



LUND UNIVERSITY  
School of Economics and Management

# Analysing the consumption motives of plant-based food alternatives

The underlying benefit of virtue signalling

by

Anika Albrecht & Svenja Lena Mauch

May 2021

Master's Programme in International Marketing and  
Brand Management

Supervisor: Burak Tunca  
Examiner: Javier Cenamor

# Abstract

**Thesis purpose:** The purpose of this study is to examine the underlying motivations of consumers' intentions to purchase vegan food alternatives. In doing so, the thesis specifically focuses on studying virtue signalling as an additional benefit to environmental protection, animal-welfare, and personal health that motivates consumers to choose plant-based food alternatives.

**Methodology:** The quantitative study was carried out using a web-based questionnaire to collect data from 303 consumers who currently live in Germany or Sweden. The data was analysed by using *Partial Least Squares Structural Equation Modelling* and *Confirmatory Factor Analysis*.

**Theoretical Perspective:** The thesis is based on an extended version of the *Theory of Planned Behaviour* (TPB) which provided the theoretical framework to put the study into practice: The framework combined previously identified motives with the TPB components to firstly predict consumers' attitude and subsequently their purchase intention. The integrated motives were categorized into collective environmental and animal welfare benefits as well as personal health-based and virtue signalling benefits.

**Findings/conclusions:** Perceived environmental and animal welfare benefits significantly influenced a positive attitude towards vegan food alternatives, which, together with subjective norm, was significantly related to an increased purchase intention. Additionally, virtue signalling was significantly influenced by consumers' perceived subjective norm and constituted another motivational factor for a positive attitude and thus the intention to purchase vegan food alternatives.

**Practical implications:** On an academic level, further research on the role of virtue signalling for sustainable consumption behaviour should be conducted. Further, brand and product managers can benefit from targeting consumers' perceived benefit from signalling their virtue through visible sustainable consumption. This could for instance be achieved by indirectly integrating the benefit into their communication content and packaging designs.

**Key words:** vegan consumption, consumer behaviour, consumption motives, theory of planned behaviour, virtue signalling, vegan food alternatives

# Acknowledgements

Finishing our degree with this thesis, we want to thank our friends and families for their love and support during tough and stressful times that helped us to move forward and grow. Another special note of thanks goes to our supervisor Burak Tunca, whose feedback and always super-quick responses supported us immensely during this thesis journey.

Last but definitely not least, we also want to thank each other for a very smooth and stress-free teamwork from the very beginning to the final hand-in.

Thank you!

# Table of Contents

- 1 Introduction ..... 1**
  - 1.1 Aim of the Thesis and Research Question ..... 3
  - 1.2 Research Purpose ..... 3
  - 1.3 Aimed Contributions ..... 4
  - 1.4 Thesis Outline ..... 5
- 2 Literature Review ..... 6**
  - 2.1 Vegan Food Consumption: Sustainable Consumer Behaviour or Virtue Signalling?6
    - 2.1.1 Sustainable Consumer Behaviour and Pro-Environmental Self-Identities ..... 6
    - 2.1.2 Virtue Signalling Concept ..... 8
    - 2.1.3 Vegan Food Consumption..... 10
  - 2.2 Motivations for Vegan Food Consumption..... 12
    - 2.2.1 Collective Benefits ..... 13
    - 2.2.2 Personal Benefits ..... 14
- 3 Theoretical Framework and Hypotheses ..... 16**
  - 3.1 Theory of Planned Behaviour..... 16
    - 3.1.1 Attitude ..... 17
    - 3.1.2 Subjective Norm..... 18
    - 3.1.3 Perceived Behavioural Control ..... 19
    - 3.1.4 Purchase Intention and Purchase Behaviour ..... 20
  - 3.2 Hypotheses Formulation ..... 21
    - 3.2.1 Collective Benefits ..... 21
    - 3.2.2 Personal Benefits ..... 22
    - 3.2.3 Purchase Intention ..... 23
  - 3.3 Overview of Hypotheses ..... 25
- 4 Methodology ..... 26**
  - 4.1 Research Philosophy ..... 26
    - 4.1.1 Ontology ..... 26
    - 4.1.2 Epistemology ..... 27
  - 4.2 Research Design ..... 27
  - 4.3 Sampling Method ..... 28
    - 4.3.1 Target Population and Sample ..... 28
    - 4.3.2 Sampling Technique ..... 28
    - 4.3.3 Sample Size ..... 29

4.4	Variable Measurement and Scaling.....	29
4.5	Data Collection Method .....	34
4.5.1	Questionnaire Design .....	35
4.5.2	Pre-test.....	37
4.6	Data Analysis Method.....	37
4.6.1	Data Preparation.....	37
4.6.2	Descriptive Statistics .....	38
4.6.3	Partial Least Squares Structural Equation Modelling .....	38
4.7	Research Quality Criteria .....	41
4.7.1	Reliability .....	41
4.7.2	Validity.....	43
4.7.3	Social Desirability Bias.....	44
4.8	Research Ethics .....	45
<b>5</b>	<b>Results and Findings .....</b>	<b>46</b>
5.1	Descriptive Statistics .....	46
5.1.1	Demographics.....	46
5.1.2	Mean Values and Standard Deviations .....	47
5.2	Partial Least Squares Structural Equation Modelling .....	49
5.2.1	Model Fit and Confirmatory Factor Analysis .....	49
5.2.2	Hypotheses Testing and Structural Model Results.....	54
<b>6</b>	<b>Discussion .....</b>	<b>58</b>
6.1	Four Motives for Vegan Food Consumption .....	58
6.2	The Impact of Consumers’ Subjective Norm.....	61
6.3	Discussion of the TPB Results .....	62
<b>7</b>	<b>Conclusion.....</b>	<b>65</b>
7.1	Theoretical Contributions.....	66
7.2	Managerial Implications.....	68
7.3	Limitations of this Research.....	69
7.4	Directions for Future Research.....	71
	<b>References .....</b>	<b>73</b>
	<b>Appendix A .....</b>	<b>90</b>
	<b>Appendix B.....</b>	<b>95</b>
	<b>Appendix C .....</b>	<b>99</b>
	<b>Appendix D .....</b>	<b>101</b>

# List of Tables

*Table 1: Dependent Variables, Independent Variables, and Scale Items* ..... 32

*Table 2a: Gender* ..... 46

*Table 2b: Country of Residence* ..... 46

*Table 2c: Age* ..... 47

*Table 2d: Education* ..... 47

*Table 2e: Household Income* ..... 47

*Table 3: Benefit Variables (mean values & standard deviations)* ..... 48

*Table 4: Theory of Planned Behaviour Variables (mean values & standard deviations)* ..... 49

*Table 5: Reliability and Validity Results of Measurement Model* ..... 51

*Table 6: Heterotrait-Monotrait Ratio* ..... 53

*Table 7: Hypothesis Test* ..... 55

*Table 8: Structural Model Figures* ..... 56

# List of Figures

*Figure 1: Theoretical Framework* ..... 25

*Figure 2: Two Steps to assess PLS-SEM Results* ..... 40

*Figure 3: Framework including Path Coefficients* ..... 54

# List of Abbreviations

*AVE - Average Variance Extracted*

*CFA - Confirmatory Factor Analysis*

*CR - Composite Reliability*

*GDPR - General Data Protection Regulation*

*HTMT - Heterotrait-Monotrait Ratio*

*PBC - Perceived Behavioural Control*

*PLS-SEM - Partial Least Squares Structural Equation Modelling*

*SRMR - Standardized Root Mean Residual*

*TPB - Theory of Planned Behaviour*

*VIF - Variance Inflation Factor*

# 1 Introduction

Consumption. A central component of our society that becomes increasingly important and controversial at the same time. Current consumption behaviour has pushed the Earth Overshoot Day to the middle of the year (Lin et al., 2020); the rainforests are shrinking at a rapid rate, temperatures are increasing, and animals are being exploited since the global population demands more meat than ever (Poore & Nemecek, 2018; Ritchie & Roser, 2019). Especially the connection of those global issues to over-consumption of animal-based products creates increasing tensions around consumers' food choices. In 2018, researchers at Oxford University conducted the most extensive study of food's environmental impact to this day, stating that going vegan might be "the single biggest way to reduce your impact on planet Earth" (Carrington, 2018, n.p.). Statements like this create oppositional perceptions of consumption choices that can influence decision-making processes: Products that used to be bought habitually, such as meat, milk or cheese, now compete against plant-based alternatives.

Besides academic discourses, commercial media, such as documentaries, influencers, and advertisements, aim to implement environmental, animal welfare, and health benefits as motives to consume (more) plant-based food options. This rising complexity requires a focus shift from *what* is consumed towards *why* the phenomenon of increased vegan food consumption occurs. One way to answer this question is to study underlying consumption motives as they are essential to understand why plant-based food alternatives are being purchased.

The pursuit of more plant-based consumption practices has recently gained additional momentum due to the COVID-19 outbreak (Statista, 2020a), as the pandemic was most likely a consequence of unethical animal consumption (Andersen et al., 2020). This rising interest was also noticeable during the yearly "Veganuary" campaign, which promotes a plant-based diet through company collaborations and educational content on a global scale (Veganuary, 2021a). Founded in 2014, the non-profit organization set itself the goal to increase awareness for the benefits of plant-based food by organizing a worldwide challenge to try out a vegan diet for the month of January and

beyond (Vernelli, 2021a). They particularly highlight the health-based, animal welfare, and environmental benefits as those characteristics are known to motivate consumers the most to incorporate vegan meals into their diet (Veganuary, 2021b; Vernelli, 2021b). To this day, the number of participants is growing rapidly and reached its all-time high in January 2021 with over 580.000 people who registered on the official website, more than double the amount compared to 2019 (Vernelli, 2021a). As a result, producers of vegan food alternatives, such as plant-based meat replacements, speak of a “corona-effect” that increased the demand to an extent they cannot keep up with (Terpitz, 2021). Recently, two of those producers, Lund-based Oatly and U.S.-based Beyond Meat, have been listed as two out of TIME Magazine’s 100 most influential companies in the world (Steinberg, 2021; van Houten, 2021).

Consequently, plant-based food choices are increasingly becoming commodified as a trend and are used as a tool to pursue an authentic pro-environmental identity (Greenebaum, 2012; Jallinoja, Vinnari & Niva, 2019). The overt and conspicuous nature of vegan food consumption is particularly visible on social media channels like Instagram and YouTube (Jallinoja, Vinnari & Niva, 2019). This raises the question if contemporary consumer culture produced an additional motive to choose plant-based options at the supermarket: Namely, whether and to what extent people conspicuously consume vegan food alternatives to showcase their moral virtues and enhance their social standing. A question we aim to answer in detail by researching virtue signalling as a new personal, non-altruistic motivation for vegan food consumption and how it is holding up besides the established motives of animal welfare, personal health, and environmental protection.

While virtue signalling as a concept is not necessarily new, the term first became popular in 2015 after James Bartholomew (2015) published an article in *The Spectator*. It quickly became a widely used term by journalists to describe, for instance, socially accepted statements that aim to show “how good you are” (Bartholomew, 2015, n.p.), “self-glorifying online behavior” (Peters, 2015, n.p.) or “a form of vanity, (...) dressed up as selfless conviction” (Shariatmadari, 2016, n.p.). Very recently, the topic of virtue signalling appeared in various academic journals (Gray et al., 2020; Levy, 2020; Wallace, Buil & de Chernatony, 2020) and thus inspired the research problem of this thesis.

## 1.1 Aim of the Thesis and Research Question

Underlying motivations for the sustainable consumption practice of vegan food purchases have been extensively studied, as the literature review will show in detail. Nevertheless, the societal changes within this field happen rapidly and new motives evolve. Within the context of veganism, our study aims to contribute to this conversation by identifying the relevance of *virtue signalling* as a recent social phenomenon that motivates sustainable behaviour. By comparing the impact of this additional motive to previously studied environmental, health-focused, and animal welfare benefits, we add a new standpoint to the academic discourse around vegan food consumption. Consequently, our primary research revolves around the effect of a positive notion of vegan consumption on consumers' intention to purchase vegan food alternatives. We thus suggest the subsequent research question:

***RQ: Does virtue signalling constitute an additional benefit that influences consumers' intention to purchase plant-based food alternatives?***

In summary, our study illuminates to what extent virtue signalling benefits of vegan food can influence the intention to consume more plant-based products. Considering this additional motivation compared to established personal and collective motives ensures a logical integration into the current academic conversation.

## 1.2 Research Purpose

Following the elaborated research problem, the purpose of this study is to examine an underlying signalling motivation of consumers' purchase intention in the context of vegan food consumption. The goal is to find out whether the specific social motive of virtue signalling reinforces the choice to purchase vegan food alternatives instead of or in addition to animal products. Researching consumers' motives to purchase such alternatives can help create a long-term consumption shift, away from the over-consumption of animal-based products and towards more sustainable alternatives. While there are various ways to adapt a more environmentally friendly consumption behaviour,

peoples' daily food choices are an effective starting point that has a noticeable impact on the planet (Carrington, 2018; Poore & Nemecek, 2018).

On a larger scale, researching which motives encourage animal-free food choices serves the overarching purpose of replacing current controversial consumption practices with more sustainable behaviour.

### 1.3 Aimed Contributions

This study aims to identify and analyse the social behaviour of virtue signalling as a further motive for sustainable consumption practices with regards to vegan food consumption. A thorough understanding of this social motive's influence on consumers' purchase behaviour contributes to the academic conversation around sustainable consumption and provides valuable insights for food-related and/or plant-based businesses. As the research methodology combines the psychological factors of social influence and the individual-self, the findings aid to create encouraging messages to further foster pro-environmental behaviour change within today's society (White, Habib & Hardisty, 2019). Furthermore, this body of research aims to contribute a more thorough understanding of the comparably novel concept of virtue signalling by studying the influence of this social phenomenon within a new context.

Before continuing with the thesis outline and the main body of this study, we must narrow down our use of the words 'vegan', 'veganism', and 'plant-based' within this thesis. Considered in an overarching context, all three terms can describe a fully animal-free lifestyle that excludes non-edible products such as leather, fur or down. To avoid false generalizations, we limit our research to consumers' food consumption and solely refer to the human diet when using the mentioned terms. As vegan food encompasses a wide range of food groups, including all kinds of grains, fruits and vegetables, we further confined the scope of this study. To create valuable insights for companies with plant-based food offerings, for instance Oatly or Beyond Meat, this research specifically focuses on *vegan food alternatives* such as plant-based dairy products (e.g. oat milk, soy yoghurt, cashew cheese) or meat replacements (e.g. bean patties, tofu wings, seitan sausages).

Lastly, narrowing the researched food categories to dairy and meat alternatives also contributes to a more tangible study and better data since it enables the questionnaire participants to answer with more precision.

## 1.4 Thesis Outline

To give insights into motives for consuming vegan products, this thesis follows the following structure: Firstly, we provide an overview of the current literature, diving into the consumption of plant-based food alternatives as sustainable consumer behaviour, the connection to the concept of virtue signalling, and established motivations for vegan food consumption. After that, we lay out the theoretical framework based on the Theory of Planned Behaviour, which leads to the hypotheses and the structural model of this thesis. Next, we introduce the methodology: Within this section, we define the target population and sample, explain our methods to collect, measure and scale the data, plan the data analysis, and state the quality criteria of our research. The subsequent section focuses on the results and findings of the conducted survey on a descriptive and analytical level. Finally, a discussion and the conclusion, including implications and limitations, form the end of this work with implications for further research.

## 2 Literature Review

### 2.1 Vegan Food Consumption: Sustainable Consumer Behaviour or Virtue Signalling?

The topic of sustainability has become a natural component of consumption research. This is evident on the business/supply side, through companies' Corporate Social Responsibility activities, as well as the consumption/demand side, since people increasingly engage in sustainable consumption behaviour and demand the needed resources to do so. With this study, we focused on the latter by analysing the drivers for the sustainable consumption shift towards vegan food alternatives. The following literature review will provide an overview of the current academic conversation on sustainable consumer behaviour and pro-environmental self-identities before establishing a connection to the emerging phenomenon of virtue signalling. Once those central concepts have been introduced, we explain the specific context of vegan food consumption and the predominant research on its underlying motivations.

