

**The effects of product claims on vegan dog food**  
Understanding the role of framing on purchase intent

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### **ABSTRACT**

Amidst the rise of vegan food production and consumption across western cultures, academic attention is directed at vegan alternatives to meat-based pet food, an industry with a sizeable carbon footprint. A new field of interest, research focuses mostly on matters of nutritional adequacy, with little attention yet devoted to consumer perception and behaviour in the context. Recognizing its relevancy for consumer adoption, this study examines to what extent the framing of vegan dog food influences purchase intention among Dutch adult dog owners. Drawing on theories of marketing, psychology and consumer behaviour, the study connects insights from the field of vegan human food and pet food marketing. A comprehensive theoretical model is built, explaining hypothesized framing effects with cognitive dissonance theory, which in turn is linked to consumers' vegan identity and dog-related self-extension tendency. In a unifactorial between-subjects online experiment, three attribute-specific claims for each of the major motivations for veganism (ethicality, sustainability and health), a combination frame combining all three and one framing-free condition were created. Utilizing a digital survey, participants ( $N = 193$ ) reported levels of vegan identity, self-extension tendency and cognitive dissonance in the kibble-purchasing environment, before being subjected to one of the various frames, after which purchase intention and product attitude were measured. Results revealed that no effects of framing were found, while both a direct effect of vegan identity on cognitive dissonance and a moderating role of self-extension tendency confirm and contribute to prior research. Additional analyses, conducted to interpret the lack of framing effects found, revealed the interplay of one's vegan identity, personal diet and dog food currently purchased on both participants' processing of the product claims and subsequent personal perception of the product's nature as healthy, sustainable and ethical. Understanding the direct effect of personal perception in the conceptual model and important individual factors can contribute to better understanding the role of framing in the vegan dog food consumer context for academics and practitioners alike.

**KEYWORDS:** *Dog food, vegan, message framing, purchase intention, cognitive dissonance*

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# 1 Introduction

## 1.1 The decline and rise of animal-based products

The production and consumption of vegan food are on the rise, particularly in Western culture (Pimentel et al., 2021; Scott, 2020). Last year, the global vegan food market reached a value of 17 billion US dollars, with an expected growth of 11.4% in the next five years (IMARC Group, n.d.). Partly, this is due to the increasing popularity of veganism (Christopher et al., 2018; Kamiński et al., 2020). A stricter form of vegetarianism, vegans avoid all animal products in their diet, including dairy, eggs and honey (Cherry, 2015; Phua et al., 2020). Additionally, vegan food items are increasingly becoming desired end-products in their own rights for consumers with all kinds of dietary preferences, rather than solely being alternatives to conventional products for vegans (Balderrama, 2021; Euromonitor, 2019; McCarthy, 2019). Several main motivations are named among individuals to increasingly consume products free of animal ingredients: animal welfare (Braunsberger & Flamm, 2019; Cherry, 2015), personal health (Craig, 2009; Cramer et al., 2017) and sustainability (Christopher et al., 2018; Kortetmäki & Oksanen, 2020).

Particularly related to matters of sustainability, attention for alternatives to animal-based products expands beyond human food to include pet food (Dodd et al., 2019; Dowling, 2020; Weiss, 2019). The billion-dollar pet food industry has a sizable carbon footprint, relying heavily on meat production (Alexander et al., 2020; Okin & Crowther, 2017; Su & Martens, 2018). In fact, it is one of the reasons why the meat industry continues to grow, despite seemingly declining interest from consumers, particularly as pets increasingly eat high-quality meat rather than merely by-products of human consumption (Okin & Crowther, 2017).

As such, even conscious consumers who abstain from consuming animal-based products often continue to contribute to animal agriculture with indirect consumption through their pets (Dodd et al., 2019; Rothgerber, 2013a). This is not to say that vegan alternatives for meat-based pet foods are not available; an increasing number of vegan pet food brands are emerging in the market, most of which are aimed at dogs (e.g., PETA, n.d.; Webber, n.d.). The products are purchased by a small part of consumers, predominantly those adhering to a vegan diet themselves, although concerns seem to prevent large-scale adoption (Dodd et al., 2019). Specifically, consumers and academics alike cite a lack of confidence in nutritional adequacy, some of which are troubled that personal values and beliefs are imposed upon pets at the cost of their health (Loeb, 2020).

## 1.2 Vegan pet food: nutritional adequacy versus strategic marketing

While increasing awareness regarding health benefits in adopting a vegan diet is one of the

major contributors to the increasing popularity of the diet and lifestyle among humans (MarketsandMarkets, 2020), the opposite seems to be true for pets. Scholars have repeatedly questioned the nutritional adequacy of vegan food for pets that are generally considered to be carnivorous animals, in particular cats and dogs (Brown, 2009; Gray et al., 2004; Zafalon et al., 2020). However, recent research comparing the nutritional soundness of meat-based and plant-based food for both cats and dogs concluded that 'plant-based diets [were] almost always produced to standards equal or superior to those of meat-based diets' (Knight & Light, 2021, p. 6). Reilly et al. (2018) furthermore found that legumes are a suitable protein source for both cats and dogs, with the exception of amino acid methionine. The fact that specifically dogs, which are factually omnivores, can thrive on a vegan diet is increasingly supported, while taking into consideration nutritional density and the addition of vitamin D and essential amino acids that are primarily, although not exclusively, found in animal-based sources (e.g., taurine) (Knight & Leitsberger, 2016; Verbrugghe & Dodd, 2019; Weidner & Verbrugghe, 2016).

Yet, regardless of contrasting conclusions among academics, research on nutritional adequacy may have only limited impact on consumer behaviour, perception and large-scale adoption. According to Dodd et al. (2019), who conducted the most exhaustive research on the perception of vegan pet food thus far, both new trends and research in the industry 'are certainly driven in part by consumer demands' (p. 12), rather than the other way around. While not diminishing the importance of research on nutritional adequacy, it indicates a need to also consider the topic from a consumer behaviour and perception perspective if one is to fully understand developments in the industry.

When it comes to perceptions, contrasts between vegan food for humans and pets in terms of healthiness are similarly noticeable in marketing practices. Whereas vegan human food is increasingly successfully marketed as healthy (and sometimes directly positioned as healthier than conventional alternatives), meat consumption as an indicator of pet health is the dominant strategy in pet food marketing (Fuentes & Fuentes, 2017; Okin & Crowther, 2017). The strength of this marketing message is clearly seen, as vegan alternatives for omnivorous pets are perceived not nearly as adequate as the original products, precisely due to lacking meat (Zafalon et al., 2020). These concerns exist not only among meat-consuming pet owners, but are seen in vegetarian and vegan owners, too (Dodd et al., 2019).

This indicates the importance of marketing practices in (vegan) pet food perceptions and purchase intention, rather than solely academic consensus on nutritional adequacy. Similarly, it raises the question if and how vegan pet food marketers can escape the current frame of nutritional inadequacy, by changing the narrative into one that strategically positions their products and creates a competitive advantage. However, while academic research is rife with marketing

insights for both vegan human food and conventional pet food, one can only find a gap when it concerns vegan pet food. An academic field still clearly in its infancy, it barely reaches beyond matters of nutritional adequacy (Zafalon et al., 2020), with some outlining the demographics of current adopters, most notably of which Dodd et al. (2019). Moreover, vegan pet food is linked to (short-lived) dietary trends (Hormozi, 2020) and the ethics of meat (Rothgerber et al., 2013a). Few to none, however, have discussed matters of consumer perception and marketing practices, both in relation to and separate from those matters above. As such, if marketers use academic insights to inform their strategies, these are likely based on their meat-based competitors' advantages.

This research aims to bridge part of this gap in literature, by focussing on one aspect that is particularly relevant in food marketing, namely product packaging (Belboula et al., 2018). Although the complex field consists of many factors (e.g., product size, colour and shape), product claims are of main interest here, in their ability to increase consumer adoption (Ampuero & Vila, 2006; Piqueras-Fizman & Spence, 2012; Wang, 2013). Their (varying) effectiveness is linked to framing theory, according to which different messages can be created around a brand or product and increase their attractiveness (Levin & Gaeth, 1988; Tversky & Kahneman, 1981). Such messages, when strong enough, can act as a heuristic to evoke a particular set of plausible alternatives and create a decision frame within which the alternatives are considered by the consumer. Accordingly, product framing can influence a decision environment and contribute to strategic product positioning by affecting perception and purchasing (Ampuero & Vila, 2006). Acknowledging that this well-established theory can provide initial insight into the current underdeveloped marketing context, this research aims to answer the question: *'To what extent does the framing of vegan dog food influence purchase intention among Dutch adult dog owners?'*

A specific focus is placed on dogs, as research indicates that ownership practices of cats and dogs (i.e., the meat-consuming pets most popular in western cultures) may differ, thus requiring a specific choice for matters of conciseness in this exploratory study (AVMA, n.d.; Bedford, 2020; Endo et al., 2020). Dogs, currently, are considered most suitable for thriving on a vegan diet (Dodd et al., 2019; Pirsich, 2017). Additionally, the research focuses on dog owners in the Netherlands to avoid the possible confounding impact of cross-national culture on purchase intention (e.g., Nayeem, 2012; Muñoz et al., 2006), while selecting a country that is considered to be at the forefront of vegan food production, consumption, innovation and research (Enjoli, n.d.; Vegconomist, 2020).

Finally, it is important to address a conceptual distinction relevant to the study, namely one between the terms 'vegan' and 'plant-based'. Both in the academic and commercial realms of vegan (pet) food, the terms are often used interchangeably, while ignoring the distinct differences in meanings implied by them. *Vegan* generally concerns everything that does not contain

ingredients of animal origin. Yet, it often connotes a lifestyle and ideology (or at the very least, moral values), rather than merely a diet (Cherry, 2015; Phua et al., 2020). *Plant-based*, on the other hand, indicates the consumption of whole plant foods, rather than processed products (Lea et al., 2006). This distinction is important, as vegan alternatives are often processed variants of equally processed products (e.g., drinks, cheeses, meats, ice cream and sweets) and, as such, do not necessarily include the health benefits associated with a plant-based diet (Craig, 2009; Cramer et al., 2017). Moreover, plant-based eaters sometimes include honey or other unprocessed animal products in their diet, which are not strictly considered to be vegan (The Vegan Society, n.d.-a). Throughout the current study, the term *vegan* is used, specifically indicating the lack of animal ingredients, while acknowledging that in the case of dogs, the term does not indicate a consciously chosen lifestyle, but merely a fed diet.

### **1.3 Academic and social relevance**

By taking well-established marketing practices based on consumer psychology and behaviour and applying them to the case of vegan dog food, this study aims to be of both academic and social relevance. Academically, it hopes to contribute to the understanding of the topic in four ways. First, by addressing the gap currently existing in academic research on vegan dog food. That is, it goes further than matters of nutritional adequacy (Zafalon et al., 2020) and established demographic information of current product adoption (Dodd et al., 2019). While gratefully taking those as a solid foundation, it focuses on expanding knowledge into broad consumer perception and purchase intent, as well as the ability to influence those with the specific marketing tool of framing (Tversky & Kahneman, 1981). It has both a distinct focus, specifically addressing dog owners in the Netherlands and looking at the sole effect of product packages' claims, while also being of exploratory nature in the interest of a wide array of different owners in terms of demographic information and current lifestyles. As such, the second aim is to discover which, if any, of such individual differences play a role in this purchasing environment.

Third, on a more theoretical level, it aims to create and test a more complete conceptual model from which (vegan) dog food purchasing can be better understood. It does so by combining several academic perspectives that are often separately linked to pets, their owners and consumer behaviour, yet rarely used together: cognitive dissonance theory (Festinger, 1957; Rothgerber, 2013a), food consumption as part of one's identity (Bonne et al, 2007; Carfora et al., 2017) and pets as the extended self (Belk, 1988; El-Alayli et al., 2006), as discussed in Chapter 2. Finally, the study hopes to contribute insights to academic research surrounding the recent pattern of more conscious consumption by specifically addressing a field that seems to be a blind spot in sustainability for consumers (Okin & Crowther, 2017).



Socially, several purposes are central to the current study. First, by employing well-established marketing practices to test their applicability to a new product type in a large and quickly expanding industry, the study aims to provide insights for marketing professionals, specifically those operating in the vegan dog food niche. Second, such insights could similarly be useful to vegan movements, aiming to make alternatives to animal-based products more attractive to an increasingly large group of people (The Vegan Society, n.d.-b), particularly in the study's focus on individuals with a wide variety of dietary preferences. Finally, on an overarching level, the study hopes to contribute insights into the possibilities for stimulating more conscious and sustainable consumption patterns by strategically making such consumption more attractive to consumers (Hanss & Böhm, 2011; Hoogland et al., 2007).

## **1.4 Chapter outline**

This research is structured as follows. First, Chapter 2 discusses the theoretical foundations on which this study is built. Next, Chapter 3 outlines the methodology, touching upon its experimental design, the measures employed and procedures taken, and its validity and reliability. The statistical analyses employed to test the hypotheses and their results are discussed in Chapter 4. Finally, Chapter 5 discusses the findings, limitations and directions for future research.

## 2 Theoretical framework

### 2.1 Veganism: motivations and marketing

Since vegan pet food alternatives and their branding and marketing strategies are a relatively new phenomenon, interesting insights can be gained from marketing practices of other vegan products, which themselves are based on the various motivations for veganism (e.g., Bocken et al., 2020).

#### 2.1.1 Motivations for veganism

Three motivations for adopting a vegan diet are most prevalent, both in popular discourse and academic research. First, ethical vegans avoid the consumption of animal-based products because they condemn animal cruelty and exploitation (Braunsberger & Flamm, 2019; Cherry, 2015; Johnson, 2017). Second, the effects of animal agriculture on the environment cause an increasing number of people to adopt a vegan diet from a sustainability<sup>1</sup> perspective (Christopher et al., 2018; Kortetmäki & Oksanen, 2020). Research indicates that a vegan (or, more specifically, plant-based) diet is the most sustainable option in terms of fresh water and fossil fuel usage, as well as greenhouse gas emissions (Chai et al., 2019; Chen et al., 2019; Sabaté & Soret, 2014). Finally, individuals increasingly adopt a vegan diet for health purposes, aiming to prevent diet-related diseases (e.g., obesity, diabetes and cardiovascular disease) and improve their cholesterol and blood pressure (Craig, 2009; Cramer et al., 2017; Hemler & Hu, 2019). Although a multitude of other motivations for veganism is found in research (e.g., based on social justice, religion or spirituality), these prevail in relatively small numbers (Janssen et al., 2016).

This is not to say that vegans' motivations are either mutually exclusive or fixed, nor that just vegans consume or are the target audience for alternatives to animal-based products; in fact, in both Europe and the United States, omnivores and flexitarians are partially responsible for the rapid growth of vegan dairy alternatives (Malone, 2020; Smart Protein project, 2021). However, the varying motivations for veganism do imply that consumers can be attracted to the same product for different reasons. Indeed, research suggests that the branding and marketing of vegan products is one area where the distinction between the various motivations can have a profound influence. Braunsberger and Flamm (2019) state that marketers *should* distinguish between such different

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<sup>1</sup> While acknowledging that environmentally-based motivations are rooted in ethicality too (Verma, 2019), this study follows the common academic terminology of animal welfare issues as ethicality-oriented (Braunsberger & Flamm, 2019; Fuentes & Fuentes, 2017) and environmental concerns as sustainability-oriented (e.g., Hemler & Hu, 2019 Hemler & Hu, 2019).

orientations, to increase the effectiveness of their marketing messages, providing the example of meat substitutes for humans. Similarly, Fuentes and Fuentes (2017) discuss how oat milk company Oatly highlights various product aspects to attract a diverse range of consumers, each segment of which can identify with one or multiple of such aspects. This underscores the importance of the connection between consumer values and product attributes, with the relevant marketing message(s) leading to increased purchase intention (Fuentes & Fuentes, 2017).

### **2.1.2 Product packaging and message framing**

The idea that varying aspects of a single product or brand can be highlighted to attract consumers in various ways, is not new. In fact, crafting a strategic product or brand message by highlighting a specific feature is a central part of product positioning (Ampuero & Vila, 2006; Belboula et al., 2018). The goal of this marketing process is to create as favourable a position as possible for a specific product within the so-called evoked set, which is the range of alternative products considered by consumers in a specific purchase situation (Gronhaug, 1973; Wirtz & Mattila, 2003). A key vehicle for doing so is a product's package, for 'the physical performance comes later, *the visual always comes first*' (Hollins & Pugh, 1990, as cited in Belboula et al., 2018, p. 141). In food products, specifically, packaging has been found to be an important tool for nudging consumers toward specific consumption choices (Ampuero & Vila, 2006; Tijssen et al., 2017).

