Effect of Sustainable Claims on Consumers´ Purchase Intention of Sustainably Packaged Products

Master Thesis

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Abstract

Providing consumers claims about sustainable benefits of the package is regarded as one of the ways to increase purchase intention of sustainably packaged products. Using an internet-based questionnaire at the Wageningen University and at the Life Science University in Prague, a study was carried out in order to investigate how manipulation with argument specificity and source of the claim can influence consumers' purchase intention of a sustainably packaged product. Specifically, the aim of the study was to contribute to the existing literature by investigating how argument specificity and source influence consumers' perceived credibility of a sustainable claim under the moderating effect of the level of consumers' environmental concern and whether perceived credibility would increase perception of sustainability and purchase intention of the packaged product.

The results have shown that the source of the claim and argument specificity have significant effects on perceived credibility of the claim. In particular, compared to claim issued by a producer source, the governmental source leads to a higher perceived credibility of the sustainable claim. A claim with specific arguments was perceived as more credible than a claim with general arguments. The research also brought new insights about perceived credibility of the claim. When the claim informing about sustainable benefits of the package is perceived as credible, the package is perceived as sustainable.

Significant effect of perceived sustainability on purchase intention was not found, however this is explained by a very significant effect of the control variable perceived quality. In particular, perceived quality is the only found predictor of the purchase intention of a sustainably packaged product. The findings suggest implication for producers and policy makers.

Key words: argument specificity, source credibility, perceived credibility, perceived sustainability, purchase intention, level of environmental concern, sustainable claims, sustainable package

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1. Introduction

White (2014) described the example of "PlantBottle" produced by Coca-Cola. More than three years have passed since one of the most influential brands - Coca-Cola - promoted the "PlantBottle". According to the "PlantBottle Basics" section of Coke´s corporate website, "PlantBottle" differed from traditional plastic packaging, because it was produced from plant-based material instead of fossil fuels. Moreover, labels on "PlantBottle" used claims such as – "up to 30% plant-based and 100% recyclable bottle" (Mackenzie, 2015). The bottle was presented with complementary environmentally friendly imagery such as green fields, leaves, butterflies and flowers. Danish environmental group – "Forests of the world" found out that the bottle contains only a maximum of 15% plant material, which hardly qualifies as plant-based. Coca-Cola was accused of using, misleading sustainable claims, without any proof that its packaging offers any positive effect in regards to reducing CO_2 emissions.

Figure 1: Example of misleading claim of Coca-Cola package "Plant-Bottle"

This example shows how marketers try to take advantage of consumers' environmental and social concerns, even at a risk of losing their credibility. When considering a purchase of sustainable packages, consumers rely on information provided by marketers and producers. They do not have the opportunity to analyse or test the sustainable benefits of the package, they can only use hard-to-verify claims on the labels as a source of their guidance. Examples of "greenwashing" undermine consumers´ beliefs in the claims and it may lead to spill over effect on credible organisations and sustainable marketing as a whole. Hence, it raises an important question, which aspects of sustainable claims do consumers perceive as credible and why?

Consumers' demand for more environmentally and socially responsible products and their packages is a major driver in green marketing.

Green marketing became a common feature in the promotion of products with labels such as "eco," "environmentally friendly", "green," or "sustainable" (Chen and Chang, 2013). Moreover, the concept of sustainability is currently also heavily discussed in the field of packaging. Sustainability in packaging means integrating the broad principles of sustainability - economic, social and environmental - into the package production system throughout each stage of the supply chain. The Sustainable Packaging Alliance (SPA), a world-renowned educational and consulting institution, defines sustainable packaging based on the four principles of sustainability. According to SPA, sustainable packaging should be effective, efficient, cyclic and safe. (Sustainable Packaging Alliance, 2005).

Even though SPA delineated requirements for sustainable packaging, most of the sustainable products or packages make use of sustainable claims even though they cover only certain aspects of the broader sustainability concept (Grunert, 2011). Chen and Chang (2013) stated that sustainable claims on labels should be clear, true and accurate. Despite this, many sustainable claims are ambiguous and deceptive (Chen and Chang, 2013; Polonsky et al., 1998). The Coca-Cola example has shown that some marketers take advantage of consumers by promoting their products and packages as green, even if they don't fulfil the necessary criteria (Chen and Chang, 2013; Laufer, 2003).

It is not surprising that consumers remain unconvinced about the truthfulness of sustainable claims and their credibility. Eisend (2002) defined perceived credibility as a consumer's perception of the truth from the piece of information. In this study, perceived credibility is considered as a psychological perception of consumers or an attribution to an object, rather than an inherent quality of the claim. Perceived credibility depends on the consumers' relationship with the source of the claim and the information itself (Chaffeee, 1982; Cronkhite and Liska, 1976; Gunther, 1992).

Provided information might be based on or supported by specific or general arguments. Specific arguments consist of attribute related facts e.g. "this package consists of 85% biodegradable material". Conversely, general arguments such as "this package is good for environment" tend to be broad and summative (Sujan, 1985; Polonsky et al., 1998).

One of the cues which can be used to underpin the arguments is their source (Atkinson and Rosenthal, 2014; Jung et al., 2016). Sources could differ in their perceived credibility based on their expertness and trustworthiness (Hovland et al., 1953). Consumers might perceive the credibility of a source based on their prior beliefs, stereotypes or their personal experience (Tseng and Fogg, 1999).

To explain how consumers perceive sustainable claims and whether they rely more on the source or arguments of the claim, it is important to focus on consumers' characteristics, influencing this processes. In the case of sustainability, consumers differ in their level of environmental concern (Magnier and Schoormans, 2015). Consumers with a high level of environmental concern (HEC) are more motivated to pay attention and process arguments about sustainable benefits. Specific arguments provide more detailed and thorough information, thus consumer's HEC strengthen the influence of specific arguments on consumer perception of credibility (Atkinson and Rosenthal, 2014). Conversely, consumers with a low level of environmental concern are not very motivated nor are willing to process detailed information, and therefore they will use heuristic cues such as source credibility of the claim (Bickart and Ruth, 2012). When consumers with low level of environmental concerns are exposed to a claim, source credibility is expected to be a key determinant of consumer perceived credibility of the claim (Atkinson and Rosenthal, 2014).

Moreover, if consumers believe the claim, they might infer that the package possesses the claimed sustainable benefits. In other words, consumers' perceived credibility is a predictor of the perception of sustainability of a package (Grunert, 2011). Perception of a sustainable package can be defined as a package that explicitly or implicitly evokes the sustainability via its structure, graphical or iconographic elements or its informational elements (Magnier and Crié, 2015).

Purchase intention is often used in consumer-oriented researches given that it is a good proxy for actual purchase behaviour (Chandon et al., 2005; Fishbein and Ajzen, 1975; Schiffman and Kanuk, 2000). Purchase intention is defined as the likelihood of a consumer´s purchase decision to buy a particular sustainably packaged product (Dodds et al., 1991; Grewal et al., 1998).

Consumers' willingness to purchase the sustainably packaged product is influenced by the level of their environmental concern. Specifically, consumers with low level of environmental concern might be aware of sustainable benefits of the package, but lack motivation to purchase the sustainably packaged product (D'Souza, 2000, 2004). On the other hand, consumers with a high level of environmental concern are interested in sustainable benefits of the products and they consider these aspects while they consider the purchase of the packaged product. Thus, compared to consumers' low level of environmental concern, a high level of environmental concern will increase the effect of consumers' perceived sustainability of the package on purchase intention of the packaged product.

Despite the focus of literature on trust and credibility in the context of sustainability (Kangun et al. 1991; Crane, 2000; Thøgersen, 2002; Leire and Thidell, 2005; Du et al., 2007; Chen and Chang, 2013), only the research of Atkinson and Rosenthal (2014) has provided insights in influence of argument specificity and source on eco-label trust. One may conclude that very little is known about the influence of specificity of arguments and source on consumer's perceived credibility and perceived sustainability of the packaged products.

The aim of this paper is to contribute to the existing literature about sustainable packaging by investigating how argument specificity and source influence perceived credibility of sustainable claims, whether perceived credibility leads to perceived sustainability and purchase intention of sustainably packaged products and how are these processes moderated by the level of environmental concerns.

Regarding argument specificity, this paper analysed whether consumers generate higher perceived credibility of sustainable claims based on general or specific arguments. In regards to source, it is investigated, which source – government or producer – has stronger influence on the perceived credibility of the claim. Furthermore, the moderating effect of consumers' environmental concern was included to investigate whether the level of consumers' environmental concern impacted the influence of source and argument specificity on perceived credibility of the claim. Consumers' level of environmental concern also influences, whether they would consider purchase of the sustainably packaged products based on perceived sustainability.

Theoretical relevance of this study lies in filling the knowledge gap related to how manipulation with information included in sustainable claims influences consumers' perceived credibility of the claim and the sustainability of the packaged product. The findings of the study can explain, in which situations consumers rely more on provided information and when on their sources.

Practical relevance of this study lies in providing new insights to companies and policy makers on, how sustainable claims could be utilized to raise consumers' perceived credibility and perception of sustainability of a package, which might lead to purchase intention of a product. Specifically, in case marketers aim to increase consumers' perceived credibility of their claims some questions arise - should they be specific or general? How important is it to underpin claims by a credible source?

Consequently, this study puts forward following general question:

How do aspects of sustainable claims influence their perceived credibility, perceived sustainability and purchase intention of the sustainably packaged product and how are these processes moderated by consumers' environmental concern?

Specific research questions derived from the general research question are as follows:

(1) How does argument specificity and source influence consumers' perceived credibility of a sustainable claim and the purchase intention of the sustainably packaged product?
(2) How does the level of consumers' environmental concern influence the effect of argument specificity and source on consumers' perceived credibility of a sustainable claim?
(3) How does consumers' perceived credibility of a sustainable claim influence the perception of the sustainability of a package?
(4) How does consumers' perception of sustainability of a package influence purchase intention of the packaged product and how is this process moderated by consumers' environmental concern?

The paper commences with a literature review, which provides an explanation for the focus concepts in this study and their relations. Beginning with the background of sustainable package and sustainable claims, it proceeds with an explanation of the concept of consumers' perceived credibility and its connection with specific or general arguments and their sources. Subsequently, an explanation of the moderating effect of consumers' environmental concern is provided. Furthermore, the paper discusses the construct of perception of sustainability and its relation to consumers' perceived credibility. Perception of sustainability and purchase intention of a packaged product and the moderating effect of the level of environmental concern are also introduced and explained. Afterwards, the methodology used is explained including the research design, procedure, measures and data analyses. The paper concludes with the presentation of the results followed by the discussion, implication, conclusion and further recommendation.

2. Literature review

This chapter provides explanation of the key concepts of the conceptual framework and their relationships. Moreover, the background regarding sustainable package and sustainable claims is provided for better understanding of the context of this study.

2.1. Sustainable package

In this section, the concept of the sustainable package is explained by introducing its definition and example of its efficient application. Subsequently, different views on sustainable packaging are explained with focus on a sustainable claim.

Sustainable Packaging Alliance (SPA) defined the sustainable packaging based on four principles: effective, efficient, cyclic and safe. Effective means that package should effectively protect the product, while also support informed and responsible purchase decision and consumption. The production of efficient sustainable package must aim to use material resources and energy as efficiently as possible. Sustainable package also aims to be more cyclic, i.e. aiming to maximize the recovery of materials while minimizing a material degradation throughout its life cycle. Finally, it aims to minimize safety and health risks to humans and to whole ecosystems (Sustainable Packaging Alliance, 2005). One way to increase efficiency of the packages is to optimise them. A successful example of packaging reduction is Sainsbury's cereals. Sainsbury's in the United Kingdom has announced that its range of cereals will be stocked in plastic bags rather than a bag inside a carton. This resulted in reduced consumption of packaging material by 165 tonnes per year (Verghese et al., 2012). Despite the sustainable packaging fundamental functions, achieving sustainability largely depends on the consumers (Nordin and Selke, 2010).