#### 2.1.1 Sustainable Consumer Behaviour and Pro-Environmental Self-Identities

Academic discourses utilize various terms to describe sustainable consumer behaviour. Among others, it is called 'green consumer behaviour' (e.g. Roberts, 1996; Whitmarsh & O'Neill, 2010), 'pro-environmental behaviour' (e.g. Farrow, Grolleau & Ibanez, 2017; Oreg & Katz-Gerro, 2006; Uren et al., 2019), or simply 'green consumption' (e.g. Paul, Modi & Patel, 2016). However, all formulations describe the same construct which dates back to the first definition of *sustainable development* as a way to "meet[s] the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987, p.16). This definition was later complemented by a more specific definition of *sustainable consumption*, which was proposed during the Oslo Symposium on Sustainable Consumption in 1994 as "the use of goods and services

that respond to basic needs and bring a better quality of life, while minimising the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations” (United Nations, 2021, n.p.). Extensive research on the costs of vegan food consumption showed its potential to decrease the food-induced damage to the environment and biodiversity (Poore & Nemecek, 2018). Consequently, the studied plant-based consumption phenomenon of this paper can be classified as *sustainable consumption*.

Especially in highly developed countries, such as Sweden, people widely share a worldview that respects the endlessness of natural resources and thus human kinds’ responsibility to act sustainably (Wiidegren, 1998). This shift from the *Dominant Social Paradigm*, a man-centred belief that humans are free to use nature as they please, to the *New Environmental Paradigm*, respecting that natural resources will eventually limit economic growth, was first introduced by Dunlap and Van Liere in 1978. Since then, social norms have adapted accordingly and created feelings of social expectations towards pro-environmental and thus sustainable behaviour (Farrow, Grolleau & Ibanez, 2017; Reese, Loew & Steffgen, 2014; Trelohan, 2021) as well as pro-environmental values (Chan, 2020; Oreg & Katz-Gerro, 2006) within today’s consumption society. As a part of this academic discourse, several studies showed that stronger levels of moral norms for reducing environmental impacts of consumption induced a higher likelihood of pro-environmental behavioural intentions (i.e., Schwartz, 1977; Jansson, 2011; Onwezen et al., 2013). In general, increased affinity and adaptations to those social expectations and values lead to various motives for sustainable behaviour and its incorporation into consumers’ identities, which we will discuss later-on.

Current research has identified various factors that influence consumers to behave more sustainably. Throughout the literature review, we found that those factors can motivate sustainable consumer behaviour on a collective and/or personal level. Collective motives drive pro-environmental behaviour through altruistic values, such as the need to care for others and increased environmental or ethical consciousness (Abdulrazak & Quoquab, 2018; Chan, 1996; Kareklas, Carlson & Muehling, 2013; Krause, 1993; Roberts, 1996; Simmons & Widmar, 1990). Personal factors, also termed egoistic or self-focused motives, are mostly related to self-identity projects (Marchand, Walker & Cooper, 2010), social status (Griskevicius, Tybur & van den Bergh, 2010; Uren et al., 2019), and/or health consciousness (Birch, Memery & De Silva Kanakarathne, 2018; Kareklas, Carlson & Muehling, 2013; Marchand, Walker & Cooper, 2010; Septiani, Najib & Sumarwan, 2019).

While we included and compared both collective and personal motives in our study, the main contribution focuses on the latter.

The personal motive of enacting a *pro-environmental self-identity* is considered to be one of the central explanatory concepts for contemporary sustainable behaviours (Dermody et al., 2015; Whitmarsh & O'Neill, 2010) and thus of particular importance for research on sustainable consumption behaviour as a whole and this research in particular. In general, consumers who perform pro-environmental self-identities incorporate the symbolic meanings of sustainable consumption practices into their own identity (Dermody et al., 2015). This concept is based on the notion that the marketplace enables consumers to use commodities to imagine and perform several identity projects (Schau, 2018) by letting them become part of their extended self (Belk, 1988) and appropriating their meanings in a chosen social environment (Elliott & Wattanasuwan, 1998). Within this paper, we are particularly interested in the connection between the performance of sustainable consumption practices and their signalling effects for the pursuit of social recognition.

### 2.1.2 Virtue Signalling Concept

The use of consumption as a tool to gain social recognition within a chosen environment is a well-established phenomenon. On a material level, consumers aim to increase their social status through expensive luxury goods the broad society cannot afford, a concept that Veblen (2006) termed *conspicuous consumption* in 1899. He argued that such signalling-by-consuming is based on the two-fold characteristic of commodities to also provide symbolic value besides their utility. Based on this assumption, various researchers have studied conspicuous consumption on an immaterial level, analysing the role of non-material but socially visible consumption (e.g. sharing holidays on social media) for social status and identity demonstration (Bronner & de Hoog, 2018; Chen, Yeh & Wang, 2008; O'Cass & McEwen, 2004). Consequently, the question arises if the concept of conspicuous consumption also holds for sustainable consumption practices, especially when they are embodied via overt pro-environmental self-identity projects.

The role of social status as a non-altruistic motive for sustainable consumer behaviour has been researched by a growing number of psychology-, economy-, consumer-, and marketing-focused scholars (Dastrup et al., 2012; Griskevicius, Tybur & van den Bergh, 2010; Korcaj, Hahnel &

Spada, 2015; Uren et al., 2019; van der Wal, van Horen & Grinstein, 2016; Žabkar & Hosta, 2013). In this context, real-world observations as well as lab-based experiments found that people go “green to be seen” (Griskevicius, Tybur & van den Bergh, 2010, p.392; van der Wal, van Horen & Grinstein, 2016, p.216), referring to excessive consumption of green products to signal one’s altruistic values, even if this meant to act less sustainably. As a relevant basis for our study, status signalling was also confirmed to motivate organic over non-organic food choices (Puska et al., 2018). To close the loop to Veblen’s (2006) original theory, Hammad et al. (2019) recently entered this young academic discourse by discussing how conspicuous consumption motives can accelerate more sustainable consumption behaviour in newly-industrialized countries. They found that sustainable consumption can be fostered through conspicuous motives by considering it “as a means of status distinction” (Hammad et al., 2019, p.537). However, the findings also supported the importance of visibility and exclusiveness, which should be kept in mind when considering conspicuous motives for promoting pro-environmental behaviour. Lastly, Hammad et al. (2019, p.545) mentioned that their findings “need[s] to be empirically researched” in further cultural contexts, which is where we aim to enter the conversation.

Based on Veblen’s (2006) concept of conspicuous consumption and the evolving societal phenomenon of sustainable status consumption (Uren et al., 2019), a comparatively new concept termed *virtue signalling* has been established (Levy, 2020; Wallace, Buil & de Chernatony, 2020). Virtue signalling has been defined as a “public expression of opinions or sentiments intended to demonstrate one’s good character or the moral correctness of one’s position on a particular issue” (Oxford Dictionary, 2021). Within philosophical literature, the phenomenon is also known as *moral grandstanding*, describing contributions to moral discourses with the central aim “to convince others that one is ‘morally respectable’” (Tosi & Warmke, 2016), indicating that “the virtue signaller is unduly concerned with herself rather than the issues she purports to discuss” (Levy, 2020, p.2). Wallace, Build, and de Chernatony (2020) suggested dividing the concept into *self-oriented* and *other-oriented* conspicuous virtue signalling: The self-oriented perspective refers to virtue signalling behaviour that aims to provide intrinsic benefits, for instance enhancing one’s social media profile to ‘feel good’. Other-oriented virtue signalling in return describes virtuous consumer behaviour that aims “to impress others” (Wallace, Buil & de Chernatony, 2020, p.579). For this study, virtue signalling behaviour was examined as a whole. However, the other-oriented behaviour scale showed a stronger composite reliability than the self-oriented counterpart (Wallace, Buil

& de Chernatony, 2020). Further details will be elaborated in section 4.4, which discusses the chosen variable measurement and scaling techniques. With respect to sustainable consumption, virtue signalling thus describes peoples' conspicuous pro-environmental behaviour motivated by increasing or enhancing their standing within their social environments. Consequently, the motive of virtue signalling turns morally favoured, sustainable behaviours partly into 'vanity projects' (Levy, 2020).

Until this point, virtue signalling has only been researched in a corporate context (Gray et al., 2020) or with respect to consumers' online donation behaviour on social media platforms (Wallace, Buil & de Chernatony, 2020). With this study, we join the conversation by investigating virtue signalling as a personal motive to purchase vegan food alternatives. Before continuing the discussion in this vegan consumption context, it is important to point out the opposing academic discourse: Some scholars argue that virtue signalling leads to moral cynicism and hypocrisy (Tosi & Warmke, 2016) or even unethical behaviour intentions (Wallace, Buil & de Chernatony, 2020), resulting in "public displays of support for some cause that are regarded as being driven primarily by self-interest rather than genuine commitment" (Chandler & Munday, 2020, n.p.). This perspective is comparable to conspicuous sustainability, which describes sustainable initiatives that prioritise social visibility over the actual positive impact (Grydehøj & Kelman, 2017, 2020). On the contrary, other scholars state that underlying motivations for virtue signalling can be considered honest instead of hypocritical and conclude that it is actually virtuous and morally appropriate (Levy, 2020). Since we aim to study the relevance of virtue signalling as a self-interest-driven motive for sustainable consumption behaviour, this body of research will contribute to the aforementioned conversation. The chosen context of vegan food consumption and its underlying motivations will be introduced in the subsequent sections.

### 2.1.3 Vegan Food Consumption

On average, European consumers spend 13% of their total income on food and non-alcoholic beverages (Eurostat, 2020). This makes food consumption one of the three major expenditure purposes, indicating that shifting peoples' food choices towards more sustainable options can positively impact the environment. As previously mentioned, recent studies concluded that plant-based

food sources are significantly less harmful to the environment than animal products (Gerten et al., 2020; Poore & Nemecek, 2018) which is why we deemed it to be a suitable context for this study.

Literally speaking, all parts of the human diet that do not stem from animals, such as fruits and vegetables, can be considered plant-based food. However, they did not develop the same symbolic value as the increasing number of specific vegan labelled food alternatives developed by the food industry (Statista, 2015, 2020b). Since 1944, when the founders of The Vegan Society have first coined the term “vegan” as an addition to “vegetarian” (The Vegan Society, 2014), the share of newly launched vegan food and drink products has constantly been increasing (Statista, 2018). During the Veganuary campaign in January 2021, “more than 825 new vegan products and menus were launched” (Veganuary, 2021), providing evidence for the rise of veganism as a central consumption trend of the 21st century (Janssen et al., 2016). Additionally, the market for vegan food alternatives, specifically plant-based alternative proteins, has reached record sales of 39 billion dollars in 2020 and recent predictions of the Boston Consulting Group expect an increase up to 290 billion dollars by 2035 (Witte et al., 2021). Within the academic sector, Salehi, Carmona and Redondo (2020, p.1) recently identified a lack of empirical research regarding vegan diets, "especially within the domain of social-psychology and consumer behaviour". Thus, this body of research aimed to contribute by providing insights that vegan (food) companies, policymakers, and consumption behaviour scientists can benefit from.

On the contrary to the vegan consumption trend, articles including a social aspect of vegan consumption mainly regard veganism's perceived downsides in society, namely not being part of the norm (Denegri-Knott, Nixon & Abraham, 2018), fearing marginalization or discrimination (Markowski & Roxburgh, 2019), and its consideration as an expensive, privileged and exclusive lifestyle (Greenebaum, 2018, 2017). Those factors affect people who already follow a vegan diet or lifestyle and serve as inhibiting factors for those planning on turning fully vegan or incorporating more vegan food alternatives into their diets. Discrimination thus seems to be a predominant social element of veganism discussed in the academic world (Greenebaum, 2018; Markowski & Roxburgh, 2019). So far, more positive social influences have only been researched in the overarching context of organic food (Kareklas, Carlson & Muehling, 2013; Puska et al., 2018). This oppositional perspective of negative social impacts on the otherwise growing vegan food trend inspired our idea to enter the conversation by instead studying the positive effect of the social phenomenon

of virtue signalling on the pursuit rather than avoidance (Denegri-Knott, Nixon & Abraham, 2018; Markowski & Roxburgh, 2019) of vegan consumption.

Similarly, to general sustainable consumption, plant-based food consumption can be encouraged on a personal and/or collective level. The following section will provide an overview of current academic literature on predominant motivations for vegan consumption choices before concluding with an elaboration of our decision to join the discourse by introducing virtue signalling as an additional personal motive to consume plant-based food alternatives.

## 2.2 Motivations for Vegan Food Consumption

Previous studies have identified and researched various underlying motives that encourage consumers to select particular food options (Birch, Memery & De Silva Kanakarathne, 2018; Kareklas, Carlson & Muehling, 2013; Onwezen et al., 2012; Steptoe, Pollard & Wardle, 1995; Verain et al., 2020). Equally, there are plenty of motivations for vegan food consumption. The predominantly mentioned ones are the environment, animal welfare, and personal health (Armstrong Soule & Sekhon, 2019; Christopher, Bartkowski & Haverda, 2018; Hopwood et al., 2020; Janssen et al., 2016; Kerschke-Risch, 2015). In addition to these long-term and/or external benefits, this study introduced a fourth motive: Virtue signalling. As opposed to the established motives, virtue signalling offers consumers instant gratification and thus a short-term effect through the approval of others. Thus, it was researched as an additional potential motive that consumers who choose vegan food alternatives can benefit from.

As previously introduced, we divided the motivations for vegan food consumption into collective and personal benefits. This decision was inspired by various scholars who previously separated different purchase motives into opposing categorizations, such as collective and individual benefits (Korcaj, Hahnel & Spada, 2015), altruistic and egoistic motivations (Kareklas, Carlson & Muehling, 2013; Septiani, Najib & Sumarwan, 2019) affective and moral attitudes (Arvola et al., 2008), or prosocial concern and personal motives (Armstrong Soule & Sekhon, 2019). We decided to call the health and virtue signalling motives *personal* instead of e.g. egoistic due to its judgmental undertone. Although both terms may be based on pursuing one's own desires regardless of others

(dictionary.com, 2021), the resulting consumption of vegan alternatives still has the same positive outcome as if the motivation was not egoistic. Since environmental and animal welfare motives both entail more than just the individual making the decision, we chose the term *collective*, also used by Korcaj, Hahnel & Spada (2015), to symbolize both motives' impact on others and the effect beyond the individual.

We decided to include personal and collective perspectives to compare the effect of virtue signaling to all three main motivations for vegan food choices, namely environmental, animal welfare, and health motives. Additionally, Kareklas, Carlson, and Muehling (2013) discovered that combining altruistic and egoistic advertising messages is more impactful to drive purchase intention for organic food than choosing either one of the perspectives. Consequently, the following section briefly describes the four selected benefits of vegan food consumption, which were part of this study.

### 2.2.1 Collective Benefits

The following paragraphs show a synthesis of the literature concerning the collective benefits that motivate consumers to consume vegan food, namely environmental protection and animal welfare.

#### *Environmental Benefits*

One of the most critical drivers of plant-based food consumption is its comparably low environmental impact (Poore & Nemecek, 2018). Westhoek et al. (2014, p.196) discovered "that halving the consumption of meat, dairy products and eggs in the European Union would achieve a 40% reduction in nitrogen emissions, 25–40% reduction in greenhouse gas emissions and 23% per capita less use of cropland for food production". Thus, replacing 50% of animal products with vegan alternatives could drastically reduce environmental pollution. When comparing all food groups, meat and dairy are the biggest contributors (Tukker et al., 2011). Therefore, the conscious avoidance of certain food options is part of a more sustainable way of life (Paddock, 2017). Furthermore, Janssen et al. (2016) found that environmentally driven motives are the third most mentioned

motives for a vegan diet (46.8% of the respondents). As a result, environmental benefits are included in our theoretical framework.