Strategic product packaging entails many aspects, including shape, colour and size (Piqueras-Fizman & Spence, 2012; Wang, 2013). Of main interest to this study are the textual messages displayed on products. Product claims, widespread in both the (conscious) food industry and wider consumer products and services, have been found to positively influence product attitude and purchase intention, albeit to varying degrees (Berry et al., 2017; Chrysochou & Grunert, 2014; Petty, 2015). Both the general effectiveness of textual claims and their varying levels of persuasiveness can be explained with Tversky and Kahneman's (1981) message framing theory, according to which different textual messages (frames) can convey different stories and influence human choice and behaviour. The theory is well-established and applied in a wide variety of manners, including the promotion of healthy and sustainable behaviours (e.g., Bertolotti & Catellani, 2014; Gallagher & Updegraff, 2012; Graham & Abrahamse, 2017). Although early research specifically focuses on the most well-known distinctions between a risky and certain outcome (Meyers-Levy & Maheswaran, 1990) and negative versus positive framed messaging (e.g., Smith & Petty, 1996), additional applications are found in loss versus gain framing (Dardis & Shen, 2008) and linked to the use of various types and amounts of attribute-specific product claims (Olsen et al., 2014).

The latter is considered most relevant here, in line with recent research. In advertisements

of plant-based menu items, Ye and Mattila (2021) highlighted various aspects (social versus taste) in different appeals, with different effects on desirability. In relation to meat consumption, framing has furthermore been linked to various motivations and values (Graham & Abrahamse, 2017). By drawing attention to different product attributes, such product claims can act as a heuristic to evoke a particular set of alternatives (the evoked set) and create a decision frame within which the alternatives are considered (Decrop, 2010; Levin & Gaeth, 1988; Tversky & Kahneman, 1981). With strategic application, marketers can create a favourable position for their product (Ampuero & Vila, 2006; Belboula et al., 2018). It is important to note that individual characteristics, dependent on contextual factors, often play a moderating role in the effectiveness of framing effects. Examples include experienced emotions, personal values and concerns (Baek & Yoon, 2017; Graham & Abrahamse, 2017). Specific factors considered as relevant in the current study are further discussed from section 2.2 onward.

### **2.1.3 Expected implications for vegan dog food marketing**

At this point, however, notions imply that the novel field of vegan pet food marketing can make use of highlighting different product attributes, thus framing the product in different ways, to influence purchase intention and consumer attitudes towards the advertised product. Both of these have not only been found to be independently affected by product claims, but product attitude has also been well-established as mediating the effect of marketing on purchase intention (e.g., Lim et al., 2017; MacKenzie et al., 1986). As such, framing theory is combined with the main outlined motivations for vegan food consumption, to test whether the creation of specific product narratives, communicated through product claims, can influence purchase intention both directly and indirectly through product attitude. Here, the three key motivations translate into attribute-specific frames, each highlighting specific product features: the cruelty-free nature of the product (based on the ethicality motivation); the eco-friendly production of the product (based on the sustainability motivation); and the nutritional value of the product (based on the health motivation). Additionally, a fourth frame is created by combining the three individual motivations, to test for the effectiveness of a multi-attribute frame as described by Fuentes and Fuentes (2017). Finally, the study includes a control condition without additional framing, thus void of any persuasive product claims.

Although no records of similar experiments in relation to vegan dog food can be found, expectations can be established based on the outlined research concerning vegan human food and mainstream dog food marketing practices. First, with academic literature indicating that mainstream dog food is generally not produced in a sustainable or cruelty-free way (Alexander et al., 2020; Okin & Crowther, 2017; Su & Martens, 2018) and marketing practices are particularly

focused on claiming the nutritional value of high-meat contents rather than on other product aspects (Okin & Crowther, 2017), the conventional dog food purchasing environment can be expected to be mostly void of sustainability and ethicality cues. As such, if a vegan dog food product package specifically highlights the product's nature as sustainable or cruelty-free, it can attract consumers looking for such conscious alternatives with little or no competition. Moreover, the heuristic can create a sustainability or ethicality-based evoked set and purchasing context (Decrop, 2010; Levin & Gaeth, 1988; Tversky & Kahneman, 1981), in which mainstream products would be perceived as less attractive based on these attributes, compared to the vegan alternative.

On the other hand, the same established marketing practices indicate severe competition when it comes to health-based claims (Okin & Crowther, 2017). Combined with a lack of consumer trust in the nutritional adequacy of vegan dog food (e.g., Dodd et al., 2019; Zafalon et al., 2020), nutritional claims are expected to have little, if any, positive impact on purchase intention and product attitude. Similarly, no positive impact on purchase intention or product attitude is expected for the combination frame. This is partially based on the presence of the health-based claim, which is indicated to be one of the most prominent aspects in decision making when it comes to dog food (Dodd et al., 2019; Schleicher et al., 2019). As such, the health claim can act as a heuristic to evoke a health-focused decision set (e.g., Decrop, 2010). It can be argued that the presence of both the ethicality and sustainability statement in the combination frame create sufficient momentum to overpower possible negative health-based connotations. However, products that claim to score high on multiple product features (i.e., all-in-one products), are often seen as too good to be true by consumers (Chernev, 2007). This process, known as compensatory devaluation, is especially relevant for products of which functioning or attributes remain unknown, as is the case for vegan dog food's nutritional adequacy (Dodd et al., 2019; Zafalon et al., 2020). As such, the combination frame is expected to have little or no positive effect on purchase intention or product attitude. Taken together, the first hypotheses are formed:

*H1: Framing based on ethicality and sustainability has a stronger positive effect on purchase intention than health-based and combination framing*

*H2: The effect of vegan dog food framing on purchase intention is mediated by consumers' attitude towards the advertised product*

## **2.2 Cognitive dissonance**

As indicated in the previous section, individual characteristics can moderate the effect of message framing. The factor considered to be most relevant to the current purchasing context is

cognitive dissonance. The following sections explain the theory (section 2.2.1) and its applicability to veganism (section 2.2.2) and consumer behaviour (section 2.2.3).

### **2.2.1 Cognitive dissonance theory**

Cognitive dissonance theory states that when humans hold two or more cognitions that are relevant to but inconsistent with each other, they experience a negative affective state of psychological discomfort or tension (Cooper, 2019; Festinger, 1957; Hinojosa et al., 2017). It gains its name from the focus on human cognition; indeed, choices, actions and behaviours are seen as cognitions, too, for they are conceptualized as rationalized by cognitive processes (Festinger, 1957). Well-known examples of cognitive dissonance include smokers, who perform an action they know is harmful to their health on a daily basis, and dieters who eat junk food (Harmon-Jones et al., 2015). First concretely theorized by Festinger (1957) as a drive theory of behaviour, it centres around the idea of instinctual needs that drive some type of action that provides humans with comfort (Cooper, 2019; Elkin & Leippe, 1986). In this case, cognitive dissonance is an unpleasant state of being that individuals desire to avoid or reduce, as a feeling of hunger would compel one to eat and is diminished as a result (Aronson, 1999). More than sixty years after originating, the theory is still regarded as one of the most important and enduring contributions to social psychology; applied in a wide variety of (academic) fields, among which consumer behaviour, it is particularly praised for its ability to predict human behaviour (Cooper, 2019).

The process, known as the dissonance induction-reduction sequence, seems simple: the arousal of cognitive dissonance is followed by a feeling of discomfort that leads the individual to reduce it (Festinger, 1957; Stone & Fernandez, 2008; Sweeney et al., 2000). However, this process is neither (fully) conscious nor rational and always situated in a complex environment of contextual and individual factors that determine not only the degree to which dissonance arises, but also the discomfort experienced and the reduction strategies chosen (Harmon-Jones & Mills, 1999; Rothgerber, 2020). The theory outlines several foundational assumptions required for cognitive dissonance to occur: a feeling of responsibility based on high decision freedom is present; personal commitment and experience of importance are sufficiently high; conflicting cognitions lead to an unwanted outcome; and one's commitment in the moment is irrevocable (Cooper, 2019; Korgaonkar & Moschis, 1982; Sweeney et al., 2000). Furthermore, research indicates the moderating abilities of many individual factors, such as a person's self-esteem and individual threshold to dissonance (Soutar & Sweeney, 2003).

To understand how dissonance can be reduced, an understanding of the cognitions at play is useful. Cognitive dissonance theory revolves around the idea of two main types of cognitions: consonant cognitions (i.e., those that are congruent with each other) and dissonant (opposite)

ones. The latter create the feeling of discomfort described above. To reduce discomfort, an individual can choose to remove or lessen the importance of dissonant cognitions or, conversely, add consonant cognitions or increase the importance of already existing ones (Festinger, 1957; Harmon-Jones & Mills, 2019). The strategy that the individual chooses, is dependent on the resistance to change of a particular cognition, based on 'the responsiveness of the cognition to reality and on the extent to which the cognition is consonant with many other cognitions' (Harmon-Jones & Mills, 2019, p. 4). In practice, cognitive dissonance leads to a wide variety of reduction strategies that individuals can draw upon. For example, one can adjust their behaviour to align with one's attitudes, perceptions and beliefs, or the other way around (Worchel & McCormick, 1963). Based on the conditions of the occurrence of dissonance, one can similarly deny responsibility or trivialize the importance of the situation (Hinojosa et al., 2017). Furthermore, once cognitive dissonance in a specific context has been experienced once, individuals can choose to avoid similar situations in the future, to avoid the recurrence of dissonance (Worchel & McCormick, 1963).

Whereas early research on cognitive dissonance focused mainly on attitudinal change (Cooper, 2019), behavioural change is the most relevant in the current context, as it describes the way in which cognitive dissonance can influence purchase intention. Here, the notions of self-concept and identity are considered highly relevant, as further examined in the following sections. First, cognitive dissonance is discussed in relation to veganism and consumer behaviour.

### **2.2.2 Applicability to veganism**

Related to the consumption of meat products and vegan food, two types of cognitive dissonance are well known. First, the 'meat paradox' identifies the tension between the love and affection many people feel towards non-human animals, and the simultaneous enjoyment they experience in meat consumption (Loughnan et al., 2010, p. 156). The matter is complex: although the avoidance of meat consumption is a clear-cut strategy to get rid of this dissonance (Loughnan et al., 2010; McPherson, 2014), meat remains deeply entangled in western society (Piazza, 2019). Academic research outlines several reduction strategies employed in such meat-related cognitive dissonance (Rothgerber, 2020): the denial of animals' moral status or their capacity to suffer, specifically or exclusively those categorized as food (Bratanova et al., 2011; Loughnan et al., 2010, p. 157); the active mental justification of meat consumption as natural, normal, necessary and nice (Bohm et al., 2015, p.114); and the disassociation of the meat products with their origins (Dowsett et al., 2018; Zickfeld et al., 2018).

The second type of meat-related cognitive dissonance is particularly relevant to the current study. Coined by Rothgerber (2013a) as the vegetarian's dilemma, it explains that vegetarian and vegan pet owners, themselves often abstaining from eating meat from a moral perspective, feel

conflicted in feeding their animal companions meat. The tension arises from wanting to give their pet the best food available, even though this often or always contains a high-meat content. With quality vegan options limited or non-existent, they realize the negative consequences related to the production of the kibble (Rothgerber, 2013a). Although Rothgerber (2013a) addresses the topic from an ethicality perspective, feelings of unease emerge from environmental concerns, too (Dodd et al., 2019).

In the under-researched field of vegan pet food, not much is known about the consumer context in relation to the cognitive dissonance that exists within some owners. Indeed, Rothgerber (2013a) does not approach the topic from a market perspective, whereas Dodd et al.'s (2019) insights on pet owner attitudes and willingness to opt for vegan kibble do not address theoretical foundations of cognitive dissonance. Milburn (2017) offers interesting insights, stating that animal lovers feeding their pets an animal-based diet often do so based on notions of dignity, naturalness, freedom and health, resembling the rationalizations made by humans about their own meat consumption (Bohm et al., 2015). Albeit highly limited, these findings confirm the role of cognitive dissonance in vegan diets of both owners and pets and provide a foundation for its application in the marketing practices of interest.

### **2.2.3 Cognitive dissonance and consumer behaviour**

The value of cognitive dissonance theory in consumer behaviour was recognized not long after its first conception, despite a main focus on post-purchase dissonance (e.g., Sharifi & Esfidani, 2014). This perspective is less relevant to the current case, where purchases recur on a monthly, weekly or even daily basis. To examine how cognitive dissonance can impact purchase intention and similarly be influenced by marketing practices, examining the process more closely is useful. Oliver (1997) outlines four phases of the purchasing process: alpha (pre-decision), beta (immediately after purchase), gamma (between purchase and use) and delta (after use). Cognitive dissonance plays a different role in each, although arguably least so in the alpha stage, where pre-purchase risk evaluations of the alternatives prevail rather than post-purchase feelings of discomfort (as cited in Soutar & Sweeney, 2003). However, as (dog) food purchase and consumption occur regularly, such meat-related cognitive dissonance can recur often, presenting a persisting internal conflict for consumers who feed their pets meat-based products despite such uneasy tension, due to lack of better alternatives. They thus repeatedly enter the purchase cycle, possibly experiencing cognitive dissonance in each of the stages outlined, which cannot be reduced in a satisfactory way (Soutar & Sweeney, 2003). As such, for consumers who feel conflicted over their choice of pet food based on strong moral convictions, cognitive dissonance may never fully disappear (Rothgerber, 2013a). Indeed, with options for behavioural change limited and avoidance



not an option (i.e., dogs have to be fed), one is left with coming to terms with purchasing meat when no alternatives are available. Although an agreeable option for some, it requires repeated, intensive and unsatisfactory rationalization for others.

This indicates that if it is possible to stimulate cognitive dissonance arousal within relevant individuals in relevant contexts (e.g., when re-entering the alpha phase), behavioural change can occur when presented with new, more suited alternatives (Cooper, 2019; Soutar & Sweeney, 2003). Here, cognitive dissonance intersects with the outlined frames and their varying levels of expected effectiveness. First, the notions above imply that the theory can help explain the strategic opportunities found in highlighting relevant product attributes, as these form cues to (previously) experienced cognitive dissonance, specifically those based on ethicality and sustainability. That is, by actively making consumers aware of the product's moral nature, a stark contrast is created with the products currently bought and discomfort experienced. Health claims, on the other hand, have no theoretical link to cognitive dissonance, as its reasoning is self-centred rather than based on moral values, and popular and academic consensus on animal nutrition is not based on humans', making the cognitions irrelevant to each other (e.g., Cooper, 2019; Loeb 2020; Zafalon et al., 2020). Second, this indicates that cognitive dissonance theory can help predict the effectiveness of such claims, as the degree to which individuals experience the vegetarian's dilemma varies (Rothgerber, 2013a). While ethicality and sustainability framing are expected to have an overall greater positive effect on purchase intention (both directly and indirectly through product attitude) compared to health and combination framing (H1 and H2), this relative effectiveness is expected to be greater for individuals who experience greater degrees of cognitive dissonance in the dog food meat-purchasing context. Indeed, ethicality and sustainability claims are likely not as relevant for dog owners who experience little or no cognitive dissonance in this purchasing environment. As such, cognitive dissonance is expected to function as a moderator in the effect of framing on both purchase intent and product attitude, specifically affecting the relative effectiveness of sustainability and ethicality framing and, with that, their contrast with the other two frames. This results in the following hypotheses:

*H3: The relative effectiveness of ethicality and sustainability framing (compared to health and combination framing) on purchase intention is moderated by the degree of cognitive dissonance experienced, such that the more cognitive dissonance experienced, the greater the difference in framing effectiveness*

*H4: The relative effectiveness of ethicality and sustainability framing (compared to health and combination framing) on product attitude is moderated by the degree of cognitive*

*dissonance experienced, such that the more cognitive dissonance experienced, the greater the difference in framing effectiveness*

## **2.3 The self-concept and vegan identity**

### **2.3.1 The role of the self-concept in cognitive dissonance**

An important role in cognitive dissonance theory is played by the notion of the self-concept, an individual's collective cognitive schema or structure that contains thoughts, feelings, beliefs, judgments and attitudes about who one is; it develops in early childhood socialization and continues throughout the different life phases of an individual (Egan et al., 2007; Gecas, 1982; Oyserman et al., 2011). The importance of the self in this context was first realized by Aronson (1960), who stated that cognitive dissonance is greatest when a salient aspect of an individual's self-concept is threatened by the dissonant cognitions. Theory on the self-concept likewise recognizes its application to cognitive dissonance theory, particularly in human's desire for 'self-concept consistency' (Harmon-Jones et al., 2017; McConnell & Strain, 2007, p. 54; Zentall and Singer, 2007).

