tested in separate models to avoid a lack of statistical power, yet no significant interactions are found.

For the attitudes however, both have a significant direct effect on the product evaluation (no environmental EA or social EA endorsement). Individuals following a healthy diet evaluate a product without environmental EA more positively. Consumers who have an environmentally-focused consumption behaviour evaluate products without an environmental EA or social EA more positively than individuals who don't have an environmentally-focused consumption behaviour. On the other hand, consumers with socially-focused consumption behaviour evaluate products without an EA more negatively. As these are significant direct effects and no moderation occurred, both H5 and H6 are not supported.

The analysis shows no significant direct or moderating effect of the demographic variables age, gender, income and education level. Therefore, H7-H10 are not supported.

Table 3. Coefficients covariates

Variables	Env. EA (R ² =0.065)		Soc. EA (R ² = 0.083)	
	β	T	β	T
Constant	3.912***	11.292	3.509***	9.027
EA	-0.483	-0.765	0.657	1.136
Healthy diet	0.497**	2.710	0.287	1.487
Healthy diet * EA	-0.386	-1.076	0.055	0.173
Environmental consumption	0.323*	1.769	0.650***	3.400
Environmental consumption * EA	0.485	1.399	-0.589	-1.845
Social consumption	-0.512**	-2.757	-0.536**	-2.859
Social consumption * EA	0.081	0.243	0.187	0.587
Young	0.310	1.022	0.538*	1.894
Young * EA	0.400	0.834	-0.259	-0.533
Female	0.142	0.773	-0.134	-0.705
Female * EA	-0.579	-1.581	0.251	0.771
High income	0.288	0.861	0.145	0.412
High income * EA	-0.256	-0.426	0.045	0.080
High education level	-0.245	-1.032	-0.088	-0.333
High education level * EA	0.407	0.862	0.083	0.198

Notes: ***p < 0.01; **p < 0.05; * p < 0.1.

Dependent variable = Product evaluation.

Adj. R² = Adjusted R Square

2.7 Additional findings

Deep-diving more into the data and possibly interesting effects, some additional findings are presented.

When placing purchase intention instead of product evaluation as the dependent variable, both environmental EA ($\beta = -0.349$, $t(338) = -2.041$, $p = 0.042$) and social EA ($\beta = 0.648$, $t(338) = 4.015$, $p < 0.001$) show a significant effect. For the product category level analysis, the results are highly similar when testing for the additional dependent variable purchase intention compared to product evaluation.

Table 4 shows the regression analysis outcome of the covariates and demographics of the full model, tested for both dependent variables. The analysis shows a higher explanation of the variables for the healthy product category than for the unhealthy product category. For nuts, the variance of purchase intention (Adj. $R^2 = 24.7\%$ (environmental EA); Adj. $R^2 = 21.8\%$ (social EA)) is better explained by the variables in the model than the variance of the dependent variable product evaluation (Adj. $R^2 = 16.2\%$ (environmental EA); Adj. $R^2 = 17.9\%$ (social EA)). For chocolate it is the other way around, purchase intention (Adj. $R^2 = 9.4\%$ (environmental EA); Adj. $R^2 = 5.9\%$ (social EA)) is explained less than product evaluation (Adj. $R^2 = 12.9\%$ (environmental EA); Adj. $R^2 = 7.5\%$ (social EA)).

Individuals following a healthy diet have a strong positive attitude towards healthy products and individuals with social consumption behaviour respond negatively toward nuts without social EA endorsement. When it comes to gender, women show a strong negative reaction towards chocolate endorsed with an environmental EA. Consumers with a mid-income have a negative reaction towards the evaluation of nuts without a social EA, have a higher purchase intention for nuts with a social EA and lower evaluation of nuts with an environmental EA. Highly educated people have a strong positive reaction towards the evaluation and purchase intention of chocolate endorsed with an environmental EA.