### *Animal Welfare Benefits*

The protection of animals is another central motive to reduce or eliminate food items like meat, dairy, or eggs that comes to mind. In Janssen et al.'s (2016) study, 89.7% of all respondents claimed animal-related motives for their vegan diet and animal welfare was thereby identified as the most important factor. Bertuzzi (2020) agrees that the focus on animals is the most important one due to veganism being rather a-political nowadays. Moreover, vegan ideology's moral foundations entail the *sanctity of life* of all beings, including animals' lives and well-being (Napoli & Ouschan, 2020). Consequently, animal welfare benefits constitute the second motive within our study design.

### 2.2.2 Personal Benefits

The upcoming section displays research findings on the benefit of health as a personal motivation for vegan food consumption, as well as this paper's main contribution of adding virtue signalling as a fourth possible benefit.

### *Health Benefits*

Discussed negative health effects of a vegan diet are an increased "risk of certain nutritional deficiencies" like "vitamin B-12, calcium, and long-chain n-3 (omega-3) fatty acids" (Craig, 2009, p.1627). However, most articles argue towards positive health effects of consuming more vegan products. According to Westhoek et al. (2014, p.196), health risks in the European Union could be significantly lowered if people would cut their consumption of animal-based food, such as meat, dairy, and eggs, in half. Moreover, Wirnitzer (2018) looked beyond the physical benefits, such as reducing high blood pressure (Pettersen et al., 2012) or cardiovascular diseases (Spencer et al., 2003), and identified mental benefits of following a vegan diet. Costa et al. (2019, p.1) agreed and covered this mental health aspect, discovering vegan lifestyle to contribute to young womans' emotional, cognitive and behavioural healing due to the "passionate investment of the self". Furthermore, motives for a vegan diet regarding one's personal health and/or general well-being

accounted for 69.3% of interviewees' underlying reasons in Janssen et al.'s (2016) study. This makes health the second most mentioned benefit of vegan food choices. White (2018) goes one step further and declares veganism as a healthy lifestyle choice rather than a movement committed to ethics or being critical of a capitalistic food system. For those reasons, we chose health-based benefits as a self-motivated reason for plant-based food choices.

### *Virtue Signalling Benefits*

As previously identified, vegan food consumption can be considered a form of sustainable behaviour, including an increasing focus on self-identity and aesthetics in online and offline environments (Jallinoja, Vinnari & Niva, 2019). Vegans, in particular, overtly utilize their diet to extend their pro-environmental self-identities (Belk, 1988; Greenebaum, 2012; Rosenfeld, 2019). In addition, society's perceptions are transforming, considering plant-based consumption practices as less stigmatised and instead increasingly normal, healthy, and desirable (Lundahl, 2020). Nevertheless, especially plant-based food alternatives such as vegan cheese or meat are still more expensive and considered more exclusive than their animal-based counterparts. Those characteristics point towards the potential for underlying conspicuous motives in addition to self-oriented health-based motivations.

By adding virtue signalling benefits as a second personal motive for plant-based food purchases, we add a social displaying component to the academic discourse. Furthermore, the concept of virtue signalling constitutes a personal benefit that produces instant gratification, contrasting the long-term and/or external health, environmental, and animal welfare benefits. Instant gratification is considered one of consumers' main behavioural biases (O'Donoghue & Rabin, 2000) and a potential reason for existing gaps between consumers' intrinsic intentions and actual actions (Heshmat, 2015). Identifying virtue signalling as a relevant short-term motive could thus support the formulation of effective messages to further spread the sustainable consumption of vegan food alternatives.

# 3 Theoretical Framework and Hypotheses

## 3.1 Theory of Planned Behaviour

The previous section gave an in-depth overview of the complexity that precedes purchasing plant-based food alternatives e.g. at the supermarket. Consumers have to face tensions created by the current sustainability discourse concerning socially acceptable and unacceptable purchase behaviour. This acceptability is evaluated and mirrored within actual consumption behaviour depending on individual predispositions and the specific context a consumer finds him-/herself in (Howard & Sheth, 1969). Measuring how and to what extent the identified collective and personal benefits motivate individuals' actual purchase behaviour requires a model that incorporates the complexity of human decision processes.

Icek Ajzen's (1991) *Theory of Planned Behaviour* (TPB) is a highly debated, well-studied model for the prediction of human behaviour and has been cited more than 35 thousand times (ScienceDirect, 2021). Consequently, the TPB is considered as "one of the best-supported social psychological theories with respect to predicting human behaviour" (Alavion et al., 2017, p.3) and "one of the most widely used frameworks for studying individual behaviors" (Yuriev et al., 2020, p.1). The goal of the TPB is to contribute a comprehensive framework that helps to understand pre-defined determinants of a researched behaviour (Ajzen, 2015). Therefore, it provided us with the needed theoretical framework to predict consumer behaviour while taking situational and external factors into consideration.

The theory is rooted within the field of Social Psychology and combines concepts from social as well as behavioural sciences (Ajzen, 1991). It has been extensively used in various contexts to predict consumers' intentions and actual behaviours. The underlying framework consists of five main components: A persons' (1) *attitude*, (2) *subjective norm*, and (3) *perceived behavioural control*, which directly influence his/her (4) *intention* that leads to the performance of a certain (5) *behaviour* (Ajzen, 1991). In how far this connection of consumers' beliefs to their behaviour

enabled us to analyse motives for plant-based food alternatives will be explained throughout this chapter. Furthermore, we will explain what drove our decision to exclude the fifth component of actual behaviour.

In previous papers, the TPB enabled researchers to study motives for pro-environmental behaviour (Judge, Warren-Myers & Paladino, 2019; Korcaj, Hahnel & Spada, 2015; Masud et al., 2016; Paul, Modi & Patel, 2016; Whitmarsh & O'Neill, 2010), consumers' engagement in health-related activities (Albarracín et al., 2001; Cooke & French, 2008; Hagger, Chatzisarantis & Biddle, 2002), and food-related consumption practices (Åström & Rise, 2001; Chen, 2007; Kim, 2014; Mirkarimi et al., 2016; Shah Alam & Mohamed Sayuti, 2011). Moreover, the theory is considered to provide one of the most relevant frameworks for research on sustainable consumer behaviour in general (Kostadinova, 2016; Yuriev et al., 2020), which is another reason we deem it suitable for our analysis of consumers' purchase behaviour towards vegan food alternatives. Lastly, the predictive nature of the TPB allows us to measure the impact of perceived personal and collective benefits on attitude at the first stage and the resulting purchase intention based on the TPB variables at the second stage (Ajzen, 1991). The consumption of food products is very well-suited for a self-reported study based on the TPB model since consumers engage in food shopping on a daily or at least weekly basis. Thus, reporting their attitudes, subjective norm and perceived behavioural control with regards to vegan food products is a realistic task.

In the following sections, the five main components of the TPB are introduced individually and subsequently combined with the literature review findings to derive the central hypotheses we tested within this paper's empirical study design.

### 3.1.1 Attitude

The first dimension of the TBP is *attitude*. Ajzen (1991, p.188) defines an individual's attitude as "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question". In other words, it describes a person's attitude towards a particular behaviour based on his/her individual evaluation (Conner & Armitage, 1998). Within the context of this study, the researched behaviour in question is the consumption of vegan food alternatives. According to Ajzen (1991, p.191), consumers associate positive or negative attributes with objects and learn to

form favorable "attitudes toward behaviors [they] associate with mostly [...] desirable consequences". As opposed to perceived behavioural control and subjective norm, Ajzen's (1991) construct of attitude is associated with behavioural instead of normative or control beliefs. Those behavioural beliefs are easy to access within one's memory and create the tendency to form either a positive or negative attitude towards a certain behaviour (Ajzen, 2015). Lastly, peoples' attitudes directly influence their intentions and thus indirectly the actual behaviour (Conner & Armitage, 1998), as the following chapters will elaborate further.

To answer our research question, we extended the TPB by adding established concepts of collective and personal motives for vegan consumption practices as underlying influences on consumers' attitude. It has been common practice in previous studies (e.g. Korcaj, Hahnel & Spada, 2015; Paul, Modi & Patel, 2016) to similarly extend the TPB framework by adding further variables based on the respective research context. This method is based on previous findings that showed the influence of further factors besides the TPB components on peoples' intentions e.g. Conner & Armitage, 1998; Donald, Cooper & Conchie, 2014). Consequently, the extension of the original TPB framework was central to solving our research problem. It allowed us to compare the influence of virtue signalling on consumers' general attitude to the impact of environmental, animal welfare, and health-based benefits.

### 3.1.2 Subjective Norm

The social factor *subjective norm* represents the second dimension of the TPB framework. It "refers to the perceived social pressure to perform or not to perform the [observed] behavior" (Ajzen, 1991, p.188) and embodies a central component of the social-psychological TPB. At its core, a person's subjective norm is based on the perception to what extent influential individuals or groups in his/her personal environment approve of a specific behaviour (Ajzen, 1991; Conner & Armitage, 1998). The expectations of others can be perceived through direct communication, so-called *injunctive normative beliefs*, or are inferred through observations of others, also called *descriptive normative beliefs* (Ajzen, 2015). Thus, the variable of subjective norm is measured with items that are based on those two components.

Previous studies have found that the social influence on an individual through others' attitudes and behaviours is strongest when he/she shares a social identity with them, which makes the reference group psychologically relevant (White et al., 2009). Thus, we will consider this aspect within the questionnaire formulation by asking respondents to specifically think of "people who are important" (Ajzen, 2006, p.3) to them. In summary, social pressure is a central component within the TPB construct and has been identified to influence individual behaviour in various studies (Kim, Lusk & Brorsen, 2018; Trelohan, 2021, 2021; White et al., 2009). Social pressure also appears to be particularly present in food consumption contexts as study results present individuals' subjective norm as "the main underlying factor" that drives intentions to purchase organic food products (Ruiz de Maya, López-López & Munuera, 2011, p.1774). Those findings are in line with the previously mentioned influence of social norms on peoples' perceived expectation to behave sustainably (Farrow, Grolleau & Ibanez, 2017; Reese, Loew & Steffgen, 2014; Trelohan, 2021).

Following the previous analysis of the importance of social norms for pro-environmental behaviour (e.g. vegan food consumption), the inclusion of consumers' subjective norm within the TPB supported our decision to utilize the theory to construct the theoretical framework for our research problem.

### 3.1.3 Perceived Behavioural Control

As an addition to its theoretical predecessor, known as the Theory of Reasoned Action (Ajzen, 1985; Ajzen & Fishbein, 1980), the TPB also accounts for peoples' *Perceived Behavioural Control* (PBC) (Ajzen, 1991). This variable tests if a consumer feels like he/she has the necessary control and confidence to enact the intended behaviour (Ajzen, 1991). It further considers the current situation a person finds her-/himself in based on past experiences and anticipated barriers (Ajzen, 1991). The PBC variable is crucial to represent the underlying complexity of purchase decisions within this study: If a study participant has a favourable attitude towards vegan food alternatives while also feeling obliged by his/her perceived subjective norm to purchase them, a lack of perceived behavioural control can have a hindering effect on the actual purchase behaviour. In other words, PBC can identify if external factors prevent consumers from purchasing plant-based food items despite otherwise positive intentions to do so. As a result, collecting data on consumers'

PBC can help to explain contradictions and imbalances that occur when positive attitudes and subjective norms towards vegan food are not reflected in the respective purchase intention.

Lastly, Ajzen (1991, 2002) argues that PBC differs from the elements of attitude and subjective norm. It directly affects peoples' actual behaviour and thus forms a second direct predictor of peoples' behaviour besides their intention. The reasons why actual behaviour was not part of this study will be set out in the following section.

### 3.1.4 Purchase Intention and Purchase Behaviour

All three previously mentioned factors (attitude towards a behaviour, subjective norm and perceived behavioural norm) lead to an intention, which later drives the actual behaviour (Ajzen, 1985). According to Ajzen (1991, p.181), intentions "capture the motivational factors that influence behavior". Thus, purchase intention can be considered to represent consumers' conscious decisions or concrete plans to put effort into a particular behaviour (Conner & Armitage, 1998). In other words, it is an indicator of how much people want to try by encompassing consumers' willingness and readiness to adopt a certain behaviour (Ajzen, 1991; Rezvani, Jansson & Bengtsson, 2018). Within the context of this study, it could thus be derived that the stronger the intention to purchase vegan food alternatives, the higher the probability to behave accordingly.

The final element of the TPB, namely *behaviour*, describes the actions that are taken. According to Ajzen (2015, p.125), it combines all previous factors to one final act: "[T]he more favorable the attitude and subjective norm with respect to engaging in the behavior, and the greater the perceived control, the more likely it is that a person will form an intention to perform the behaviour in question". For this reason, the respective behaviour of a researched context, in this case purchases of vegan food alternatives, has to be measured *after* the initial data collection took place (Ajzen, 2006). Thus, it requires the measures and resources to recontact all previous participants to match the original findings of their intentions with their actually enacted behaviours (Ajzen, 2006). Consequently, several studies utilizing the TPB concentrate only on the (purchase) intention as a central predictor for (purchase) behaviour (Korcaj, Hahnel & Spada, 2015; Paul, Modi & Patel, 2016; Shah Alam & Mohamed Sayuti, 2011; Yuriev et al., 2020).

We decided to follow this approach, as the inclusion of a second questionnaire to measure actual purchase behaviour would go beyond the scope of this cross-sectional study. Therefore, we solely measured the four additional motives, attitude, subjective norm, perceived behavioural control and their impact on consumers' intention. Nevertheless, the TPB framework allows for purchase intention and perceived behavioural control to indicate the actual behaviour's tendency (Ajzen, 1991). Thus, the reduced framework still provided valuable insights and the inclusion of behaviour within a more extensive study will be suggested for further research later-on.

## 3.2 Hypotheses Formulation

This study's main contribution is the analysis of how far virtue signalling constitutes a fourth underlying motive to purchase vegan alternatives to animal-products such as milk, yoghurt or cheese. Consequently, including the previously identified collective and personal benefits in our framework allowed us to compare their influence to the influence of virtue signalling on consumers' attitudes and thus their overall evaluation of vegan food options. The following paragraphs will combine the context-specific insights of the literature review with the TPB's aforementioned assumptions to derive the hypotheses for this empirical study.

### 3.2.1 Collective Benefits

As mentioned in the literature review, two of the most noted motives for a plant-based diet are environmental and animal benefits (Janssen et al., 2016). Both can be categorized as collective benefits as those upsides affect the individual consumer and the collective environment beyond the individual. The consumption of vegan food has several advantages for the environment, such as reduced CO<sub>2</sub> pollution, the need for less water, and noticeably lower energy consumption (Poore & Nemecek, 2018). Furthermore, a central motive to either fully follow a vegan diet or reduce the number of animal products is the topic of animal exploitation. Vegan products avoid killing (meat/fish) or using animals as a producer (milk/eggs/honey). Therefore, we hypothesized that those two perceived benefits positively affect the attitude consumers have towards plant-based products.

H1: Perceived environmental benefit has a positive impact on attitude towards vegan food alternatives.

H2: Perceived animal welfare benefit has a positive impact on attitude towards vegan food alternatives.

### 3.2.2 Personal Benefits

Besides the described collective benefits, increasing the percentage of regularly eaten plant-based food also benefits consumers individually. Having collected arguments for plant-based consumption in the literature review, we connect those benefits (health and virtue signalling) with the TPB. Various academic studies (e.g. Craig, 2009; Westhoek et al., 2014; Wirnitzer, 2018) as well as commercial content on veganism, for instance, the successful documentary “The Game Changers” (Game Changers Film, 2019; IMDb, 2019), increasingly create societal awareness of vegan food’s health benefits, including lower blood pressure, higher energy levels, or better athletic performance. Additionally, people within developed societies increasingly utilize sustainable behaviour for status-signalling purposes (Puska et al., 2018). As a consequence, we hypothesized to find a positive relationship between health and virtue signalling and the attitude towards vegan food alternatives, meaning that highly perceived health and virtue signalling benefits of plant-based food consumption are correlated with a positive attitude towards vegan food alternatives.