Efforts in developing sustainable packaging should be aligned with consumers´ demand for quality, convenience and price sensitivity. Thøgersen (2000) stated in his study that ethical reasoning is likely in the choice of product package only when environmental impacts are perceived as considerable, and also when there are no other important characteristics of the package (such as high price) involved in their purchase intention. Thus, from this perspective sustainable package could be perceived as one of the product attributes, playing an important role in the consumers' decision making among different product characteristics such as price or brand (Rokka et al. 2008).

It is important to emphasize that consumers do not purchase the product only because of its sustainable package. As a result, in this study the sustainable package is considered as part of the product and it is explained as a sustainably packaged product.

From a different point of view, package should be perceived as a marketing medium, which provides information and details of the benefits of the product or its package via its labels and claims (Nordin and Selke, 2010).

Unfortunately, many consumers do not understand the connection between their buying decisions and various environmental consequences (Thøgersen, 2000).

Hence, marketers need to communicate the benefits of sustainable packages to consumers in ways consumers would understand and believe them. One way on, how to provide this kind of information is to include them on the package in a form of sustainable claims, which is the topic of the next section.

2.2. Sustainable claims and greenwashing

In this section labelling and the definition of sustainable claims is discussed as well as, the criteria of sustainable claims, which should be fulfilled are explained and finally greenwashing along with its sins and consequences is presented.

Labelling is considered an important marketing tool in a rich tradition of marketing practices Labelling was developed by marketers to assure consumers about authenticity and benefits of their products or services. A claim is defined as a part of the label, which states that the product or the package has particular properties, features or benefits (De Boer, 2003).

Sustainable claims, sometimes called "green claims", are a relatively new concept of packages' communication (De Boer, 2003; OECD, 2011). These claims could be defined as a declaration of the sustainable beneficial qualities or characteristics of their goods. Sustainable claims refer to the way in which packages are produced, distributed and disposed of. It could be implied that beneficial qualities and characteristics are communicated via claims with a positive valence, which should lead consumers to sustainable purchase decision (Grunert, 2011). Claims can take the form of words, symbols, logos or graphics (OECD, 2011).

Despite sustainable claim's recommendations, in reality consumers are often confronted with apparently conflicting arguments about sustainable benefits of products or packages. Some consumers are not able or willing to rationally synthesize competing claims and consequently may rely on heuristic shortcuts such as source credibility of the claims.

This renders consumers more vulnerable to greenwashing – a practice, where producers use sustainable claims about their products or packages based on partial or no analysis of the underlying science. (Betz & Peattie, 2012; Polonsky et al., 1997).

Therefore, greenwashing could be defined as the act of misleading consumers regarding the sustainable practices of a company or the sustainable benefits of a product or a package (Parguel et al., 2011). A typical sin of greenwashing is the sin of a hidden trade off, which means that claims are based only on a single attribute in order to create a greener image of the package. Other examples could be the sins of vagueness or fibbing, when claims are too broad or even false (Verghese et al., 2012).

Consumers cannot verify the sustainable benefits of package or product, when making the purchase decision and therefore, have to rely on the information provided by marketers. Greenwashing has a negative impact on consumer's perceived credibility of sustainable claims (Hamann and Kapelus, 2004). Without perceived credibility of claims, consumers are unable to make a decision based on these since they do not know whether they should be perceived as credible. Hence, greenwashing may endanger the whole sustainable market and could damage sustainable marketing of the honest companies (Chen and Chang, 2013). In conclusion, consumer's perceived credibility of sustainable claims is a crucial concept in sustainable marketing and it is discussed in the next section.

2.3. Consumers' perceived credibility of sustainable claims

The purpose of this section is to explain the concept of consumers' perceived credibility of sustainable claims. Firstly, the definition and its explanation is provided and main points are summarized. Subsequently, this section focuses on perceived credibility of sustainable claims and its connection to arguments and their sources.

Credibility or believability of the claim about sustainable package or product shapes consumers' assessments and intentions toward the product (Beltramini,1988). Eisend (2002) defined perceived credibility as the consumer's perception of the truth of pieces of information. In different words, credibility could be interpreted as the credibility interval in which the truth most likely is. If the possible deviation from truth is high, the interval where the truth could be is wide and the credibility is low. Conversely, if the possible deviation from the truth is low, the information is very probably near the truth and perceived credibility of the information would be high. The perceived truth in our case is the content of the message about positive sustainable benefits.

In this study, perceived credibility is a psychological perception of consumers or an attribution to an object, however it is not an inherent quality of the claim (Eisend, 2002). Hence, perception of credibility is influenced by the consumers' prior attitudes, knowledge and believes (Frewer et al, 1996, Kerstetter and Cho, 2004, Kozup et al., 2003).

Perceived credibility relates to specific situations, namely, communication, uncertainty and relevance (Eisend, 2002). Regarding the communication condition, perceived credibility is tied to a sustainable claim, which is a form of marketing communication. Marketers communicate the sustainable benefits of the product and its package via claim and consumers as receivers of the message evaluate whether they perceive it as credible or not.
Therefore, perceived high or low credibility is result of the consumers' processing of information and inference making (Eisend, 2002).

Sustainability is a credence characteristic. It is based solely on provided information and cannot be refuted by consumers' experience. For example, when consumers consider buying a fruit or a vegetable, they could see whether the apple possess some sought characteristics such as a colour or structure, which are claimed on the label. However, in case of sustainable characteristics, they can´t prove or test whether the product was produced and distributed in a sustainable way (Grunert, 2011). Consumers lack opportunities to verify the trustworthiness of the claim. Hence, perceived credibility is related to an uncertain situation, where consumers have to rely only on information lacking underlying rationality (Downey et al., 1975).

Moreover, consumers evaluate the credibility of a claim only if the information is relevant to them. In other words, perceived credibility becomes relevant in case that the consumers' decision or action is based on the information that cannot be verified by them (Kohnken, 1990).

Perceived credibility depends on the consumers' relationship to the source of the claim and the message itself (Chaffee, 1982; Cronkhite and Liska, 1976; Gunther, 1992). In other words, consumers' perceived credibility of the claim is influenced by the perceived credibility of its source and perceived credibility of its arguments (Jung, 2016). One may logically derive that if consumers perceive the source and arguments of the message as credible, they will hence perceive the claim as credible.

Consequently, to answer the question why consumers believe in some claims, whereas others are not trusted, it is necessary to understand the concepts, providing information to the consumers.

In case of sustainable claims on a sustainable package, information is given to consumers in the form of arguments and their sources, which are discussed in the following sections (Atkinson and Rosenthal, 2014).

2.4. Source of sustainable claims

This section firstly introduces source credibility definition and its characteristics. Secondly, perceived credibility of a governmental and a commercial source as well as their influence on perceived credibility of the claim are discussed and the first hypothesis is presented.

2.4.1. Explanation of source of the sustainable claim

The concept of source credibility is explained first, since sustainable claims can be issued by a variety of sources. Consumers perceive the credibility of the claim based on the perceived credibility of the source of the claim (Atkinson and Rosenthal, 2014).

Credible source may be defined as a source, which provides correct information and is willing to release that information without bias (Hass, 1981). Ibelema and Powell (2001) stated that expertise and trustworthiness are the most important characteristics of the source credibility. The expertise is explained as competence or ability, which captures the knowledge and skills of the source (Gabarro, 1978). Trustworthiness relates to benevolence and integrity. Benevolence is defined as the extent to which a source is believed to want to do good for the trustor (the consumer). It relates to the source's perceived characteristics such as loyalty, openness, caring or supportiveness. Integrity is described as the extent to which a source is believed to adhere to sound moral and ethical principles. It is connected to fairness, justice, consistency and promise fulfilment of a source (Mayer et al. 1995; Hovland 1953).

Information from sources, considered as a high in expertise and trustworthiness leads to a higher likelihood of reception of the message compared to low-expertise or low- trustworthy sources (Milburn, 1991).

From the perspective of persuasive communication, credibility sources that are high in expertise and trustworthy are more persuasive than low-expertise sources (Wang, 2005; Hovland, 1953; Pornpitakpan, C., 2004). Tseng and Fogg (1999) identified four types of source credibility. Firstly, presumed credibility, which arises from the assumptions of consumers such as stereotypes about a source. Secondly, reputed credibility is based on source claims.

These sources are perceived as credible by virtue of the claim e.g. certification by a particular expert. Thirdly, surface credibility refers to the consumers' simple inspection of superficial characteristics. Finally, experienced credibility is based on the consumers' first experience with a source over time. Hence, it could be concluded that consumers when evaluating the credibility of the source rely on different cues, which could be prior beliefs based on stereotypes and perceived expertness of the source or on personal experience (Tseng and Fogg, 1999).

2.4.2. *Influence of government and commercial sources on perceived credibility of claim*

To investigate how source influences consumers' perceived credibility, it is important to understand, which source is perceived as more credible.
In this study, we focus on government and commercial sources, which are commonly used as sources of sustainable claims.

Regarding the definition of source credibility, this source is perceived as credible if consumers believe its trustworthiness (Hovland et al., 1953). Thus, it is suggested that trusted experts are also considered as trusted sources, or at least as providing well-researched information. It may represent a type of "halo" effect, when highly trusted sources are associated with multiple positive attributes. Therefore, consumers´ perception of government or commercial sources is not necessarily a result of a rational thought, but also beliefs based on stereotypes (Peters et al., 1997). Frewer et al. (1996) demonstrated that trustworthiness of commercial sources is influenced by consumers' perception of their need to protect themselves from economic losses. This results in consumers' beliefs that the commercials are protecting their own interest rather than providing trustful information.

Larceneux (2001) stated that credible claims should come from a third-party organization, should be competent and not at all interested in the sale of the product bearing the claim. Note that this definition stresses that the source should be independent from the producers. The government as a source may be considered as the third-party organization (Thøgersen, 2000). However, there is some evidence that government is not always perceived as a credible source, especially in European countries (Priest et al., 2003). Frewer et al. (1996) found out that government increased its credibility as it is seen to be proactive in their interaction with other trusted sources such as consumer organisations. Furthermore, Atkinson and Rosenthal (2014) suggested that in context of eco-labels, the governmental source is perceived as more trusted than commercial source.

Consequently, the following hypothesis was derived based on reasoning of Larceneux (2001) and the results from Atkinson and Rosenthal (2014) research, this is because it provided stronger evidence than the article from Priest et al. (2003).

H_1: Compared to commercial source, a governmental source will lead to higher perceived credibility of a sustainable claim.

2.5. Argument specificity of sustainable claims

This section introduces the concept of argument specificity in terms of specific and general arguments and their perception by consumers.
Moreover, the section explains the link between the consumers' perceived credibility along with specific or general arguments. Finally, the interaction between argument specificity and source credibility is described and additional hypotheses are derived.

2.5.1. Explanation and distinguishing of argument specificity

Understanding the types of thoughts that consumers have, when processing label information, is important, because these reflect the consumers' processing of information and arguments (Keller and Staelin, 1987). Sujan (1985) pointed out that these thoughts could be classified as attribute-specific or general evaluative thoughts. The attribute-specific thoughts such as "this package consists of 85% biodegradable material", involve information processing of an attribute related fact. Conversely, general evaluative thoughts such as "this package is good for the environment", tend to be more broad and summative (Sujan, 1985; Polonsky et al., 1998). In general, consumers, who rely on attribute-specific thoughts have been more involved with processing the message than those, who are willing to process only general thoughts (Sujan, 1985).

The important factor in processing sustainable claims is the understanding of their meaning. When consumers are exposed to external information (the sustainable claim) and they pay a certain degree of attention to the claim, most likely all or some information will be transferred to their cognitive system. Hence, the outlining of how information is processed, it is important to understand how consumers perceive specific or general claims (Leathwood et al., 2007).

Keller et al. (1997) explained in the model of perception of the claim that consumers are aware of the claim, understand it, draw inference (in this case about sustainable benefits of the product), consider it credible, appealing and motivating and also translate it into action (purchase or no purchase). The information-processing theories are built on the assumption that the consumers' memory is organised as an associative network of information, linked based on the associations and relationships among them (Solomon and Angel, 1997).