Table 4. Model comparison

Variables	Nuts		Chocolate	
	PE	PI	PE	PI
Adj. R ²	17.3%	24.9%	13.4%	8.7%
Constant	4.038***	3.410***	3.993***	4.288***
Environmental EA	-0.641	-0.883	-0.542	-0.963
Healthy diet	0.863***	0.936***	0.051	-0.179
Healthy diet * envEA	0.069	0.511	-0.520	-0.607
Environmental consumption behaviour	-0.026	0.196	0.282	0.076
Environmental consumption behaviour * envEA	0.333	0.057	0.314	0.567
Social consumption behaviour	-0.396*	-0.311	-0.465*	-0.289
Social consumption behaviour * envEA	-0.010	-0.058	0.311	-0.029
Young	0.272	-0.055	0.554	-0.130
Young * envEA	0.074	0.341	-0.105	0.156
Female	0.016	-0.051	0.285	0.436
Female * envEA	0.204	1.041	-1.425**	-1.175**
Mid income	0.121	0.266	-0.326	-0.188
Mid income * envEA	-1,172**	-0.693	-0.662	-0.902*
High income	0.187	0.027	0.341	-0.192
High income * envEA	0.120	0.753	-1.348	-0.432
Highly educated	0.026	0.686**	-0.645*	-0.637
Highly educated * envEA	0.329	-0.811	2.140**	2.265**
Adj. R ²	16.9%	21.4%	8.7%	5.6%
Constant	3.588***	3.312***	4.889***	4.700**
Social EA	0.730	-0.202	-0.601	0.056
Healthy diet	1.092***	1.375***	-0.279	-0.570**
Healthy diet * socEA	-0.457	-0.374	0.219	0.478
Environmental consumption behaviour	0.182	0.096	0.545*	0.377
Environmental consumption behaviour * socEA	-0.190	0.304	-0.587	-0.534
Social consumption behaviour	-0.646**	-0.611**	-0.451*	-0.309
Social consumption behaviour * socEA	0.608	0.687	0.029	-0.086
Young	0.543	0.134	0.521	-0.112
Young * socEA	-0.471	-0.022	0.275	-0.190
Female	-0.156	0.123	-0.162	0.092
Female * socEA	0.491	-0.020	-0.032	-0.230
Mid income	-0.550*	-0.481	-0.828**	-0.707**
Mid income * socEA	0.653	1.055**	0.330	0.130
High income	0.152	-0.029	-0.588	-0.477
High income * socEA	-0.043	0.237	0.624	-0.395
Highly educated	0.341	0.618*	-0.690	-0.622
Highly educated * socEA	-0.595	-0.463	0.896	1.060

Notes: ***p < 0.01; **p < 0.05; * p < 0.1.

R² = Adjusted R Square

Dependent variable = Product evaluation (PI); Purchase intention (PI)

4.9 Conclusion

Table 5 below shows an overview of the (not) supported hypothesis in this study.

Table 5. Hypotheses summary

	Hypotheses	Outcome
H1a	Environmental EA has a positive effect on product evaluation	Not supported
H1b	Social EA has a positive effect on product evaluation	Supported
H2a	Perceived healthiness mediates the relationship of environmental EA on product evaluation	Not supported
H2b	Perceived healthiness does not mediate the relationship of social EA on product evaluation	Supported
H3	Healthy product categories amplify the by perceived healthiness mediated relationship of environmental EA on product evaluation relative to the effect of social EA on product evaluation	Not supported
H4	In case of unhealthy product categories, the effect of social EA on product evaluation is stronger relative to the effect of environmental EA on product evaluation	Supported
H5	The effect of environmental EA and social EA on product evaluation is stronger for individuals with ethical consumption behaviour	Not supported
H6	The effect of environmental EA and social EA on product evaluation would be stronger for individuals following a healthy diet	Not supported
H7	The effect of environmental EA and social EA on product evaluation would be stronger for younger individuals	Not supported
H8	The effect of environmental EA and social EA on product evaluation would be stronger for women	Not supported
H9	The effect of environmental EA and social EA on product evaluation would be stronger for individuals with a high income	Not supported
H10	The effect of environmental and social EA on product evaluation would be stronger for highly educated individuals.	Not supported

Chapter 5. Discussion

This thesis makes the distinction between ethical attributes (EAs) into environmental EAs and social EAs. The results of this study show the value of this distinction. A difference was found in the evaluation of products endorsed with an environmental EA and social EA. The environmental EA in this study does not have a significant effect on product evaluation, while the social EA does. Since no initial main effect of environmental EA on product evaluation was found, the expected mediating role of perceived healthiness could not occur either. The product category did play a major role in product evaluation. Nuts (the healthy product category) had a higher product evaluation than chocolate (the unhealthy product category). A positive effect of social EA on the product evaluation was found for both nuts and chocolate. However, environmental EA does not have a significant effect on the evaluation of chocolate. Besides, the expected amplified product evaluation of nuts endorsed with environmental EA through perceived healthiness did not occur. It was quite the opposite, environmental EA had a strong negative effect on the product evaluation of nuts. When not distinguishing by product category, a few main effects of consumer characteristics on product evaluation were found, but no interactions with environmental EA or social EA. However, some interesting effects were found when looking at product categories separately.

The main contribution of this study is the split of EAs into environmental EAs and social EAs. Overall, endorsement with an EA does contribute to a higher product evaluation. A remarkable difference occurs when the distinction between environmental EA and social EA was made. Where the social EA leads to a higher product evaluation of both product categories tested in this study, does environmental EA not lead to a significantly higher product evaluation of chocolate and even a significantly lower product evaluation when it comes to nuts. This finding contradicts the expectation at the beginning of this study where environmental EA leads to a higher product evaluation when it comes to a healthy product. A possible explanation could be a trade-off effect in which the claim “made with environmentally friendly ingredients” decreases the perception of the products’ quality or healthiness (Bodur et al. 2016; Lin & Chang 2012; Luchs et al. 2010). Another explanation for the negative effect of environmental EA on the evaluation of nuts could lay in the selected environmental EA as the respondents assigned a relatively low relevance to the environmental EA in relation to nuts. “Made with environmentally friendly ingredients” could raise the

question that ingredients are added (e.g. oil) to the healthy raw and unsalted mix of nuts, the environmental message could possibly get overruled by the idea of unknown production processes or added ingredients. Interesting about the product category level outcome is that the effects of environmental EA and social EA on the evaluation of nuts and chocolate found are very similar to their effect on the purchase intention of nuts and chocolate. Meaning, the 'Attitude-Behaviour Gap in Ethical Consumption' theory is not visible when measuring product evaluation and purchase intention.