Different theoretical perspectives exist on the role of the self-concept in cognitive dissonance. The perspective most relevant to the current study draws upon the foundations of the self-consistency model for behaviour and states that individuals have expectations about what is considered good behaviour for them, thus holding themselves against a specific standard. Those who hold many positive cognitions about the self, then, are more likely to experience dissonance when they act otherwise (Aronson, 1999). This is particularly relevant in the purchasing of vegan dog food for owners who follow vegetarian or vegan diets for moral reasons (i.e., ethically or sustainability motivated), as their actions are grounded in strong beliefs on what is right to do (Stone & Cooper, 2001).

It is important to note that the self-concept is not set in stone for a specific individual, but rather consists of 'different selves', multiple aspects or even roles that are drawn upon in different manners depending on context and which humans consciously compare and strive to change (McConnell & Strain, 2007, p. 57). Landon Jr. (1974) makes an interesting contribution in postulating that not merely the self-concept, but also the *ideal* self-concept, or the way consumers want to see themselves, plays a role in consumer behaviour and purchase decisions. Indeed, congruence between the (ideal) self-concept and purchases show remarkable similarities to the foundation of cognitive dissonance, with the avoidance of discrepancies matching a desire for cognitive consistency (Hosany & Martin, 2011).

However, individual differences among people play an important role. While the self-concept undeniably plays a part in cognitive dissonance in general, differences in the amount of

dissonance experienced by different individuals within the current meat-related context and their subsequent behaviour can be expected (Rothgerber, 2013a). Indeed, this is confirmed in many studies on cognitive dissonance (e.g., Heitland & Bohner, 2010; Murray et al., 2012). Therefore, the current research includes an aspect of the self-concept that is thought to be particularly relevant in the case of vegan dog food purchasing, namely the owner's identity as a vegan or vegetarian, as discussed next.

### **2.3.2 Vegan identity and consumer behaviour**

Although conceptually related and often used as a synonym to self-concept, identity can be more accurately thought of as 'a way of making sense of some aspect or part of the self-concept' (Oyserman et al., 2011, p. 73), with an individual's self-concept consisting of multiple identities (Gecas, 1982). Identity anchors the self-concept to the social; identities do not merely exist within a person, but are actively constructed and negotiated in social interaction (Swann & Bosson, 2008). This highlights the need for an individual's specific identity to be relevant in a social context and reinforced by relevant others (Oyserman et al., 2011).

Similar to the self-concept, one's identity contains directions for attitudes and can drive behaviours (Oyserman et al., 2011). The more a person is committed to a specific identity, the greater the consequences for their actions and behaviours (Gecas, 1982). This is true in a setting of consumption, too. In developed economies, identity is a key concept in consumer behaviour. As Beverland (2014) states, most of people's purchases in developed countries are 'more an expression of one's identity than about satisfying basic needs' and that 'nowhere is this more obvious than with meat' (p. 374). Indeed, in western countries, the consumption of animal flesh or other products is not needed for human survival (Craig, 2009; Cramer et al., 2017). However, not only is food consumption part of people's daily lives, it also strongly links to social activities, rituals and relationships (e.g., MacDonald & Montford, 2014). Therefore, it seems unsurprising that meat consumption is linked to people's sense of identity in a wide variety of scholarly literature (e.g., Bonne et al, 2007; Carfora et al., 2017; Rothgerber, 2013b).

This is true for those who abstain from eating animal-derived food, too. Most references to vegans and their diet make clear that it is not merely a dietary preference, but rather a lifestyle and identity (e.g., Buttny & Kinefuchi, 2020; Cherry, 2015; Dodd et al., 2019). This includes a wide array of consumer processes, from the purchasing of food and other products to not engaging in specific services and experiences, such as visiting a zoo (Johnson, 2015). Additionally, vegan identity can sometimes be even stronger when rooted deeply in beliefs of moral conduct, as is the case for ethical and sustainability-motivated vegans (e.g., Cherry, 2015; Kortetmäki & Oksanen, 2020). On the other hand, vegan consumption patterns are linked to (temporary) self-interest for those with

health-related perspectives (Braunsberger & Flamm, 2019; Craig, 2009). Indeed, some of the latter group may identify as being healthy individuals that happen to adhere to a vegan diet, rather than as vegan.

As such, one's vegan identity<sup>2</sup> can be an important aspect in making sense of the self, with the self-concept, in turn, being a central part of cognitive dissonance theory (Aronson, 1960; Buttny & Kinefuchi, 2020; Harmon-Jones et al., 2017). However, the idea that the degree to which those consuming a (predominantly) vegan diet identify on a deeper level with vegan consumption principles can differ among individuals, implies that the role of this concept in explaining pet-food related cognitive dissonance may not only differ between omnivores, vegetarians and vegans (Dodd et al., 2019), but also *among* vegans. On the one hand, cognitive dissonance is expected to be experienced by vegan dog owners whose dietary choices are an integral part of their self-concept and identity. For dog owners who identify strongly with a conscious choice to exclude animal products from their personal diet (often for moral reasons), feeding animal-based kibble to their dogs arouses feelings of hypocrisy, a common phenomenon in morality-based cognitive dissonance (Alicke et al., 2013; Fried & Aronson, 1995; Stone & Fernandez, 2008). On the other hand, such feelings are likely absent among those who consume predominantly vegan food, yet do not consider veganism a central part of their self-concept (Braunsberger & Flamm; Cherry, 2015). Whereas the former arguably prefer their consumption choices to be consonant with their vegan identity to avoid the arousal of cognitive dissonance, the latter may not experience cognitive dissonance, in the absence of a (subconscious) need for consistency in this regard. This results in this study's fifth hypothesis:

*H5: The more an individual identifies as vegan, the stronger the cognitive dissonance experienced in purchasing meat-based dog food*

## **2.4 Dogs as an extension of the self**

The final aspect tying the theoretical model together (Figure 2.1), is the notion of pets as the extended self. The extended self can be seen as all aspects of the self that reach beyond one's own body and mind and can include the environment, relationships and possessions, among others (Tian & Belk, 2005). In relation to consumer behaviour, the concept was first made tangible by Belk (1988), who argued that 'our possessions are a major contributor to and reflection of our identities' and that this realization is vital when attempting to understand consumer behaviour (p. 139).

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<sup>2</sup> Vegan identity indicates the degree to which consumers identify with the (partial) avoidance of animal products. Labelling is adopted in relevancy to the study, rather than excluding (partial) vegetarians.

Indeed, possessions can help individuals understand who they are, while also allowing them to construct a desired identity (Ahuvia, 2005; Landon Jr, 1974). This process, however, is selective and mediated by a sense of attachment, with only those items that one feels attached to being included in the extended self (Ahuvia, 2005; Belk, 1988).

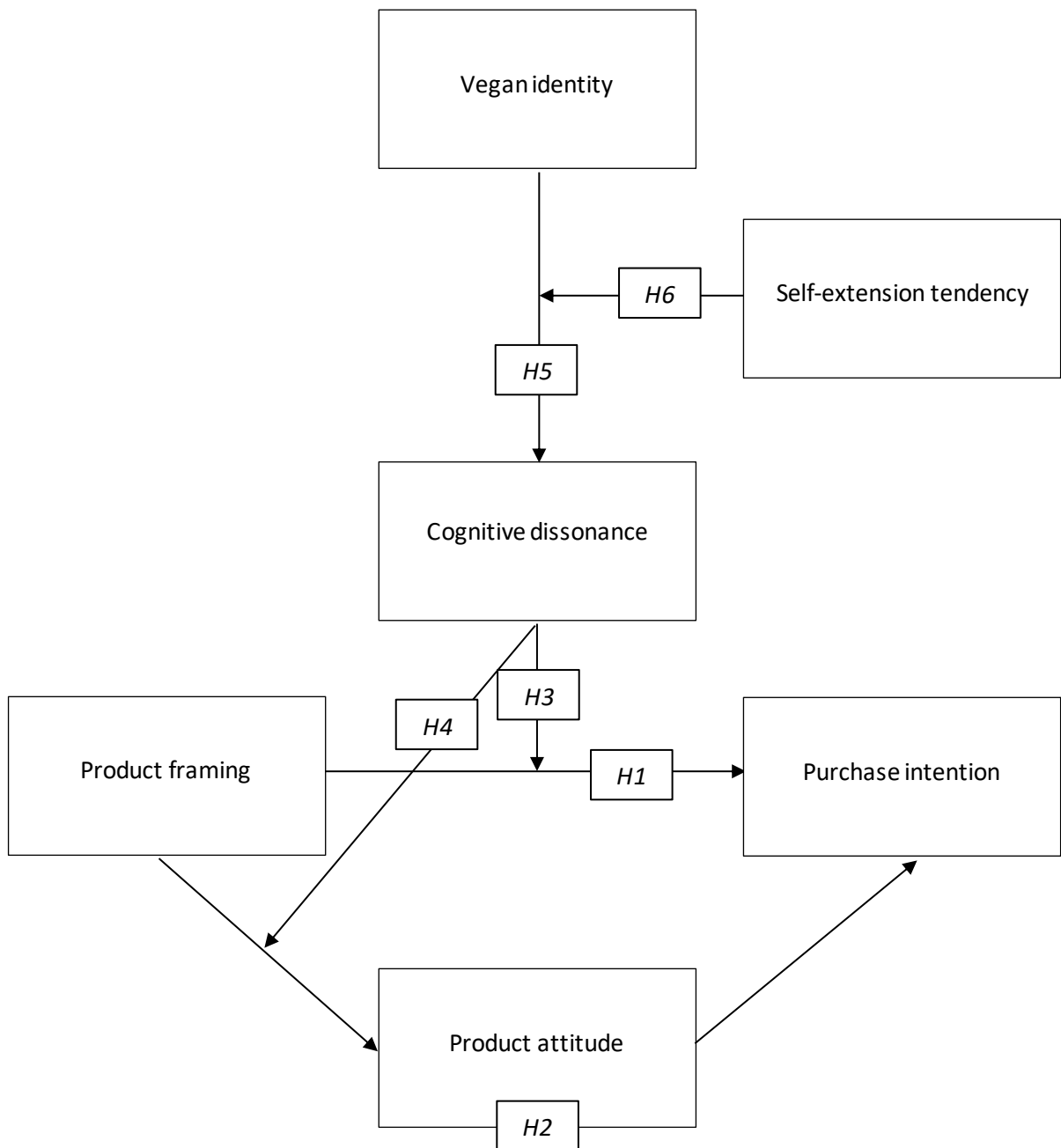
Throughout academic literature, pets are highlighted as a 'special case' of the extended self, alongside body parts and people (Belk, 1988, p. 154). Indeed, in many cultures the self-extending nature of pets is sufficiently high that, for instance, the consumption of pets or pet-like animals is a taboo resembling cannibalism (Belk, 1988; Polman & Ruttan, 2012). Both dogs and cats are often explicitly mentioned, despite some indication of dogs being more common among pet owners who see their pets as extensions of themselves (El-Alayli et al., 2006; Jyrinki & Leipamaa-Leskinen, 2005). Viewing pets as an extension of the self has benefits for psychological well-being, with greater perceived similarity between the self and one's pet linked to 'less negative affect, more life satisfaction, and a tendency toward greater happiness' (El-Alayli et al., 2006, p. 138). It seems no surprise that pet owners are highly involved in pet-related consumption, wanting only the best for their animal companions; the pet food purchasing environment, indeed, is one where quality is valued over anything, more so than is the case for human food purchases (Schleicher et al., 2019).

However, as the degree to which certain (types of) possessions contribute to the notion of self among individuals can differ greatly (Mittal, 2006), it naturally follows that the degree to which dog owners perceive their pets as extensions of themselves, varies too (Dotson & Hyatt, 2008; Jyrinki & Leipamaa-Leskinen, 2005). Some dog owners may perceive their dog(s) more so as extensions of themselves, thus desiring cognitions about themselves and their pets to be consonant, than do others. Consequently, it implies that the extended self is the final link to complete the theoretical model and hypotheses of the current study, with the degree to which a dog owner sees their pet as an extension of the self moderating the relationship between one's vegan identity and the degree of cognitive dissonance experienced in the purchase of meat-based dog food. From the mentioned literature, it can be expected that those who regard their dogs as extensions of themselves draw upon similar attitudes and beliefs when making pet food purchases, as they would for human food. As such, feelings of cognitive dissonance in the pet food purchasing environment are expected to be stronger for vegans who (subconsciously) draw upon similar structures in the pet food environment as they do regarding their own vegan consumption practices. On the other hand, for those who do not see their dogs in a similar way, such processes may not be related; while behaving according to their vegan principles themselves, they do not draw upon the same cognitions when it concerns their dogs, making meat-related cognitive dissonance in the pet food purchasing environment more irrelevant, particularly in combination

with the overall consensus that dogs are natural meat-eaters (Loeb, 2020). This leads to the sixth and final hypothesis of this study:

*H6: The effect of one's vegan identity on meat-related cognitive dissonance is moderated by the degree to which individuals experience their dog(s) to be an extension of the self, such that the stronger the notion of self-extension, the stronger the effect*

Figure 2.1. Visual representation of the theoretical model



## 3. Methodology

### 3.1 Research design

To examine the effect of vegan dog food framing on purchase intention, a quantitative approach was taken, due to its ability to draw conclusions about larger populations (Babbie, 2014). Although the topic of vegan dog food is under-researched, the combination of concepts from marketing and psychology (as described in Chapter 2), allowed for a deductive approach with hypotheses grounded in theory (Bryant & Charmaz, 2019). To test these hypotheses, an experiment was considered an appropriate research method, as it allowed for making inferences about causality (Neuman, 2014).

A unifactorial between-subjects online survey experiment was designed, enabling the measurement of the treatment's sole effect while holding all other factors constant, as ensured by random assignment of participants to conditions (Neuman, 2014). Based on the theoretically informed hypotheses, five conditions were created. First, three attribute-specific frames were based on the most prominent motivations for (partially) abstaining from eating animal products (ethicality, sustainability and health). The fourth condition combined these three different motivations, thus creating a combination frame. The fifth and final was a control condition, with any explicit framing completely absent.

The experimental treatment that varied across conditions was a visual one. An imaginary vegan dog food brand, "Vegdog", was created, of which all participants were shown an image. In its basis, the image featured the front side of a Vegdog dry food product and a bowl of kibble. The brand and product were given a clearly vegan image, due to the brand's name, green packaging, a vegan certification mark and a label featuring clearly non-meat ingredients and a "100% plant-based" tagline. As the research was interested in the effect of various frames created through packaging claims, the experimental manipulation was found in the additional product texts featured on the product. Specifically, three lines of texts differed for each condition: the product name, where a single, positively connotated word was chosen to convey the spirit of the frame (e.g., "Eco+"); the subtitle, which directly linked the frame to the product (e.g., "Sustainable kibble"); and the bottom tagline, which reformulated the motivation for purchase more elaborately (e.g., "Better for the planet"). Similar to the sustainability examples provided, the ethicality and health frames revolved around the specific motivations in all three texts (e.g., "With love for all animals" and "For strong bones and muscles. Supports immunity", respectively), while the combination frame combined the phrasing of all three individual motivations. All lines of text were absent in the control condition, which provided no additional framing on otherwise identical packaging. An overview of all five visual manipulations and their English translations can be found in

Appendix A. The main purpose of the differing visuals was to create as convincing of a specific message as possible, while remaining consistent in wording and placement across conditions and drawing upon packaging standards in the Dutch dog kibble market (e.g., Pets Place, n.d.; Welkoop, n.d.). The effectiveness of the manipulation was tested with a manipulation check (Tye-Williams, 2017), as described in section 3.2.3.