Interpretation of a claim goes beyond what is actually stated in the claim, because it is influenced by consumer's existing knowledge and its activation spread (Leathwood et al., 2007). Specifically, when consumers are exposed to a sustainable claim, it may bring in mind other associations with the claim, which are stored in the consumer's memory. This process is called spreading activation (Collins and Loftus, 1975). It is possible because of the category schema in consumer's memory. Concretely, consumers store, retrieve and utilize the information about products in categories and schemas to simplify the marketing environment (Blanchard et al., 2012). When information is more abstract (general) it is stored in superordinate level in memory. The superordinate level represents the broadest level, which could be associated with general information. Regarding the theory of Mean-End Chain (MEC) the superordinate level is related to consumers' values. Therefore, general information refers to consumer's values such as sustainability (Gutman, 1982).

On the other hand, subordinate level conveys information concerning the superficial properties of the products they refer to, such as colour or recyclable material (Tversky and Hemenway, 1984). Superordinate level conveys both functional information and general knowledge about the product referred to. Therefore, functional information is in this study the information about sustainable benefits of the package and general knowledge is existing knowledge of the consumer (Barsalou, 1991).

Categorization theory proposes that objects are categorised by consumers based on their featural or relational similarity. Deep relational similarities deal with the idea that objects are similar owing to the fact that they perform analogous function or they are functionally interrelated. In case of sustainability concept, consumers might have associative cognitive structure of the connection with different terms on different levels. For example, if they would perceive information that a package is made from bio-based material, they would categorize this information into their existing knowledge according to its relations with other terms. (Miller et al., 2006).

In accordance with MEC (Gutman, 1982), subordinate level refers to the specific product attributes such as how much percent of a package's material is recyclable, or biodegradable. Conversely, superordinate level refers to values such as sustainability. Specific arguments are related to specific attributes of products or packages. Providing specific information about the product or package leads consumers to cognitively categorize information based on their relations with other information. Consumers do not purchase products because of their features, but because of their benefits or related values. Therefore, consumers will associate specific information about a product or package with values stored in their memory. In case of sustainable package, consumers will categorize specific information about sustainable package to superordinate value (general summative information) which in this case is sustainability (Gutman, 1982).

2.5.2. *Influence of argument specificity on perceived credibility of claim*

Sing and Sirdeshmukh (2000) suggested that cognitive clarity increases the consumers' perceived credibility. If consumers can categorize the information, they perceive the information as more clear, because it fits to the category in their existing memory.

Another aspect of perceived credibility of the sustainable claim, is the extent to which the claim could be verifiable. Specific claims are perceived as easier for consumers to verify than general claims, because general claims are susceptible to individual subjective interpretation (Darley and Smith, 1993).

According to MEC theory, specific arguments related to specific product attributes lead consumers to process information rationally and associate specific arguments about the product with the information about their value, which they can gain by purchasing it. If they are able to categorize specific arguments about product attributes to general value of the product or package, they will also use their own associations based on existing knowledge and therefore they will be more likely to perceive a claim as credible. For example, when consumers are primed to arguments about sustainable package such as "the package is 85% biodegradable, recyclable and created from renewable raw materials", consumers have to associate a meaning to these arguments and make their own conclusions whether the claim is credible or not (Gutman, 1982). It might be assumed that consumers perceive arguments based on their own conclusions as more credible than arguments, which are already summative.

At the same time, general arguments related to values of consumers lead to a heuristic process, which means that consumers will rely on information, which were already concluded by an external source (Gutman, 1982). For example, if consumers are exposed to the arguments about sustainable benefits or even about the higher order values such as "good for environment" or "overall sustainable", the arguments are already summarized by producers and it is up to consumers whether they choose to believe the source despite the lack of any supporting evidence.

This is underpinned by Atkinson and Rosenthal (2014), who found that specific sustainable claims increase consumers perceived credibility. They concluded that claims, providing detailed explanation about sustainable benefits are perceived by consumers as more credible and they are a meaningful tool for messages about the sustainable attributes. General claims may provide only summative information about the package benefits and values and thus such information may be inadequate when consumers weigh potential sustainable benefits. (Atkinson and Rosenthal, 2014).

Moreover, research of Hoogland et al. (2007) demonstrated that consumers believe more the specific information than only a general logo. In accordance with the findings, the following hypothesis is delivered:

H_2: Compared to general arguments, specific arguments will lead to higher perceived credibility of a sustainable claim.

2.5.3. Interaction between argument specificity and source credibility

Interaction between argument specificity and source credibility was not found in the researches of Atkinson and Rosenthal (2014) and Jung et al. (2016), which confirms the importance of this study given that it provides arguments underpinning the existence of this interaction.

Interaction between argument specificity and source credibility might be explained with the aforementioned MEC theory (Gutman, 1982). In case of specific arguments consumers process information rationally and make their own inference about sustainable benefits or values connected to the product. Consumers associate specific information with summative befits or values of the products. Therefore, they make their own conclusion whether the product can provide the claimed benefits or values.

It might be assumed that people believe more their own conclusions than those made by someone else. Therefore, consumers will perceive credibility of the claim based on their own inference and the source that issued the claim would not be important to them (Gutman, 1982; Grunert and van Trijp, 2014). In case of arguments about sustainable attributes of the package, consumers might categorize them based on their existing knowledge of recyclable or biodegradable material as it has sustainable benefits or value and therefore they will believe their own summative conclusion about sustainability of the package.

From a different perspective, when consumers are primed to general claims already summarized by an external source, they have to trust the source in what it says given that they cannot make their own conclusions about sustainable value or benefits of the product. Therefore, in this case the credibility of the claim is dependent on the credibility of the source (Gutman,1982).

Consequently, if consumers are exposed to general arguments, issued by a credible source, they will a perceive claim as credible.

If it were hypothesised that a governmental source is perceived as more credible than a commercial source, it could be concluded that the claim will be perceived as credible only in the case of the governmental source. Regarding the presented arguments, the following hypothesis was derived:

H_3: Compared to specific arguments, general arguments will lead to higher perceived credibility of a sustainable claim only in case of the governmental source.

2.6. Consumers' environmental concern

Firstly, the section provides context of environmental concern, seen from different perspectives. This is followed by an explanation of its connection with sustainable claims and the processing of information such as arguments and their sources. Moreover, the section explains the moderating effect of consumers' environmental concern on argument specificity and source credibility influencing consumers' perceived credibility of the claim.

2.6.1. Theoretical explanation of consumers' environmental concern

Concept of the environmental concern was approached from different angles. Bamber (2003) pointed out that researchers used this term to refer to the whole range of environmentally related perceptions, emotions, knowledge, attitudes, values or behaviours. However, currently environmental concern is mostly perceived as a general attitude (Bamberg, 2003). In this study, environmental concern is also referred to as the consumers' attitude toward sustainability (Bickart and Ruth, 2012). Consumers' concern toward sustainability might be based on different aspects. Fransson and Garling (1999) summarized them as ecocentric and anthropocentric oriented. Ecocentric concern implies that consumers are concerned about the environment for their own sake and that they perceive personal threats caused by environmental deterioration. Anthropocentric orientation is related to general well-being of humans with respect to nature as the central concern.

In the context of sustainable claims, the consumers' level of environmental concern is an important individual difference variable that relates to knowledge and motivation with respect to environmental issues (Mohr et al., 1998). Bickart and Ruth (2012) explained that consumers, highly involved in environmental issues react differently to product or package information. Specifically, higher level of environmental concern should increase the consumers' motivation and ability to process information provided via sustainable claim (Bickart and Ruth, 2012). Consumers who have high environmental concern (HEC) are more vigilant about sustainable information and are therefore motivated to process and evaluate information such as provided arguments.

Conversely, consumers who have low environmental concern (LEC) are not motivated to thoroughly process information and they tent to use heuristic cues such as source credibility. How these processes are moderated by environmental concern is explained in the next section (Bickart and Ruth, 2012; Atkinson and Rosenthal, 2014).

2.6.2. Moderating effect of the level of environmental concern on influence of source and specificity on perceived credibility of the claim

Firstly, the explanation of concepts of argument specificity and source credibility in the context of Kahneman's dual processing system is needed to better understand the moderating effect of consumers' environmental concern on influence of argument specificity and source on perceived credibility (Kahneman, 2011).

Kahneman (2011) described system 1 as a thinking fast process, more intuitive, automatic, unconscious and effortless. From persuasive communication perspective, this system is called heuristic, peripheral system. One of the most important heuristic cues is a source credibility (Pornpitakpan, 2004). In other words, when consumers are exposed to source credibility their trust will be based on intuitive, automatic process, which could be based on their prior beliefs. (Tseng and Fogg, 1999; Petty and Cacioppo, 1984).

Depending on the level of source credibility and message specificity, consumers process message using two different cognitive paths – systematic or heuristic. The Reinhard and Sporer (2010) explored that system 1 is captured in argument specificity while heuristic processing is captured by source cues.

Meanwhile, the difference between argument specificity and argument quality explained by Elaboration Likelihood Model (ELM) should be clarified. The argument specificity manipulations used in previous studies by Petty and Cacioppo (1984) relied mainly on the number of the source's cues. They perceived the argument specificity as a heuristic cue. In contrast, the argument specificity in this study is related to a cognitive process that is when consumers evaluate whether a message is honest or truthful (Jung et al., 2016). Jung et al. (2016) demonstrated that systematic process is driven by argument specificity.
Particularly, when consumers are primed to specific arguments they will process them through system 2, which is considered as conscious, slow and deliberate thinking (Kahleman, 2011).

One may conclude that perception of credibility is based on previous thinking process of consumers. Therefore system 1 and 2 are used as an explanation of the influence of source and argument specificity on perceived credibility of the claim, which is moderated by the consumers' environmental concern.

The aforementioned explanation of consumers' environmental concern stressed out that consumers differ in the level of their concern. Consumers with high level of environmental concern (HEC) are more motivated and able to process information rationally and therefore use system 2. (Bickart and Ruth, 2012; Atkinson and Rosenthal, 2014). In consequence, their motivation could be perceived as high involvement in environmental issues and the explanation of involvement could be used.

Consumers with a HEC rely on provided information and they engage with the arguments of the claim. More meaningful arguments will evoke in HEC consumers greater trust than in the case of LEC consumers. Consumers with a LEC are mostly not involved in environmental issues and therefore they are not motivated to pay attention and process information rationally (Atkinson and Rosenthal, 2014; Jung 2016).

In other words, consumers with a HEC will rely on argument specificity and not on source credibility. Moreover, because specific arguments provide more detailed and thorough information, consumer's with HEC will strengthen the influence of specific and not general arguments on consumer perception of credibility (Atkinson and Rosenthal, 2014). Consequently, the following hypothesis was derived:

H_4: Consumer's high level of environmental concern will increase the influence of specific arguments on perceived credibility of sustainable claim.

On the other hand, consumers with a LEC will rely on heuristic cues, which in this study is the source credibility (Atkinson and Rosenthal, 2014; Jung et al., 2016). When consumers with a LEC are exposed to a claim, source credibility is expected to be a key determinant of consumer-based trust in the claim (Atkinson and Rosenthal, 2014). It might be summarized that consumers with a LEC will rely only on source credibility rather than argument specificity.

Furthermore, it is hypothesised that a government source is perceived by consumers as more credible, thus it could be logically derived that the LEC will strengthen the effect of government source instead of commercial. Therefore, the interaction only with a government source is expected. Consequently, the following hypothesis was derived:

H_5: Consumer's low level of environmental concern will increase the influence of government source on perceived credibility of a sustainable claim.

Clearly, consumers' perceived credibility is a result of informational processing. However, the remaining question is, whether consumers' perceived credibility would also influence the perception of sustainability of the package. Therefore, the perception of sustainability of the package is discussed in the next section.

2.7. Consumers' perception of sustainability of the sustainably packaged product

This section introduces the concept of perception of sustainability of the package. Subsequently, the influence of perceived credibility on perception of sustainability of the package is discussed. Finally, a hypothesis is derived.

2.7.1. Explanation of consumers' perception of sustainability

Even though sustainability is an abstract complex concept with various definitions, many consumers support the idea of sustainability. Even in case they do not completely understand the concept of sustainability, they may have a positive attitude to the components of sustainability, such as environmental protection (Grunert, 2011).