This study also confirms the role of perceived healthiness in product evaluation. A main effect was found. Nuts were perceived as healthier than chocolate, and perceived healthiness led to a higher product evaluation. This corresponds with both the pre-test for product category selection and the products' nutritional value. However, the expected mediating role of perceived healthiness between environmental EA and product evaluation, was not found. Perception of healthiness was thus based upon product category and not on the (unjustified) healthiness of the environmental EA. Which is a positive thing as it shows that Dutch consumers are not manipulated by the perception of health environmental EAs were expected to be associated with (e.g. Lazzarini et al. 2016; Rousseau 2015).

As other studies also show (e.g. Bodur et al. 2016), this study confirms the importance of differentiation between product categories. The healthiness of the products in this study played a significant role in the evaluation. When measuring at product category level, mechanisms become more clear. Distinction between healthy and unhealthy product categories refines the view on the mix of factors resulting in product evaluation.

Surprisingly, the selected consumer attitudes do not interact with the tested environmental and social EAs and product evaluation. Respondents who report having a social or environmental ethical consumption behaviour and/or follow a healthy diet, do not value environmental or social EAs more than other respondents. A few main effects were observed. Respondents indicating to have a healthy diet showed a higher product evaluation for nuts than chocolate, which indicates the consumers are aware of the healthiness of the products. A negative main effect has been observed between social ethical consumption behaviour and the lack of EAs on nuts. Respondents who indicated that they do not buy products of which they know are produced in an inhumane way, value an ethically endorsed product not more positively. Rather, they dislike products that without EAs. This is not true for respondents that indicate to refuse to buy products that damage the environment (environmental ethical

consumption behaviour). Strangely enough, they value products without any EA more positively than ethically endorsed products. This difference could indicate certain limitations in the study's methodology. The Likert-scale survey questions for environmental and social ethical consumption behaviour were reversed. Meaning, respondents might not have noticed the reversed question and answered wrongly. This could be supported by the factor analysis, in which the two questions did not form a reliable factor to measure ethical consumption behaviour as a whole. Secondly, as prior studies show the importance of EA relevance on the product category (Bodur et al. 2016; Luchs et al. 2010), the relevance of the environmental EA and social EA on the product category in this study score just slightly above average. It could be the case that the respondents might show ethical consumption behaviour but yet do not find the specific EA relevant enough to the product category.

No significant interactions between demographics and evaluation of ethically endorsed products were found. However, when looking at product category level, some significant effects appeared. An interaction effect was found between gender and chocolate endorsed with environmental EA. Women showed a negative response towards environmental EA in both the product evaluation and purchase intention of chocolate. This could again be due to a trade-off effect. As Hormes et al. (2014) shows, women have a higher chocolate craving than men and a significantly higher functional approach (e.g. eating chocolate when exercising or to replace meal) towards chocolate. Meaning women might focus more on the quality and functional benefit of chocolate which can be affected by a trade-off perception. Also, successful new brands to the Dutch chocolate aisle such as Tony's Chocolonely and Johnny Doodle carry out a strong social message and could increase the familiarity with social EAs. The perception of a quality trade-off is in this case lower or non-existing relative to the fairly unknown environmental claims communicated by chocolate brands. Therefore, women could have a negative reaction towards environmental EAs when evaluating or intending to buy chocolate.

For the mid-income group some negative effects were found. They value nuts endorsed with environmental EA lower than nuts without EAs, but this does not lead to a lower purchase intention. A visible social EA does not change the product evaluation of mid-income respondents of nuts, but a social EA does positively influence their purchase intention. A positive effect of education level on the product evaluation and purchase intention of chocolate endorsed with environmental EA was found too. Overall, when evaluating the

demographic results in this study, there is a lack of diversity in the sample; looking at the young age, low income and high education level, it seems to include a lot of students. A more diverse sample could create different outcomes when studying the evaluation of ethically endorsed products.

5.1 Contribution and implication

This study shows the importance of making a distinction between environmental and social EAs, as well as product categories when studying the effects of EAs on product evaluation. Differentiation of different EAs and product categories result in a higher resolution and give a better insight in what influences the consumer when evaluating a product. This knowledge also provides practical implications to companies that are developing new food products. Knowing the interactions between EAs, product category, consumer attitudes and characteristics can help to choose those combinations that work best to attract a certain target group.

The Dutch government could also benefit from this study as they want to improve and stimulate ethical (and healthy) consumption and entrepreneurship for the sake of the environment and fairness on our planet. The government stimulates Dutch companies in their social responsibility activities by providing possible subsidization, knowledge and consultation (Rijksoverheid.nl; MVO.nl). They could advice companies on when to endorse their products with environmental or social EA and creating a more successful ethical entrepreneurship.

This study makes a contribution to the growing academic research field of ethical consumption by addressing the importance of not generalizing EAs. This opens up new areas for future research.