## 3.2 Measures and operationalization

To test the six hypotheses, an online survey was designed to measure the concepts of interests in combination with the different treatments. This section describes the operationalization of concepts, for both the main and control variables. Acknowledging that the current research aims to measure a variety of variables, measurements for each were attempted to be as concise as possible, to avoid respondent fatigue (Ben-Nun, 2008). Unless indicated otherwise, items were measured on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Appendix B shows the English translation of the originally Dutch survey. Additionally, results of the scale analyses are provided in Appendix C.

### 3.2.1 Main theoretical concepts

**Cognitive dissonance.** Cognitive dissonance was operationalized by adapting and combining three existing measures to fit the current context. First, Rothgerber (2014) measures cognitive dissonance by asking participants to which degree they experience various emotions in relation to their personal consumption patterns. This study focused on two that were most fitting to the dog food purchasing environment, combining them with two non-meat-related scales on cognitive dissonance. Specifically, Keng and Liao's (2013) scale and Sweeney et al. (2000)'s emotional subscale informed the post-purchase dissonance context. The final 4-item scale included questions such as "*After purchasing dog food with meat-based ingredients I often feel uncomfortable*". The 4 Likert-scale items were entered into factor analysis based on Principal Components extraction with Direct Oblimin rotation, confirming that a single factor explained 87.1% of variance in cognitive dissonance ( $KMO = .85$ ,  $\chi^2 (N = 193, 6) = 883.93$ ,  $p < .001$ ). Reliability analysis indicated very high internal consistency ( $\alpha = .95$ ); as such, a new variable was computed, *Cognitive Dissonance* ( $M = 2.64$ ,  $SD = 1.76$ ).

**Vegan identity.** Vegan identity was measured on a 3-item scale, adapted from Yun and Silks's (2011) four-item scales measuring self-identity as an exerciser and healthy eater. An item concerning the consistency of avoiding animal-based products was added ("*I consistently avoid animal products in my nutrition*"), as this concept is important in theory on self-identity (English & Chen, 2011; Whitmarsh & O'Neill, 2010). Factor analysis based on Principal Components extraction



with Direct Oblimin rotation, confirmed the loading onto a single factor explaining 91.3% of variance,  $KMO = .78$ ,  $\chi^2 (N = 193, 3) = 586.56$ ,  $p < .001$ . As internal consistency proved to be very high ( $\alpha = .95$ ), the new variable *Vegan Identity* was computed ( $M = 3.94$ ,  $SD = 2.13$ ).

**Self-extension tendency.** The degree to which dog owners tended to perceive their dogs as an extension of the self was measured by adapting a subscale from Ferarro et al. (2011). Of the 8-item subscale, 4 items were considered most fitting for the current topic, with preference given to items such as “*I have a special bond with my dog*” over “*My dog is an important indicator of who I am*”. Principal Components factor analysis with Direct Oblimin rotation confirmed the existence of a single factor explaining 66.3% of variance ( $KMO = .79$ ,  $\chi^2 (N = 193, 6) = 281.58$ ,  $p < .001$ ). Internal consistency was high ( $\alpha = .80$ ) and the new variable *Self-Extension Tendency* was computed ( $M = 5.95$ ,  $SD = .92$ ).

**Purchase intention.** Purchase intention was measured on a 3-item scale adapted from Chang and Chen (2008), with minimal alterations needed for current context. An example of an item used in the current study is “*I think I would like to purchase Vegdog dog food*”. Principal Components factor analysis with Direct Oblimin rotation confirmed the loading onto a single factor that explained 95.0% of variance ( $KMO = .78$ ,  $\chi^2 (N = 193, 3) = 795.33$ ,  $p < .001$ ). Internal consistency was very high ( $\alpha = .97$ ), after which new variable *Purchase Intention* was computed ( $M = 3.17$ ,  $SD = 1.82$ ).

**Product attitude.** Spears and Singh (2004)’s brand attitude subscale was employed to measure product attitude. Specifically, the items concerning the appealing and good nature of the product were adapted, while usefulness and sensibleness were added to substitute less relevant items (pleasantness, favourableness and likability) (Spears & Singh, 2004). An exemplary item of the resulting 4-item scale is “*I think this product is a smart choice*”. Using Principal Components extraction with Direct Oblimin rotation, factor analysis confirmed that a single factor explained 83.9% of variance ( $KMO = .85$ ,  $\chi^2 (N = 191, 6) = 691.74$ ,  $p < .001$ ). The scale was found to have very strong internal consistency ( $\alpha = .94$ ) and used to compute new variable *Product Attitude* ( $M = 3.92$ ,  $SD = 1.82$ ).

### 3.2.2 Control variables

Apart from demographic information (i.e., age and gender), the questionnaire inquired about other aspects that were considered relevant to the study’s topic, to provide a better understanding of the sample, avoid possible confounding impacts and aid in the interpretation of the results. As these questions were thought to be more relevant, they were placed in lieu of other common demographic questions (e.g., educational level), to avoid respondent fatigue (Ben-Nun, 2008).

**Brand loyalty.** Prior research on the purchasing of dog-related products indicates that brand loyalty is one of the most important determinants of purchasing behaviour, with greater importance than product price, for instance (Schleicher et al., 2019). Studies dedicated to the measurement of brand loyalty agree that, ideally, the concept is measured with behavioural and cognitive or attitudinal aspects (Back & Parks, 2003; Rundle-Theile & Bennett, 2001). However, due to the length of the questionnaire and brand loyalty being a control variable, it was chosen to reduce the concept to a single item (“*When purchasing dog food, I often opt for the same brand*”), where participants were asked to reflect on their own behaviour, following various other studies (e.g., Li, 2010; Yoshida et al., 2018).

**Dog’s current diet.** The diet currently followed by owners’ dog(s) could be of confounding impact in the current model of interest. Related to this matter, measurements were three-fold: the presence of *dietary restrictions* based on medical reasons among dogs (e.g., Heuberger & Wakshlag, 2011; Tiffany et al., 2019), measured with a dichotomous question as it was reasoned that dogs would not follow medically restricted diets without the knowledge of their caretakers; the adoption of a *non-medical or trend-related diet*, including vegan, vegetarian, raw meat and gluten-free options as answer boxes and supplemented with an open answer field (Meineri et al., 2020); and *current meat-purchasing*, a multiple-choice question with three options (‘yes’, ‘no’ and ‘don’t know’) inquiring whether participants’ dog food purchasing predominantly included meat. This question served a dual purpose, in being both an interesting insight into the current sample and creating clarity for the meat-related cognitive dissonance questions that followed.

**Personal diet.** A two-part section asked participants about their personal diet, inquiring to what degree they *consumed animal products*, with answer options of omnivore, flexitarian, pescatarian, vegetarian, vegan and other. For all given answers but omnivore, participants were asked to select their primary *motivation* for (selectively) abstaining from animal products, following Dodd et al. (2019). Answer options included the three main motivations, an open answer field and the possibility to refuse answering.

**Personal product perception.** Participants were asked about their perception of the product’s message to get an indication of the extent to which the different packages had been successful at conveying a certain message. With Spears and Singh (2004) as a basis, statements were worded positively, with participants indicating the degree to which they agreed with the product being healthy, sustainable and cruelty-free.

### 3.2.3 Manipulation check

Participants were presented with a manipulation check immediately after the visual stimulus, to ensure that the frames created for the study were sufficiently strong to be picked up by participants (Tye-Williams, 2017). Specifically, participants were asked to rate the product on its animal-friendly, sustainable or health-proof properties, as suggested by the packaging itself. The question asked to which degree they agreed with the statement that *“The packaging of this product indicates that Vegdog dog food is...”*, followed by three items: *“...healthy”*, *“...sustainable”* and *“...cruelty-free”*. The wording of the question was designed to create a clear focus on the product claims, rather than participants’ own opinion (as compared to the items designed in section 3.2.2).

If sufficient, this manipulation check was expected to show high scores for items that matched participants’ specific framing conditions. For instance, participants who encountered the ethicality frame would be expected to have a significantly higher average animal-friendly perception of the product, as claimed by the package, then they would on the sustainability and health items. Furthermore, overall high scores for participants in the combination frame conditions could be expected, in contrast to overall low scores for those in the control condition (i.e., without any additional persuasive claims).

## 3.3 Procedure

### 3.3.1 Pilot study

A small-scale pilot study was conducted to test the research materials prior to data collection. Specifically, pilot studies are useful for under-researched topics and research materials that require substantial adjusting from original scales, both of which apply to the current study (Lavrakas, 2008; Persaud, 2010). As such, a pilot study was considered beneficial, with the main aim to minimize measurement error by testing the understandability and face validity of the research materials (Lavrakas, 2008).

For pilot study effectiveness, it is important that the pilot participants match the intended sample as closely as possible (Persaud, 2010). In the current study, the target demographic was rather broad, with the only requirements being current dog ownership, Dutch residence and spoken language and a minimum age of 18. This was expected to yield a diverse sample of participants, with highly different ages, educational levels, cultural backgrounds and economic status (CBS, 2020). As such, pilot testers were specifically selected from the researcher’s personal (extended) network to form a group with a diverse set of backgrounds and perspectives, while all were adults based in the Netherlands. Ten pilot-testers contributed their insights during a short post-survey telephone interview. Throughout and after the pilot study, possible contamination in

the form of pilot participants participating in the main study or coming into contact with those who would, was carefully prevented (Persaud, 2010; van Teijlingen & Hundley, 2001).

Besides one small technical error and some minor visual adjustments, a few highly interesting insights were gained from the pilot test, which were used to improve the survey and visual manipulations. Specifically, several binary scales were reconstructed into Likert scales, coherent with others in the survey; the cognitive dissonance measures were rephrased, as non-specificity caused misunderstanding; ingredients on the visual manipulations were changed to confirm more to industry standards; and, finally, the non-commercial nature of the study was emphasized further, due to what some indicated as the realistic nature of the visuals. Additionally, the ethical framing condition was tested in more detail and confirmed during the pilot test, as its wording ("*Dierenleed vrij*", i.e., cruelty-free) is not normally used in vegan food products.

### **3.3.2 Data collection**

Data collection began after the pilot study's adjustments had been made, through sampling practices described in section 3.4. Participants were told they were contributing their opinions on a new type of dog food. The main goal was to not prime participants to the vegan nature of this product. As such, deception was kept to an absolute minimum, in line with ethical considerations (Fisher & Anushko, 2008; Mark & Gamble, 2009). Participants were given an incentive to participate, by being able to win one of multiple dog-related gift certificates (at a value of 25 euros). Upon clicking on the survey link, participants encountered a consent form, providing them with a clear overview of what to expect during and after the survey and stressing the voluntary and anonymous nature of their participation.

The survey was divided into six blocks of questions, each touching upon a different topic. First, participants encountered filtering questions, put in place to ensure they met the sampling criteria (section 3.4), as well as introductory questions on their purchasing frequency of dog food and the relationship with their dog. The second block assessed to which degree individuals abstained from eating animal products and identified with such consumption principles. Third, participants were asked about their dog's current diet and restrictions. After, the fourth block centred around their purchasing of dog food, inquiring about the predominant purchasing of meat-based food, experience of meat-related cognitive dissonance and self-assessed brand loyalty.

Next, participants were exposed to one of the manipulation visuals (Appendix A) and asked to pay careful attention to both the image and text visible. After the manipulation check (section 3.2.3), the fifth block asked participants about their perception of the packaging, attitude towards the product and their purchase intention after seeing it. Finally, the sixth and final block of questions collected demographic information by asking participants about their gender and age.

Finally, participants were given the ability to ask questions or give comments on the survey and leave their email address to participate in the giveaway.

To avoid partial completion, filtering questions and those addressing core theoretical concepts required a response for participants to continue, after careful consideration of possible ethical concerns (Fisher & Anushko, 2008; Mark & Gamble, 2009). As priorly explained, it was stressed at the beginning of the survey that participants could opt out of participating at any point, and a feedback box was provided. Moreover, for questions that asked for sensitive information, participants could select that they would rather not answer. For those concerning control variables, a response was encouraged but not required. Multiple choice selection boxes were used in all but one question (age), to avoid response error (Miller, 2008). Where appropriate, participants were given the option to choose 'other', when they felt their choice was not properly presented, and given a text box to write a fitting answer. Similarly, they were able to leave any additional remarks they felt needed in the final comment box.

### **3.4 Sample**

Adult dog owners living in the Netherlands formed the target group of interest. Adults were chosen, specifically, as they were considered to mostly make dog food purchase decisions. The exclusive focus on Dutch dog owners was made for several reasons. It was deemed necessary to research the rather new phenomena of vegan dog food purchase and marketing in a narrowly defined context, to help minimize confounding impacts of cultural factors and language (barriers). The Netherlands was chosen, as the country is considered to be at the forefront of vegan food production, consumption, innovation and research (Enjoli, n.d.; Vegconomist, 2020). Sampling criteria were communicated clearly in the survey distribution messages. Filtering questions in the beginning of the survey ensured the sole participation of dog owners living in the Netherlands. Participants filled out their age at the end, as to not hinder participation with too many demographic questions at the survey's start (Babbie, 2014).

To reach the target group, convenience and snowball sampling was employed. Although probability sampling is preferred in quantitative studies for generalizability matters, the current study lacked an exhaustive sampling frame (Babbie, 2014). As such, convenience sampling helped to reach the intended audience by utilizing the researcher's own extended network and social networking sites, namely LinkedIn and Facebook. The latter was particularly useful, as interest-based groups (i.e., those consisting of Dutch dog owners) matching the target audience were directly contacted. Snowball sampling was employed by facilitated sharing and stressing its importance. With diet clearly linked to both cognitive dissonance and purchasing tendency of vegan dog food in previous studies (Dodd et al., 2019; Rothgerber, 2013a), it was aimed to reach a diverse

sample in terms of personal diet. Despite limited control due to convenience and snowball sampling, this was attempted by distributing the survey in diverse social groups, both online and offline, and considering diverse sampling seeds in the researcher's personal network.

The survey yielded 262 responses. Of those, 11 did not live in the Netherlands and 6 did not currently own a dog. These responses were filtered out, similar to those who gave incomplete responses (52 participants). After data cleaning, 193 respondents remained. Participants' age ranged between 19 and 70 years old ( $M = 40.79$ ,  $SD = 12.92$ ). The majority of participants identified as female (167, 86.5%), with only 23 identifying as male (11.9%), 1 preferring not to say (.5%) and 2 invalid responses (1%). Personal choice of animal-based product consumption was divided among participants, with 87 eating all animal products (45.1%), 54 partially abstaining from them (28.0%) and 52 participants following a vegan diet (26.9%). 31 participants (16.1%) indicated their dog(s) currently followed a vegan diet.

### **3.5 Validity and reliability**

Several measures were taken to strengthen the study's validity and reliability. First, measurement validity was improved by using pre-existing scales to measure concepts, only altering them when needed to fit the current research context (Neuman, 2014). However, as the key concepts of the theoretical model have not frequently been linked to dog ownership and vegan dog food purchasing, substantial changes had to be made. As such, the ability of the research tools to measure the intended concepts was examined by conducting the pilot study (section 3.3.1). Prior to data analysis, confirmatory factor analysis was conducted to furthermore validate the constructs measured (Yong & Pearce, 2013). Moreover, validity was strengthened by measuring and accounting for possible confounding variables, based in research on the dog product purchasing environment, and using a manipulation check (Nueman, 2014; Schleicher et al., 2019; Tye-Williams, 2017).

Experimenter effects were considered to be limited by using a digital research setting and pre-designed cover story, of which the contents were consistent across channels of data collection (Ruble, 2017). However, the non-random sampling process posed a possible threat to the research's external validity (Neuman, 2014). This risk was aimed to be limited by distributing the research material through a wide variety of online and offline channels, to reach as diverse an audience as possible.

The research's reliability was improved by ensuring internal consistency of scales, which regards the homogeneity of items in their ability to measure the same underlying construct (Henson, 2001). This was done through a combination of selecting reliable, often-used scales and using Cronbach's alpha to calculate the reliability of all measurements employed in the research

(Johnson, 2017; Pallant, 2013). DeVellis (2012) recommends that all alpha coefficients should be above .70 for scales to be considered internally consistent. As, for the current study, all alphas ranged between .80 and .97 (Appendix C6) and no changes were shown to substantially improve scales' internal consistency, all scales were considered to be reliable and fit for further analysis.