Simpson and Radford (2012) found that consumer perception of sustainability is mainly associated with environment. Two other dimensions of sustainability – social and economic – were rarely associated with sustainability. Therefore, their results imply that consumers misunderstand the term and interchange terms sustainable and environmental friendly (Simpson and Radford, 2012).

Consumers perceive sustainable products or packages as they have positive impact on their quality of life (Scott and Vigar, 2014). Griskevicius et al. (2010) stated that consumers' perception of sustainable packages or products is related to their altruistic needs.

Consumers believe that sustainable packages or products contribute to their quality of life, because it lets them feel as if they were helping to save the planet by reducing landfills and waste and preserving the environment for future generations.

To further specify the term perception of sustainable package, it is worthy to emphasize that consumers do not buy a product only because of its sustainable benefits, however it influences consumers' decision about the sustainable purchase (Thøgersen, 2000). From the consumers' point of view a sustainable package can be defined as a package that explicitly or implicitly evokes sustainability via its structure, graphical or iconographic elements or its informational elements (Magnier and Crié, 2015).

As previously stated, sustainability is a credence attribute. Therefore, many package attributes that consumers may consider important for sustainably packaged products are not directly perceivable (Roth et al., 2009), but need to be inferred from information provided on the products' labels or on shelf tags. This can be in many examples a complex task (Tanner and Jungbluth, 2003). For example, consumers who perceive that low footprint is an important attribute of sustainable package would have to estimate the climate impact from the information provided about the package via claims (van Dam, 1996).

Perceived sustainability of packaged product is psychological concept, related to consumers' perception and needs. Therefore, it does not reflect real sustainable benefits of the packaged product (Grunert, 2011).

Consumers' inference about sustainably packaged product is dependent on believability, credibility of information provided, which is discussed in next section.

2.7.2. Influence of perceived credibility of the claim on perceived sustainability of the package

Consumers form perception of packaged product performance on sustainability attribute through the processes of information and inferential belief formation (Fishbein and Ajzen, 1975). In case of credible attributes such as naturalness or healthiness, consumers use a priori beliefs about the relationship between cue and attributes, by which they assess new information. For example, if consumers see artificial colour of candy (cue), they infer the presence of artificial colourings and hence they would not believe to claim about healthiness (credence attribute) of the product (Van den Heuvel et al., 2007).

In case of perception of sustainably packaged product, it might be very difficult for consumers to infer sustainable attributes from cues. For example, if consumers see bio-based plastic bottle, the bottle looks exactly the same as the conventional plastic bottle. Therefore, the claim as information is the only cue, explaining its sustainable benefits. Sustainable claims are supposed to have function of empowering consumers to make the sustainable choices, therefore if consumers will not believe to claim they would not perceive a package as sustainable (Grunert, 2011).

Therefore, it might be concluded that if consumers believe in a claim, which provides information about sustainable benefits, they infer the possesses claimed benefits. Conversely, if claim is not perceived as credible, consumers do not believe in the claims sustainable benefits, which are claimed. Specifically, when consumers process information about sustainable benefits, they infer that the source is credible or the information provide credible arguments, they will perceive information as truth. If information about packaged product is not believed consumers will not perceived them as a truth and therefore they will stay uncertain about sustainable benefits. Regarding presented arguments, the following hypothesis was developed:

H_6: Consumers perceived credibility of sustainable claim will positively affect consumers' perception of sustainability of the package.

When the concepts of consumer perception of sustainability, perceived credibility, argument specificity and source credibility and their moderating effect were explained, the purchase intention needs to be clarified. Concept of purchase intention is considered as a good proxy of actual purchase behaviour (Chandon et al., 2005; Fishbein and Ajzen, 1975; Schiffman and Kanuk, 2000). Therefore, it is discussed in the next session.

2.8. Purchase intention of sustainably packaged product

Final section of literature review explains the concept of purchase intention and its relation to the sustainably packaged product. Moreover, the link between consumers' perception of sustainability and purchase intention of packaged product is discussed and the last hypothesis is derived.

2.8.1. Definitions of purchase intention

Purchase intention refers to consumer's conscious plan to make an effort to purchase a particular product or package (Spears and, 2004).
It can also be defined as consumers' motivation in the sense of their conscious plan to exert effort to carry out a behaviour (Eagly and Chaiken, 1993). The similar explanation for purchase intention was provided by Beltrán and Lafuente (2005), who interpreted it as the purchasing behaviour, which is based on abstract attitudes resulting from sensations received from the purchase environment, culture, or psychological aspects, among others.

Sustainable purchase intention can be explained as the likelihood of a consumer´s purchase decision to buy a particular sustainably packaged product (Dodds et al., 1991; Grewal et al., 1998), or the decision that came from the value and sustainable benefits perceived by consumers (Zeithaml, 1998).

Aforementioned importance of purchase intention in consumer behaviour literature is that purchase intention is closely related to consumer´s actual purchase behaviour (Chandon et al., 2005; Fishbein and Ajzen, 1975; Schiffman and Kanuk, 2000). In this study purchase intention, might predict consumers' purchase of package with sustainable claim, thus it is highly relevant to investigate. However, other factors such as price, availability or other unexpected situational factors can come between purchase intention and purchase decision (Qader and Zainuddin, 2011).

2.8.2. Influence of perceived sustainability of the package on purchase intention of the sustainably packaged product

Consumers are in a position where they may choose if they want to support manufactures who produced their products in a sustainable manner (Worm et al., 2009). Consumers looking to purchase a sustainable product have to believe that a packaged product was produced and packaged in a sustainable manner, otherwise this product or package will not satisfy their needs. In other words, if consumers are willing to purchase a sustainably packaged product, they should perceive it as sustainable, otherwise they will not be willing to purchase it (D'Souza, 2004). According to Zeithaml (1998), purchase intention is related to values and sustainable benefits perceived by consumers. Therefore, if consumers believe in sustainable benefits of the packaged product it might increase their intention to buy it. Leire and Thidell (2005) explained that consumers have intention to buy sustainably packaged product if they perceive it as it has claimed sustainable benefits. Hoogland et al. (2007) stated that claims might impact consumers' perceived sustainable product benefits and therefore strengthen their intention to buy the product. As a result, the following hypothesis was implied:

H_7: Consumers' perception of sustainability of package has the positive direct impact on its purchase intention.

An important assumption for the consumers purchase intention based on perception of sustainable product is that consumers are aware of environmental problems and they are willing to purchase products, produced in a sustainable manner. Therefore, this relationship is influenced by consumers' level of environmental concern, which is further discussed in the next section.

2.8.3. Moderating effect of the level of environmental concern on perception of sustainability and purchase intention of sustainable package product

Level of consumers' environmental concern does not only influence how consumers process information but it also influences whether they are willing to buy sustainably packaged product based on their perception of package's sustainability (D'Souza et al., 2006). Consumers with a LEC might not consider sustainable benefits associated with packaged products they buy. They may be aware of these benefits but do lack motivation to purchase the sustainably packaged product.

Consumers with a LEC would trade off product attributes such as quality, warranty and performance in their product alternatives evaluation. Even though consumers with a LEC will perceive package as sustainable, they would not intent to purchase sustainably packaged product (D'Souza, 2000). It might be inferred that consumers' LEC will not increase influence of perception of sustainability on purchase intention.

On the other hand, consumers with a HEC are interested in sustainable benefits of the products and they consider these aspects while evaluating packaged products. They will actively seek information about the sustainable benefits of products (D'Souza, 2004). In other words, these consumers would be motivated to purchase sustainable product if they perceive it as sustainable (Vlosky et al., 1999). Schuhwerk and Lefkoff-Hagius (1995) suggested that the more involved consumers become with the environment, their perception of sustainability of the package will more likely lead to their intention to buy the packaged product. It might be concluded that if consumers with a HEC would perceive packaged product as sustainable they will be motivated to purchase it. They would perceive the sustainable benefits as an important product attributes while evaluating the product. In different words, consumers' HEC will increase influence of perceived sustainability on purchase intention.
Consequently, the following hypothesis was inferred:

H_8: Compared to low level of environmental concern, a high level of environmental concern will lead to an increase of the influencing effect of perception of sustainability on purchase intention of the sustainably packaged product.

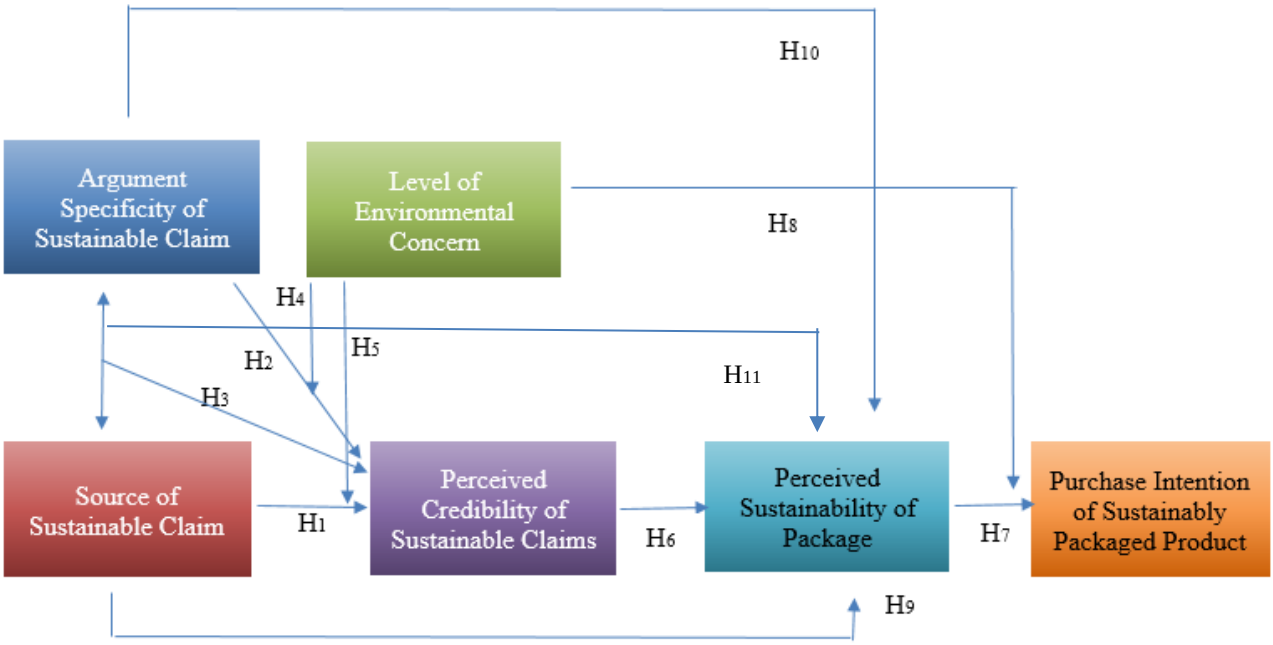

Figure 2: Conceptual model explaining variables and their relations

3. Methodology

The chapter introduces the experimental design and the manipulated stimuli. It also explains the experimental procedure, which includes information about the study and the pre-test procedure. Finally, used measures and data analysis are described.

3.1. Participants and Experimental Design

Two independent variables were manipulated in a 2x2 between-subject design. The moderation effect was measured but not manipulated.

Stimuli of the Study

A carton package for organic orange juices was selected for manipulation with sustainable claims. The package is familiar to consumers, so they can easily recognize it. Furthermore, the carton material is perceived by consumers as sustainable, which eliminates possible incongruence in perception of sustainable claim and package (Young, 2008).

Figure 3: Stimuli of the study

Manipulated Factors

The first manipulated factor was argument specificity, manipulated by varying the level of specificity of information included on the label. The label with specific condition provided detailed information about multiple sustainable benefits. According to Scammon (1977), to avoid overloading the recipients with information, the claim included only a reasonable amount of information. The sustainable claim in a general condition was a simple logo with claim "sustainable package".

Secondly, the source of the claim - either government or producer was manipulated. In the condition with government source, the source was described as governmental agency. In condition with commercial source, the source was manipulated by describing the label as being issued by the producer. Sources were not precisely specified on purpose to prevent confounding effect of variables such as prior beliefs or positive/negative attitudes toward the sources.