5.2 Suggestions for further research

This study stands apart from others as it measures and compares ethical product endorsement two ways, environmentally and socially. Although the measured effect of environmental EA and social EA on product evaluation is not large, the importance of differentiation is proven. Further research could find out a better explanation for the difference in effects. From exploratory perspective, future research could test multiple environmental and social EAs in multiple product category situations in order to optimize ethical product endorsement. From explanatory perspective it would be valuable to deep-dive into consumer characteristics,

lifestyles and the consumer ethical awareness, knowledge and care for the world. This could further explain the underlying mechanisms for ethical consumption behaviour and EA preference.

Another interesting and important area for future research is creating an actual decision making setting where not product evaluation or purchase intention is tested, but the actual purchase behaviour and this way avoiding the attitude-behaviour gap. It would be interesting to see if certain ethical issues have a different effect on consumers' choice set and decision making.

A third area to tap into is researching the effect of EAs in other consumer product industries such as fashion, electronics, personal care, etc., as this study opened a new perspective on optimizing products through ethical endorsement.

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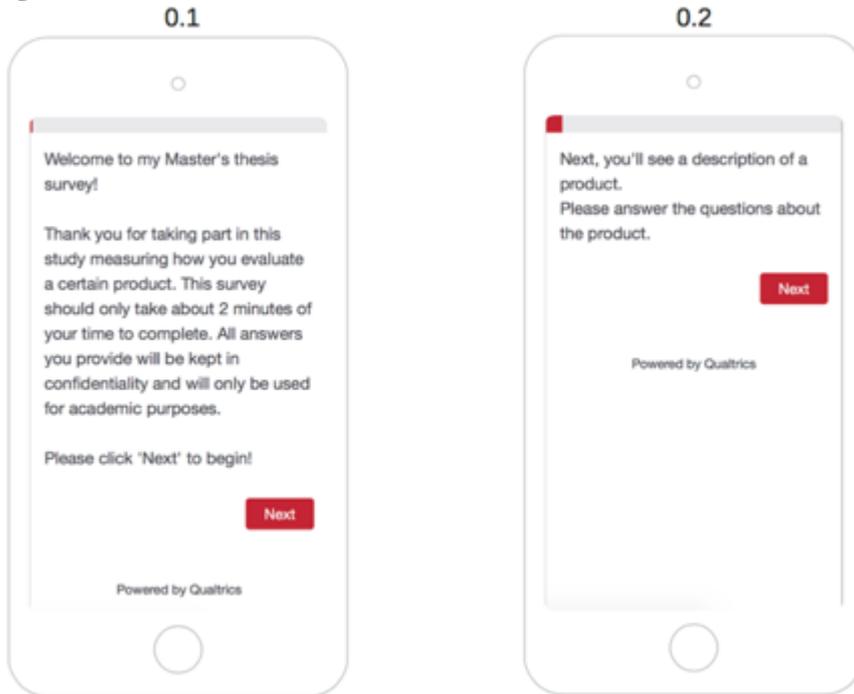
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Appendix

Questionnaire



1 out of 6 experimental conditions respondents are randomly assigned to:

	Unhealthy product Chocolate	Healthy product Nuts
Env. EA	 <p>Product description Creamy chocolate bar, 32% cocoa Great in-between snack Made with environmentally friendly ingredients Average priced</p>	 <p>Product description Raw, unsalted mix of nuts Great in-between snack Made with environmentally friendly ingredients Average priced</p>
Social EA	 <p>Product description Creamy chocolate bar, 32% cocoa Great in-between snack Made by a company that is child labor free Average priced</p>	 <p>Product description Raw, unsalted mix of nuts Great in-between snack Made by a company that is child labor free Average priced</p>
No EA	 <p>Product description Creamy chocolate bar, 32% cocoa Great in-between snack Average priced</p>	 <p>Product description Raw, unsalted mix of nuts Great in-between snack Average priced</p>

1.1

Product description
 Creamy chocolate bar, 32% cocoa
 Great in-between snack
 Average priced

Please rate the following statements on a scale of 1 to 7.

Disagree strongly 1 2 3 4 5 6 7 Agree strongly

I evaluate this product positively N/A

I'm willing to buy this product N/A

1.2

I find this product attractive N/A

I evaluate this product favorably N/A

I'm likely to buy this product N/A

I perceive this product to be healthy N/A

I think the term 'Made with environmentally friendly ingredients' is relevant to the product group chocolate N/A

1.3

I perceive this product to be healthy N/A

I think the term 'Made with environmentally friendly ingredients' is relevant to the product group chocolate N/A

I think the term 'Made by a company that is child labor free' is relevant to the product group chocolate N/A

Next

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2.1

Please rate the following statements on a scale of 1 to 7.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

If I understand the potential damage some products can cause to the environment, I do not purchase those products N/A

I buy products from companies that I know use sweatshop labor, child labor, or other poor working conditions N/A

I'm very particular about the healthiness of food N/A

2.2

I'm very particular about the healthiness of food N/A

I follow a healthy and balanced diet N/A

Please rate the following statements on a scale of 1 to 7. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

I see myself as responsible and self-disciplined N/A

2.3

Please rate the following statements on a scale of 1 to 7. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

I see myself as responsible and self-disciplined N/A

I see myself as disorganized and care-less N/A

Next

3.1

Gender

Female

Male

Nationality

Dutch

Other, namely:

Age

<18

18-24

3.2

Age

<18

18-24

25-34

35-44

45-54

55-64

65+

Indication of monthly income after taxes

3.3

Indication of monthly income after taxes

<€1000

€1000-€2000

€2000-€3000

€3000-€4000

€4000-€5000

€5000+

N/A

Highest achieved education level

3.4

Highest achieved education level

Primary school

High school

MBO

HBO

University bachelor

Msc

PhD/Doctorate

Next

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4

That's all!
Thank you for your participation!