## 4. Results

### 4.1 Preliminary analyses

#### 4.1.1 Random assignment to conditions

With non-random sampling practices and automatic assignment of participants across conditions by survey software Qualtrics, the random assignment of participants across conditions was tested. Using Chi-square tests for independence and a one-way ANOVA, no significant difference among conditions were found in relation to age ( $F(48, 141) = 1.02, p = .459$ , partial  $\eta^2 = .26$ ); gender ( $\chi^2(8, N = 191) = 8.20, p = .414$ ); personal diet (i.e., omnivore, (partial) vegetarian and vegan,  $\chi^2(8, N = 193) = 7.05, p = .531$ ); and dog diet (i.e., predominantly meat-eating versus non-meat-eating,  $\chi^2(8, N = 193) = 11.69, p = .166$ ). As such, the sample was considered fit for further analysis, without a need for inclusion of these factors as control variables.

#### 4.1.2 Manipulation check

Three one-way ANOVAs were conducted to test the mean differences in agreement with each of the separate manipulation check questions (section 3.2.3), across conditions. No significant differences were found for the various conditions concerning the first statement, which was health-based (*"The packaging indicates that this product is healthy"*) ( $F(4, 188) = 2.10, p = .082$ , partial  $\eta^2 = .04$ ). The second, sustainability-based statement ((...) *"that this product is sustainable"*) yielded significant differences in agreement across conditions,  $F(4, 188) = 3.37, p = .011$ , partial  $\eta^2 = .07$ . Tukey post hoc comparisons revealed a single significant difference between the sustainability condition ( $M = 5.26, SD = 1.47$ ) and ethicality condition ( $M = 4.24, SD = 1.67$ ),  $p = .039$ . Finally, significant differences were found in participants' mean agreement with the third statement ((...) *"that this product is cruelty-free"*),  $F(4, 188) = 4.97, p < .001$ , partial  $\eta^2 = .10$ . A Games-Howell post hoc test was conducted, as equal variances could not be assumed ( $p < .050$ ), revealing several significant differences (Rusticus & Lovato, 2014). Participants in the ethical condition ( $M = 5.95, SD = 1.31$ ) agreed significantly more than those in the sustainability ( $M = 4.79, SD = 1.68$ ) ( $p = .012$ ) and health ( $M = 4.68, SD = 1.79$ ) ( $p = .004$ ) conditions, the latter of which was also in significantly lower agreement with the statement than the combination condition ( $M = 5.81, SD = 1.49$ ),  $p = .022$ . Based on these manipulation checks, it can be concluded that the various treatments were only partially successful, which is taken into account in the further analysis of the data and interpretation of the results.



### 4.1.3 Correlations among key and control variables

A zero-order correlation matrix was generated to examine the relationships between main variables of interest, as shown in Table 4.1. It was confirmed that multicollinearity did not exist, as no independent variables were highly correlated ( $r = .90$  or higher). Furthermore, several preliminary insights were gained from this matrix, confirming the links between the main conceptual variables.

First, purchase intention showed a very strong correlation with mediator product attitude, both of which were in turn strongly correlated with moderator cognitive dissonance. Dissonance as an outcome variable was strongly correlated with vegan identity and weakly so with self-extension tendency. Moreover, vegan identity showed a moderate correlation with purchase intention and product attitude, despite not significantly correlating with the conceptually closely related self-extension tendency ( $p = .070$ ). Finally, brand loyalty showed a weak negative correlation with cognitive dissonance, self-extension tendency and purchase intention. This confirmed a need for it to be included as a control variable in relevant analyses. This was not the case for age, which was not significantly correlated with purchase intention or product attitude (all  $ps \geq .065$ ).

Table 4.1. Means, standard deviations and zero-order correlations between variables

Measure	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Cognitive dissonance	2.64	1.76	-						
2. Vegan identity	3.94	2.13	.73***	-					
3. Self-extension tendency	5.95	.92	.17*	.13	-				
4. Purchase intention	3.17	1.82	.55***	.47***	.14	-			
5. Product attitude	3.92	1.51	.48***	.43***	.10	.82***	-		
6. Brand loyalty	6.02	1.30	-.20***	-.13	-.16*	-.14*	-.07	-	
7. Age	40.94	12.95	.01	-.17*	-.02	-.08	-.13	.01	-

Note: \*  $p < .050$ , \*\*  $p < .010$ , \*\*\*  $p < .001$

## 4.2 The effects of framing on purchase intention

### 4.2.1 Direct effect

To test for a significant difference in purchase intention among groups of participants exposed to different packaging frames, an ANCOVA was conducted. Purchase intention was entered as the dependent variable, with treatment as the fixed factor and brand loyalty included as a covariate. No significant differences were found across conditions, ( $F(4, 187) = .12, p = .976$ , partial

$\eta^2 = .00$ ), while controlling for brand loyalty ( $F(1, 187) = 3.62, p = .059, \text{partial } \eta^2 = .02$ ). As such, it cannot be said that framing had a direct effect on purchase intention; H1 is rejected.

#### **4.2.2 Product attitude as a mediator**

Despite the absence of a significant framing effect on purchase intention, the latter showed a strong correlation with product attitude. As the presence of a significant indirect effect remains possible, even in the absence of a direct effect of X on Y (Preacher & Hayes, 2004), a mediation analysis was employed to examine whether product attitude facilitated an indirect effect of framing on purchase intention.

To perform a mediation analysis, Hayes's (2013) PROCESS Macro for SPSS was used. Purchase intention was entered as the dependent variable, with treatment as the independent variable, product attitude as the mediator and brand loyalty as a covariate. Since treatment was measured as a categorical variable, it needed to be treated as a multicategorical variable in the PROCESS Macro, using the Indicator coding system. This entailed that the first of the 5 conditions entered was treated as the reference point. For this purpose, the variable was recoded to ensure that the control variable was the first value and thus reference point in the output. The mediation analysis was based on a 95% confidence interval and 5000 bootstrap samples (Mundform et al., 2011; Schoemann et al., 2017).

The first model, based on the effect of framing on product attitude, was not significant ( $p = .944$ ). The second model, regarding the effects on purchase intention, was significant,  $F(6, 186) = 66.21, R^2 = .68, p < .001$ . However, this was due to a significant effect of product attitude ( $\beta = .98, p < .001$ ), while controlling for brand loyalty ( $\beta = -.12, p = .036$ ). The various treatments, on the other hand, were not significant (all  $ps \geq .717$ ). Finally, the presence of indirect effects was rejected based on non-parametric bootstrapping, with the null of zeroes falling within the lower and upper bounds for each distinct framing condition (i.e., ethicality [-.65, .74], sustainability [-.47, .79], health [-.59, .64] and combination [-.53, .88]). Thus, it cannot be said that a significant indirect effect of framing on purchase intention occurred through product attitude; as such, H2 is rejected.

### **4.3 Cognitive dissonance**

#### **4.3.1 Cognitive dissonance and purchase intention**

To examine the moderating role of cognitive dissonance on any effect of framing on purchase intention, a hierarchical regression analysis was conducted. Importantly, several participants feeding their dog(s) a vegan or vegetarian diet were confused with the proper interpretation of the cognitive dissonance items (as indicated by participant feedback). Indeed, cognitive dissonance scores were more spread out among these respondents ( $M = 3.92, SD = 1.90$ )

compared to others ( $M = 2.11$ ,  $SD = 1.38$ ). To avoid faulty interpretation due to measurement error and with limited relevancy based on theoretical grounds (as such kibble-related cognitive dissonance no longer occurs for the participants), those purchasing predominantly non-meat kibble ( $N = 57$ ) were excluded from all analyses including cognitive dissonance ( $N = 136$ ).

As the treatment variable was a multi-categorical one, four dummy variables were computed based on various conditions of ethicality, sustainability, health and a combination of the three; the control condition was used as the reference condition for this purpose. Along with the dummy variables, the input in the first model included standardized cognitive dissonance and brand loyalty variables (the latter serving as a covariate). The model reached significance,  $F(6, 129) = 10.25$ ,  $R^2 = .32$ ,  $p < .001$ . In the second step, the interactions between standardized cognitive dissonance and the four dummy variables were added. The added predictive value was not significant ( $F = .01$ ,  $\Delta R^2 = .01$ ,  $p = .650$ ). In the first model, solely the main effect of cognitive dissonance on purchase intention was significant ( $\beta = .51$ ,  $p < .001$ ), while controlling for brand loyalty ( $p = .275$ ). Thus, cognitive dissonance did not significantly moderate any effect of framing on purchase intention. As such, H3 is rejected.

### **4.3.2 Cognitive dissonance and product attitude**

To establish whether cognitive dissonance moderated any effect of framing on product attitude, a hierarchical regression was conducted, using product attitude as the outcome variable. In the first step, the standardized cognitive dissonance and four treatment dummy variables were added as input variables, resulting in a significant model ( $F(5, 130) = 8.14$ ,  $R^2 = .24$ ,  $p < .001$ ). The subsequent addition of the interaction variables yielded no significant added value to the model's predictability ( $F = .32$ ,  $\Delta R^2 = .01$ ,  $p = .865$ ). Again, only cognitive dissonance was a moderate positive predictor ( $\beta = .47$ ,  $p < .001$ ) in the first model. As such, it was established that cognitive dissonance did not moderate any effect of framing on product attitude, thus rejecting H4.

## **4.4 Vegan identity**

### **4.4.1 Direct effect on cognitive dissonance**

A simple linear regression was conducted to examine the direct effect of vegan identity on cognitive dissonance. The latter was entered as the outcome variable, with the prior as the independent variable. Brand loyalty was included as a control variable. The resulting model was significant,  $F(2, 133) = 76.42$ ,  $R^2 = .54$ ,  $p < .001$ . Vegan identity was a strong, positive predictor ( $\beta = .68$ ,  $p < .001$ ), while controlling for brand loyalty ( $\beta = -.19$ ,  $p = .002$ ). This confirmed that the more an individual identifies as vegan, the more cognitive dissonance is experienced in purchasing meat-based dog food. As such, H5 is retained.

#### 4.4.2 Moderating role of self-extension tendency

To assess whether self-extension tendency functions as a moderator in the effect of vegan identity on cognitive dissonance in the purchasing of meat-based dog food, a hierarchical regression was performed. In the first step, the standardized variables of vegan identity, self-extension tendency and brand loyalty were entered as input variables, resulting in a significant model,  $F(3, 132) = 52.44$ ,  $R^2 = .54$ ,  $p < .001$ . Vegan identity was a strong positive predictor ( $\beta = .67$ ,  $p < .001$ ), while controlling for brand loyalty ( $\beta = -.21$ ,  $p = .001$ ). No main effect was not found for self-extension tendency as a significant predictor of cognitive dissonance ( $p = .108$ ).

Adding the interaction between vegan identity and self-extension tendency in the second step significantly improved the model's predictive ability ( $F = 7.97$ ,  $\Delta R^2 = .03$ ,  $p = .006$ ). The second model showed main effects for both vegan identity ( $\beta = .64$ ,  $p < .001$ ) and self-extension tendency ( $\beta = .18$ ,  $p = .007$ ), while controlling for brand loyalty ( $\beta = -.23$ ,  $p < .001$ ). Moreover, the interaction effect between vegan identity and self-extension tendency was significant ( $\beta = .18$ ,  $p = .006$ ). An overview of both regression models is found in Table 4.2.

It can be concluded that self-extension tendency is a moderator of low strength on the effect of vegan identity on cognitive dissonance in the context of meat-based dog food purchasing, where the more an individual regards their dog(s) as an extension of the self, the stronger the effect. For individuals with high self-extension tendency, the degree of cognitive dissonance experienced in the purchasing of meat-based dog food is more affected by their vegan identity, compared to those who see their dogs less so as extensions of themselves. As self-extension tendency as a moderator significantly improved the model's predictability, H6 is retained.

Table 4.2. *Regression model for predicting cognitive dissonance with self-extension tendency as a moderator (N = 193)*

	Model 1	Model 2
Vegan identity	.67***	.64***
Self-extension tendency	.10	.18**
Brand loyalty	-.21**	-.23***
Interaction effect vegan identity and self-extension tendency		.18**
	$R^2 = .54$	$\Delta R^2 = .03$
	$p < .001$	$p = .006$

Note: \*  $p < .050$ , \*\*  $p < .010$ , \*\*\*  $p < .001$

## 4.5 Additional findings

In the absence of significant framing effects, concerning hypotheses H1, H2, H3 and H4, several additional analyses were conducted. Specifically, these aimed to (partially) explain the lack of framing effects found, by better understanding confounding effects on the manipulation checks (section 4.5.1), as well as the personal perception variables (section 4.5.2) and their role in the conceptual model (section 4.5.3).

### 4.5.1 Confounding effects on manipulation checks

In section 4.1.2, analyses showed that, according to the manipulation checks, the various treatments were not completely successful at conveying the intended messages. Most strikingly, the health-based statement yielded no significant differences among treatments. Additional analyses were executed to test whether any other of the measured variables had a (confounding) effect on the manipulation checks, which concerned the degree to which participants indicated that specific statements (related to the healthy, sustainable and cruelty-free nature of the product) were visible on the product's package.

First, linear regressions were conducted to test the predictive effects of brand loyalty, self-extension tendency, vegan identity and age on the three manipulation checks. Solely vegan identity proved to be a significant predictor in the case of the sustainability ( $F(1, 191) = 10.83, R^2 = .05, p = .001; \beta = .23, p = .001$ ) and ethicality ( $F(1, 191) = 47.49, R^2 = .20, p < .001; \beta = .45, p < .001$ ) manipulation checks, with neither brand loyalty, self-extension tendency nor age yielding significant results (all  $ps \geq .092$ ). This indicated that the more an individual identifies with vegan consumption principles, the more they regard the packaging as conveying a message on the product's sustainable and cruelty-free nature, regardless of what is factually claimed. This effect was stronger in the case of ethicality, compared to sustainability. In contrast, vegan identity was not found to have predictive ability in the case of the health-based manipulation check ( $p = .685$ ).

Moreover, three ANOVAs indicated a confounding effect of participants' personal diet on the manipulation checks. As shown in Table 4.3, participants' mean agreement with two out of three manipulation checks differed significantly across groups with different diets, i.e. the degree to which they themselves consumed animal products (all, some or none). Regarding the sustainability manipulation ( $F(2, 190) = 4.42, p = .013, \text{partial } \eta^2 = .04$ ), Tukey post hoc comparisons indicated that those consuming all animal products agreed significantly less with the statement than those consuming some ( $p = .037$ ) or none ( $p = .040$ ). Additionally, significant differences were found for the ethicality manipulation check ( $F(2, 190) = 23.74, p < .001, \text{partial } \eta^2 = .20$ ), where Games-Howell post hoc tests revealed that vegans agreed significantly more with the ethicality statement than (partial) vegetarians or omnivores (all  $ps < .001$ ). Differences were not significant for the health

statement ( $p = .246$ ). In subsequent ANOVAs, no differences were found among various motivations for (partially) avoiding animal products (all  $ps \geq .247$ ); as such, this matter had no effect on the degree to which statements were noticed by participants.

Table 4.3. *Differences among participants consuming varying degrees of animal products, in agreement with the manipulation check statements (N = 193)*

Agreement		Degree of animal products in personal diet		
		All	Some	None
Health statement	<i>M</i>	4.20	4.65	4.27
	<i>SD</i>	1.52	1.75	1.56
Sustainability statement	<i>M</i>	4.31 <sup>a, b</sup>	4.98 <sup>a</sup>	4.98 <sup>b</sup>
	<i>SD</i>	1.69	1.39	1.49
Ethicality statement	<i>M</i>	4.55 <sup>c</sup>	5.39 <sup>c</sup>	6.37 <sup>c</sup>
	<i>SD</i>	1.80	1.56	.72

Note: Matching superscripts indicate a significant difference among means,  $p < .050$ .

Finally, ANOVAs indicated the role of current meat-purchasing in the degree to which owners agreed with manipulation checks, all of which yielded significant results as shown in Table 4.4. First, significant differences were found in agreement with the health-based manipulation check ( $F(2, 190) = 3.61, p = .029$ , partial  $\eta^2 = .04$ ), with Tukey post hoc comparisons indicating that non-meat purchasing owners agreed significantly more with the statement than those predominantly purchasing meat ( $p = .021$ ). Similarly, significant mean differences were found in agreement with the sustainability manipulation check ( $F(2, 190) = 4.57, p = .012$ , partial  $\eta^2 = .05$ ), with higher agreement among predominantly non-meat feeders compared to meat-feeding owners ( $p = .016$ ), as indicated by Tukey post hoc comparisons. The third ANOVA, examining the cruelty-free statement, indicated significant differences ( $F(2, 190) = 8.27, p < .001$ , partial  $\eta^2 = .08$ ), after which a Games-Howell post hoc test revealed non-meat purchasing owners agreed more than both predominantly meat-feeding owners ( $p = .002$ ) and those unsure ( $p < .001$ ).