Figure 4: Manipulation with specificity and source of the claim

Participants of the Study

Data was collected from 291 respondents, 70% of which were women. From the total of 291 participants, 95% of participants were students. The age range of participants is between 15 and 55 years, 68% of participants were aged between 15 and 25 and 30% of participants were aged between 26 and 35. Considering sustainable consumption, young people are perceived as agents of change in consumer society (Fien et al., 2008). Young adults report high rates of environmental concern and knowledge about the concept of sustainability and its consumption (Hume, 2010).

Participants were partly from the University of Wageningen (57%) and partly from the University of Life Science in Prague (43%). Students were selected based on an assumption about their environmental concern. Students of the University of Wageningen were selected as a representative sample of Dutch consumers. According to Martens and Spaargaren (2005) and Gatersleben et al. (2002) Dutch consumers have increased interest in sustainability and sustainable consumption, therefore it was expected their level of environemtnal concern will be high. Conversely, Czech consumers were expected to have a low level of environmental concerns (Zagata, 2012). Thus, students of the Life Science University in Prague were selected to represent Czech consumers.

Sample size calculation

Calculation of sample size is important to determine how many participants are needed to achieve high statistical power (traditionally above 0.80 – 0.90) and therefore to have accurate results of statistical analyses. Calculation was conducted prior to data collection. It was calculated for two exemplars of statistical analyses –linear regression and analysis of variance.

To investigate the sample size, firstly a critical value of α=0.05 was set up, which means the probability of rejecting the null hypothesis, when the null hypothesis is actually true. Statistical power was set up at the level of 0.90, which is the probability of rejecting the null hypothesis when the alternative hypothesis is actually true. Effect sizes were assumed based on Cohens´ effect size (Cohen, 1988), which indicates what is a large, medium and small effect size for the analysis. Effect size could be interpreted as a difference between hypothesised parameter values.

The effect size for analysis of variance was assumed as medium with a value of 0.25, the effect size for linear regression was assumed as 0.35 – large effect. Sample size was calculated with the program g-power (Faul et al., 2007).

Specifically, it was calculated what the required sample size was for conducting analysis of variances with five degrees of freedom with an assumed medium effect size 0.25 (Cohen, 1988), significance level of α=0.05 and statistical power of 0.90. Results show the required sample size is 270 participants to achieve statistical power of 0.90.

It was calculated what required sample size is for analysing linear regression with three predictors (perceived sustainability, quality, price), assuming large effect size 0.35 (Cohen, 1988), significant level α=0.05 and statistical power of 0.90.

Results showed the required sample size for conducting regression analysis is 45 participants to achieve statistical power of 0.90. In conclusion, it is necessary to obtain data from 270 participants to achieve 0.90 statistical power. Prior the data collection, possible reduction of the sample size due to incorrect answers of manipulation check was considered. Results of g-power program are available in appendix 1.

3.2. Procedure

Pre-test of the study

A pre-test was conducted prior to data collection to confirm that the manipulations of specificity and source credibility are valid. Participants received a link to an online survey in Qualtrics program via e-mails and Facebook. Pre-tests consisted of four questions. Respondents were required to answer all four questions to finish the questionnaire, therefore all responses were completed. In total, 32 respondents were asked to rank and rate five claims with manipulated level of specificity and answer an item related to source.

The level of specificity was manipulated by amount and granularity of information on the claim about the sustainable benefits of the package. Claims were issued either by the producer (60%) or the governmental source (40%). All five claims are available in appendix 2.

Firstly, respondents were asked to rank five claims based on their perceived specificity (in order ranked 1 – perceived as the most specific, 5 – perceived as the most general). Results have shown that 75% of respondents considered the claim with the highest level of specificity (the most informative) as the most specific, the claim with very short description (sustainable package) considered to be the least specific by 86% or respondents.

In the next question, respondents were asked to rate five claims with manipulated level of specificity on a five- point semantic differential scale (1- very general, 5-very specific).

The claims with the highest (M=4.4) and the lowest (M=1.3) means were compared with t-test to investigate whether they significantly differ. Results showed a significant difference between the claim rated with the highest scores (M = 4.4) as very specific and claim rated with the lowest scores (M=1.3) as very general, ($t(32) = 12.351$, $p < 0.001$).

Consequently, the claim ranked as the most specific (75%) and rated as very specific (M=4,43) was selected for the study as claim with specific arguments. The claim which was ranked as the least specific (86%) and rated as very general (1.3) was selected for the main study as a claim with general arguments.

To investigate whether respondents can detect the manipulation of the source, a manipulation check was included in the pre-test. All five claims were issued either by the government or the producer source. Respondents were asked whether they detected the issuer of the claims. If respondents answered positively, they were asked to provide the source. Results showed that when respondents were asked "Did you detect the source(s) which issued the claims?", 80% of respondents answered that they detected the source.

If respondents answered positively, they were asked “Please describe, which source(s) you detected.”, 75% of respondents correctly named both government and producer sources. Accordingly, it might be concluded that the manipulation of the source is salient and could be detected by respondents. Results are summarized in table 1.

Table 1. Results of manipulation of specificity

	1.	2.	3.	4.	5.	t	p
Ranked as the claim with highest level of specificity (%)	75%	12,5%	3,125%	3,125%	6,25%		
Ranked as the claim with lowest level of specificity (%)	6.25%	3.125%	0%	6.25%	84.4%		
Means (SD)	4.43 (0.91)	4.13 (0.87)	3.09 (0.78)	2.09 (0.78)	1.31 (0.821)	12.351	0.000

1. The claim with the most information, 5. The claim with the least information

Procedure of the Study

Participants were sent a link via e-mail leading to an online questionnaire that included the experimental stimuli with following questions about the outcome variables. Students were asked to participate in a study about how people think about sustainable packages. Participants were randomly assigned to one of four manipulation conditions.

Respondents were asked to take a moment to review the claim and after that to directly answer the following questions. For example, respondents were exposed to the claim with general arguments, issued by a government agency. They were asked to look at the claim and proceed to the next page to answer the questions. If respondents skipped a question, the survey did not let them to proceed, therefore all questions were fully answered. The participants were assigned the claims randomly. To find out whether participants paid attention to the questions, two manipulation check items were included. Finally, questions about participants’ demographics were included in the end of the questionnaire.

Manipulation check items

According to Berinsky et al. (2014), many respondents breeze through the survey without paying attention to the manipulation. It is happening especially in case of internet surveys.

In order to investigate whether respondents paid attention to the manipulations, two manipulation check items were included in the questionnaire. The items "Was the shown claim specific or general?" and "Who did issue the claim displayed?" were inspired by research of Atkinson and Rosenthal (2014), which measured whether respondents paid attention to manipulation of source and specificity.

In order to investigate whether respondents paid attention to manipulation, manipulation check items were analysed. Cross-tabulations were conducted with the responses to the manipulation check questions. Results are summarized in tables 2 and 3. For the manipulation check of source, respondents were asked, who has issued the claim displayed, 174 (59%) answered correctly, whereas 117 (41%) respondents answered incorrectly. For manipulation check of specificity, respondents were asked whether the claim was specific or general, 193 (66%) respondents answered in line with manipulation they were shown, but 98 (34%) respondents did not. From 117 respondents, who incorrectly answered a manipulation check item of source, 89 respondents did not also answer correctly the item of manipulation check of specificity. It might be concluded that these respondents did not pay attention to the displayed claim, because they did not answer any manipulation check question correctly.

In terms of manipulation check of specificity, it cannot be objectively said whether the arguments were specific or general. Therefore, it is unclear whether respondents did not pay attention to the claim or whether they perceived the specificity of the claim in a different way. In conclusion, respondents for the main study were selected based on their correct answers of manipulation check question of source.

Table 2: Crosstable - Manipulation Specificity

Observed	Participants response	
Shown Manipulation	Specific	General
Specific	71	26
General	72	122

Incorrect answers of the manipulation check

Table 3: Crosstable - Manipulation Source

Observed	Participants response	
Shown Manipulation	Government	Producer
Government	93	48
Producer	69	81

Incorrect answers of the manipulation check, excluded from the analysis

3.3. Measures

All items summarized in table 4, were measured by a 7-point Likert Scale with end poles labelled as “I totally agree” and “I totally disagree”.

Purchase Intention

The scale was inspired by Kozup et al. (2003), which measured purchase likelihood, consideration of purchase and certainty about purchasing of packaged product. The scale consists of three items.

Perception of Sustainability of Sustainable Package

The items asked about perceived sustainability of the package. The scale was inspired by Magnier et al. (2016), who investigated perceived sustainability of package and product. The scale consists of two items.

Perceived Credibility

The items were based on Moussa and Touzani’s (2008) scale, which measured the perceived credibility of sustainable claims. The scale consists of six items.

Environmental Concern

Scale used was from research by Kilbourne and Pickett (2008). The scale consists of six items.

Covariate Variables - Perceived Price, Perceived quality

Perceived price and quality were included in the study as control variables of the influence of perceived sustainability on the purchase intention. Items to measure the concept of perceived price were used from research Smith and Park (1992). The scale consists of three items. Items to measure concept of perceived quality were inspired by Dodds et al. (1991) scale. The scale consists of six items.

Table 4: Summary of items measuring the constructs

Variable	Sources	Items
Purchase intention of sustainable package	Kozup et al. (2003)	1. I would very likely purchase the orange juice, given the claim shown. 2. Given the claim shown, I would consider the purchase of the orange juice 3. I am certain that I would purchase the orange juice
Perception of sustainability of package	Magnier et al. (2016)	1. Package of orange juice is sustainable. 2. This is good example of sustainable package.
Perceived credibility of toward sustainable claims	Moussa and Touzani's (2008)	1. I can trust what the claim says. 2. This claim comes from recognized experts. 3. The claim is honest. 4. The organization that states this claim has good intentions. 5. The organization has passed serious tests before issuing this claim. 6. This claim gives me confidence.
Environmental concern	Kilbourne and Pickett (2008)	1. I am very concerned about the environment. 2. Humans are severely abusing the environment. 3. I would be willing to reduce my consumption to protect the environment 4. Major political change is necessary to protect the natural environment 5. Major social changes are necessary to protect the natural environment. 6. Anti-pollution laws should be enforced more strongly.
Perceived price	Smith and Park (1992)	1. I expect that shown sustainably packaged orange juice will be expensive. 2. Compared to other orange juices, I expect that price of the sustainably packaged juice will be higher than average. 3. I think that price of sustainably packaged orange will be high.

Perceived quality	Dodds et al. (1991)	1. Orange juice is of high quality. 2. The likely quality of orange juice is extremely high 3. The likelihood that orange juice would be functional is very high. 4. The likelihood that orange juice is reliable is very high 5. Orange juice must be of very good quality. 6. Orange juice appears to be of very poor quality (r)

3.4. Data Analysis

Preliminary analyses

The whole dataset was visually checked prior to further analysis to eliminate any suspicious data. In order to check the reliability of the scales, analysis of reliability was conducted with Cronbach' s alpha. The Cronbach's alpha estimates whether the items measure the same underlying construct. If its coefficient is not acceptable (<0.7), items can be deleted to increase internal consistency of the concept. Table 5 shows the measured concepts, the amount of the items used in the questionnaire and corresponding Cronbach's alpha. All items measuring the concepts were judged as adequately reliable. Reliability of items measuring perceived quality was also higher than level of acceptance 0.7, however results showed that the reliability of the scale would increase from 0.811 to 8.848 in case the sixth item would be deleted. The increase of Cronbach's alpha coefficient is caused by a relatively low correlation of items (0.318; 0.236; 0.96; 0.227; 0.160). Some participants did not realise that the sixth question had reverse character and answered it in the same manner as the previous questions. The sixth question was deleted and therefore the reliability of the scale has increased to 0.848.

Table 5: Results of reliability analyses

Measured Concept	Number of Measuring Items	Coefficient of Reliability of Items	Coefficient of Reliability of Items after removing non-correlated item/s
Perceived credibility	6	0.901	
Perceived sustainability	2	0.849	
Perceived price	3	0.875	
Perceived quality	6	0.811	0.848
Purchase intention	3	0.831	
Environmental concern	6	0.916	

Before the analysis of the moderation effect of the level of environmental concern was conducted. The concept of the level of environmental concern was transformed into a dummy variable based on median split (median = 6). Values higher than 6, were considered as the high level of environmental concern with dummy code 1, whereas values lower than 6 were considered as the low level of environmental concern with dummy code 0.