Kind regards,
Irene Kersbergen

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Results

Factor analysis – Reliability test

A Cronbach's Alpha reliability test was performed to check if the Likert-items represent the same variable in a Likert-scale. The rule of thumb for a reliable factor is when Cronbach's Alpha $>.700$. Product evaluation, purchase intention and general health attitude are considered reliable factors (Cronbach's Alpha $>.700$). However, conscientiousness (Cronbach's Alpha = 0.670) and ethical purchase behaviour cannot be considered a factor (0.306). The Likert-items of conscientiousness alone cannot obtain the desired results and conscientiousness will therefore no longer be used in this study. Ethical purchase behaviour will be tested separately as environmental and social consumption behaviour.

Product evaluation

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,882	,883	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1 Positively	7,7055	7,888	,747	,582	,855
Q3 Attractive	8,6963	7,012	,747	,575	,857
Q4 Favourably	8,4202	6,829	,826	,683	,781

Purchase intention

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,916	,917	2

Factor is (Cronbach's Alpha = 0.916 $>$ 0.7) reliable, so purchase likelihood = (Q2 + Q5) / 2

Ethical consumption behaviour

Reliability Statistics

Cronbach's Alpha	N of Items
,306	2

Inter-Item Correlation Matrix

	Q9. Ethical-attitude env	Q10. Ethical-attitude soc
Q9. Ethical-attitude env	1,000	,175
Q10. Ethical-attitude soc	,175	1,000

Item Statistics

	Mean	Std. Deviation	N
Q9. Ethical-attitude_env	4,3056	1,52457	324
Q10. Ethical-attitude_soc	4,5370	1,58608	324

General health attitude

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,721	,721	2

Conscientiousness

Reliability Statistics

Cronbach's Alpha	N of Items
,670	2

Transforming data

Before the data can be analysed, some elements have to be transformed. First, the file export from the data collecting tool Qualtrics had a wide form and needs to be transformed to a long form in SPSS. Second, as the data will be analysed through regression analysis, categorical variables need to be recoded into dummy variables. This is the case for the variables: EA (EnvEA: 0=no environmental EA, 1=environmental EA; SocEA: 0=no social EA, 1=social EA, HealthyProduct (0=chocolate, 1=nuts), Environmental/Social Ethical Consumption Behaviour (0=low, 1=high) General health attitude (0=low, 1=high), Income (Mid income: 0=no mid income, 1=mid income; High income: 0=no high income, 1=high income), Education (High education: 0=no high education, 1=high income), Gender (0=male, 1=female). Third, Q10 (ethical-minded behaviour) has to be recoded as one of the Likert-items was reversed.

Data description

The online questionnaire was active from May 5th till May 16th 2017. During this period, 375 individuals took part in the research. 30 responses were individuals that were not Dutch and 5 respondents did not fully complete the survey and thus were deleted from the sample. The final dataset has 340 respondents. The questionnaire had 19 questions from which 5 demographic questions. The demographic data has nominal and ordinal measurement scale and the other 14 questions are based on 7-point Likert scales, 1= disagree strongly, 7= strongly agree.

The number of respondents per condition shows some deviation as in the condition of environmental EA*Nuts N=51 respondents and social EA*Nuts has N=61 respondents. Table 6 shows an overview on the distribution.

	Chocolate	Nuts	Total
Environmental EA	52	51	103
Social EA	60	61	121
No EA	56	60	116
Total	168	172	340

Table 6. Number of respondents per condition

In table 7, the means and standard deviations of the main model are found.

Product evaluation	Chocolate	Nuts	Total	Chocolate	Nuts	Total
	Mean			St. dev.		
Q1. I evaluate this product positively	4.428	4.994	4.713	1.329	1.299	1.342
Q3. I find this product attractive	3.607	3.831	3.721	1.493	1.552	1.525
Q4. I evaluate this product favorably	3.821	4.164	3.994	1.453	1.478	1.474
Likert-scale (mean)	3.952	4.330	4.148	1.425	1.443	1.305
Q2. I'm willing to buy this product	3.881	4.419	4.153	1.413	1.471	1.465
Q5. I'm likely to buy this product	3.411	3.930	3.674	1.494	1.599	1.567
Likert-scale (mean)	3.646	4.175	3.912	1.454	1.535	1.516
Q6. I perceive this product to be healthy	2.387	5.366	3.894	1.262	1.447	2.016

Table 7. Means of main model

Table 8 shows the mean of perceived healthiness by EA and product category.