Taken together, these analyses indicate that vegan identity, personal diet and the current role of meat dog's diet are significantly related (albeit to varying degrees) with all the manipulation checks. As such, these act not only as confounding factors in the measurement of the current manipulation effectiveness, but also sketch an increasingly complex picture of framing.

Table 4.4. Differences among participants purchasing varying degrees of meat for their dog(s), in agreement with the manipulation check statements ( $N = 193$ )

		Meat contents of kibble predominantly purchased		
Agreement		Meat-based	Non-meat-based	Unsure
Health statement	<i>M</i>	4.13 <sup>a</sup>	4.81 <sup>a</sup>	4.31
	<i>SD</i>	1.63	1.46	1.58
Sustainability statement	<i>M</i>	4.49 <sup>b</sup>	5.19 <sup>b</sup>	4.25
	<i>SD</i>	1.57	1.42	1.92
Ethicality statement	<i>M</i>	5.09 <sup>c</sup>	5.93 <sup>c, d</sup>	4.31 <sup>d</sup>
	<i>SD</i>	1.74	1.41	1.25

Note: Matching superscripts indicate a significant difference among means,  $p < .050$ .

#### 4.5.2 Understanding personal perception

As results indicated the importance of individual differences in participants' perceptiveness to a package's message, it was deemed necessary to examine whether subsequent personal perceptions of the product as scoring on the respective attributes (healthiness, sustainability, ethicality) were similarly affected by such matters. Here, it concerns specifically to what extent participants personally attributed such characteristics to the product, rather than what they considered was indicated on the packaging (as compared to section 4.5.1).

First, however, three ANOVAs were conducted to examine the differences among conditions in relation to the various personal perceptions, thus investigating the relationship between the experimental manipulation and personal perception. No significant differences were found for the healthiness perception,  $F(4, 188) = .18, p = .947$ , partial  $\eta^2 = .00$ ). Concerning participants' perception of the product's sustainable nature, significant differences were found ( $F(4, 188) = 2.63, p = .036$ , partial  $\eta^2 = .05$ ), although the Tukey post hoc test did not indicate any specific groups to be significantly different from each other. Concerning the ethicality perception, significant differences were found ( $F(4, 188) = 2.73, p = .031$ , partial  $\eta^2 = .06$ ). Games-Howell post hoc test indicated that, specifically, the participants in the combination condition rated the product as more ethical ( $M = 6.00, SD = 1.27$ ) compared to those in the health condition ( $M = 5.05, SD = 1.54$ ),  $p = .025$ . A detailed overview of participants' mean agreement with the manipulation checks and personal perceptions across conditions is provided in Appendix D for reference purposes.

Next, regressions examined the relationship between the manipulation checks (i.e., the message conveyed by the packaging, as judged by participants) and personal perceptions (i.e., to what extent participants considered these attributes to belong to the product), in three separate

multiple regressions. The first concerned the health-based manipulation check as the independent variable and personal healthiness perception as outcome variable, yielding a significant model ( $F(1, 191) = 50.12, R^2 = .21, p < .001$ ), with the manipulation check as a significant moderate predictor ( $\beta = .46, p < .001$ ). The second linear regression involved the sustainability manipulation check (independent variable) and perception (outcome variable), similarly reaching significance ( $F(1, 191) = 192.10, R^2 = .50, p < .001$ ), with the manipulation check as a significant and strong predictor ( $\beta = .71, p < .001$ ). The final linear regression concerned the ethicality manipulation check and personal perception variable as independent and dependent variables, respectively. This model, too, was significant ( $F(1, 191) = 219.31, R^2 = .53, p < .001$ ), with the ethicality-based manipulation check as a strong and significant predictor ( $\beta = .73, p < .001$ ).

This indicated that the experimental manipulations and perceived product information (i.e., based on manipulation checks) can partially predict product perception, while not completely explaining variance in the items. Turning the simple linear regressions above into hierarchical regressions by adding vegan identity significantly improved the predictive value of the models for two out of three perception variables: the product's healthiness ( $F = 22.92, \Delta R^2 = .09, p < .001$ ) and cruelty free nature ( $F = 10.15, \Delta R^2 = .02, p < .001$ ), with vegan identity as a moderate ( $\beta = .29, p < .001$ ) and weak ( $\beta = .17, p = .002$ ) positive predictor in both second models, respectively. Concerning the sustainability perception, adding vegan identity did not improve the model's predictive ability ( $F = 2.08, \Delta R^2 = .01, p = .151$ ). This indicates that the more individuals identify with vegan consumption principles, the more they judge the product as healthy and ethical, regardless of what they perceive the product to claim.

One-way ANOVAs furthermore indicated that all personal perceptions differed significantly among various groups of personal diets. For the healthiness perception, ( $F(2, 190) = 9.20, p < .001$ , partial  $\eta^2 = .09$ ), Tukey post hoc comparisons revealed that those eating all animal products perceived the product as significantly less healthy than those eating none,  $p < .001$ . Concerning the product's sustainable nature, significant differences were similarly found ( $F(2, 190) = 6.92, p = .001$ , partial  $\eta^2 = .07$ ); Tukey post hoc comparisons revealed that those eating all animal products perceived it as significantly less sustainable than those eating some ( $p = .002$ ) or none ( $p = .025$ ). Finally, the perception of the cruelty-free nature similarly showed significant differences ( $F(2, 190) = 23.57, p < .001$ , partial  $\eta^2 = .20$ ), with a Games-Howell post hoc test indicating significant differences among all groups (all  $ps \leq .020$ ). An overview of the mean perceptions across groups can be found in Table 4.5. As similarly described in section 4.5.1, one-way ANOVAs were conducted to test for differences among vegan motivations, although these again yielded no significant results (all  $ps \geq .451$ ), thus not affecting personal perceptions.



Table 4.5. Differences among participants consuming varying degrees of animal products in personal perceptions of the various product attributes (N = 193)

Personal perception		Degree of animal products in personal diet		
		All	Some	None
Healthy	<i>M</i>	3.23 <sup>a</sup>	3.91	4.46 <sup>a</sup>
	<i>SD</i>	1.58	1.87	1.60
Sustainable	<i>M</i>	4.48 <sup>b, c</sup>	5.30 <sup>b</sup>	5.12 <sup>c</sup>
	<i>SD</i>	1.43	1.19	1.44
Cruelty-free	<i>M</i>	4.76 <sup>d</sup>	5.74 <sup>d</sup>	6.23 <sup>d</sup>
	<i>SD</i>	1.61	1.05	.78

Note: Matching superscripts indicate a significant difference among means,  $p < .050$ .

Finally, ANOVAs were conducted to test whether personal perceptions differed significantly among groups with various current dog feeding practices. A process similar to that described in section 4.5.1 yielded significant results for two out of three personal perception variables: healthiness ( $F(2, 190) = 24.07, p < .001, \text{partial } \eta^2 = .20$ ), where those purchasing predominantly non-meat kibble considered the product as significantly healthier than those usually purchasing meat ( $p < .001$ ) or unsure ( $p = .038$ ); and the cruelty-free nature ( $F(2, 190) = 6.27, p = .002, \text{partial } \eta^2 = .06$ ), with those purchasing non-meat kibble perceiving the product as significantly more cruelty-free than those predominantly purchasing meat ( $p = .021$ ) or unsure ( $p = .010$ ). Both group comparisons were based on a Games-Howell post hoc test, as equal variances could not be assumed. No significant differences were found in sustainability perception ( $F(2, 190) = 2.52, p = .084, \text{partial } \eta^2 = .03$ ). Table 4.6 displays a complete overview of the differences in means.

The combination of these results reveals that participants' various personal perceptions of the product, although partially related to the respective experimental conditions and manipulation checks, are similarly predicted by individual differences in vegan identity, personal diet and predominant diet fed to dogs. Additionally, it indicates the involvement of more variables within the framing and purchasing context than previously considered, while raising questions about the possible effects of personal perception within the conceptual model.

Table 4.6. *Differences among participants purchasing varying degrees of meat for their dog(s), in persons perception of the various product attributes (N = 193)*

		Meat contents of kibble predominantly purchased		
Personal perception		Meat-based	Non-meat-based	Unsure
Healthy	<i>M</i>	3.18 <sup>a</sup>	4.91 <sup>a, b</sup>	3.94 <sup>b</sup>
	<i>SD</i>	1.65	1.43	1.29
Sustainable	<i>M</i>	4.78	5.21	4.50
	<i>SD</i>	1.41	1.40	1.37
Cruelty-free	<i>M</i>	5.32	5.89	4.63
	<i>SD</i>	1.44 <sup>c</sup>	1.26 <sup>c, d</sup>	1.41 <sup>d</sup>

Note: Matching superscripts indicate a significant difference among means,  $p < .050$ .

### 4.5.3 The roles of personal perceptions in the conceptual model

Based on the findings in sections 4.5.1 and 4.5.2, final additional analyses were conducted to examine the role of personal perceptions in the conceptual model, specifically related to purchase intention and product attitude, to find a (partial) explanation for the absence of framing effects on these outcome variables.

First, similar to H1, it was tested whether any of the three personal perception variables could significantly predict purchase intention, using a multiple linear regression. Purchase intention was entered as the dependent variable, with the three perception variables and brand loyalty entered as input variables. The model was significant,  $F(4, 188) = 70.84, R^2 = .60, p < .001$ . Specifically, healthiness ( $\beta = .70, p < .001$ ) and ethicality ( $\beta = .12, p = .032$ ) perceptions showed to be positive predictors of purchase intention, while controlling for brand loyalty ( $\beta = -.13, p = .006$ ). A similar linear regression was conducted concerning product attitude as the outcome variable. This model, too, reached significance ( $F(3, 189) = 162.64, R^2 = .72, p < .001$ ), with all perception variables as significant predictors: healthiness ( $\beta = .70, p < .001$ ), sustainability ( $\beta = .21, p < .001$ ) and ethicality ( $\beta = .12, p = .015$ ). Both regression models confirm a direct positive effect of personal perception of healthiness and cruelty-free nature on purchase intention, as well as of all three personal perceptions on product attitude.

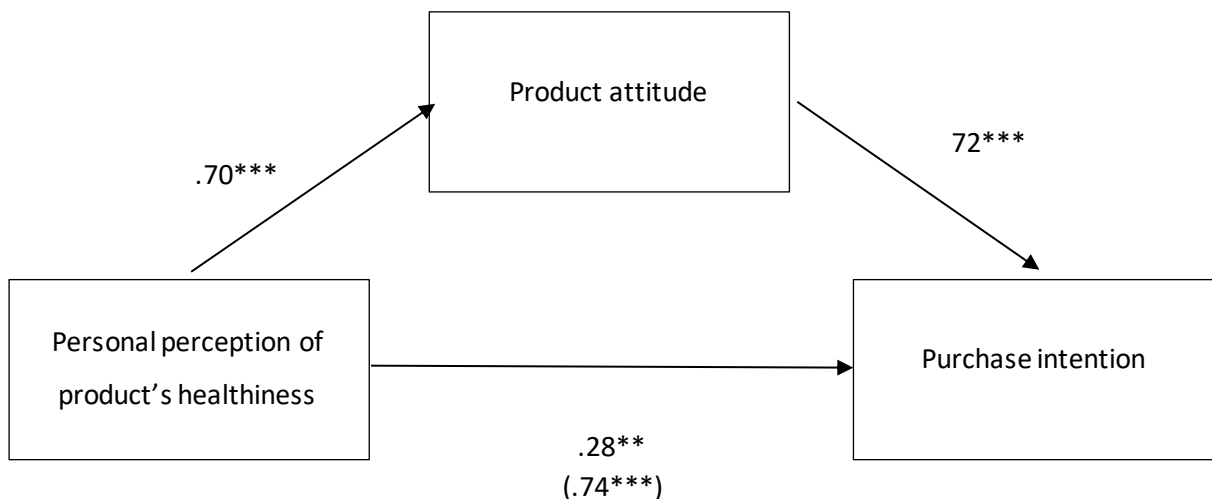
Second, the PROCESS Macro (Hayes, 2013) was employed to test for a mediation or indirect effect of product attitude on the various relationships between personal perception and purchase intention, while controlling for brand loyalty, in an approach similar to the testing of H2 (yet treating the input variable as continuous). In the first mediation analysis, significant direct effects of perceived healthiness on product attitude ( $b = .70, p < .001$ ) and purchase intention ( $b = .28, p =$

.001), as well as of product attitude on purchase intention ( $b = .72, p < .001$ ) were found. Furthermore, the indirect effect was significant,  $p < .001, 95\%CI [.39; .64]$ . With a total effect of .79 and an indirect effect of .51, product attitude as a mediator accounts for 64.3% of the effect of perceived healthiness on purchase intention.

In the second, sustainability-oriented mediation, direct effects of perceived sustainability on product attitude ( $b = .56, p < .001$ ) and of product attitude on purchase intention were found ( $b = 1.03, p < .001$ ). No significant direct effect of perceived sustainability on purchase intention was found (as similarly described above) in the presence of the mediator and covariate, although the interaction effect was significant,  $p < .001, 95\%CI [.41; .75]$ . This indicates an indirect effect of perceived sustainability on purchase intention through product attitude.

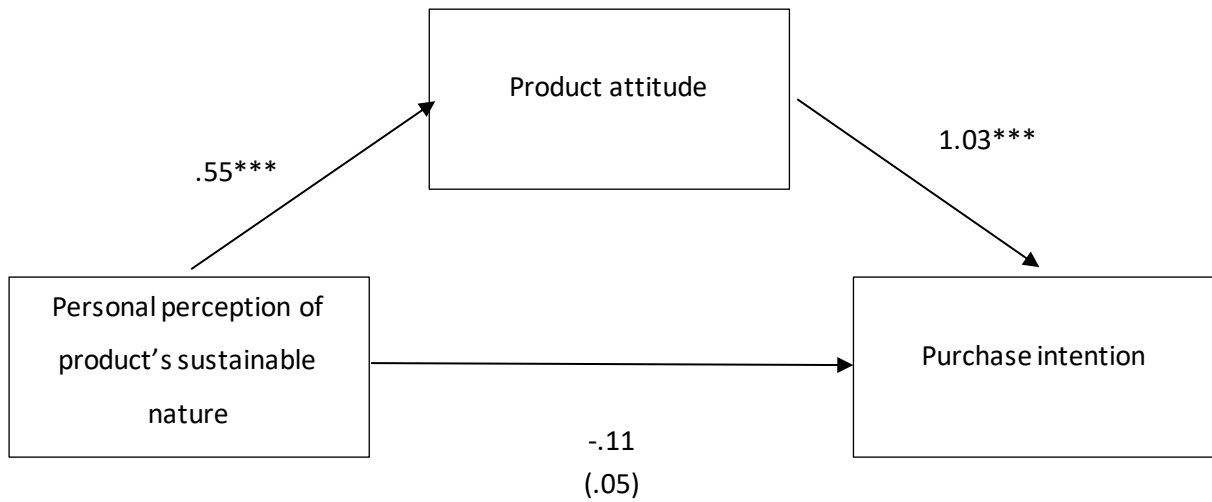
The third and final mediation analysis was run for perceived ethicality. A significant direct effect of perception of cruelty-free nature on product attitude was found ( $b = .44, p < .001$ ), as well of product attitude on purchase intention ( $b = .99, p < .001$ ). No direct effect of cruelty-freeness on purchase intention was found in the presence of the mediator (in contrast to previous findings), although a significant mediation effect was present,  $p < .001, 95\%CI [.29; .57]$ . With a total effect of .42 and an indirect effect of .43, the mediation accounts for the full effect of perceived ethicality on purchase intention. As presented in Figures 4.1, 4.2 and 4.3, these results show that in all cases, product attitude either mediates the effect of personal perception on purchase intention (concerning healthiness and ethicality) or facilitates an indirect effect where no direct effect was previously found (concerning sustainability).