In order to investigate whether there is a significant difference between high and low level of environmental concern, means of levels were compared with t-test. Results in table 6 have shown that high level of environmental concern (M=6.6) is significantly higher than low level of environmental concern (M=4.7), ($t(174) = 14.039$, $p<0.001$). Therefore, the analysis investigating the moderation effect of the level of environmental concern could be conducted.

Results have shown that high level is significantly higher than low level of environmental concern, however the median (6) can be considered as very high on a 7 point Likert Scale. Based on literature, it was assumed that respondents from the Czech Republic will have lower environmental concern compared to respondents from the Netherlands (Martens and Spaargaren, 2005; Zagata, 2012). To investigate whether the level of environmental concern is significantly higher for respondents from WUR compared to level of LSU respondents, means were compared with independent sample t-test. Results supported that level of environmental concern of respondents from LSU (M=5.2) was significantly lower than respondents from WUR (M=5.6) ($t=-3.494$, $p<0.01$). However, mean 5.2 on the 7-point Likert scale might be considered as relatively high level of environmental concern. Possible reasons of high median of concept environmental concerns are further discussed in discussion section.

Table 6: Difference in means of high and low level of environmental concerns based on median split

		Mean	SE	t	p
Level of Concerns	High (N=89)	6.6	0.354	-14.039	0.000***
	Low (N=85)	4.7	1.196		

***p<0.001

Analyses of hypotheses

All statistical analyses were conducted using SPSS statistical software. Statistic's significance was assessed at $\alpha=0.05$. Prior to the analysis, assumptions for a given analysis were checked. In the results section, assumptions are mentioned only in case if they were violated. Before the analysis, data was also checked for outliers. To analyse the H1, H2 and H3, influence of argument specificity and source credibility on perceived credibility of sustainable claim and their interaction were analysed by two-way analysis of variance.

In order to analyse moderation effect of the level of environmental concern on influence of argument specificity and source credibility, analysis of variance was conducted. Mediation of perceived credibility and sustainability was analysed by mediation analysis in PROCESS macro by Hayes (2013).

The mediation was tested based on principles of four steps by Baron and Kenny (1986):

Step 1: In the first step, the total effect of independent variable (X) on dependent variable (Y) is analysed (c path). If the significant relation of the independent variable (X) on dependent variable exists, the second step is tested.

Step 2: In the second step, the effect of independent variable on mediator (X on M) is analysed (a-path), if it the relation is significant, the third step could be tested.

Step 3: In third step, the influence of mediator (M) on dependent variable (Y) is tested (b-path), if the relation is significant the fourth step is analysed.

Step 4: In the fourth step, the direct effect of independent variable (X) on dependent variable (Y), controlling for mediator (M) is analysed (c'-path) (MacKinnon et al., 2007).

When one or more of the first three relationships are not significant it might be concluded that mediation effect has not occurred (MacKinnon et al., 2007). Full mediation occurs, when all three conditions in step 1-3 are met and the direct effect of the independent variable on the dependent variable, controlling for the mediator is not be significant ($c'=0$). Partial mediation occurs, when all three conditions in step 1-3 are met and the direct effect of independent variable on the dependent variable, controlled for mediator is significantly lower than total effect ($0<c'<c$) (Zhao et al., 2010).

Furthermore, to investigate the relative importance of the influence of perception of sustainability on purchase intention, perceived price and quality were included in the model as covariates.

Moderating effect of consumers' environmental concern on the influence of perceived sustainability of package on purchase intention of packaged product was analysed by moderation analysis by Hayes (2013). Finally, to investigate whether argument specificity and source credibility have a direct effect on perceived sustainability, the analysis of variance was conducted.

4. Results

The result section is organized in two parts - reduction of sample size based on the manipulation check and the main results of hypotheses. Results of hypotheses are divided into six subsections. Firstly, results of argument specificity, source credibility and their interaction effect on perceived credibility are presented and described. Furthermore, results of the moderating effect of environmental concern on the effect of argument specificity and source credibility on perceived credibility are presented and described. Results of the mediating analysis of perceived credibility and perceived sustainability are discussed, followed by the results of the level of environmental concern's moderation effect on the influence of perceived sustainability on purchase intention. Finally, the direct impact of source credibility and argument specificity on perceived sustainability is discussed.

4.1. Reduction of the sample size based on manipulation check items

According to Berinsky et al. (2014) if consumers do not pay attention to the manipulation, it could lead to spurious within-group variability and lower reliability. It could cause type II errors in hypotheses testing.

Therefore, from the total number of 291 participants. only 174 (59%) participants, who answered the manipulation check question correctly for the source of the claim were selected for the main analysis. The manipulation of specificity might not be fully objective manipulation check, because respondents might perceive specificity differently.

From new reduced data sample, of 174 respondents 92% were students, 33% of respondents were men, 35% of respondents were from Life Science University and 65% of respondents were from Wageningen University. The age range among participants is between 15 and 55 years, with 67% of participants between age of 15 -25 and 31% of participants were between age of 26 – 35.

4.2. Results of the main analyses

Effect of source credibility and argument specificity on perceived credibility

Firstly, we tested H1 and H2, stating that source (H1) and argument specificity (H2) influence perception of credibility of sustainable the claim. Furthermore, it was expected that there would be an interaction effect between source and argument specificity (H3). In order to verify H1, H2 and H3 two-way analysis of variance was conducted with the source and argument specificity as independent variables and the perceived credibility as the dependent variable. Results are summarized in table 7. Specifically, H1 stated that compared to a commercial source, a government source will lead to higher perceived credibility of the sustainable claim. Results verified H1, source of the claim had significant main effect ($F(1.169) = 12.245$, $p<0.001$) on perceived credibility. Perceived credibility of the sustainable claim was significantly higher, when the claim was issued by government source ($M=4.4$) as opposed to producer source ($M=3.7$), supporting H1.

It was expected that compared to general arguments, specific arguments will lead to higher perceived credibility of sustainable claim. Results supported H2, argument specificity had significant main effect ($F(1.169) =5.858$, $p<0.05$) on perceived credibility. Perceived credibility of sustainable claim was significantly higher for the claim with specific arguments ($M=4.3$) compared to general arguments ($M=3.9$), which supports H2.

H3 stated that compared to specific arguments. general arguments lead to higher perceived credibility only in case of governmental source. Results did not verify H3. interaction between source credibility and argument specificity was not significant ($F(1.169) =0.342$; $p>0.05$). Perceptions of perceived credibility did not significantly differ when sustainable claim with general arguments was issued by government ($M= 4.2$) or by producer ($M=3.9$). Perceived credibility did also not significantly differ, when the claim with specific arguments was issued by government ($M=4.7$) or by producer ($M=3.9$).

Table 7: Summary of results of two-way analysis of variance

	Perceived Credibility				Perceived Sustainability			
	df	F	p	η^2	df	F	p	η^2
Main effects								
Specificity	1	5.858	0.017*	0.034	1	8.188	0.005**	0.047
Source	1	12.245	0.001***	0.078	1	5.499	0.020*	0.032
Interactions								
Specificity x Source	1	0.342	0.560	0.004	1	0.148	0.701	0.001
Concern x Source	1	0.424	0.516	0.003				
Concern x Specificity	1	0.361	0.549	0.002				

*p<0.05 **p<0.01 *** p<0.001

Moderating effect of the level of environmental concern on the influence of argument specificity and source credibility on perceived credibility

It was expected that the level of environmental concern moderates the influence of argument specificity (H4) and source (H5) on purchase intention. In order to verify H4 and H5 analysis of variances was conducted with source and argument specificity as independent variables, perceived credibility as the dependent variable and a dummy variable for the level of environmental concern as the interaction effect with source and specificity. Results are summarized in table 7.

Specifically, H4 stated that consumer's high level of environmental concern will increase the influence of specific arguments on perceived credibility of sustainable claim. Results did not support H4, there is no significant interaction (F (1.166) =0.361, p>0.05) of argument specificity and the level of environmental concern. High level of environmental concern (HEC) does not moderate the influence of specific (M=4.6) or general arguments (M=4.0) on perceived credibility.

H5 stated that consumer's low level of environmental concern will increase the influence of government source on perceived credibility of sustainable claim.

Results also did not support H5, there is no significant interaction (F (1.166) = 0.424, p>0.05) of source and the level of environmental concern. Low level of environmental concern (LEC) does not have interaction effect with government (M=4.2) or producer (M=3.6) on perceived credibility.

To investigate whether the results of the moderation effect of the level of environmental concern would change in case of more extreme contrast between LEC and HEC. analysis of variance was conducted with only the bottom quartile (bottom 25%) and top quartile (top 25%) of values. Therefore, as LEC were considered values lower than 5.2 transformed to dummy code 0 and as HEC were considered values higher than 6.7 transferred to dummy code 1. Results show that level of environmental concern does not have the significant interaction effect ($F(1.75) = 0.088$, $p>0.05$) with argument specificity or interaction effect ($F(1.75) = 0.855$, $p>0.05$) with source. Environmental concern does not have significant interaction effect with source or argument specificity on perceived credibility even though there is more extreme contrast between HEC and LEC.

Perceived credibility as the mediator in the process of source credibility and argument specificity influencing perceived sustainability

We have already supported H1 and H2 which proposed that source and argument specificity influence perceived credibility of the claim. Regarding the conceptual model, it was expected that perceived credibility mediates the effect of source and argument specificity on perceived sustainability. In order to investigate whether source and argument specificity is mediated by perceived sustainability, the mediation analysis was tested with regression analyses based on principles of four steps by Baron and Kenny (1986). Results are summarised in table 8.

In the first step, total effect of source and argument specificity on perceived sustainability was analysed with regression analysis, where source and specificity were included as independent variables and perceived sustainability as dependent variable. Results have already verified that the interaction of source and argument specificity does not have significant effects ($F(1.169) =0.342$, $p>0.05$; $F(1.165) = 0.148$, $p>0.05$) on perceived credibility nor perceived sustainability, therefore it was not included in the mediation analysis.

Results confirmed a significant effect ($t(169) = 2.580$, $p<0.05$) of source ($b=0.422$) on perceived sustainability. Results also showed a significant effect ($t(169) =2.681$, $p<0.05$) of argument specificity ($b= 0.446$) on perceived sustainability. In the second step, regression analysis was conducted with source and specificity as independent variables and perceived credibility as dependent variable.

Results supported significant effects (t (169) = 3.462, p<0.01; t (169) = 0.462, p<0.05) of source (b=0.652) and argument specificity (b=0.462) on perceived credibility.

In the third step. the effect of perceived credibility on perceived sustainability was analysed. H6 stated that consumers' perceived credibility of a sustainable claim will positively affect consumers' perception of sustainability of a package. Results supported H6, perceived credibility (b=0.398) has a significant effect (t (173) = 6.549, p<0.001) on perceived sustainability. In the fourth step, the influence of source and argument specificity on perceived sustainability controlled for perceived credibility with regression analysis, where source. specificity and credibility were included as independent variables and perceived sustainability as dependent variable. Results showed that there are no significant effects (t (169) =1.158, p>0.05; t (169) =1.933, p>0.05) of neither source (b=0.182) or specificity (b= 0.301) on perceived sustainability controlled for perceived credibility.

Consequently, results supported full mediation of perceived credibility, because there is not significant direct effect of source and argument specificity on perceived sustainability.

Table 8: Mediation analysis of perceived credibility with source and specificity as independent variables

	Credibility (M)				Sustainability (DV)			
Antecedent	Coefficient	SE	t	p	Coefficient	SE	t	p
Source (X1)	a_1 0.652	0.188	3.462	0.001**	c_1 0.422	0.164	2.580	0.011*
					c' 0.182	0.157	1.158	0.248
Specificity (X2)	a_2 0.462	0.193	2.397	0.018*	c_2 0.446	0.166	2.681	0.008**
					c' 0.301	0.156	1.933	0.055
Credibility (M)					b_1 0.398	0.061	6.549	0.000***

*p<0.05 ** p<0.01 ***p<0.001

Perceived sustainability as the mediator in the process of perceived credibility influencing purchase intention

Regarding the conceptual model, it was expected that perceived sustainability mediates the effect of perceived credibility on purchase intention.