	Chocolate	Nuts
Environmental EA	2,52	5,12
Social EA	2,62	5,51
No EA	2,39	5,43

Table 8. Means perceived healthiness

Table 9 shows the means and standard deviations per covariate.

		Mean	St.dev.	Min	Max
Ethical consumption behaviour	Q9. If I understand the potential damage some product can cause to the environment, I do not purchase those product	4.287	1.532	1	7
	Q10. I buy product from companies that I know use sweatshop labour, child labour or other poor working conditions (reversed)	4.537	1.583	1	7
General health	Q11. I'm very particular about the healthiness of food	4.168	1.547	1	7
	Q12. I follow a healthy and balanced diet	4.062	1.523	1	7
Conscientiousness	Q13. I see myself as responsible and self-disciplined	4.859	1.123	2	7
	Q14. I see myself as disorganized and care-less (Reversed)	5.404	1.284	2	7

Table 9. Covariates

Table 10 and 11 show the means and standard deviations for all the conditions of the factorial design with as dependent variable product evaluation and purchase intention, respectively.

	Chocolate	Nuts	Total
Environmental EA	M=4.038 SD=1.364	M=3.863 SD=1.324	M=3.951 SD=1.340
Social EA	M=4.272 SD=1.165	M=4.760 SD=1.253	M=4.518 SD=1.230
No EA	M=3.530 SD=1.253	M=4.328 SD=1.176	M=3.932 SD=1.274
Total	M=3.952 SD=1.290	M=4.343 SD=1.295	N=340

Dependent variable = Product evaluation

Table 10. Means product evaluation

	Chocolate	Nuts	Total
Environmental EA	M=3.683 SD=1.455	M=3.657 SD=1.515	M=3.670 SD=1.478
Social EA	M=4.075 SD=1.362	M=4.582 SD=1.379	M=4.330 SD=1.388
No EA	M=3.152 SD=1.232	M=4.200 SD=1.406	M=3.694 SD=1.420
Total	M=3.646 SD=1.396	M=4.174 SD=1.470	N=340

Dependent variable = Purchase intention

Table 11. Means purchase intention

Manipulation check

Table 12 shows the means and standard deviations for the perceived ethical attribute relevance to the product category.

EA relevance	Chocolate	Nuts	Total	Chocolate	Nuts	Total
	Mean			St. dev.		
Q7. I think the term 'Made with environmentally friendly ingredients' is relevant to the product group [product]	4.446	4.298	4.371	1.693	1.746	1.719
Q8. 'Made by a company that is child labour free' is relevant to the product group [product]	4.892	4.621	4.755	1.553	1.745	1.656

Table 12. EA relevance

SPSS output
Effect of EA on product evaluation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,118 ^a	,014	,011	1,29805

a. Predictors: (Constant), EA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7,941	1	7,941	4,713	,031 ^b
	Residual	564,451	335	1,685		
	Total	572,392	336			

a. Dependent Variable: Product evaluation

b. Predictors: (Constant), EA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,932	,122		32,203	,000
	EA	,325	,150	,118	2,171	,031

a. Dependent Variable: Product evaluation

Effect of environmental EA and social EA on product evaluation

Environmental EA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,100 ^a	,010	,007	1,30056

a. Predictors: (Constant), Environmental EA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5,757	1	5,757	3,404	,066 ^b
	Residual	566,635	335	1,691		
	Total	572,392	336			

a. Dependent Variable: Product evaluation

b. Predictors: (Constant), Environmental EA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,235	,085		49,813	,000
	Environmental EA	-,284	,154	-,100	-1,845	,066

a. Dependent Variable: Product evaluation

Social EA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,212 ^a	,045	,042	1,27737

a. Predictors: (Constant), Social EA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25,779	1	25,779	15,799	,000 ^b
	Residual	546,612	335	1,632		
	Total	572,392	336			

a. Dependent Variable: Product evaluation

b. Predictors: (Constant), Social EA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,941	,087		45,348	,000
	Social EA	,577	,145	,212	3,975	,000

a. Dependent Variable: Product evaluation

The mediating role of perceived healthiness

Environmental EA

Path c: Not significant (see output in 'Effect of EA on product evaluation')

Path a: Not significant

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,029 ^a	,001	-,002	2,01843

a. Predictors: (Constant), Environmental EA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,152	1	1,152	,283	,595 ^b
	Residual	1377,036	338	4,074		
	Total	1378,188	339			

a. Dependent Variable: Perceived healthiness

b. Predictors: (Constant), Environmental EA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,932	,131		29,994	,000
	Environmental EA	-,127	,238	-,029	-,532	,595

a. Dependent Variable: Perceived healthiness

Path b: Significant

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,411 ^a	,169	,167	1,19152

a. Predictors: (Constant), Perceived healthiness

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	96,785	1	96,785	68,172	,000 ^b
	Residual	475,607	335	1,420		
	Total	572,392	336			

a. Dependent Variable: Product evaluation

b. Predictors: (Constant), Perceived healthiness

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,109	,142		21,940	,000
	Perceived healthiness	,266	,032	,411	8,257	,000

a. Dependent Variable: Product evaluation

The mediating role of perceived healthiness

Social EA

Path c: Significant (see output in 'Effect of EA on product evaluation')