H3: Perceived health benefit has a positive impact on attitude towards vegan food alternatives.

H4: Perceived virtue signalling benefit has a positive impact on attitude towards vegan food alternatives.

As the effect of virtue signalling is largest in groups that understand and equally favour the signalled values (Levy, 2020), we expected increased perceived social pressure within those niche groups. Especially since peoples’ subjective norms (ie. social pressure) were previously identified as a central underlying driver for the consumption of sustainable food items (Ruiz de Maya, López-López & Munuera, 2011). In addition, people who are very concerned about the thoughts and behaviours of others are under *normative control* instead of relying on their attitudes (Ajzen, 1991; Farrow, Grolleau & Ibanez, 2017). Consequently, they may also perceive a high virtue signalling

benefit when consuming vegan food within social environments that they believe in sharing the same values or behaviours with. This connection led us to the following fifth hypothesis:

H5: Subjective norm has a positive impact on perceived virtue signalling benefit.

### 3.2.3 Purchase Intention

The next paths of the TPB framework consider the influence of (1) consumers' attitude towards vegan food consumption, (2) the social factor of subjective norm, and (3) perceived behavioural control on their purchase intention (Ajzen, 1991). According to Ajzen (1991) the cumulation of all three motivational factors shapes a person's intention. Based on this assumption, the TPB led us to derive three hypotheses regarding the concrete intention to purchase plant-based food options instead of or in addition to animal-based products.

Firstly, the previously elaborated collective and personal motives allowed us to gain a deeper understanding of which factors influence consumers' attitude towards vegan food choices. The higher the perceived benefit for each individual, the more favourable vegan food alternatives appear to him/her. This degree of favourability is captured as a person's overall attitude and directly affects his/her purchase intention. Thus, the sixth hypothesis stated that there is a positive relationship between attitude towards vegan food choices and consumers' corresponding purchase intention.

H6: Attitude towards vegan food alternatives has a positive influence on consumers' purchase intention.

Following the TPB model and previous research on how consumers' social environments impact their (food-related) consumption choices (Kim, Lusk & Brorsen, 2018; Trelohan, 2021; White et al., 2009), our study pays particular attention to the influence of subjective norms on vegan food consumption. Defined as the "perceived social pressure to perform or not to perform" (Ajzen, 1991, p.188) certain behaviours, consumers' perceived social norms are very relevant to understand their motives to purchase plant-based alternatives. This assumption is also in line with Ruiz de Maya et al.'s (2011) findings that identified subjective norm as the main underlying driver of intentions regarding organic food consumption.

As previously discussed, veganism-related consumption behaviour gets a lot of attention in today's society. Due to high visibility, people tend to have very strong opinions towards the vegan diet, especially self-proclaimed "vegans" openly communicate their values and lifestyle choice (Greenebaum, 2012; White, 2018). Additionally, consumers who consider veganism as part of their identity strongly commit to the respective behaviour (Haverstock & Forgays, 2012) which could influence other consumers' descriptive and possibly their injunctive normative beliefs (Ajzen, 2015). In other words, individuals who believe that vegan food is perceived as desirable by people in their social environment are more likely to intend the purchase of these products.

As a consequence, previous findings on the importance of social norms for pro-environmental behaviours and the overt nature of vegan food consumption led us to follow the prediction of the TPB that subjective norm is a positive predictor of intentions to consume vegan food alternatives.

H7: Perceived subjective norm to purchase vegan food alternatives has a positive influence on consumers' purchase intention.

Lastly, the consumption of vegan food alternatives can be individually hindered by various factors that potentially impact consumers' beliefs in their ability to enact the aforesaid behaviour. Such factors could range from perceived low availability of plant-based food options in one's supermarket of choice or little control over the food choices within one's household. Overall, many previous TPB studies have found evidence for the positive relationship between perceived behavioural control and intention. This connection was also evident in food-related research with regards to eating healthily (Åström & Rise, 2001), intentions to buy organic food (Ruiz de Maya, López-López & Munuera, 2011), and avoidance of genetically modified food (Kim, 2014). On account of this, we expected a similar effect within the plant-based food context.

To conclude, we followed Ajzen's (1991) suggestions. We hypothesized that consumers who feel like they are in control over their purchase behaviour concerning vegan food alternatives are more likely to intend the purchase of these products.

H8: Perceived behavioural control with respect to vegan food alternatives has a positive influence on consumers' purchase intention.

### 3.3 Overview of Hypotheses

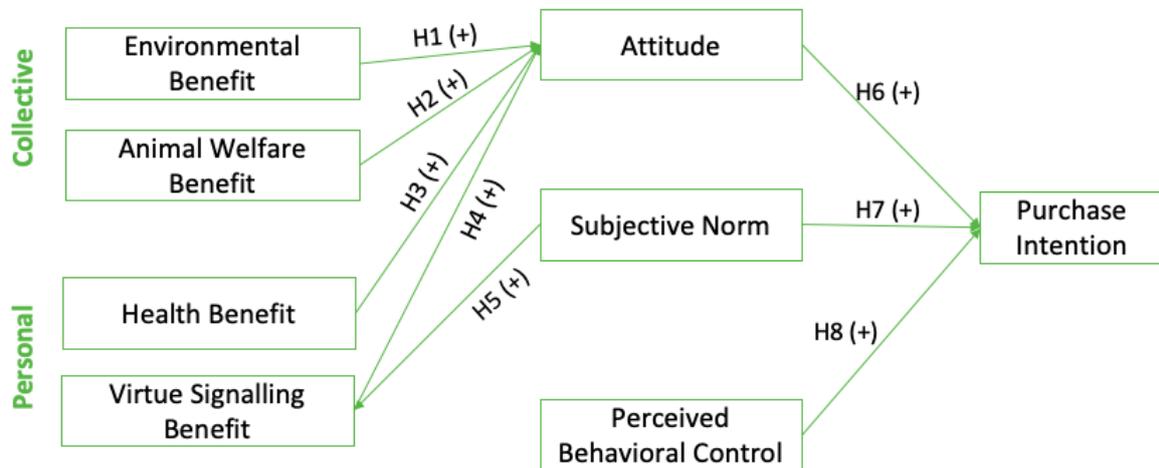


Figure 1: Theoretical Framework

Hypothesis 1	Perceived environmental benefit has a positive impact on attitude towards vegan food alternatives.
Hypothesis 2	Perceived animal welfare benefit has a positive impact on attitude towards vegan food alternatives.
Hypothesis 3	Perceived health benefit has a positive impact on attitude towards vegan food alternatives.
Hypothesis 4	Perceived virtue signalling benefit has a positive impact on attitude towards vegan food alternatives.
Hypothesis 5	Subjective norm has a positive impact on perceived virtue signalling benefit.
Hypothesis 6	Attitude towards vegan food alternatives has a positive influence on consumers' purchase intention.
Hypothesis 7	Perceived subjective norm to purchase vegan food alternatives has a positive influence on consumers' purchase intention.
Hypothesis 8	Perceived behavioural control with respect to vegan food alternatives has a positive influence on consumers' purchase intention

# 4 Methodology

## 4.1 Research Philosophy

Every body of research is based on an underlying philosophical foundation. Therefore, the following paragraphs specify the different approaches and philosophies towards knowledge that built the basis for this research study. According to Easterby-Smith, Thorpe and Jackson (2015), the two central topics philosophers debate about are *ontology* and *epistemology*. Ontology describes the "nature of reality and existence", whereas epistemology comprises "the theory of knowledge", helping to find the best ways and criteria to explore the world's nature (Easterby-Smith, Thorpe & Jackson, 2015, p.46).

### 4.1.1 Ontology

Among philosophers, the ontology discussion includes the fundamentally different positions of *realism* and *relativism*. On the one hand, followers of relativism believe that everything is relative to something else, which implies nihilism: People can never know anything genuinely, and objective evaluations do not exist (Hunt & Hansen, 2009). On the other hand, realism suggests an existing external world that can be observed, but nothing can be known with 100% certainty (Easterby-Smith, Thorpe & Jackson, 2015; Hunt & Hansen, 2009). If we had taken a relativist standpoint and believed that we could never know anything genuinely since there is no reality, this study would have been obsolete. Therefore, we created this study on the underlying foundations of the *scientific realist model of truth* (Hunt & Hansen, 2009): We approached an existing external world through survey-based observations to find evidence for the used theories and concepts. As no researcher can study the truth, we aimed to explain and predict the external world, precisely the phenomenon of vegan food consumption, through the application of the TPB and the virtue signalling concept. This ontological approach of scientific realism allowed us to contribute trustworthy knowledge and thus science-based success (Hunt & Hansen, 2009).

### 4.1.2 Epistemology

Studying the theories of knowledge is what epistemology is about (Easterby-Smith, Thorpe & Jackson, 2015). The two contrasting views within this field are *positivism* and *social constructivism*. Positivism's central idea is that an externally existing world objectively exists and can be measured using objective measures (Burns & Burns, 2008; Easterby-Smith, Thorpe & Jackson, 2015). Social constructivism proposes reality as a social construct, existing through peoples exchange of experiences via language (Easterby-Smith, Thorpe & Jackson, 2015). The proposed quantitative approach to our research problem was based on the positivist paradigm and aimed to approach human behaviour as something that objectively exists. This stood in contrast to qualitative research that intends to approach everything through the lens of human relationships and thus builds on the constructivist paradigm (Burns & Burns, 2008).

Based on this realist and positivist foundation, we continued by defining the following research design of the study.

## 4.2 Research Design

Research designs can be categorized into *exploratory* (qualitative) and *conclusive* (quantitative) methods and serve as guidelines on how information is obtained and analysed to solve a research problem (Burns & Burns, 2008). This study was conducted with a quantitative and thus conclusive methodology. It further fell into the subcategory of *descriptive research*, whose methods are used to observe and describe “what is actually occurring” (Burns & Burns, 2008, p.99).

After defining the final research question, we chose to conduct a single cross-sectional online study with a non-probability sample in our master thesis. Combined with the predictive nature of the TBP, we considered this research strategy as the most suitable option to realize this study’s aim and purpose. In order to conduct the cross-sectional study, we operationalized the findings from the literature review through a TPB-based theoretical framework and the formulation of hypotheses that could be tested empirically (Burns & Burns, 2008). According to Burns and Burns (2008), cross-sectional studies collect data at just one single point in time and thus require less financial and time resources. As we focused on the current underlying motives of vegan food consumption

and conducted the study within a short time frame, a cross-sectional research design was the most suitable option for our research purpose.

Another central component within the research design formulation was the survey development which we will discuss in detail in section 4.5.1 that is dedicated to the questionnaire design. The collected data enabled us to test the previously derived hypotheses by applying structural equation modelling (Easterby-Smith, Thorpe & Jackson, 2015). Further details on the sampling method, measurements, data analysis, research quality, potential biases, and ethical considerations will be provided throughout the subsequent chapters.

## 4.3 Sampling Method

Since we could not interview the whole German and Swedish population on our topic, we had to sample this population. First, this process was conducted by defining the target population and sample, secondly, deciding on a sampling technique, and finally, determining the ideal sample size.

### 4.3.1 Target Population and Sample

Since we researched the perceived underlying benefits of consuming vegan food alternatives, our target group initially included all consumers who buy groceries. To frame this group and narrow it down to a more tangible group, we concentrated on grocery consumers of legal age (18+) who live in Sweden or Germany. Thanks to the infrastructure, internet availability, and devices navigating online, this target group was easily reachable online, favouring our information collection via an online survey.

### 4.3.2 Sampling Technique

As previously described, we conducted the study via an internet-based survey. Due to the vast defined population of all legal-aged Swedish and German consumers, we used several non-probability sampling techniques to recruit study participants. Consequently, some population members

did not have the chance to participate in our study as we had no financial resources and authority to send out the survey link to all population members. Non-probability sampling thus enabled us to save costs and quickly get results, but we were aware that it made a generalization of the results impossible (Burns & Burns, 2008). Our sampling technique was a combination of convenience sampling (e.g. by approaching our student network) and snowball sampling (e.g. by asking our network to share the study link with other Swedes/Germans). Both techniques were sufficient for our study and increased the chances to collect data from a large number of participants within the limited time frame (Burns & Burns, 2008). Furthermore, respondents could participate in a lottery to win a 200kr/20€ Amazon voucher, creating additional motivation to participate.

### 4.3.3 Sample Size

We exceeded the sample size's minimum requirement based on Green's (1991) rule-of-thumb, which states that the minimum sample size should be  $n \geq 50 + 8m$ , where  $m$  is the number of independent variables. His rule defined a minimal number of 106 ( $50 + 8 \times 7$  IVs) observations. Moreover, we aimed to surpass the minimum of 30, so the Central Limit Theorem safely predicts that the sample means will be normally distributed (Burns & Burns, 2008). As later elaborated, this research study computed the results via structural equation modelling requiring a minimum sample size of 200 to provide valuable and reliable estimations (Garson, 2016). Consequently, to ensure statistically significant sample results with a representative sample mean (compared to the population mean), we aimed to reach a sample size of at least  $n=300$ . Fortunately, we achieved this goal and deactivated the online questionnaire after 303 valid participants completed it.

## 4.4 Variable Measurement and Scaling

Since we planned to obtain various kinds of information, we included different levels of measurement (Burns & Burns, 2008). Firstly, the gender variable was defined as *nominal* as the three categories (1) female, (2) male and (3) diverse cannot be ranked. Secondly, information on the participants' age was grouped into categories (18-20; 21-25; 26-30; 31-35 etc.), ranging from 18 to 100, which allowed for increased discretion and simplification. Consequently, the age variable

had to be defined as an *ordinal* instead of a *ratio* variable (Burns & Burns, 2008). Thirdly, we intended to collect the central data based on the participants' attitudes towards formulated statements regarding vegan food consumption. As attitudes cannot be directly observed, the participants were asked to self-report their "degree of favorability" (Burns & Burns, 2008, p.469) towards the given statements. The evaluation was based on easily understandable noncomparative 7-point Likert scales (Malhotra, 2010). The odd number of seven possible replies allowed participants to give a neutral response by choosing the midpoint of '4' (Burns & Burns, 2008; Malhotra, 2010). Furthermore, Finstad (2010) found 7-point Likert scales to contribute more precise findings than 5-point scales and be better suited for electronically shared and thus unsupervised surveys like ours. Finally, the scales enabled us to rank the participants' identified preferences, but there were no constant intervals between the categories. Consequently, the Likert scales measure ordinal variables but are generally treated as *interval* scales in marketing research, allowing us to compute for means and standard deviations (Malhotra, 2010). The details of all variable scales will be elaborated in the following paragraphs, and an overview can be found in table 1 below.

#### *Environmental benefits*

We measured environmental benefits with a scale inspired by Hopwood et al.'s (2020) Vegetarian Motives Inventory (VEMI) and adapted three of its items: "Vegan food alternatives have less of an impact on the environment than animal products", "Vegan food alternatives are more sustainable", and "Vegan food alternatives are environmentally-friendly". All items were measured on a 7-point Likert scale ranging from 1='strongly disagree' to 7='strongly agree'. The reported Cronbach's alpha values of the chosen items were all above 0.9 to ensure sufficient reliability of our study design (Hopwood et al., 2020). The meaning of Cronbach's alpha for this study's reliability will be further elaborated in chapter 4.7 on Research Quality Criteria.

#### *Animal welfare benefits*

We measured the animal welfare benefit based on Lindeman & Väänänen's (2000) scale to measure motives for ethical food choices. Our scale entailed the following two items: "Through the consumption of vegan food alternatives, I contribute to the protection of animal rights" and "Through the consumption of vegan food alternatives, I prevent animals from experiencing pain". We measured respondents' agreement or disagreement with the statements on a 7-point Likert

scale. The selected items had Cronbach's alpha values above 0.9 in Lindeman and Väänänen's (2000) study and could thus be considered to form a reliable scale for the animal welfare construct.

### *Health benefits*

The scale to measure the health benefit variable was inspired by Steptoe's (1995) food choice questionnaire. The three items "Consuming vegan food alternatives ...is nutritious; ...keeps me healthy; and ...is good for my skin/teeth/hair/nails etc." were again measured on a 7-point Likert scale ranging from 1='strongly disagree' to 7='strongly agree'. We chose the items due to their Cronbach's alpha levels above the minimum of 0.7.