In order to investigate whether the influence of perceived credibility on purchase intention is mediated by perceived sustainability, the mediation analysis by Hays (2013) was conducted.

The PROCESS macro with 1000 iterations was used to determine whether the indirect effect was significant. In the mediation analysis, a perceived credibility was included as independent variable. perceived sustainability as mediator, purchase intention as dependent variable and perceived quality and price as covariates. The mediation was tested based on principles of four steps by Baron and Kenny (1986). Results are summarised in table 9.

In the first step, total effect of perceived credibility on purchase intention was analysed. Results show that there is a significant effect ($t(173) = 4.724$, $p<0.001$) of perceived credibility ($b=0.405$) on purchase intention. In the second step, results confirmed that perceived credibility ($b = 0.336$) has a significant influence ($t(173) = 5.920$, $p<0.001$) on perceived sustainability. In the third step, it was analysed whether perceived sustainability has a significant effect on purchase intention. H7 stated that consumers' perception of sustainability of the package has a positive direct impact on purchase intention of sustainably packaged product.

Results did not support H7, perceived sustainability ($b=0.206$) does not have a significant effect ($t(173) = 1.571$, $p>0.05$) on purchase intention. When the relation between perceived sustainability and purchase intention is not significant, perceived sustainability cannot have a mediating role in process of perceived credibility influencing purchase intention.

It is confirmed with bootstrap confidence interval (CI=95 (-0.0106; 0.1181) of indirect effect of perceived credibility ($b=0.069$) on purchase intention, where confidence interval included zero and therefore there is no mediation effect of perceived sustainability.

Results also showed that perceived quality ($b=0.483$) has a significant positive effect ($t(173) = 4.488$, $p<0.001$) on purchase intention, whereas perceived price ($b=-0.110$) does not have a significant effect ($t(173) = -1.191$, $p>0.05$) on purchase intention. Therefore, only perceived quality ($b=0.483$) has a significant effect on purchase intention of sustainably packaged product.

Table 9: Mediation analysis of perceived sustainability with perceived credibility as independent variable and perceived quality and price as covariates

	Sustainability (M)				Purchase Intention (DV)			
Antecedent	Coefficient	SE	t	p	Coefficient	SE	t	p
Credibility (X1)	a 0.336	0.057	5.920	0.000***	c 0.405	0.858	4.724	0.000***
					c' 0.336	0.092	3.636	0.000***
Sustainability (M)					b 0.206	0.131	1.571	0.118
Quality (C1)					0.483	0.108	4.488	0.000***
Price (C2)					-0.110	0.926	-1.191	0.235

***p<0.001

The relationship between sustainability and purchase intention differs depending on the level of environmental concern

H8 stated that compared to a low level of environmental concern, a high level of environmental concern will lead to an increased influencing effect of perception of sustainability on purchase intention of sustainably packaged product. To investigate whether level of environmental concern moderates the effect of perceived sustainability on purchase intention, moderated regression analysis in PROCESS by Hayes (2013) was conducted, with sustainability as independent variable, level of environmental concern as moderator and purchase intention as dependent variable. Results are summarized in table 10.

Results did not support H8, therefore no significant interaction (t (174) =-0.168, p>0.05) between level of environmental concern and perceived sustainability exists. Level of environmental concern does not have interaction effect with perceived sustainability (b=-0.031) on purchase intention.

Table 10: Moderating effect of level of environmental concern on influence of perceived sustainability on purchase intention

	Credibility			
	Coefficient	SE	t	p
Sustainability x Concern	-0.031	0.185	-0.168	0.867

Effect of Source and Argument Specificity on Perceived Sustainability

It was proposed that source and argument specificity and their interaction have significant effects on perceived sustainability.

To investigate this effect, analysis of variance was conducted with source and argument specificity as independent variables and perceived sustainability as dependent variable. Results are summarized in table 7. Results supported H9, there is a significant effect (F (1.165) =5.499, p<0.05) of source on perceived sustainability. Respondents perceived the packaged product as more sustainable in case of a claim issued by government (M=4.5) rather than issued with producer (M=4.1). Furthermore, it was expected that argument specificity significantly influences perceived sustainability. Results also supported H10, there is significant effect (F (1.165) = 8.188, p <0.01) of argument specificity on perceived sustainability.

Perceived sustainability of packaged product was significantly higher for claim with specific arguments (M=4.6) compared to general (M=4.1).

Finally, results did not support H11, results have shown that as in case of perceived credibility, there is not a significant interaction effect of source with argument specificity ($F(1.165) = 0.148$, $p>0.05$).

5. Discussion

Findings of the study demonstrated how perception of consumers is influenced by source and specificity of the claim and how this perception influences willingness to buy a sustainably packaged product. The main findings can be summarized as follows.

Effect of source and argument specificity of the claim

Statistical analysis revealed a significant main effect of the source on perceived credibility of the claim. Specifically, compared to the claim issued by commercial source, the claim from a government source led to higher perceived credibility of the claim, which corresponds to the findings of Atkinson and Rosenthal (2014).

As expected, a claim with specific arguments was perceived as more credible than a claim with general arguments, which is in line with findings of Atkinson and Rosenthal (2014) and Hoogland et al. (2007).

It was expected that general arguments will lead to higher perceived credibility than specific arguments only in case of governmental source. However, hypothesis 3 was not confirmed. Results showed that there is no interaction effect of argument specificity and source on perceived credibility. The studies of Atkinson and Rosenthal (2014) and Jung et al. (2016) found the same nonsignificant effect of the interaction of specificity and source.

Results indicate that consumers do not perceive a claim with general arguments issued by a governmental source as more credible than a claim issued by a producer source. It might be assumed that consumers perceived a claim as more credible, when they see governmental source or specific information, however the combination of the source and specificity does not increase the perceived credibility of the claim.

It was also expected that the source of the claim will have a direct impact on perceived sustainability of the packaged product. Study findings supported this hypothesis.

When the claim providing information about the sustainable benefits was issued by a governmental source it led to higher perceived credibility than in case of a commercial source. It was also confirmed that specific arguments influenced perceived sustainability. Claim with specific arguments led to higher perceived sustainability of the packaged product than in case of a claim with general arguments.

The Moderating Effect of the Level of Environmental Concerns

Firstly, it was expected that consumer's high level of environmental concern will increase the influence of specific arguments on perceived credibility of the sustainable claim. However, a significant effect of the level of environmental concerns on the process of argument specificity influencing perceived credibility was not found.

Similarly, we expected that consumer's low level of environmental concern would increase influence of government source on perceived credibility of a sustainable claim. The results have not confirmed the hypothesis. Level of environmental concerns has not moderated the influence of perceived sustainability on purchase intention.

The reason, why environmental concern has not moderated aforementioned processes might be high scores of respondents. High and low levels of environmental concerns were divided based on median split, where median was 6 on the 7 point Likert scale.

In accordance with literature it was assumed that consumers from the Czech Republic will have lower level of environmental concern compared to the Dutch consumers (Martens and Spaargaren, 2005; Gatersleben et al., 2002; Zagata, 2012). Students from the Life Science University in Prague (LSU) and the Wageningen University (WUR) were selected as representative samples of Czech and Dutch consumers respectively.

Results have shown that the level of environmental concern of respondents from the LSU (M=5.2) was significantly lower than the level of respondents from WUR (M=5.6). However, it might be assumed that the scores of the construct of environmental concern (EC) were relatively high ($M_{(LSU)}$=5.2).

The reason might be the character of the scale measuring concept of environemtnal concerns. EC scale was used from research of Kilbourne and Pickett (2008). The six items asked about perceived environmental concern and a need of individual, social, and political changes to protect the environment (Kilbourne and Pickett, 2008).

To investigate whether the high scores of the scale might be caused by a character of the items, mean of EC was compared to results of the research of Magnier et al. (2016), where the scale of environmental concern from Kilbourne and Pickett (2008) was also used. The sample of the study Magnier et al. (2016) were French respondents selected based snow ball sampling method. In that study the mean of the concept EC was similarly 5.6 on the 7 point Likert Scale. Therefore, it might be assumed that abstract character of the items measuring EC concept might be a reason for high scores of the scales.

In accordance with construal level theory of psychological distance, individuals use concrete, low-level construals to represent near events and abstract, high-level construals to represent distant events. Items of LEC asked about future changes by government or the whole society. Therefore, they asked about a distant and abstract event. Respondents perceive themselves as more environmentally concerned in psychological distance than they would perceive themselves in the near distant, explaining the relatively high score on the scale (Trope et al., 2007).

Consequently, the level of low environmental concerns cannot be interpreted as the low level of concerns (M=4.7). We may conclude that the difference between low and high levels of environmental concerns was too small to have any significant moderating effect.

Influence of perceived credibility of the claim on perceived sustainability of the package

In the conceptual model, perceived credibility was assumed to have a mediation role between independent and dependent variables. In particular, perceived credibility was expected to mediate the influence of argument specificity and source of the claim on perceived sustainability of the package. Results confirmed that perceived credibility fully mediates the influencing effect of source and specificity on perceived sustainability. This finding supported the expected significant influence of perceived credibility of the claim on perceived sustainability of the package. When respondents perceived the claim as credible, they believed the information about sustainable benefits of the package and therefore they perceived the package as sustainable.

Influence of perceived sustainability on purchase intention

Perceived sustainability of the package is the only one of the aspects, which consumers consider when making purchase decision of the product (Qader. and Zainuddin (2011).

Therefore, perceived quality and price of the product were included in the model as control variables to investigate whether perceived sustainability of the package has a significant influence on purchase intention of the product, when controlling for perceived price and quality. The results did not confirm the hypothesis. Perceived sustainability of the package did not influence purchase intention, when perceived price and quality were included as control variables. Surprisingly, perceived price also has not significantly affect purchase intention of the product. Results have shown that only perceived quality of the sustainably packaged product has a significant impact on purchase intention. Verghese et al. (2012) explained that a sustainably packaged product should firstly fulfil quality requirements to be considered for purchasing. The purpose of the package is firstly to protect the product. Therefore, quality of the package is perceived as a priority by the consumers (Grönman et al., 2013). Regarding Peterson (1970) perceived price is thought to serve as an indicator of perceived quality.
Thus, when consumers perceived high quality of the sustainably packaged product, they were willing to pay more for the product and perceived price did not have significant negative effect on their purchase intention (Peterson, 1970).

6. Implications

This section provides several theoretical and practical implication of the main findings of the study.

Theoretical implications

Numerous recent researches (Atkinson and Rosenthal, 2014; Hoogland et al., 2007; Jung et al., 2016; Moussa and Touzani, 2008) have focused on the influence of specific information or source on consumers' trust or perceived credibility of the claim. However, no attention was paid to the relation leading to purchase intention and whether these processes are moderated by the level of environmental concerns. The findings of the study have shown that the source of the claim and argument specificity have significant effects on perceived credibility of the claim. In particular, compared to producer source issued the claim, governmental source leads to a higher perceived credibility of the sustainable claim. A claim with specific arguments was perceived as more credible than a claim with general arguments. The research also brought new insights about perceived credibility of the claim. When the claim informing about sustainable benefits of the package is perceived as credible, the sustainably packaged product is perceived as sustainable.

The significant effect of perceived sustainability on purchase intention was not found, however is explained by a very significant effect of control variable perceived quality. Specifically, perceived quality is the only found predictor of the purchase intention of sustainably packaged product.

Practical implications

Practical relevance of the study lies in providing new insights to producers on how they could utilize and manipulate with sustainable claims to raise consumers' intention to purchase sustainably packaged products. Generally, the information provided on the claim influences how consumers perceive the packaged product.

The experiment has shown that in order to increase consumers' perceived credibility, the claim should be issued by a governmental source or should include specific arguments about sustainable benefits of the package. When consumers perceive the claim as credible they perceive the package as sustainable. Moreover, the quality of the packaged product should be emphasised, because it is the main factor driving the consumers' consideration of the particular, sustainably packaged product.