Path a: Not significant

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,067 ^a	,004	,001	2,01480

a. Predictors: (Constant), Social EA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,104	1	6,104	1,504	,221 ^b
	Residual	1372,084	338	4,059		
	Total	1378,188	339			

a. Dependent Variable: Perceived healthiness

b. Predictors: (Constant), Social EA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,795	,136		27,871	,000
	Social EA	,280	,228	,067	1,226	,221

a. Dependent Variable: Perceived healthiness

The effect of product category

General

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,150 ^a	,022	,020	1,29236

a. Predictors: (Constant), HealthyProduct

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12,878	1	12,878	7,711	,006 ^b
	Residual	559,513	335	1,670		
	Total	572,392	336			

a. Dependent Variable: Product evaluation

b. Predictors: (Constant), HealthyProduct

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,952	,100		39,640	,000
	HealthyProduct	,391	,141	,150	2,777	,006

a. Dependent Variable: Product evaluation

Nuts x Environmental EA

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,245 ^b	,060	,054	1,25926

a. Product = Nuts

b. Predictors: (Constant), Environmental EA

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16,866	1	16,866	10,636	,001 ^c
	Residual	264,820	167	1,586		
	Total	281,685	168			

- a. Product = Nuts
- b. Dependent Variable: Product evaluation
- c. Predictors: (Constant), Environmental EA

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,551	,116		39,258	,000
	Environmental EA	-,688	,211	-,245	-3,261	,001

- a. Product = Nuts
- b. Dependent Variable: Product evaluation

Nuts x Social EA

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,242 ^b	,059	,053	1,26001

- a. Product = Nuts
- b. Predictors: (Constant), Social EA

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16,550	1	16,550	10,424	,001 ^c
	Residual	265,135	167	1,588		
	Total	281,685	168			

- a. Product = Nuts
- b. Dependent Variable: Product evaluation
- c. Predictors: (Constant), Social EA

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,108	,121		33,883	,000
	Social EA	,652	,202	,242	3,229	,001

a. Product = Nuts

b. Dependent Variable: Product evaluation

Chocolate x Environmental EA

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,045 ^b	,002	-,004	1,29240

a. Product = Chocolate

b. Predictors: (Constant), Environmental EA

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,557	1	,557	,333	,565 ^c
	Residual	277,271	166	1,670		
	Total	277,828	167			

a. Product = Chocolate

b. Dependent Variable: Product evaluation

c. Predictors: (Constant), Environmental EA

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,914	,120		32,616	,000
	Environmental EA	,125	,216	,045	,577	,565

a. Product = Chocolate

b. Dependent Variable: Product evaluation

Chocolate x Social EA

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,185 ^b	,034	,029	1,27128

a. Product = Chocolate

b. Predictors: (Constant), Social EA

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9,546	1	9,546	5,906	,016 ^c
	Residual	268,282	166	1,616		
	Total	277,828	167			

a. Product = Chocolate

b. Dependent Variable: Product evaluation

c. Predictors: (Constant), Social EA

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,775	,122		30,857	,000
	Social EA	,497	,205	,185	2,430	,016

a. Product = Chocolate

b. Dependent Variable: Product evaluation

Perceived healthiness meets product category

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,740 ^a	,547	,546	1,35849

a. Predictors: (Constant), HealthyProduct

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	754,413	1	754,413	408,787	,000 ^b
	Residual	623,776	338	1,845		
	Total	1378,188	339			

a. Dependent Variable: Perceived healthiness

b. Predictors: (Constant), HealthyProduct

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,387	,105		22,774	,000
	HealthyProduct	2,979	,147	,740	20,218	,000

a. Dependent Variable: Perceived healthiness

The mediating role of perceived healthiness by product category

Nuts

Path b: Significant

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,550 ^b	,303	,299	1,08448

a. Product = Nuts

b. Predictors: (Constant), Perceived healthiness

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	85,276	1	85,276	72,507	,000 ^c
	Residual	196,410	167	1,176		
	Total	281,685	168			

a. Product = Nuts

b. Dependent Variable: Product evaluation

c. Predictors: (Constant), Perceived healthiness

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,578	,335		4,709	,000
	Perceived healthiness	,511	,060	,550	8,515	,000

a. Product = Nuts

b. Dependent Variable: Product evaluation

Path a (environmental EA): Not significant

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,112 ^b	,013	,007	1,44190

a. Product = Nuts

b. Predictors: (Constant), Environmental EA

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,482	1	4,482	2,156	,144 ^c
	Residual	353,443	170	2,079		
	Total	357,924	171			

- a. Product = Nuts
- b. Dependent Variable: Perceived healthiness
- c. Predictors: (Constant), Environmental EA

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,471	,131		41,738	,000
	Environmental EA	-,353	,241	-,112	-1,468	,144

- a. Product = Nuts
- b. Dependent Variable: Perceived healthiness

Path a (social EA): Not significant

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,073 ^b	,005	-,001	1,44715

- a. Product = Nuts
- b. Predictors: (Constant), Social EA

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,904	1	1,904	,909	,342 ^c
	Residual	356,021	170	2,094		
	Total	357,924	171			