### *Virtue Signalling benefits*

For the virtue signalling benefit scale, we used four scale items adapted from Wallace, Buil, and de Chernantony's (2020) scales which measured self- and other-oriented virtue signalling of online donation behaviour. The authors used *Composite Reliability* (CR) values as an alternative to Chronbach's alpha: Their other-oriented scale showed a high CR value of 0.85, which is why we chose and adapted two of their proposed items for our virtue signalling scale ("I like to show my consumption of vegan food alternatives so that people know I am a good person"; "I like to post purchased vegan food alternatives on social media because it makes me look good"). In return, their self-oriented scale presented a CR value just below 0.6, indicating a lower level of within-scale reliability. Nevertheless, we decided to include two of its items to measure peoples' self-oriented virtue signalling as well ("It increases my self-respect when people in my environment notice my consumption of vegan food alternatives"; "It makes me feel good when people in my environment notice my consumption of vegan food alternatives"). This decision was made for two reasons: Firstly, Wallace, Buil, and de Chernantony (2020) considered the overall reliability of their combined virtue signalling scales as acceptable and secondly, the chosen items had high standardised factor loadings close to or above 0.8. All items were measured on the previously mentioned 7-point Likert scale.

### *Theory of Planned Behaviour*

Based on Ajzen's (2006) recommended TPB questionnaire, we adapted four of his scales to match this study's context. To gather the needed data to analyse consumers' attitude, subjective norm,

and perceived behavioural control with regards to vegan food consumption and their respective purchase intention, we introduced two items each, except for purchase intention, which included only one statement (see table 1).

In an overarching context, variables reflect concepts in a measurable, empirical way (Burns & Burns, 2008). As we were not experimenting, our independent variables functioned as predictor variables assumed to influence the dependent variables (Easterby-Smith, Thorpe & Jackson, 2015). The latter was measuring the effect the independent variables had on the study participants (Malhotra, 2010). Our framework's independent variables were environmental, animal welfare, and health benefits, as well as perceived behavioural control and subjective norm. Attitude functioned as an independent variable towards purchase intention but at the same time, formed a dependent variable for the benefit variables. Virtue signalling also constituted an independent and a dependent variable that was expected to be influenced by respondents' subjective norms. The only variable that purely constituted a dependent variable was purchase intention. An overview of all variables and their respective scales can be found below in table 1.

*Table 1: Dependent Variables, Independent Variables, and Scale Items*

<b>Variable</b>	<b>Type</b>	<b>Items &amp; Scales</b>	<b>Source</b>
Environmental Benefit	Independent Variable	<p>Vegan food alternatives have less of an impact on the environment than animal products.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p> <p>Vegan food alternatives are sustainable.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p> <p>Vegan food alternatives are environmentally-friendly.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p>	Hopwood et al., 2020
Animal Welfare Benefit	Independent Variable	<p>Through the consumption of vegan food alternatives, I contribute to the protection of animal rights.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p>	Lindemann & Väänänen, 2000

		<p>Through the consumption of vegan food alternatives, I prevent animals from experiencing pain.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p>	
Health Benefit	Independent Variable	<p>Consuming vegan food alternatives is nutritious.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p> <p>Consuming vegan food alternatives keeps me healthy.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p> <p>Consuming vegan food alternatives is good for my skin/teeth/hair/nails etc.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p>	Steptoe, 1995
Virtue Signalling Benefit	Independent Variable & Dependent Variable	<p>It increases my self-respect when people in my environment notice my consumption of vegan food alternatives.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p> <p>It makes me feel good when people in my environment notice my consumption of vegan food alternatives.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p> <p>I like to show my consumption of vegan food alternatives so that people know I am a good person.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p> <p>I like to post purchased vegan food alternatives on social media because it makes me look good.</p> <p>strongly disagree : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : strongly agree</p>	Wallace, Buil & de Chernantony, 2018
Attitude	Independent Variable & Dependent Variable	<p>Purchasing and consuming (more) vegan food alternatives when I go food shopping would be / is...</p> <p>- Good bad : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : good</p> <p>- Pleasant unpleasant : <u>  </u> 1 : <u>  </u> 2 : <u>  </u> 3 : <u>  </u> 4 : <u>  </u> 5 : <u>  </u> 6 : <u>  </u> 7 : pleasant</p>	Ajzen, 2006

Subjective Norm	Independent Variable	<p>Most people who are important to me approve of my purchases of vegan food alternatives.</p> <p>strongly disagree : <u>  1  </u> : <u>  2  </u> : <u>  3  </u> : <u>  4  </u> : <u>  5  </u> : <u>  6  </u> : <u>  7  </u> : strongly agree</p> <p>Most people who are like me buy vegan food alternatives.</p> <p>strongly disagree : <u>  1  </u> : <u>  2  </u> : <u>  3  </u> : <u>  4  </u> : <u>  5  </u> : <u>  6  </u> : <u>  7  </u> : strongly agree</p>	Ajzen, 2006
Perceived Behavioural Control	Independent Variable	<p>I am confident that I can purchase and consume vegan food alternatives if I want to.</p> <p>strongly disagree : <u>  1  </u> : <u>  2  </u> : <u>  3  </u> : <u>  4  </u> : <u>  5  </u> : <u>  6  </u> : <u>  7  </u> : strongly agree</p> <p>Purchasing vegan food alternatives is up to me.</p> <p>strongly disagree : <u>  1  </u> : <u>  2  </u> : <u>  3  </u> : <u>  4  </u> : <u>  5  </u> : <u>  6  </u> : <u>  7  </u> : strongly agree</p>	Ajzen, 2006
Purchase Intention	Dependent Variable	<p>I intend to purchase and consume vegan food alternatives.</p> <p>strongly disagree : <u>  1  </u> : <u>  2  </u> : <u>  3  </u> : <u>  4  </u> : <u>  5  </u> : <u>  6  </u> : <u>  7  </u> : strongly agree</p>	Ajzen, 2006

Due to the nature of the study topic, it was relevant to point out that all measurements were based on the participants' subjective perceptions and could not be considered objective facts (Burns & Burns, 2008). Nevertheless, the data allowed us to explore possible influences of conspicuous virtue signalling benefits of vegan food on consumers' attitudes and purchase intentions.

## 4.5 Data Collection Method

For our quantitative cross-sectional online study with a non-probability sample, we used an electronic self-completion online survey which was created by using a free survey tool called LamaPoll (LamaPoll, 2021). The tool provider offered a free account for students, enabling us to create as many surveys as we needed with up to 500 respondents per questionnaire. Moreover, LamaPoll's options entailed all the question types we decided to use and optimized the survey for different devices like computers, smartphones or tablets. At the same time, the tool ensured a GDPR compliant protection of all collected data on Europe-based servers (LamaPoll, 2021).

Since the target population was located in two countries, we prepared two identical questionnaires in English and German, to reach more respondents and eliminate potential language barriers. Further, the web-based online survey allowed us to ensure a safe option during social distancing measures due to the COVID-19 pandemic. Additionally, most of our targeted population was well-reachable via this route as they could easily access the survey through a link on their phones, computers or tablets.

Furthermore, distributing the survey online enabled us to create a more complex survey, liberated the questionnaire from interviewer bias (Burns & Burns, 2008), and its anonymity contributed to the participants' honesty. Although the response rate may have been lower (Burns & Burns, 2008), it was easier and faster to reach many respondents by spreading the questionnaire on various online platforms. To reach a broad spectrum of our defined population, we used LinkedIn and Xing, being professional social networks; Facebook and Instagram, social networks whose user-base infers with the targeted population (Stokes, 2014); and WhatsApp, enabling a snowball effect of contacts forwarding the survey further. Before collecting the data, we screened the questionnaires for completeness and assigned codes/numbers to the responses (e.g. Female=1/Male=2).

#### 4.5.1 Questionnaire Design

Based on this study's central research question and its respective research design, all data was collected via a web-based self-completion questionnaire as previously introduced. The survey was created and sent out in German and English to facilitate comprehension by most people. It aimed to capture the participants' perceptions of the consumption of vegan food alternatives, including their attitudes towards the aforementioned personal and collective benefits and the TPB components. "Attitudes are vitally important to business and commerce [...] [because] a consumer with a positive attitude towards a product or service is more likely to buy that product/service" and attitudes are the link between consumers' thoughts about a product and their actual consumption in the marketplace (Burns & Burns, 2008, p.467). Therefore, our central goal was to collect information on consumers' attitudes towards the perceived virtue-signalling benefit of vegan food consumption. In order to collect the relevant data from the consumers within the pre-defined sampling frame, the questionnaire was designed based on the above-mentioned scales (see section 4.4 on Variable Measurement and Scaling). Furthermore, the survey only contained structured, closed

questions with prespecified answers to reduce result-variability while simplifying coding and analysis processes (Malhotra, 2010). Besides a simplified closed question design, we also kept the survey structure as simple as possible so that respondents did not experience confusion or frustration (Bryman & Bell, 2015). Additionally, we offered to participate in the lottery we described in section 4.3.2 on Sampling Technique to create a monetary incentive to complete the survey.

The questionnaire was structured into four integrated components: The first part consisted of a short introduction of the research topic as well as a definition of “vegan food alternatives”. The short paragraph ensured that all participants were equipped with the necessary pre-knowledge to confidently answer all questions. Additionally, the respondents were informed about the estimated duration of completing the total survey. To define the order of the following parts of the actual questionnaire, we followed Malhotra’s (2010) recommendations: We started by collecting research-related *basic information*. This part first included statements regarding the four identified personal and collective benefits before continuing with an adaptation of Ajzen’s (2006) TPB questionnaire statements. Choosing this order allowed the participants to familiarize themselves with different characteristics of vegan food alternatives before answering questions on their overall attitude, subjective norm, and perceived behavioural control. The third section proceeded with more sensitive socio-economic and demographic questions to gather *classification information* after gaining the participants’ trust. Besides gender, age, and country of residence, we also asked for the highest level of completed education and the monthly household income. The most sensitive question on individuals’ income was consciously positioned at the end “after rapport has been established” and included the option of not answering the question (Malhotra, 2010, p.318). The fourth and final part consisted of just one question that asked for optional *identification information* (email address) in case the respondent wanted to participate in the lottery. Images of the final survey order can be found in [Appendix A](#) and [Appendix B](#).

The formulation process of all questionnaire statements and questions followed previously used and reviewed guidelines while avoiding non-ordinary or ambiguous words that could negatively manipulate the results (Malhotra, 2010). All resulting statements and questions can be found in table 1. Finally, using the LamaPoll tool enabled us to create a survey layout that was well readable and easy to understand so that participants could effortlessly navigate through the self-administered questionnaire in their language of choice (see [Appendix A](#) and [Appendix B](#)) (Malhotra,

2010). To ensure the questionnaires' quality and a good overall experience, we also ran a pre-test described in the following section.

#### 4.5.2 Pre-test

In order to ensure that the final questionnaire versions were well-understandable and contained no hindrances before they were sent out, we conducted one pre-test each for the German and English version (Burns & Burns, 2008). The pre-tests involved a small sample of participants who provided us with unbiased feedback so that we had the chance to make final amendments before the official data collection started (Burns & Burns, 2008; Malhotra, 2010).

The sample was chosen via a judgemental sampling method: Based on the expected final sample demographics, we chose two representative groups of pre-test participants with the time and resources to provide us with constructive feedback. This enabled us to increase the online survey quality by reconfirming its comprehension, clarity, duration, and usability.

Besides small amendments such as a currency conversion from Euro to Swedish Krona, specification of the survey's duration, and an addition to the introduction regarding the conditions for respondents to be of legal age, no further changes were necessary.

## 4.6 Data Analysis Method

The procedure for analysing our data followed several different steps: Firstly, we prepared the data, as described in the following paragraph. Secondly, we analysed the descriptive statistics using Jamovi. Finally, we analysed our hypotheses through partial least squares structural equation modelling (PLS-SEM) using SmartPLS.

### 4.6.1 Data Preparation

To get the data into a format we could use with our analysis tool, we had to make minor adjustments. We first extracted the Excel files of the two surveys (English and German) from LamaPoll.

We then ensured to only include completed questionnaires and combined them into one file by translating the German responses to English before coding the questions. For example, the first item concerning environmental benefits (“Vegan food alternatives (e.g. oat milk, meat replacements, soy yoghurt) have less of an impact on the environment than animal products”) was coded as “EB1”. Afterwards, we transcribed the double-checked and exported Excel questionnaire data into a .csv document that functioned as input for SmartPLS and Jamovi. Based on the online survey format, we had already eliminated the problem of missing data, as all questions were set as mandatory. Finally, after transcribing, we manually looked into the data and cleaned the transferred data to ensure a consistent and complete dataset, allowing us to produce valuable descriptive and inferential statistics for our study (Burns & Burns, 2008).

#### 4.6.2 Descriptive Statistics

After preparing the data, we firstly analysed the socio-demographic information, benefit perceptions and TPB results on a descriptive level. We, therefore, imported the corresponding data into the program Jamovi before analysing the hypotheses in SmartPLS with the PLS-SEM method. Jamovi helped us to discover the distribution of frequencies, means, and variability/standard deviations of our sample (Burns & Burns, 2008). This step provided us with an initial overview of the respondents’ gender, age, country of residence, highest level of education, and income. Additionally, it showed their levels of agreement with the four benefits and the descriptive outcomes of the TPB variables.

#### 4.6.3 Partial Least Squares Structural Equation Modelling

According to Hair, Ringle, and Sarstedt (2011), *Partial Least Squares Structural Equation Modelling* (PLS-SEM) is utilised to analyse causal models that aim to maximize the latent dependent variable's explained variance. PLS-SEM draws from different statistical disciplines and is thus a combination of several methods: It provided an all-in-one approach for this study’s analysis that integrated confirmatory factor analysis, path analysis, and multiple regression (Hair et al., 2016; Malhotra, 2010). Furthermore, PLS-SEM enabled us to analyse latent constructs that could not be

measured directly, for instance, attitudes and beliefs or mental constructs, such as virtue signalling in this case.

The unobservable latent variables (e.g. perceived environmental benefit) were investigated using measurable indicators/items (e.g. “Vegan food alternatives have less of an impact on the environment than animal products”; 1: strongly disagree; 7: strongly agree). In PLS-SEM, causal relationships are assumed between the indicators and the latent variables (outer model) and within the latent variables themselves (inner model) (Hair, Ringle & Sarstedt, 2011). The relationships between the latent variables form the inner *structural model*, representing the "paths between the constructs" (Sarstedt, Ringle & Hair, 2017, p.3). In contrast, the relationships between the latent variables and the indicators are referred to as the outer *measurement model*, representing the link “between each construct and its associated indicators” (Sarstedt, Ringle & Hair, 2017, p.3). The path model is typically developed from the left, starting with latent independent variables, to the right, where the dependent variable is located (Sarstedt, Ringle & Hair, 2017). In contrast to other multivariate analyses, dependent variables within PLS-SEM are typically referred to as *endogenous constructs*, while independent variables are termed *exogenous constructs* (Malhotra, 2010). Against the background of the very different approach to model estimation, the PLS-SEM approach is particularly suitable for forecasting purposes. It aims to estimate the initial data as accurately as possible (Weiber & Mühlhaus, 2014). As a result, PLS-SEM allowed us to identify the contribution of all four pre-defined benefits to motivate a positive attitude towards vegan food alternatives. Additionally, it served as a valuable tool to measure the interrelations between the benefits and the TPB variables.

PLS-SEM computations generally consist of separate stages: At first, it assesses the overall fit of the outer measurement model and estimates the factor loadings of the individual indicators with an algorithm (Sarstedt & Cheah, 2019). Within the second stage, several least squares regressions use the latent variables of the structural model as inputs to estimate the path coefficients of the relationships of interest as well as the effect sizes and coefficients of determination of the endogenous constructs (dependent variables) (Sarstedt & Cheah, 2019).