Finally, the findings have practical implication for policy makers. If the claims include specific information about sustainable benefits of the product or package, the information can be easily verified. Producers trying to mislead consumer, could be identified more easily and accused from greenwashing of consumers, which would potentially lead to substantial reduction of greenwashing practices.

7. Conclusion and Further Recommendation

This paper aimed to investigate how manipulation with argument specificity and source of the claim influence consumers' purchase intention of a sustainably packaged product. Specifically, the aim of the study was to contribute to the existing literature by investigating how argument specificity and source influence consumers' perceived credibility of a sustainable claim under the moderating effect of consumers' environment concern and whether perceived credibility would increase perception of sustainability and purchase intention of the packaged product.

The experiment has fulfilled the aim by showing that argument specificity and source credibility significantly influence perceived credibility of the claim and perceived sustainability of package itself. In case consumers perceive the sustainable claim as credible they believe the sustainability of the sustainable package. However, perceived sustainability of the package is not the main driver of consumers' willingness to pay for it. The results suggest that the driver of consumers' intention of sustainably packaged products is its perceived quality of the packaged product.

The findings provide recommendation for producers on how to ensure that consumers will perceive the claim as credible and believe the sustainable benefits of the sustainable package. Specifically, a claim with specific arguments or claim issued by a governmental source positively influences consumers' perceived credibility of the claim.

Therefore, providing specific information or information issued by relevant governmental agencies could help credible organisation to distinguish themselves from companies, using sustainable trend for greenwashing of consumers.

Recommendation for further research

The results of the level of environmental concern were influenced by the character of the scale developed of Kilbourne and Pickett (2008). The abstract character of the scale caused that respondents used high-level construals to present abstract future about environment problems and they perceived themselves in psychological distance as more environmentally concerned than they would perceive themselves in the near distant. Similar issues are related to other scales measuring the concept of environmental concerns as well. For example, the scale NEP by Dunlap et al. (2000) proposes 15 items about different abstract aspects of environmental concerns. Therefore, it is encouraged to develop a scale, which would ask about very specific and concrete situations, which would verify respondents' environmental concerns in here and now psychological distance.

National differences were used in the study only to ensure normal distribution of the level of environmental concerns. Residents in different countries tend to have different attitude towards sustainable products and packages. Therefore, exploring how nationality moderates the abovementioned patters would be an interesting topic of further research.

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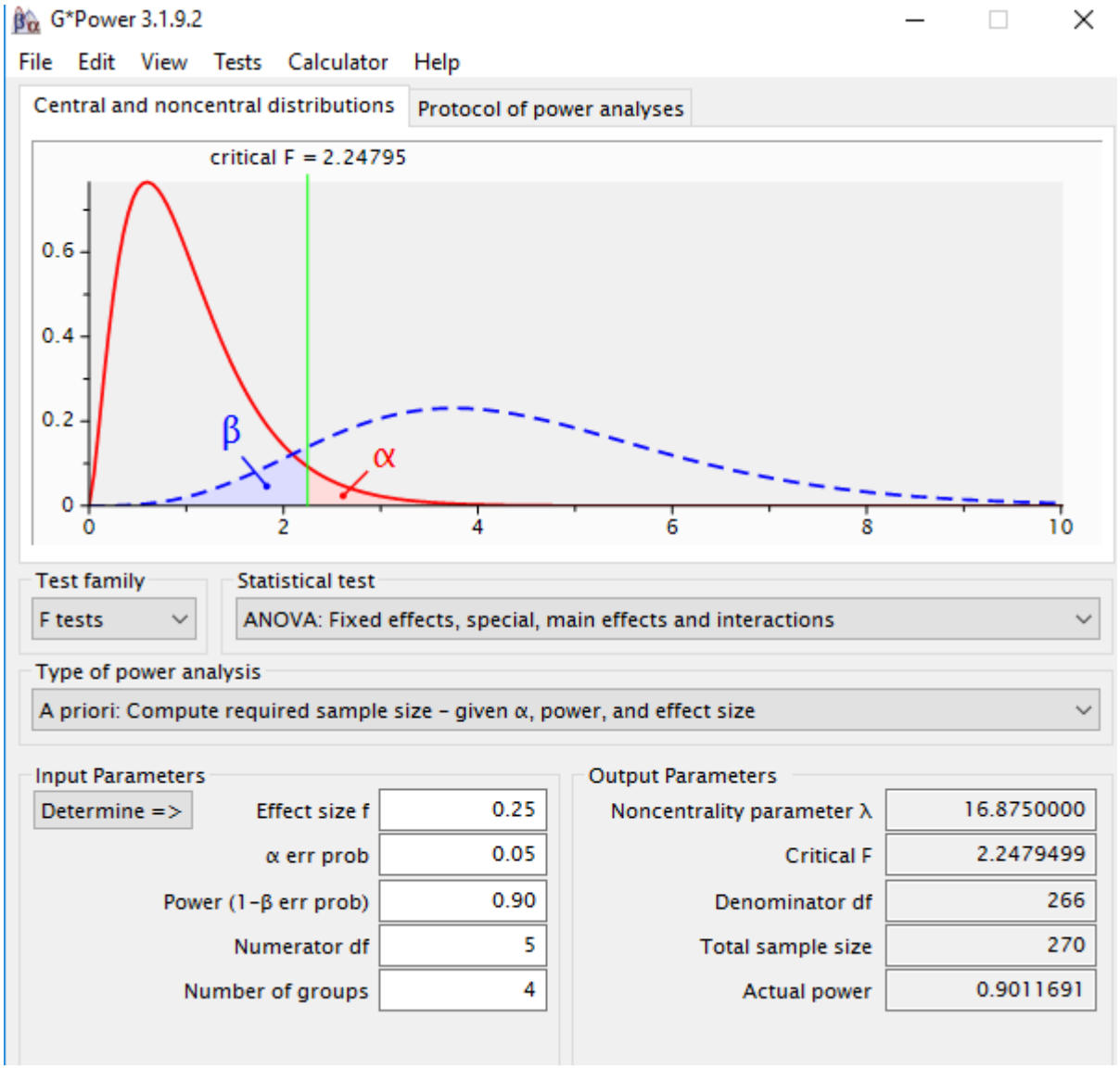
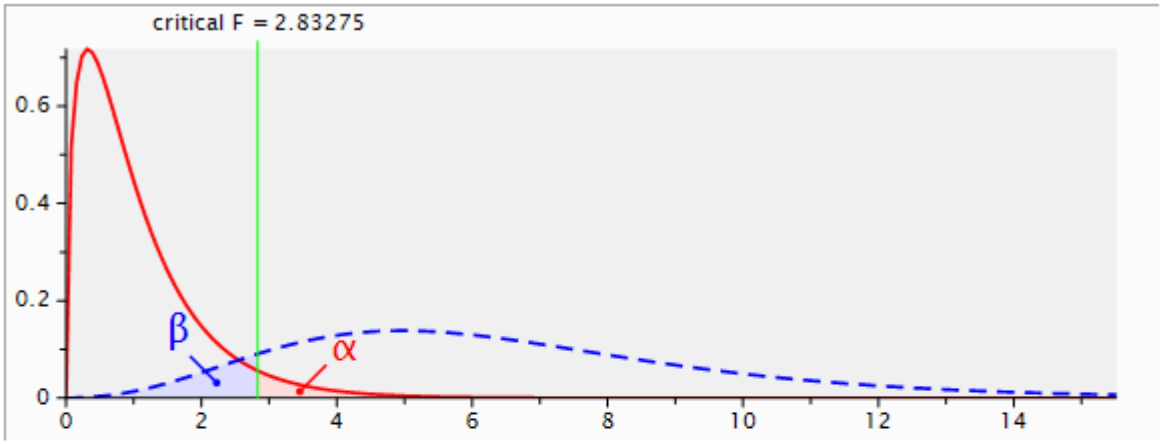
Appendix 1. Sample size and reliability tables

Sample size power of analysis

Prior the main analyse the required sample size was calculated with g-power program. For all statistical tests required sample size was calculated.



Central and noncentral distributions | Protocol of power analyses



Test family: F tests

Statistical test: Linear multiple regression: Fixed model, R^2 deviation from zero

Type of power analysis: A priori: Compute required sample size – given α, power, and effect size

Input Parameters

Determine => Effect size f^2	0.35
α err prob	0.05
Power (1–β err prob)	0.90
Number of predictors	3

Output Parameters

Noncentrality parameter λ	15.7500000
Critical F	2.8327471
Numerator df	3
Denominator df	41
Total sample size	45
Actual power	0.9029516

Appendix 2: Manipulation of specificity for pre-test

The claims used for pre-test ordered based on the level of specificity (1 – the most specific. 5 -the least specific).

1

2

3

4

5

Appendix 3 – Questionnaire of the study

Purpose of this study is to investigate perception of consumers about sustainable products. You will be asked to look at a picture of product and its claim and answer following questions. Participation takes about 10 minutes. The study is completely anonymous. Your answers will be used only for purposes of this thesis study. This survey will be used only for academic purpose and does not involve any commercial companies. If you have any further questions. please contact me via email on karolina.strejckova@wur.nl.

Please take a moment to look carefully on the organic orange juice with its claim about sustainable package and click on the button to answer following questions.

Q1 Please answer following questions about sustainable claim.

	I totally agree						I totally disagree
I can trust what the claim says.	○	○	○	○	○	○	○
This claim comes from recognized experts.	○	○	○	○	○	○	○
The claim is honest	○	○	○	○	○	○	○
The organization that states this claim has good intentions.	○	○	○	○	○	○	○
The organization has passed serious tests before issuing this claim.	○	○	○	○	○	○	○
This claim gives me confidence.	○	○	○	○	○	○	○

Q2 Please answer following questions about the package of the orange juice.

	I totally agree						I totally disagree
Package of orange juice is sustainable.	○	○	○	○	○	○	○
This is good example of sustainable package.	○	○	○	○	○	○	○

Q3 Please answer following questions

	I totally agree						I totally disagree
I expect that shown sustainable packaged orange juice will be expensive.	○	○	○	○	○	○	○
Compared to other orange juices. I expect that price of the sustainably packaged juice will be higher than average.	○	○	○	○	○	○	○
I think that price of sustainably packaged orange juice will be high.	○	○	○	○	○	○	○

Q4 Please answer following questions.

	I totally agree						I totally disagree
Orange juice is of high quality.	○	○	○	○	○	○	○
The likely quality of orange juice is extremely high.	○	○	○	○	○	○	○
The likelihood that package of orange juice would be functional is very high.	○	○	○	○	○	○	○
The likelihood that orange juice is reliable is very high.	○	○	○	○	○	○	○
Orange juice must be of very good quality.	○	○	○	○	○	○	○
Orange juice appears to be of very poor quality.	○	○	○	○	○	○	○

Q5 Please answer following questions about orange juice.

	I totally agree						I totally disagree
I would very likely purchase the orange juice given the claim shown.	○	○	○	○	○	○	○
Given the claim shown. I would consider the purchase of the orange juice.	○	○	○	○	○	○	○
I am certain that I would purchase the orange juice.	○	○	○	○	○	○	○

Q6 Please answer following questions.

	I totally agree						I totally disagree
I am very concerned about the environment.	○	○	○	○	○	○	○
Humans are severely abusing the environment.	○	○	○	○	○	○	○
I would be willing to reduce my consumption to protect the environment.	○	○	○	○	○	○	○

Major political change is necessary to protect the natural environment.	○	○	○	○	○	○	○
Major social changes are necessary to protect the natural environment	○	○	○	○	○	○	○
Anti-pollution laws should be enforced more.	○	○	○	○	○	○	○

Q7 Who did issue the claim displayed?

- ○ Governmental agency
- ○ Producer

Q8 Was the claim specific or general?

- ○ General
- ○ Specific

Q9 What is your age?

- ○ 15 – 25
- ○ 26 – 35
- ○ 36 – 45
- ○ 46 – 55

Q10 What is your gender?

- ○ Male
- ○ Female

Q11 Are you student?

- ○ Yes
- ○ No

Q12 Where do you study?

- ○ Wageningen University
- ○ Life Science University
- ○ Other

Q13 What is your nationality?