- a. Product = Nuts
- b. Dependent Variable: Perceived healthiness
- c. Predictors: (Constant), Social EA

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,288	,137		38,500	,000
	Social EA	,220	,231	,073	,953	,342

a. Product = Nuts

b. Dependent Variable: Perceived healthiness

The mediating role of perceived healthiness by product category

Chocolate

Path b: Significant

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,356 ^b	,127	,121	1,20893

a. Product = Chocolate

b. Predictors: (Constant), Perceived healthiness

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35,217	1	35,217	24,096	,000 ^c
	Residual	242,611	166	1,462		
	Total	277,828	167			

a. Product = Chocolate

b. Dependent Variable: Product evaluation

c. Predictors: (Constant), Perceived healthiness

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,084	,200		15,414	,000
	Perceived healthiness	,364	,074	,356	4,909	,000

a. Product = Chocolate

b. Dependent Variable: Product evaluation

Path a (environmental EA): Not significant

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,070 ^b	,005	-,001	1,26237

a. Product = Chocolate

b. Predictors: (Constant), Environmental EA

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,319	1	1,319	,828	,364 ^c
	Residual	264,532	166	1,594		
	Total	265,851	167			

a. Product = Chocolate

b. Dependent Variable: Perceived healthiness

c. Predictors: (Constant), Environmental EA

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,328	,117		19,859	,000
	Environmental EA	,192	,211	,070	,910	,364

a. Product = Chocolate

b. Dependent Variable: Perceived healthiness

Path a (social EA): Not significant

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,136 ^b	,019	,013	1,25373

a. Product = Chocolate

b. Predictors: (Constant), Social EA

ANOVA^{a,b}

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,927	1	4,927	3,135	,078 ^c
	Residual	260,924	166	1,572		
	Total	265,851	167			

a. Product = Chocolate

b. Dependent Variable: Perceived healthiness

c. Predictors: (Constant), Social EA

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,259	,121		18,727	,000
	Social EA	,357	,202	,136	1,770	,078

a. Product = Chocolate

b. Dependent Variable: Perceived healthiness

Additional findings

Effect of environmental EA and social EA on product evaluation

Environmental EA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,110 ^a	,012	,009	1,44928

a. Predictors: (Constant), Environmental EA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8,749	1	8,749	4,165	,042 ^b
	Residual	709,941	338	2,100		
	Total	718,690	339			

a. Dependent Variable: Purchase intention

b. Predictors: (Constant), Environmental EA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,019	,094		42,691	,000
	Environmental EA	-,349	,171	-,110	-2,041	,042

a. Dependent Variable: Purchase intention

Social EA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,213 ^a	,046	,043	1,42461

a. Predictors: (Constant), Social EA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32,720	1	32,720	16,122	,000 ^b
	Residual	685,971	338	2,029		
	Total	718,690	339			

a. Dependent Variable: Purchase intention

b. Predictors: (Constant), Social EA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,683	,096		38,255	,000
	Social EA	,648	,161	,213	4,015	,000

a. Dependent Variable: Purchase intention

The effect of product category

Environmental EA x Nuts & Chocolate

Model Summary

Product	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Chocolate	1	,018 ^a	,000	-,006	1,40046
Nuts	1	,229 ^a	,053	,047	1,43455

a. Predictors: (Constant), Environmental EA

ANOVA^a

Product	Model		Sum of Squares	df	Mean Square	F	Sig.
Chocolate	1	Regression	,102	1	,102	,052	,820 ^b
		Residual	325,575	166	1,961		
		Total	325,677	167			
Nuts	1	Regression	19,419	1	19,419	9,436	,002 ^b
		Residual	349,848	170	2,058		
		Total	369,267	171			

a. Dependent Variable: Purchase intention

b. Predictors: (Constant), Environmental EA

Coefficients^a

Product	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
		B	Std. Error	Beta			
Chocolate	1	(Constant)	3,629	,130		27,911	,000
		Environmental EA	,053	,234	,018	,228	,820
Nuts	1	(Constant)	4,393	,130		33,682	,000
		Environmental EA	-,736	,239	-,229	-3,072	,002

a. Dependent Variable: Purchase intention

Social EA x Nuts & Chocolate

Model Summary

Product	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Chocolate	1	,230 ^a	,053	,047	1,36321
Nuts	1	,206 ^a	,043	,037	1,44215

a. Predictors: (Constant), Social EA

ANOVA^a

Product	Model		Sum of Squares	df	Mean Square	F	Sig.
Chocolate	1	Regression	17,191	1	17,191	9,250	,003 ^b
		Residual	308,487	166	1,858		
		Total	325,677	167			
Nuts	1	Regression	15,700	1	15,700	7,549	,007 ^b
		Residual	353,568	170	2,080		
		Total	369,267	171			

a. Dependent Variable: Purchase intention

b. Predictors: (Constant), Social EA

Coefficients^a

Product	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Chocolate	1 (Constant)	3,407	,131		25,976	,000
	Social EA	,668	,219	,230	3,041	,003
Nuts	1 (Constant)	3,950	,137		28,860	,000
	Social EA	,632	,230	,206	2,747	,007

a. Dependent Variable: Purchase intention