Based on those stages, our analysis followed two subsequent steps as shown in figure 2 below: Firstly, we used the *Confirmatory Factor Analysis* (CFA) methodology and ensured sufficient reliability and validity of the measurement model as further explained in the subsequent chapter 4.7 on Research Quality Criteria. The CFA within structural equation modelling is slightly expanded as it considers possible measurement errors, meaning the percentage of the latent constructs that are not described by the observed indicators (Malhotra, 2010). The second analysis step focussed on the structural model, including the path coefficients, effect sizes and coefficients of determination which will be closer elaborated in chapter 5.2 that covers the PLS-SEM results and findings.

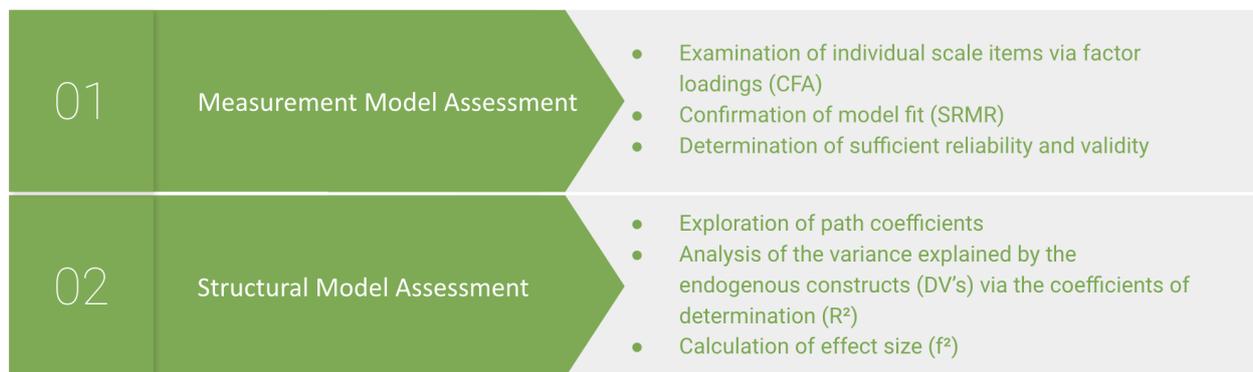


Figure 2: Two Steps to assess PLS-SEM Results

In marketing research and practice, the multivariate data analysis method PLS-SEM has become very popular (Hair et al., 2012; Wong, 2013) as it enables researchers to check entire concepts, theories and causal models (Haenlein & Kaplan, 2004; Marcoulides, 1998; Wong, 2013). Furthermore, PLS-SEM is recommended for the test of theoretical frameworks like ours that focus on the analysis of the predictive perspective (Hair et al., 2019) and was also used by Wallace, Build and de Chernatony (2020), who conducted one of the central reference studies for this research.

To calculate the PLS-SEM of our proposed model, we used the software SmartPLS. The programme is a popular software application in this field, gaining popularity since its launch (Wong, 2013). The intuitive, easy-to-use design of the freely available software eases the task of creating and estimating path models (Sarstedt & Cheah, 2019; Wong, 2013). Moreover, the output of SmartPLS in a convenient visual format presents descriptive statistics and the structural model's evaluation in a comprehensive, easily usable way (Sarstedt & Cheah, 2019).

## 4.7 Research Quality Criteria

To validate a high overall quality of a research study, Burns and Burns (2008) consider a thorough reliability and validity check vital for every research project. Ensuring high levels of reliability and validity for our chosen instrument, the online questionnaire, and the collected data, will allow others to trust our findings and consider the observations of consumers' benefit-driven intentions to purchase vegan food alternatives as true.

### 4.7.1 Reliability

The determination of *reliability* is crucial to produce replicable findings that are consistent and stable (Burns & Burns, 2008; Malhotra, 2010). There are several ways to determine reliability of a descriptive research study: We opted for the internal consistency method, which is a commonly used tool to assess the reliability of sets of items that measure a specific variable (Burns & Burns, 2008). The internal reliability coefficient *Cronbach's alpha* is interpreted as a correlation and commonly used to measure scale data (Burns & Burns, 2008). It is also particularly suitable for questionnaires and attitude scales, for which reason it constituted the most relevant measure of reliability for our study. As mentioned in section 4.4 (Variable Measurement and Scaling), Cronbach's alpha was used during the selection process of existing scale items for our survey. We made sure that all alpha levels were close to or above 0.8 as this indicates that all "items are measuring the same construct" (Burns & Burns, 2008, p.417). Following this approach allowed for the assumption of homogeneity and internal reliability of this research and items with alpha levels below 0.7 were avoided since they indicate heterogeneity of items (Burns & Burns, 2008). Additionally, we utilized *Composite Reliability (CR)* as an alternative coefficient representing "the total amount of true score variance in relation to the total score variance" (Malhotra, 2010, p.693) and is specifically calculated as a reliability measure for PLS-SEM. The final Cronbach's alpha and CR results for the items of this research will be presented within the model fit paragraph in chapter 5. Furthermore, we computed the individual factor loadings of all scale items and utilized CFA to ensure that the theory-based items sufficiently loaded on the pre-defined benefit- and TPB-constructs they were supposed to measure (Malhotra, 2010).

Another measure for reliability is a study's *stability over time* (Bryman & Bell, 2015; Burns & Burns, 2008): It indicates to what extent the study would reproduce the same findings if it was replicated at another point in time with the same measurements. The context of this study is subject to the external fast-paced changes of consumer culture, which would eventually lead to alternative results and thus reduced stability. Nevertheless, the findings contributed to the aim of this cross-sectional study design and provided insights on current personal and collective motivations of vegan food consumption.

Lastly, Bryman and Bell (2015) suggest *inter-observer consistency* as another factor that can affect a study's reliability: The measure reflects the natural bias during any research process, such as when researchers design a questionnaire or interpret the results. With regards to the study design of this paper, the closed-questions format of the questionnaire prevented the occurrence of such a bias to some extent as it reduced the risk of subjective interpretations of the respondents' answers.

There are three additional influences we took into consideration to ensure a sufficient reliability and replicability of the findings: Firstly, we aimed to create a good balance between the number of items and the length of the survey. Despite the law of diminishing returns, more items result in more reliability but simultaneously produce an extensive survey that takes more time to be completed (Burns & Burns, 2008). Since we wanted the questionnaire to take no longer than 10 minutes, the number of items per scale ranged from 1 to 4. Secondly, the online survey was highly standardized and provided the same circumstances for every respondent (Burns & Burns, 2008). Nevertheless, we were not able to control possible external factors, such as noise or other people, that may have distracted the respondents during the survey completion (Malhotra, 2010). Finally, the opinion-based nature of the subjective rating scales for the data collection led to lower reliability coefficients which is typical for consumer studies of this kind (Malhotra, 2010).

Overall, this research study included a number of established measures to achieve the highest possible level of reliability within the given circumstances. The present level of reliability also provided evidence for the level of validity (Malhotra, 2010), which we will discuss in the following sub-chapter.

## 4.7.2 Validity

Verifying a study's *validity* is the second central step to ensure high research quality. The concept of validity assesses if the chosen scales measured the variables they were supposed to capture (Burns & Burns, 2008). In other words, it evaluates the scale's appropriateness for their respective purposes. The overall concept can be categorized into *external* and *internal* validity (Burns & Burns, 2008).

External validity describes to what extent the sample results can be generalized to make assumptions regarding the whole target population, also named population validity (Burns & Burns, 2008). As we had to utilize a combination of different non-probability sampling techniques due to limited resources, the results are not fully generalizable (Burns & Burns, 2008). Nevertheless, the statistics provided valuable insights on vegan consumption motivations, and the concept of virtue signalling since the final sample's demographics were similar to the target population characteristics.

Internal validity depicts the quality of the study design with regards to its potential systematic and random error scores (Burns & Burns, 2008; Malhotra, 2010). Since there are various specific validity types (Burns & Burns, 2008; Malhotra, 2010), we focused on the ones that are most relevant for this body of research. By selecting predefined and tested scales with high alpha scores for this study's questionnaire, sufficient levels of *content* and *construct* validity could be achieved, indicating that the scales' indicators actually measured the latent constructs (e.g. virtue signalling or attitude) (Malhotra, 2010). Furthermore, *concurrent* validity as a form of *criterion* validity could be ensured by collecting the context-relevant data for this research and demographic criterion variables at the same time (Malhotra, 2010). With regards to this study's PLS-SEM analysis, the constructs' *convergent* and *discriminant* validity was measured via the *Average Variance Extracted* (AVE) measure, which describes to what extent the latent constructs explain the variance of their respective indicators (Malhotra, 2010). Our model's discriminant validity was additionally assessed by computing for the *Heterotrait-Monotrait Ratio* (HTMT) between all constructs suitable for PLS-SEM results with similar factor loadings (Henseler, Ringle & Sarstedt, 2015).

According to Henseler et al. (2015), HTMT values below 0.85 prove no discriminant validity issues, ensuring that latent constructs share more variance with their own indicators than with other latent constructs.

In summary, the criteria to ensure strong reliability and validity within the possibilities of a non-probability cross-sectional online study have been followed and led to overall high research quality.

### 4.7.3 Social Desirability Bias

Another factor that impacted the quality of this study and specifically the self-reported survey data was the *social desirability bias* (Burns & Burns, 2008; Malhotra, 2010): It describes peoples' tendency to choose answers they consider as socially desirable instead of following their actual opinions. Due to the personal and sensitive nature of virtue signalling behaviour and attitude scales, social desirability has likely influenced the collected information to a certain extent. Within this study's context, the described bias could have potentially resulted in lower ratings of the virtue signalling items (e.g. "I like to show my consumption of vegan food alternatives so that people know I am a good person") compared to, for instance, the environmental or animal welfare items. This assumption was based on previous findings, which showed that survey participants tend to display their behaviour as more sustainable than it is, even if the behaviour in question is as insensitive as organic fruit consumption (Cerri et al., 2019). Since our survey mainly revolved around self-reported attitudes towards the sustainable behaviour of vegan food consumption, this possible effect had to be considered during the data comparison and discussion of all four motives.

Nevertheless, this research was designed to minimize the impact of respondents' social desirability bias. Malhotra (2010, p. 195) considers anonymous online surveys as the best option to avoid such biases as they "do not involve any social interaction" that could manipulate respondents to give biased answers. Since this research design followed this recommendation by clearly informing all survey participants that their responses are collected fully anonymously, the impact of social desirability was reduced as much as possible.

## 4.8 Research Ethics

Sticking to ethical principles was necessary at all stages of our research. To avoid ethical issues and follow a high ethical standard, we followed Easterby-Smith, Thorpe and Jackson's (2015) adaptation of Bryman and Bell's (2007) *eleven principles of ethical practice*. Those can be divided into two sections (Easterby-Smith, Thorpe & Jackson, 2015): Firstly, protecting the 'research participants' by not harming them, respecting their dignity, providing sufficient information, and ensuring high levels of privacy protection, confidentiality and anonymity of the obtained data. Secondly, protecting the 'research community's integrity' by avoiding conflicts of interest and misleading findings or research bias, not pretending false research aims and an overall honest and transparent communication. Moreover, researchers have to pay close attention to possible biases that could lead to misleading reports of the findings to ensure ethical research practices (Easterby-Smith, Thorpe & Jackson, 2015).

Our questionnaire only asked for age ranges and did not require people to specify their name or birthdate. It thus collected as little demographic data as necessary for this research purpose and made it impossible to identify individuals from the gathered data. The extracted information was kept to a minimum, and respondents were previously informed about our research aim in an introductory part of our survey. Moreover, we provided the participants with our email addresses in case of any questions or doubts. The storage in a GDPR compliant way was ensured through the chosen survey programme (LamaPoll), aiming at the highest privacy possible.

We hereby confirm that we did not deceive what this research aims at and do not have any personal conflict of interest in conducting this research. By acting with the highest focus on confidentiality, we treated the obtained data with the best possible protection and our highest ethical standards.

# 5 Results and Findings

## 5.1 Descriptive Statistics

This chapter provides an overview of the final dataset. It starts with a description of the demographic data of the respondents. After that, the focus shifts to the descriptive outcomes of the questionnaire statements regarding their mean values and standard deviations. Within the second part, we present the PLS-SEM analysis by starting with the model fit, including its validity and reliability, before evaluating the statistical outcomes with regards to the assumed hypotheses.

### 5.1.1 Demographics

In total, we collected 303 valid responses with our online survey. The five frequency tables below present the collected demographic information: the gender, age, country of residence, the highest level of completed education, and monthly household income. The results showed that approximately 2/3 of the participants were female, most of them in their twenties. Furthermore, the majority of participants lived in Germany and accomplished a Bachelor's or Master's degree. The average household income of all respondents was evenly distributed among the selectable options.

*Table 2a: Gender*

Gender			
Levels	Counts	% of Total	Cumulative %
male	100	33.0 %	33.0 %
female	201	66.3 %	99.3 %
not specified	2	0.7 %	100.0 %

*Table 2b: Country of Residence*

Country of residence			
Levels	Counts	% of Total	Cumulative %
Germany	234	77.2 %	77.2 %
Sweden	69	22.8 %	100.0 %

Table 2c: Age

Age			
Levels	Counts	% of Total	Cumulative %
18-20	12	4.0 %	4.0 %
21-25	106	35.0 %	38.9 %
26-30	98	32.3 %	71.3 %
31-35	25	8.3 %	79.5 %
36-40	10	3.3 %	82.8 %
41-45	7	2.3 %	85.1 %
46-50	8	2.6 %	87.8 %
51-55	16	5.3 %	93.1 %
56-60	16	5.3 %	98.3 %
61-65	2	0.7 %	99.0 %
66-70	1	0.3 %	99.3 %
71-75	1	0.3 %	99.7 %
76-80	1	0.3 %	100.0 %

Table 2d: Education

Education			
Levels	Counts	% of Total	Cumulative %
Highschool	22	7.3 %	7.3 %
Apprenticeship	43	14.2 %	21.5 %
Bachelor	127	41.9 %	63.4 %
Master	107	35.3 %	98.7 %
Doctor	4	1.3 %	100.0 %

Table 2e: Household Income

Household income			
Levels	Counts	% of Total	Cumulative %
I prefer not to answer	22	7.3 %	7.3 %
< 1.000€	51	16.8 %	24.1 %
1.000 - 2.000€	62	20.5 %	44.6 %
2.000 - 3.000€	54	17.8 %	62.4 %
3.000 - 4.000€	45	14.9 %	77.2 %
4.000 - 5.000€	31	10.2 %	87.5 %
> 5.000€	38	12.5 %	100.0 %

### 5.1.2 Mean Values and Standard Deviations

The second part of the descriptive statistics consists of the total mean values as well as the standard deviations that resulted from the survey responses. To recap, the provided answer possibilities ranged from 1 (e.g. “strongly disagree”) to 7 (e.g. “strongly agree”), meaning that the value of 4 indicated a neutral position towards the given statement.

As shown in table 3 below, animal welfare benefit showed the highest mean value of 6.163 and virtue signalling with a mean of 3.495 appeared to provide the least amount of benefit for the participants of this study. In general, it could be summarized that people agreed with the statements on environmental, animal welfare, and health benefits, since all means were above 5. While virtue signalling with its lower mean of 3.495 did not appear to benefit the majority of respondents, it stood out that the opinions towards the virtue signalling statements contained the highest standard deviations with an average of 2.234. According to Burns and Burns (2008) higher standard deviations indicate prevalent oppositional opinions, and lower values are signs of agreement within the sample. Consequently, the additional motive of virtue signalling to purchase and consume plant-based food alternatives seemed to be relevant for a number of respondents. The standard deviations of the remaining benefit variables showed lower values and ranged from 1.39 to 1.507, indicating similarly positive perceptions of the survey respondents.