Figure 4.1. Mediation model of the relationship between personal perception of product's healthy nature and purchase intention, with product attitude as a mediator ( $N = 193$ )



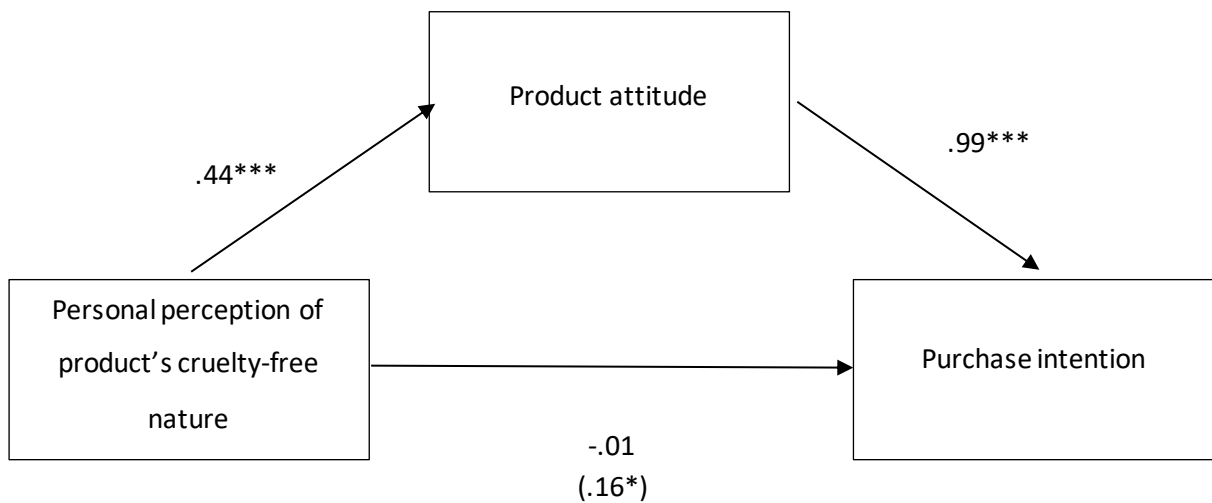
Note: \*  $p < .050$ , \*\*  $p < .010$ , \*\*\*  $p < .001$ . Displayed coefficients are unstandardized. The coefficient in parenthesis excludes mediating effects on the relationship.

Figure 4.2. Mediation model of the indirect effect of personal perception of product's sustainable nature on purchase intention, as facilitated by product attitude (N = 193)



Note: \*  $p < .050$ , \*\*  $p < .010$ , \*\*\*  $p < .001$ . Displayed coefficients are unstandardized. The coefficient in parenthesis excludes mediating effects on the relationship.

Figure 4.3. Mediation model of the relationship between personal perception of product's cruelty-free nature and purchase intention, with product attitude as a mediator (N = 193)



Note: \*  $p < .050$ , \*\*  $p < .010$ , \*\*\*  $p < .001$ . Displayed coefficients are unstandardized. The coefficient in parenthesis excludes mediating effects on the relationship.

## 5 Discussion

Individuals across western cultures increasingly opt for a (partially) vegan diet, rooted mainly in environmental concerns linked to animal agriculture, a belief in animal rights, and possibilities for improving one's personal health (Braunsberger & Flamm, 2019; Cramer et al., 2017; Kortetmäki & Oksanen, 2020). The trend stretches beyond human food to that given to animal companions, with vegan pet food brands and products on the rise (e.g., PETA, n.d.; Webber, n.d.). The development has gained academic attention, particularly due to the pet food industry's sizable carbon footprint (Okin & Crowther, 2017). Still, wide-scale adoption is yet to materialise, as consumers and scholars alike voice concerns over nutritional adequacy (Dodd et al., 2019). Recent research indicates that vegan pet food can meet nutritional standards, particularly for dogs, yet does not seem sufficient to change wider positive perception or adoption among consumers (Loeb, 2020; Knight & Light, 2021; Reilly et al., 2018). As such, this research aimed to discover to what extent marketing practices can positively affect purchase intent of vegan kibble among Dutch dog owners, specifically focussing on framing effects. Following Tversky and Kahneman's (1981) message framing theory, several attribute-specific product claims were used to create different strategic frames (Ampuero & Vila, 2006; Belboula et al., 2018; Decrop, 2010), with hypothesized expectations built upon a foundation of cognitive dissonance theory, vegan identity and dogs as extensions of the self (e.g., Belk, 1988; Beverland, 2014; Festinger, 1957). By addressing matters of consumer behaviour and perception, it set out to start bridging the current gap in literature and create a more exhaustive conceptual model from which to understand the vegan dog food purchasing environment.

### 5.1 Main findings

No effects of framing on purchase intention were found, neither directly nor indirectly through product attitude. Moreover, cognitive dissonance was not found to moderate the effects of framing. As such, based on this study it cannot be concluded that framing has any effect on consumers' purchase intention of vegan dog food, as was conceptualized in the theoretical model. Although empirical evidence was found for the interrelation between nearly all conceptual aspects (to some degree, with the exception of self-extension tendency), the experimental manipulations did not directly affect these.

Possibly, the absence of framing effects is (partially) due to limitations within the current study and experimental design (as discussed in section 5.7). However, the additional analyses described in the previous chapter point to interesting directions for better understanding the lack of effects found. Specifically, these relate to participants' processing of product claims and how, in

turn, such perceived packaging information influences their personal perceptions of the product, in relation to its healthy, cruelty-free and sustainable nature. These findings are further discussed in sections 5.2, 5.3 and 5.4.

Yet, despite not being able to explain an effect of framing on consumer behaviour, findings do confirm the importance of cognitive dissonance in the current purchasing context. Cognitive dissonance was positively correlated with both product attitude and purchase intention, revealing that the more cognitive dissonance individuals experience in purchasing meat for their dog, the more likely they are to positively regard and purchase vegan dog food products. This is in line with Rothgerber (2013a), who states that such cognitive dissonance in meat-abstaining pet owners motivates them to purchase meat alternatives for their pets, too. Moreover, the results reveal that the degree to which one identifies with vegan consumption principles is an important predictor of such cognitive dissonance. The more individuals identify as consumers of vegan food for themselves, the more likely they are to experience cognitive dissonance in the purchasing of meat-based dog food. This confirms not only Rothgerber's (2013a) explanation of the vegetarian's dilemma, but is also in line with demographic information of those currently opting for non-meat-based dog food (Dodd et al., 2019).

However, the current study goes beyond such initial research, as findings indicate that the degree to which one sees their dog as an extension of the self moderates the effect of vegan identity on cognitive dissonance. The more one considers their dog to be a part of their extended self, the more relevant matters of personal diet and meat-related cognitive dissonance become in the dog food purchasing context. Degrees of vegan identity and self-extension, however, are not correlated, indicating that vegans or vegetarians (even those acting from animal welfare principles) are not necessarily more inclined to regard their pet as an extension of the self. Rather, overall self-extension tendency was high, indicating not only the importance of the concept in dog ownership, but also underscoring its relevance in the current consumer context. In the absence of a correlation between self-extension tendency and other output variables, the concept specifically helps to explain individual differences among vegan and vegetarian consumers in their willingness to opt for a vegan product for their dog.

## **5.2 Effects of individual differences on claim processing**

The aim of the current study was to use product claims to create specific frames of reference in which products would be considered, evaluated and purchased. However, data revealed that what individuals perceive to be claimed on a product, is not solely dependent on the claims themselves. Rather, people's personal diet, their degree of vegan identity and the current food given to their dog(s) play an important role in the current context.

First, the degree to which individuals themselves consume animal products affects the extent to which they perceive claims related to the vegan kibble's cruelty-free and sustainable nature to be present. Across framing conditions, vegans and (partial) vegetarians judge the packaging more so as conveying sustainability-oriented claims than do omnivores; concerning ethicality, vegans are most likely to indicate that a packaging states the product's cruelty-free nature, with (partial) vegetarians less so and omnivores the least. Second, and related, the more a person identifies with vegan consumption patterns, the more they are inclined to judge the packaging as conveying statements promoting the sustainable and ethical nature of the vegan dog food product, regardless of the factual framing. Third, data reveal that the current role played by meat in dogs' diets affects the extent to which owners perceive the packaging to claim not only attributes of sustainability and cruelty-freeness, but also healthiness. Specifically, those who already feed their dog a predominantly non-meat diet process packaging more so as promoting a healthy, sustainably or cruelty-free nature than those choosing meat-based kibble.

The fact that these findings hold true across conditions, not only indicates that the way in which participants perceive the various product claims to be present is affected by individual characteristics, rather than being solely dependent (or influenceable by) strategic framing, but also implies that the mere vegan nature of the kibble could cause various types of consumers to draw upon varying cognitive structures that directly, yet subconsciously, influence information processing. Based on the current study and the narrow body of prior research, it is hard to establish or explain such conclusions with certainty, although careful speculations can be made drawing upon additional marketing theories. As consumers who already consciously opt for alternatives to animal-based products often do so for one or more of the three main motivations central to this study, they may be more aware than omnivores of the societal topics related to the consumption choices, which could make them more inclined to perceive the vegan kibble product as promoting such matters, regardless of what the packaging factually claims. This somewhat likens the well-established role of priming theory in marketing, according to which pre-exposure to contextual factors can affect product information processing (Shen & Chen, 2007; Yi, 1990). Similarly, it could be possible that vegan or (partially) vegetarian consumers draw indirect inferences related to their motivations, based on other displayed product attributes such as its green colour or (fictional) vegan certification. Indeed, the important role of visual product aspects was previously addressed in Chapter 2 (Belboula et al., 2018; Piqueras-Fizman & Spence, 2012; Wang, 2013). Taken together, these preliminary findings indicate that the current purchasing environment is more complex than was initially thought when creating the framing-based theoretical model and experimental design.

### 5.3 Effects of individual differences on personal perception

Additionally, results indicate that the manner in which these perceived product claims affect personal perception of the product as scoring on those attributes, is similarly not as unambiguous as expected. Although framing itself was found to have only limited effect, the claims displayed on the packaging (as perceived by participants) do have a moderate to strong positive effect on all three personal perceptions measured (healthiness, sustainability and ethicality). This indicates that the more participants perceive one of the three attribute-specific claims to be present on the packaging, the more they personally assign that attribute to the product. However, this does not necessarily mean that the frames in the current study were successful. Although possible, it could similarly be true that participants are inclined to judge perceived package claims and their personal perceptions in a similar manner, for instance based on preconceived notions that stem from personal beliefs and habits.

Indeed, results show that the various personal perceptions are also influenced by the degree of vegan identity, which positively affects an individual's personal perception of the vegan dog food product as healthy and cruelty-free, while not influencing the sustainability perception. For the latter, however, the overall predictive value of the regression model is not substantially smaller. Sustainability-related product claims as visible to participants have a stronger influence on their personal perception compared to the other two, which are more affected by an individual's identity as a vegan consumer. For these, it can be concluded that the more an individual identifies with vegan consumption principles, the more they are inclined to judge the vegan dog food product as healthy and cruelty-free.

Similar results are found in the current diet predominantly fed to dogs, where differences exist in all but the sustainability perception. Owners already giving their dogs a predominantly non-meat-based diet perceive the product as healthier and more cruelty-free than those feeding meat or unsure. Based on the current data, one can only speculate on the reasons why. It is possible that those already buying (mostly) non-meat kibble have researched the topic and made their decision accordingly. However, owners of vegetarian or vegan dogs could also justify their current purchases of non-meat kibble by (subconsciously) making such features more attractive or positive, which in itself is a possible form of cognitive dissonance reduction through attitude adjustment (Harmon-Jones & Mills, 2019; Worchel & McCormick, 1963).

Finally, all three personal perceptions are affected by the degree to which individuals consume animal products in their personal diet. Vegans, on average, perceive the product as more healthy, sustainable and cruelty-free than omnivores, possibly due to them extending their personally perceived benefits onto the vegan dog kibble. Overall, it confirms previous research into differing attitudes toward vegan dog food (Dodd et al., 2019), while adding that nutritional



concerns seem to be smaller among vegans than omnivores. The data also reveal that (partial) vegetarians regard the product as more sustainable and ethical, compared to omnivores, while the group does not differ significantly with vegans' perceptions. This indicates that the degree to which individuals rate the vegan dog food product as matching such attributes is predominantly affected by the absence or presence of daily decisions to abstain from animal products in their personal diet, rather than the specific extent to which they do so. Taken together, it becomes clear that personal perceptions are not just dependent on perceived package claims, just as these are more ambiguous than merely the design of the product packages.

#### **5.4 The effects of personal perceptions on purchase intention**

The data reveal the role of personal perceptions in the original conceptual model. Personal perceptions of the healthy and cruelty-free nature of the product both positively affect purchase intention. The prior, specifically, is a strong predictor, confirming the importance of nutritional consideration in the purchasing of dog food (Dodd et al., 2019; Loeb, 2020; Zafalon et al., 2020). Albeit less strong, ethicality is similarly important, which means that consumers value the cruelty-free nature of vegan dog food in their purchasing decisions, in line with Rothgerber's (2013a) vegetarian dilemma. Moreover, both factors are more important than brand loyalty, which contradicts the well-established role of this concept in the dog food purchasing context (Schleicher et al., 2019). Arguably, those looking for alternatives to conventional dog food are willing to take a risk when it comes to opting for a new brand.

Additionally, all tested attributes positively affect the attitude towards the vegan dog food. Again, healthiness is the strongest predictor of consumer attitude. Perhaps the most insightful finding, however, lies in the found effect of sustainability, in contrast to the absence of this personal perception's effect on purchase intention. It indicates that while the perceived sustainable nature of a product helps to create a positive attitude among consumers, it does not directly contribute to their purchasing of it.

Still, data from the mediation analyses reveal that sustainability perception can indirectly affect purchase intention through product attitude. Along with the strong correlation found, it confirms the important relationship between product attitude and purchase intention (Lim et al., 2017; MacKenzie et al., 1986). Similarly, results show that the direct effect of perceived ethicality disappears in the addition of product attitude as a mediator. This indicates that cruelty-freeness and sustainability are not (yet) product features that consumers consciously draw upon to decide whether or not to purchase it, although their effect on product attitude is strong enough to indirectly (and perhaps, subconsciously) influence purchase intention among consumers. In contrast, while the effect of healthiness perception is partially mediated by product attitude, a

direct effect remains, once again confirming the importance of perceived nutritional adequacy of (vegan) dog kibble on purchase intention (Dodd et al., 2019; Loeb, 2020; Zafalon et al., 2020).

Taken together, these preliminary findings on personal perceptions suggest that they (partially) assume the role originally expected to belong to framing within the current model and research experiment. While message framing theory is often found to have a more direct effect on purchase intention and product attitude, even in the moderating presence of various individual characteristics (e.g., Jäger & Weber, 2020; Lee et al., 2018), the current purchasing context proved to be complex, possibly due to the novel nature of the product. The ambiguous relationships between conditions, perceived product claims, personal perceptions, product attitude and purchase intention show the importance of individual values and lifestyles. While data are not sufficient to fully reveal the complex process that starts with participants seeing the product and ultimately ends with their reported attitude and purchase intent, the study can to some extent explain the absence of framing effects found and offer a somewhat more comprehensive understanding of the vegan dog food purchasing environment.

## **5.5 Theoretical implications**

In sum, the main theoretical implications of this study are twofold. First and foremost, its contribution to academic research lies in the lack of results found. Message framing theory, although well-established and long valued in product positioning (Ampuero & Vila, 2006; Tversky & Kahneman, 1981), may form an overly simple basis for marketing strategies in the current context. While consumer research on product claims is often rather straightforward, e.g., how vegan or health-based claims can influence purchase intent (e.g. Fuentes & Fuentes, 2017; Lähteenmäki et al., 2010), the current study has proven that both consumer processing of such product claims and subsequent personal perception of those products, are ambiguous at best. Individuals' personal diet, the degree to which they identify as vegan consumers and the diet they currently feed to their dogs influence how they perceive claims and form perceptions and, ultimately, affect their willingness to buy vegan kibble. With this, the research has fulfilled its aim to gain an understanding of the role of individual differences among consumers, albeit in a different way than previously expected.