*Table 3: Benefit Variables (mean values & standard deviations)*

	<b>Environmental Benefit</b>	<b>Animal Welfare Benefit</b>	<b>Health Benefit</b>	<b>Virtue Signalling Benefit</b>
<b>Mean Values</b>	5.615	6.163	5.072	3.495
<b>Standard Deviation</b>	1.390	1.424	1.507	2.234

With regards to the TPB components, the descriptive results (see table 4) showed the highest mean values for perceived behavioural control (6.360), followed by peoples' agreement with the attitude items (6.015). Further, the mean value of 5.550 showed a general intention of the survey respondents to purchase and consume (more) vegan food alternatives. Lastly, the level of agreement with the subjective norm items had the lowest mean value of 4.795 but simultaneously the highest standard deviation of 1.805, which indicated slightly more differing opinions within the sample. In general, it stood out that the survey participants had a very positive attitude towards vegan food alternatives. Furthermore, the high perceived behavioural control mean of 6.360 indicated that they did not feel limited or restricted in any way to purchase those food products if they wanted to.

Table 4: Theory of Planned Behaviour Variables (mean values & standard deviations)

	<b>Attitude</b>	<b>Subjective Norm</b>	<b>Perceived Behavioural Control</b>	<b>Purchase Intention</b>
<b>Mean Values</b>	6.015	4.795	6.360	5.550
<b>Standard Deviation</b>	1.300	1.805	1.145	1.670

The underlying meanings of these results for this study's context, and the significance of their relationships will first be analysed based on the PLS-SEM results and thereafter interpreted within the discussion.

## 5.2 Partial Least Squares Structural Equation Modelling

The method of PLS-SEM enabled us to analyse the data set in two steps. After running the PLS-SEM computation, SmartPLS provided us with the needed data to examine the overall model fit and the CFA with regards to the validity and reliability of the measurement model. Afterwards, we interpreted the structural model, namely the individual t-test results and coefficients of determination, to find out which hypotheses could be accepted as well as how the endogenous and exogenous constructs were related.

### 5.2.1 Model Fit and Confirmatory Factor Analysis

Within PLS-SEM analyses, the outer measurement model constitutes the basis for the inner structural model, which computes the extent and significance of the construct relationships. Thus, the overall suitability and quality of the measurement model had to be analysed before discussing the final PLS-SEM results of this study's path diagram. Consequently, acceptable CFA and model fit results had to confirm that the measurement model is reliable and valid to provide a fitting basis for the structural model, allowing us to utilize its statistics to accept or reject our hypotheses.

The assessment of the measurement model's overall fit was based on the absolute *badness-of-fit* which shows a model's error and possible deviation by comparing the sample data's observed covariance to the covariance that the PLS-SEM model estimated (Malhotra, 2010). This technique can be compared to the underlying method of CFA (Malhotra, 2010). The suggested index to calculate the badness-of-fit for this study's PLS-SEM-based model is the *Standardized Root Mean Residual* (SRMR) (Malhotra, 2010). Since its value is standardized, it can also be utilized to compare different models' fit (Malhotra, 2010). In general, SRMR values should be as low as possible and Malhotra (2010) considers a good model fit to be present when SRMR values are 0.08 or less, while other researchers still confirm a good model fit with values up to 0.10 (e.g. Garson, 2016). SmartPLS computes two separate SRMR values: One for the saturated model, taking all possible relationships into account and another one for the estimated model, including only the correlations between the predefined relationships of our model structure (SmartPLS, 2021). Within this study, the saturated model had a very low SRMR of 0.052, and the estimated model had a value of 0.091. As both values were below 0.10, they indicated a good fit of our model. In other words, we could assume that the development of our theoretical framework was successful and the four benefit-constructs, combined with the Theory of Planned Behaviour, sufficiently explained the covariance of the observed indicators.

The second assessment of the measurement model looked into its reliability and convergent and discriminant validity (Malhotra, 2010). This step was crucial to verify if our chosen scale items actually measured the benefit- and TPB-constructs. As stated in the methodology chapter, the reliability of each construct was tested through CR and Cronbach's alpha values as well as a CFA of all scale items' factor loadings. Subsequently, the scales' validity was assessed by computing for AVE (Malhotra, 2010) and the HTMT ration (Henseler, Ringle & Sarstedt, 2015). All final values can be found in table 5 and 6 below.

Table 5: Reliability and Validity Results of Measurement Model

Construct / Variable	Item	Factor Loadings	VIF	Composite Reliability	Cronbach's Alpha	AVE
<b>Environmental Benefit</b>	Vegan food alternatives... ...have less of an impact on the environment than animal products.	0.815	1.472	0.902	0.837	0.755
	...are sustainable.	0.892	3.074			
	...are environmentally- friendly.	0.987	3.095			
<b>Animal Welfare Benefit</b>	Through the consumption of vegan food alternatives... ...I contribute to the protection of animal rights.	0.949	2.652	0.944	0.882	0.895
	...I prevent animals from experiencing pain.	0.942	2.652			
<b>Health Benefit</b>	Consuming vegan food alternatives... ...is nutritious.	0.913	2.798	0.944	0.911	0.849
	...keeps me healthy.	0.932	3.414			
	...is good for my skin/teeth/hair/nails etc.	0.919	3.167			
<b>Virtue Signalling Benefit</b>	It increases my self-respect when people in my environment notice my consumption of vegan food alternatives.	0.932	5.331	0.957	0.940	0.848
	It makes me feel good when people in my environment notice my consumption of vegan food alternatives.	0.933	5.675			
	I like to show my consumption of vegan food alternatives so that people know I am a good person.	0.938	5.195			
	I like to post purchased vegan food alternatives on social media because it makes me look good.	0.879	3.357			

<b>Attitude</b>	Purchasing and consuming (more) vegan food alternatives when I go food shopping would be / is... ...Good	0.945	2.580	0.943	0.878	0.891
	...Pleasant	0.943	2.580			
<b>Subjective Norm</b>	Most people who are important to me approve of my purchases of vegan food alternatives.	0.907	1.780	0.908	0.797	0.831
	Most people who are like me buy vegan food alternatives.	0.916	1.780			
<b>Perceived Behavioural Control</b>	I am confident that I can purchase and consume vegan food alternatives if I want to.	0.919	1.322	0.850	0.661	0.740
	Purchasing vegan food alternatives is up to me.	0.797	1.322			
<b>Purchase Intention</b>	I intend to purchase and consume vegan food alternatives.	1.000	1.000	1.000	1.000	1.000

All CR values were larger than the threshold of 0.7 and, besides the behavioural control value of 0.85, higher than 0.9. The Cronbach's alpha values confirmed these results: The behavioural control construct again showed the lowest internal consistency reliability, but SmartPLS still computed a sufficient alpha value of 0.661, which is higher than the minimum of 0.6 (Malhotra, 2010). All further alphas in return could be considered strong with values up to 0.940 of the virtue signalling construct. In general, Cronbach's alpha is considered more conservative than the more liberal CR measure since the former does not consider the items' individual loads while the latter weighs them accordingly (Hair et al., 2019). As both metrics met the desired outcomes, we could assume high reliability and internal consistency of all constructs.

Furthermore, the CFA results revealed that all factor loadings exceeded the preferred level of 0.7 (Garson, 2016; Malhotra, 2010) and the majority of constructs accounted for over 80% ( $0.9^2 = 0.8$ ) of the variance of their respective variables since their factor loadings were higher than 0.9 (Table 5). Additionally, individual t-tests for all outer loadings calculated p-values close to zero ( $> 0.001$ ) providing that all items were significant at a 95% confidence level. Consequently, the CFA

confirmed that no items had to be removed, and the factor loadings pointed towards high convergent validity. This finding was supported by the more conservative AVE values (compared to CR) as they were all larger than the minimum level of 0.5 (Malhotra, 2010). With 89.5% (AVE = 0.895), the latent construct of animal welfare benefit accounted for the highest percentage of variance of its observed variables, while the behavioural control construct explained the least amount of variance with 74% (AVE = 0.740). Nevertheless, the variance caused by measurement error was generally low, proving the model's sufficient convergent and discriminant validity. It should be mentioned that the purchase intention values are all equal to 1 since we followed Ajzen's (2006) suggestion to measure this endogenous construct with one item only. The results regarding the relationships between purchase intention and the benefit / TPB constructs will be elucidated in the following chapter. Finally, the HTMT ratio was suitable as a second metric to assess the discriminant validity of the data set as the factor loadings' ranges did not exceed 0.2 points (Henseler, Ringle & Sarstedt, 2015). As shown in table 6 below, the ratios stayed below 0.85, supporting the AVE result of adequate discriminant validity.

*Table 6: Heterotrait-Monotrait Ratio*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>(1) Environmental Benefit</b>								
<b>(2) Animal Welfare Benefit</b>	0.595							
<b>(3) Health Benefit</b>	0.750	0.456						
<b>(4) Virtue Signalling Benefit</b>	0.503	0.175	0.619					
<b>(5) Attitude</b>	0.536	0.363	0.456	0.407				
<b>(6) Subjective Norm</b>	0.551	0.372	0.603	0.674	0.591			
<b>(7) Perc. Behavioural Control</b>	0.226	0.239	0.264	0.169	0.363	0.316		
<b>(8) Purchase Intention</b>	0.473	0.357	0.487	0.491	0.595	0.629	0.237	

Before elaborating the t-test results for our eight hypotheses in the subsequent section, it was important to confirm that there was no multicollinearity between the variables (scale items), as the computed *Variance Inflation Factors* (VIF) were all well below 10 (see table 5). According to Burns and Burns (2008), VIF values below 10 indicate that there are no concerning correlations between independent variables that could affect the estimation precision of the model.

To conclude, the CR, Cronbach’s alpha, all factor loadings, the AVE and VIF results, and the HTMT ratios provided evidence of sufficient model fit, as well as high reliability and validity of the measurement model. In other words, confirming that the scales of the outer measurement model were valid and reliable to test the structural model allowed us to use the PLS-SEM results for the following hypotheses validation.

### 5.2.2 Hypotheses Testing and Structural Model Results

To assess the relationship between the constructs and test our hypotheses, we approached the structural model, whose results can be seen in figure 3 and table 7 below.

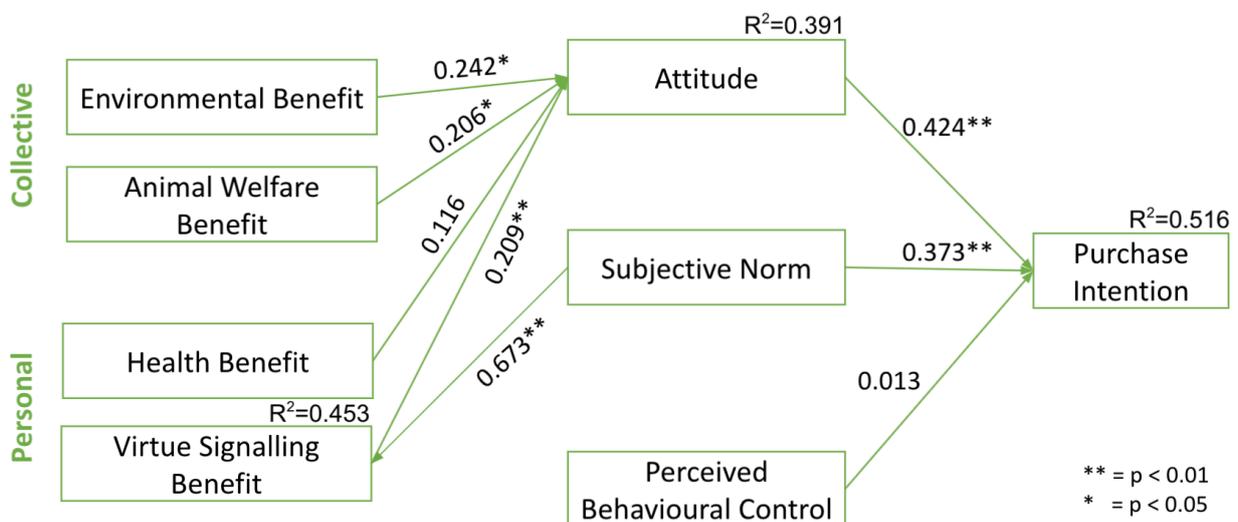


Figure 3: Framework including PathCoefficients

Using PLS-SEM to compute the path coefficients allowed us to analyse the relationships between the constructs. In general, the standardized values for those coefficients range from -1 to +1 (Hair et al., 2016). Negative values symbolize a negative relationship between the constructs, whereas positive values oppositely represent a positive relationship between the variables. All of the path coefficients in our model had positive values, thus indicating positive relationships. This matched with our hypotheses' assumptions and therefore, the positive directions we proposed for all researched relationships could be confirmed. Health benefit towards attitude and perceived behavioural control towards purchase intention only reached insignificant values around 0.1 and below. The path of attitude towards purchase intention exceeded 0.4 and subjective norm towards purchase intention almost reached 0.4 as well. The strongest coefficient could be observed from subjective norm to virtue signalling benefit, as it reached 0.673 and was thus almost two to three times as high as most of the other coefficients. This indicated a very strong positive relationship between the respondents' perceived subjective norm and their agreement with the virtue signalling motive to consume vegan food alternatives.

*Table 7: Hypothesis Test*

<b>Hypothesis</b>	<b>Independent Variable</b>	<b>Dependent Variable</b>	<b>Path coefficient</b>	<b>t-value</b>	<b>p-value</b>	<b>decision</b>
H1	Environmental Benefit	Attitude	0.242	2.463	0.014	supported
H2	Animal Welfare	Attitude	0.206	2.280	0.023	supported
H3	Health Benefit	Attitude	0.116	1.344	0.179	Not supported
H4	Virtue Signalling Benefit	Attitude	0.209	2.979	0.003	supported
H5	Subjective Norm	Virtue Signalling Benefit	0.673	18.844	<0.001	supported
H6	Attitude	Purchase Intention	0.424	6.243	<0.001	supported
H7	Subjective Norm	Purchase Intention	0.373	7.973	<0.001	supported
H8	Perc. Behavioural Control	Purchase Intention	0.013	0.247	0.805	Not supported

Moreover, we analysed the t- and p-values in order to evaluate whether we could reject the null hypotheses and instead support our corresponding positive hypotheses. We considered a relationship significant if the t-value exceeded the critical value of 1.95 and the corresponding p-value was below 5% (Burns & Burns, 2008). In other words, all hypotheses whose described relationships had calculated p-values close to zero ( $<0.001$ ) were significant at a 95% confidence level. Based on those critical thresholds, hypotheses 1, 2, 4, 5, 6, and 7 were supported, whereas hypotheses 3 and 8 had insignificant p-values above 0.05 and were thus not supported.

*Table 8: Structural Model Figures*

<b>Hypothesis</b>	<b>Independent Variable &amp; Dependent Variable</b>	<b>R<sup>2</sup> of the DV</b>	<b>f<sup>2</sup></b>
H1	Environmental Benefit → Attitude	0.391	0.038
H2	Animal Welfare Benefit → Attitude	0.391	0.042
H3	Health Benefit → Attitude	0.391	0.009
H4	Virtue Signalling Benefit → Attitude	0.391	0.041
H5	Subjective Norm → Virtue Signalling Benefit	0.453	0.827
H6	Attitude → Purchase Intention	0.516	0.225
H7	Subjective Norm → Purchase Intention	0.516	0.179
H8	Perc. Behavioural Control → Purchase intention	0.516	0.000

R<sup>2</sup> is the coefficient of determination and describes the percentage of the dependent variable's variation collectively explained by all of the independent variables connected with it (Burns & Burns, 2008). The value of R<sup>2</sup> lies between 0 (poor fit) and 1 (perfect fit) (Easterby-Smith, Thorpe & Jackson, 2015). In our model, 39.1% of the attitude variation was explained by the four motives we introduced: environmental, animal welfare, health, and virtue signalling benefits. Moreover, 45.3% of the variation of virtue signalling benefit was explained by the subjective norm construct. Furthermore, 51.6% of peoples' purchase intention variance was covered by attitude, subjective norm, and perceived behavioural control. According to Sutton (1998), TPB models, on average,

explain 40% to 50% of the variance in the dependent purchase intention variable, which positions our model at the upper end.