Second, the study contributes to a more complete understanding of the vegan dog food purchasing environment with an extended conceptual model. Despite the absence of framing effects, theoretical contributions have been made to the understanding of cognitive dissonance in the context of vegan dog food. First, Rothgerber's (2013a) vegetarian dilemma is confirmed, in the notion that the degree of cognitive dissonance experienced is related to one's identity as a vegan food consumer. Additionally, the importance of dogs as the extended self in the effect of vegan

identity on cognitive dissonance in the current context has been proven, which helps explain differences in adoption among vegans and vegetarians.

Finally, it is worth noting that, although academic calls for increased adoption of vegan dog food often come from a sustainability perspective (Dodd et al., 2019; Dowling, 2020; Weiss, 2019), sustainability was found to not directly affect purchase intention in the current case. Although the attribute has a strong enough positive effect on product attitude to indirectly increase adoption among consumers, they do not directly draw upon sustainability cues in their reported purchasing intent as they do upon ethicality and, specifically, healthiness cues. As acknowledged by Dodd et al. (2019), a realization of such market functioning is important, for grasping consumers' ethical and health-based motivations may be equally or more fruitful in understanding and influencing consumer adoption.

## **5.6 Practical implications**

This study aimed to provide insights for marketing professionals, specifically those tasked with strategically positioning vegan dog food. Indeed, the findings have several practical implications relevant to such practitioners. First and foremost, the study has created an understanding of the way in which product claims are considered and processed in the context of vegan dog food. If strategic product positioning is employed through the use of product claims, marketers can understand the role of individual differences in developing packaging and assessing strategy effectiveness. Additionally, this study has provided an initial indication of how the various motivations for veganism interplay in the context of pet food. While seeming relevant to the current context, vegan motivations of the pet owners and direct consumers of vegan pet food do not directly translate into the kibble purchasing environment, with perceptions of sustainability specifically not directly increasing purchase intent as they do in human food (Fuentes & Fuentes, 2017).

Furthermore, understanding the limited role of brand loyalty within the vegan dog food purchasing environment is of value to marketers, as it contradicts consensus in the field (Schleicher et al., 2019). This understanding can provide strategic opportunities for new brands, while helping established ones understand a possible weakness in relying fully on their established brand name, as well as new brands forming threats to their position (Quezada et al., 2019).

Finally, it is valuable for marketers to grasp the crucial role perceived healthiness plays in the decision-making process. Even as humans increasingly feed dogs meat of a quality that was previously limited to humans (Okin & Crowther, 2017), trust in nutritional adequacy does not seamlessly transfer from human to animal companion. Meanwhile, it is one of the most important predictors of both consumers' attitude toward it and their willingness to purchase. Similarly,

practitioners should take into account that healthiness perception is not just dependent on what is factually stated. As such, they may find opportunities in creating and adjusting healthiness-focused marketing campaigns, e.g., through focus groups and A/B testing, while acknowledging that finding the right health-narrative may take time in this novel field (Kohavi & Longbotham, 2016).

## **5.7 Limitations and directions for future research**

Several limitations to the current study need to be acknowledged. First and foremost are those related to the creation of the visual experimental manipulations. While the current research focused on product claims, additional packaging design choices were made to create the visual stimuli (e.g., relating to shape and colour). With product packaging being a vital aspect of product positioning and marketing, such choices possibly had an impact on the experimental manipulation and results (Belboula et al., 2018; Piqueras-Fiszman & Spence, 2012; Wang, 2013). For instance, the green colour, chosen to convey the vegan nature of the brand, may have (subconsciously) signalled additional meanings about the product to the participants. Possibly, this was the case more so for certain attributes (e.g., sustainability, often linked to the colour green) than others (Demarque et al., 2015). Future research could replicate the study with different packaging designs and make use of different product claims to create the frames. Even though the current claims were carefully crafted based on research and pilot-tested, it is possible that they contribute to the absence of significant effects.

Second, misunderstanding was detected concerning the cognitive dissonance questions. Despite pilot-testing and improving, some participants already feeding their dogs a (predominantly) non-meat diet reported not fully understanding how to interpret them. Despite detecting this possible measurement error and correcting for it in the analyses, it resulted in a smaller sample in some statistical tests, thus reducing analytical confidence (Babbie, 2014). Future research could rephrase or skip such questions when irrelevant.

Third, it is important to note that the additional analyses involving the manipulation checks and personal perceptions require cautious interpretation. With measurements based on single items rather than reliable scales, their value for the current research lies in their ability to (partially) explain a lack of framing effects found, rather than making inferences about values in larger populations (Babbie, 2014). Still, it opens interesting avenues for future research in understanding consumer perception in the novel field, in which more extensive measurements would improve the validity and reliability of such findings (Neuman, 2014). Possibly, a mixed-methods approach would yield interesting insights, for instance by including focus groups or interviews. Additionally, a mixed-method or qualitative approach could yield valuable insights due to their ability to create an in-depth understanding of a new phenomenon (Brennen, 2013). In the current research, a substantial

part of participants left additional comments, which indicate that they are not only eager to share, but that a purely quantitative approach may not fully cover their experiences regarding the current topic. Although unfortunately beyond the scope of the current research (apart from taking into account sample corrections in the analysis), future studies could benefit from various approaches.

A final limitation lies in the sample and sampling methods employed. Due to matters of feasibility, convenience and snowball sampling was employed, while aiming to collect as diverse a sample as possible by using a variety of different sampling seeds (Kirchherr & Charles, 2018). Still, gender within the sample skewed female, to a degree not representative of the larger population (CBS, n.d.; Dibevo, 2016). As such, the generalizability of the results is limited (Babbie, 2014). Additionally, no other demographic data was collected, e.g., educational level, geographical location within the Netherlands or income. Despite a deliberate focus on other aspects more important for the research (e.g., personal and dog diet), while avoiding respondent fatigue (Ben-Nun, 2008), it is possible that the sample was skewed in terms of such factors or that their inclusion would provide additional insights into explaining the (lack of) effects found. Future studies could employ random sampling techniques for a more generalizable sample or opt for purposive sampling to examine differences in unresearched demographics.

Beyond the limitations of the current study, several other recommendations for future research are made. First, research can further examine the role of personal perception in the vegan dog food consumption context, taking the originally conceptualized model as a starting point. For instance, the (moderating) role of cognitive dissonance in various personal perceptions can be examined, an interesting matter beyond the scope of the current research. Moreover, additional individual differences (e.g., demographics, values or lifestyles) can be investigated more elaborately in relation to claim processing and perception formation. Although mostly an unexpected insight of the current study, the confirmed impact of such matters opens new and interesting avenues for research in the niche.

Relatedly, additional academic focus can be placed on the various motivations for vegan consumption patterns in the current context. Although beyond the scope of this research, apart from providing a foundation for the framing strategies, research points to the importance of differentiation in this regard (e.g., Dodd et al., 2019; Fuentes & Fuentes, 2017; Rothgerber, 2013a). Possibly, they may not only directly affect purchase intention and product attitude, but also play a moderating role in the effects of cognitive dissonance experienced or the effectiveness of specific product claims and strategic framing. While focussing on the three main motivations (ethicality, sustainability and health) may be most fruitful at first, research could ultimately include less-quoted motivations for veganism, too (Janssen et al., 2016).

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## Appendices

### Appendix A – Experimental manipulations



*Condition 1: Ethicality frame. From Dutch, the subtitle translates to “Ethical free kibble” and the bottom tagline to “With love for all animals”*



*Condition 2: Sustainability frame. From Dutch, the subtitle translates to “Sustainable kibble” and the bottom tagline to “Better for the planet”*



*Condition 3: Health frame. From Dutch, the subtitle translates to “Healthy kibble” and the bottom tagline to “For strong bones and muscles. Supports immunity”*



*Condition 4: Combination frame. From Dutch, the subtitle translates to “Healthy, cruelty-free and sustainable kibble” and the bottom tagline to “With care for your dog, other animals and the planet”*



*Condition 5 (control): No frame.*

## Appendix B – Online survey (English version)

Dear participant,

Thank you for participating in this study. This survey consists of multiple-choice questions, with the aim to gain insight in your opinion on a new kind of dog kibble.

We highly appreciate that you take the time to share your opinion with us. Filling out the survey takes around 5 - 7 minutes. Your participation in this research is completely anonymous and confidential, and can be stopped at any time. All data are stored in a safe and coded way and solely used for research purposes. The purpose of this research is academic, with no commercial motives.

With your participation in this study, you have a chance to win one of two €25, - vouchers for a dog-related web shop of choice. To enter the giveaway, please leave your email address in the allotted comment box at the end of the survey.

For questions or comments regarding the study, you can contact Anne Smeets at 435275as@student.eur.nl.

Please click the arrow to agree and start the survey.

**We would like to start with a few short questions.**

**1. Do you currently live in the Netherlands?**

- Yes
- No *If selected, directed to the end of the survey*

**2. Are you currently a dog owner (by yourself or with someone else)**

- Yes
- No *If selected, directed to the end of the survey*

**3. How often do you purchase dog food in a (online) store**

- Once a month or less
- 2-3 times a month
- Once a week
- Multiple times a week
- Every day (one or multiple times)

**4. To what extent do you agree or disagree with the following statements?**

I have a special bond with my dog

- Strongly disagree
- Disagree
- Somewhat disagree



- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

My dog feels as a part of myself

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

I often feel a personal connection between my dog and myself

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

My relationship with my dog is an important part of who I am

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

**The following questions regard your personal diet or dietary pattern**

**5. What role to animal products play in your diet? I am an...**

- Omnivore (I eat all animal products)
- Flexitarian (I sometimes eat animal products)
- Pescatarian (I don't eat meat, but I do eat fish and also dairy and/or eggs)
- Vegetarian (I don't eat meat or fish, but I do eat dairy and/or eggs)
- Vegan (I don't eat any animal products)
- Other, namely \_\_\_\_\_

*If selecting any option other than 'omnivore' in question 5*

**6. What is your most important reason for (partially) avoiding animal products in your diet?**

- My health

- o Animal welfare
- o The environment
- o Other, namely \_\_\_\_\_
- o Prefer not to say

**7. To what extent do you agree or disagree with the following statements?**

Avoiding animal products is important to me

- o Strongly disagree
- o Disagree
- o Somewhat disagree
- o Neither disagree nor agree
- o Somewhat agree
- o Agree
- o Strongly agree

I consider myself to be someone who eats as few animal products as possible

- o Strongly disagree
- o Disagree
- o Somewhat disagree
- o Neither disagree nor agree
- o Somewhat agree
- o Agree
- o Strongly agree

I consistently avoid animal products in my nutrition Strongly disagree

- o Disagree
- o Somewhat disagree
- o Neither disagree nor agree
- o Somewhat agree
- o Agree
- o Strongly agree

**The following questions regard your dog's diet or dietary pattern**

**8. Does your dog have any medical dietary restrictions?**

- o Yes
- o No

**9. Does your dog follow a specific diet? *Please select all that apply***

- No
- Yes, exclusively raw meat
- Yes, vegetarian
- Yes, vegan
- Yes, gluten free
- Other, namely \_\_\_\_\_

**We would like to ask you a few short questions about the way you usually purchase dog food**

**10. Do you usually purchase dog food that contains meat?**

- Yes
- No
- Don't know

**11. To what extent do you agree or disagree with the following statements?**

I am dissatisfied with the fact that I feed meat to my dog

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

After purchasing dog food with meat-based ingredients I often feel uncomfortable

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

Feeding my dog meat makes me feel frustrated

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

I feel uncomfortable with the idea of purchasing meat for my dog

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

**12. To what extent do you agree or disagree with the following statement?**

When purchasing dog food, I often opt for the same brand

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

**Here you see a new product, Vegdog dog food. Please take a good look at the picture and read the text on the packaging. The following questions will be about this product.**

*One of five manipulations is shown*

**We would like to ask a few questions about the product you just saw, Vegdog dog food.**

**13. To what extent do you agree or disagree with the following statements? The packaging of this product indicates that Vegdog dog food is...**

... healthy

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

... sustainable

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

... cruelty-free

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

**14. To what extent do you agree or disagree with the following statements? I think that Vegdog dog food is ...**

... a healthy choice for my dog

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

... a sustainable product

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

... produced in a cruelty-free way

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

**15. To what extent do you agree or disagree with the following statements?**

I find this product attractive

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

I consider this product to be good

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree

- Somewhat agree
- Agree
- Strongly agree

I think this product is a smart choice

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

I think this product is a useful purchase

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

**16. To what extent do you agree or disagree with the following statements?**

I think I would like to purchase Vegdog dog food

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

There is a good chance I would give Vegdog dog food to my dog

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

I would intent to purchase Vegdog dog food soon

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Agree
- Strongly agree

**Almost done! We have two more short questions to ask you.**

**17. What is your gender?**

- Male
- Female
- Other, namely \_\_\_\_\_
- Prefer not to say

**18. What is your age? (In numbers)**

\_\_\_\_\_

**Do you have any questions or comments regarding this research? *Optional***

\_\_\_\_\_

**Want to participate in the giveaway of two €25,- vouchers for a dog web shop of choice\*? Please leave an email address that we can reach you on, in case you won, below. *Optional***

\_\_\_\_\_

\* Valid for web shops with dog-related products that sell digital vouchers of the indicated value. All email addresses are deleted after the winners have been selected.

## Appendix C – Scale analyses

Appendix C1. *Factor analysis for cognitive dissonance scale (N = 193)*

Item	Factor 1: Cognitive dissonance
Uncomfortable feeling after purchasing meat-based dog food	.96
Frustration about feeding dog meat	.95
Unpleasant feeling about purchasing meat for dog	.95
Dissatisfaction about feeding dog meat	.86
$R^2$	.87

Appendix C2. *Factor analysis for vegan identity scale (N = 193)*

Item	Factor 1: Vegan identity
Avoiding animal products is regarded as important	.96
Regards the self as eating as few animal products as possible	.96
Is consistent in avoiding animal products	.95
$R^2$	.91

Appendix C3. *Factor analysis for self-extension tendency scale (N = 193)*

Item	Factor 1: Self-extension tendency
Dog feels like a part of the self	.86
Personal connection experienced between dog and the self	.83
Relationship with dog is important part of the sense of self	.80
Special bond experienced with dog	.76
$R^2$	.66

Appendix C4. *Factor analysis for purchase intention scale (N = 193)*

Item	Factor 1: Purchase intention
Likely to feed their dog Vegdog dog food	.98
Would have the intention to purchase Vegdog dog food soon	.97
Think that they would be likely to purchase Vegdog dog food	.97
$R^2$	.95



Appendix C5. *Factor analysis for product attitude scale (N = 193)*

Item	Factor 1: Product attitude
Considers the product a smart choice	.95
Considers the product a useful purchase	.94
Considers the product to be good	.91
Considers the product to be attractive	.87
$R^2$	.84

Appendix C6. *Reliability analyses of main variables' scales (N = 193)*

Scale	Cronbach's $\alpha$
Cognitive dissonance	.95
Vegan identity	.95
Self-extension tendency	.80
Purchase intention	.97
Product attitude	.94

## Appendix D – Overview of participants' mean agreement across conditions

Appendix D1. Mean agreement with manipulation checks and personal perception statements of participants in the various conditions (N = 193)

Statement		Framing condition				
		Ethicality	Sustainability	Health	Combination	Control
<i>Manipulation check</i>						
Healthy	<i>M</i>	3.95	4.29	4.75	4.65	4.00
	<i>SD</i>	1.70	1.63	1.40	1.50	1.70
Sustainable	<i>M</i>	4.24 <sup>a</sup>	5.26 <sup>a</sup>	4.32	5.08	4.54
	<i>SD</i>	1.67	1.47	1.33	1.59	1.71
Cruelty-free	<i>M</i>	5.95 <sup>b, c</sup>	4.79 <sup>b</sup>	4.68 <sup>c, d</sup>	5.81 <sup>d</sup>	5.27
	<i>SD</i>	1.31	1.68	1.79	1.49	1.71
<i>Personal perception</i>						
Healthy	<i>M</i>	3.78	3.68	3.93	3.68	3.65
	<i>SD</i>	1.77	1.82	1.56	1.83	1.81
Sustainable	<i>M</i>	4.73	5.21	4.48	5.32	4.73
	<i>SD</i>	1.26	1.36	1.21	1.55	1.56
Cruelty-free	<i>M</i>	5.59	5.21	5.05 <sup>e</sup>	6.00 <sup>e</sup>	5.38
	<i>SD</i>	1.04	1.51	1.54	1.27	1.55

Note: Matching superscripts indicate a significant difference among means,  $p < .050$ .