The effect size, measured in  $f^2$ , represents the strength of the relationships between the variables (Burns & Burns, 2008). In line with the previously mentioned path coefficients, we found a large effect size ( $>0.35$ ) for H5. H6 and H7 showed a medium effect size ( $>0.15$ ), whereas H1, H2 and H4 presented smaller effect sizes ( $>0.02$ ) according to Cohen's guidelines (Burns & Burns, 2008; Dakduk, González & Portalanza, 2019). Only the relationships between the health benefit of vegan food products and peoples' attitude (H3) as well as between perceived behavioural control and purchase intention (H8) showed irrelevant effect sizes close to zero.

To summarise, the theoretical framework of this study was successful and allowed us to measure the selected constructs and their relationships. Based on the PLS-SEM analysis, we could confirm six out of eight predicted hypotheses. The consequential meanings of these results with regards to our central research question will be interpreted in the following discussion.

# 6 Discussion

## 6.1 Four Motives for Vegan Food Consumption

Researching virtue signalling as an additional benefit that motivates the consumption intention of vegan food alternatives constituted the central research question of this thesis. Based on the aforementioned results, the virtue signalling benefit can be considered a significant motive within this study's context. The analysis confirmed that the TPB-model was suitable to identify that a significant number of consumers saw the overt consumption of vegan food alternatives as a way “to demonstrate one's good character or the moral correctness of one's position on a particular issue” (Oxford Dictionary, 2021, n.p.), which positively affected their attitude and subsequently their purchase intention. The following section will evaluate the virtue signalling results in further detail to understand their underlying meanings. Furthermore, this new motive is positioned in relation to the three established benefits of environmental protection, animal welfare, and personal health. In an overarching context, this discussion of the benefit hypotheses constitutes our contribution to the current academic discourse, which was introduced within the literature review.

The hypothesis tests supported the relevance of the virtue signalling concept as we could accept this thesis' central hypothesis, which states that *virtue signalling benefits have a positive impact on attitude towards vegan food alternatives* (H4). The PLS-SEM results, specifically the effect sizes, further indicated that virtue signalling contributed as much to a positive attitude as animal welfare and environmental benefits. In addition, it turned out that, after environmental benefits, virtue signalling had the second-largest influence on peoples' attitude and through the attitude also on their purchase intention. Within this context, it stood out that the respondents had strongly varying opinions towards this particular benefit of the consumption of vegan food alternatives. Based on this topic's personal and sensitive nature, the results presumably stem from peoples' social desirability bias. Additionally, it took a fairly high level of self-reflection and honesty to agree or even fully agree to the respective statements (e.g. “I like to post purchased vegan food

alternatives on social media because it makes me look good”). Nevertheless, the study results enabled us to argue that there are consumers who obtain a virtue signalling benefit from openly consuming vegan food alternatives while others disagree or conceal their actual attitudes towards this sensitive topic. This discrepancy was further represented by the lower agreement with signalling benefits compared to the environmental, health, and animal welfare benefits. However, taking the previously mentioned social desirability bias into account led us to assume that the actual number of people who agree or at least slightly agree with the virtue signalling benefit might be higher, making the virtue signalling benefit even more relevant for future research and brand or product managers. The significance of perceived virtue signalling benefits for a positive attitude and the general intention to purchase (more) vegan food products further supported Lundahl’s (2020) findings regarding the increasing ‘destigmatisation’ of veganism. In other words, our results not only confirmed her statement that “veganism has been transformed in the recent years from a stigmatised lifestyle to a normalised [...] diet” (Lundahl, 2020, p.241) but identified vegan food alternatives as a desirable way to signal one’s virtue to others.

Previous scholars argued that virtue signalling could motivate unethical (Wallace, Buil & de Chernatony, 2020) or hypocritical (Tosi & Warmke, 2016) behaviour and compared it to superficial greenwashing practices (Gray et al., 2020). Based on this study, we argue that the concept can go in both directions and agree with Levy’s (2020) positive notion of virtue signalling. If this personal motive with the potential for instant gratification can motivate consumers to make more sustainable choices, it can be considered as beneficial and valuable: Even if the purchases are motivated by self-interest or pursued as ‘vanity projects’ (Levy, 2020) rather than for altruistic reasons, the benefits of more sustainable products (e.g. vegan food alternatives) for the planet and society remain the same.

Consequently, the fact that some consumers were significantly motivated by virtue signalling benefits is also relevant within the broader context of sustainable consumption behaviour. If people feel drawn to visibly make more sustainable choices since it makes them ‘feel good’ when others notice their behaviour, this personal motive can accelerate all kinds of green behaviour patterns. Choosing more environmentally friendly products or services to signal one’s virtue and overall pro-environmental identity, provides instant gratification, which in return positively influences consumers to repeat those choices. This instant feeling has the potential to also motivate more

sustainable choices in moments when consumers, for instance, have no time or capacity to think about the environmental and/or animal welfare impact of their purchase. To be precise, virtue signalling benefits could turn sustainable products into ‘trendy’ and desirable options from a more self-centred standpoint. Moreover, the virtue signalling concept is based on the conspicuous consumption theory, which mainly describes the overt consumption of luxury goods that many people desire but only a few can afford (Veblen, 2006). Consequently, its relevance for plant-based food alternatives and possibly more sustainable choices in general could indicate that society increasingly perceives sustainable consumption as a new, more affordable, and less material way to signal one’s good taste, virtue, or even status.

Plant-based food can generally be considered sustainable and ethical since it has a low environmental impact (Poore & Nemecek, 2018; Tukker et al., 2011; Westhoek et al., 2014) and contributes to animal welfare (Bertuzzi, 2020; Janssen et al., 2016; Napoli & Ouschan, 2020). As this study’s results supported hypotheses 1 and 2 that *environmental* (H1) and *animal welfare benefits* have a positive impact on attitude towards vegan food alternatives (H2), we agreed with previous identifications of the mentioned motives as relevant drivers for vegan food choices (Janssen et al., 2016). Unexpectedly, those two and the virtue signalling benefits clearly had a larger impact on consumers’ positive attitude than the hypothesized perceived *health benefits of vegan food alternatives that were not significant for a positive attitude* (H3). Therefore, our research contributed an opposing standpoint to prevalent studies that identified the health benefits of vegan food as relevant or even central consumption drivers (Janssen et al., 2016; White, 2018). This insignificance of the third hypothesis could potentially be explained by the fact that the survey particularly asked to think of plant-based product replacements, such as vegan meat, non-dairy cheese or oat milk, instead of fruits and vegetables. Since those products are still relatively new on the market and people may be unsure what they consist of, they may be mostly consumed for other reasons, such as their reduced environmental footprint or animal protection. Additionally, previous studies only validated the health-based motive as relevant for people who already followed a vegan diet (Janssen et al., 2016). This study analysed the impact of perceived health benefits on the attitudes of a general sample that included vegan, as well as non-vegan consumers. Nevertheless, the mean value showed that the majority of people generally considered vegan products as healthy alternatives to animal-based options. Those results implied that people can have a positive attitude towards vegan food products even if they do not perceive them as healthy and vice versa. This

opened the question if the personal health benefit might be more influential for vegan consumers, whereas non-vegan consumers tend to purchase plant-based alternatives for different reasons.

In summary, entering the academic discourse on vegan food consumption by connecting it with the novel concept of virtue signalling enabled us to contribute new insights into sustainable consumer behaviour. Thoroughly reviewing existing literature on plant-based food consumption with regards to its underlying motivations led us to question if virtue signalling may be an additional personal motive that had yet to be discovered. While certainly not everyone agreed with or was motivated by the virtue signalling benefit of vegan food, the concept proved to be a suitable factor to explain peoples' underlying motives that can result in a positive attitude and finally their intention to choose a plant-based over an animal-based product. Furthermore, the established motives of environmental and animal protection could be confirmed, while the perceived healthiness of vegan food alternatives did not lead to positive attitudes and the subsequent purchase intention.

## 6.2 The Impact of Consumers' Subjective Norm

Previous studies have identified perceived subjective norms as a central driver for sustainable consumption behaviour (e.g. Ruiz de Maya, López-López & Munuera, 2011). Based on our analysis, we can confirm these findings, since subjective norms showed a significant relationship with purchase intention (H7). Thus, awareness of general approval of one's important social contacts plays a relevant role in vegan product choices.

To go one step further, the acceptance of the fifth hypothesis, that *subjective norm has a positive impact on perceived virtue signalling benefit* (H5) allowed us to argue that people, who are under increased normative control and agreed with the subjective norm construct, are very likely to perceive virtue signalling as a benefit of plant-based food products. They felt that people like them also purchase those products and confirmed that important people in their network approve of them buying vegan food alternatives. Consequently, the virtue signalling benefit partly depends on consumers' social environment. It is thus perceived less by people whose close social network, meaning people they share a social identity with, does not consider vegan products as virtuous or morally desirable (White et al., 2009). The positive impact of perceived subjective norm on purchase

intention provided additional support for the previously identified shift of social norms pointing towards a more positive notion of vegan food alternatives as desirable and socially accepted (Lundahl, 2020). Since all participants were based in Germany or Sweden and mostly in their 20s, the results implied that this specific population seems to move away from the stigmatized perception (Markowski & Roxburgh, 2019) of plant-based products and potentially vegan diets in general. Even though this demographic only represents a small part of society, the findings indicate that sustainable consumption choices might soon become socially expected in upcoming generations and the default option for increasing numbers of all consumer groups.

In summary, the consumption of vegan products is not just an individual and internal decision but externally influenced. Firstly, the results supported that the social networks consumers find themselves in have a significant influence on their intentions to purchase vegan food alternatives and their perception of virtue signalling benefits. Secondly, this study confirmed the shifting perception of veganism as a less stigmatized and increasingly socially accepted consumption trend.

### 6.3 Discussion of the TPB Results

During the analysis of the original TPB components, attitude and subjective norm turned out to be significant for the purchase intention of vegan food alternatives. As stated in our hypotheses 6 and 7, *attitude towards vegan food alternatives has a positive influence on consumers' purchase intention* (H6) and *perceived subjective norm to purchase vegan food alternatives has a positive influence on consumers' purchase intention* (H7). Attitude stood out as having the most considerable influence on purchase intention, followed by peoples' subjective norm. Thus, for a person's purchase intention, the attitude has a bigger weight than perceived social expectations. This finding was in line with previous TPB-based research of other topics than vegan food alternatives, which also identified attitude as the most explaining factor for peoples' intentions to enact a particular behaviour (e.g. Ajzen, 2015).

The hypothesis that *perceived behavioural control with respect to vegan food alternatives has a positive influence on consumers' purchase intention* (H8) could not be supported. Consequently, the third component of the TPB perceived behavioural control, was not significant for the

endogenous construct of purchase intention. In other words, consumers' behavioural control did not significantly influence their intention to purchase vegan food alternatives. In general, everyone felt to be in full control to purchase plant-based products if desired. This result most likely stems from the wide availability and general affordability of vegan food alternatives in all Swedish and German supermarkets and the respondents' freedom to purchase their own food. With these findings, we add an oppositional standpoint to previous considerations of veganism as an expensive, privileged, and exclusive lifestyle (Greenebaum, 2018, 2017). However, it should be mentioned that the variable of perceived behavioural control would potentially be more relevant within an underaged target population that still lives with their parents or for respondents from developing countries. Thus, the Theory of Reasoned Action (which does not include perceived behavioural control) would have also been suitable to research consumers' purchase intention in this study's context (Ajzen, 1985).

Extending the TPB model by adding the four identified benefits to the attitude construct proved to be a successful approach to detect the relevance of environmental protection, animal welfare, personal health, and virtue signalling to explain consumers' attitudes. As mentioned previously, the collective environmental and animal welfare motives that were chosen throughout the literature review, as well as the personal virtue signalling benefit, were confirmed as important influences on consumers' attitude and, subsequently, their purchase intention (Janssen et al., 2016; Poore & Nemecek, 2018). On the contrary, perceiving plant-based products as healthy alternatives did not show a significant impact on peoples' positive attitudes (Janssen et al., 2016; Westhoek et al., 2014).

This last finding points towards the underlying reasons why the variance of attitude and purchase intention was only partly explained by our model: There are still various additional benefits and factors that influence consumers' consumption behaviour. Albeit, our study design provided valuable insights by identifying and proving environmental protection, animal welfare, and virtue signalling as relevant underlying motives for consumers' intention to purchase vegan food alternatives. Further, it is common for TPB models to only explain a fraction of peoples' actual intentions (e.g. Ajzen, 2015).

As a final point, this study's extension of the TPB model and its application on the topic of vegan food alternatives performed as a successful theoretical framework. Simultaneously, it included a number of limitations and enabled us to identify gaps that future research can target. Those limitations and recommendations for further research will be covered in the next chapter. Additionally, we will complement this discussion by specifically formulating our theoretical contribution and economic implications of our findings for brand and product managers.

## 7 Conclusion

This study aimed to answer the question whether and how far virtue signalling constitutes an additional benefit that influences consumers' intention to purchase vegan food alternatives. Compared to environmental protection and animal welfare motives, the study results showed that a perceived virtue signalling benefit can be considered as equally relevant for a positive attitude. Furthermore, it exceeded the impact of health-based benefits on peoples' attitude towards plant-based food alternatives, which were not found to contribute a significant effect. Consequently, we can derive that the gained benefit of signalling one's virtue through visible food consumption in social settings can motivate sustainable behaviour.

As opposed to more critical notions, the findings pointed towards a general openness towards purchasing (more) vegan food alternatives and portrayed plant-based consumption choices as socially accepted or valued. Thus, we expect global activities like the Veganuary campaign to gain even more popularity in the future. On an overarching level, this study fulfilled its purpose by identifying influential benefits that can further reinforce sustainable consumption shifts. On a more specific level, it showed that consumers can be motivated to replace or complement animal products with more sustainable, plant-based options by communicating environmental, animal welfare, and virtue signalling benefits. This can be put into practice by plant-based companies such as Oatly or Beyond Meat through, for instance, campaigns and/or brand appearances.

While keeping the limitations in mind, it can be concluded that more sustainable consumption behaviours are not just motivated by collective benefits but also individually enable certain consumers to signal their virtue to others. This allows for instant gratification and thus creates an additional personal motive to make more environmentally friendly and/or ethical consumption choices or fully replace controversial consumption practices with larger impacts on the planet, the animals, and society.

## 7.1 Theoretical Contributions

Our methodology and the findings of this study contribute to the academic discussion on vegan consumption motives as well as the novel virtue signalling concept and the established Theory of Planned Behaviour. This thesis offered new insights into consuming plant-based food, which is becoming increasingly popular and hence gains importance for consumer researchers. The study provided the development of new knowledge of consumers' attitude towards and purchase intention of vegan food alternatives.

The literature review showed that underlying reasons for consuming plant-based food have mainly been studied by focusing on vegans only (Christopher, Bartkowski & Haverda, 2018; Janssen et al., 2016; Kerschke-Risch, 2015). Our study extended this research area as it was not limited to a fully vegan sample but targeted all German and Swedish consumers. We discovered a difference as health-based benefits of vegan food alternatives did not significantly contribute to a positive attitude. At the same time, they were previously found as one of the most important motives for consumers following a vegan diet (e.g. Janssen et al., 2016). However, this research contributed further support for the relevance of collective environmental and animal welfare motives. Consequently, future theoretical analyses of food choices should distinguish between participants' dietary choices to discover potential differences.

Furthermore, peoples' non-altruistic motives have never been approached from a signalling standpoint but mainly with regards to personal health benefits. Thus, by adding virtue signalling, this study was the first to include a personal and socially influenced component as a non-altruistic motive, which adds a new standpoint and less obvious dimension to the conversation. The discovered significance for consumers' positive attitude is particularly relevant as virtue signalling can provide instant gratification and, as opposed to, for instance, environmental motives, a short-term effect. By empirically studying vegan consumer behaviour, especially with the role of social signalling and external influences in mind, we further aimed to reply to Salehi, Carmona, and Redondo (2020): They recently pointed out a gap of empirical research to study vegan diets through the lens of consumer behaviour and social-psychology. Therefore, this study broadened the research of the consumption of vegan food alternatives and potentially sustainable consumption in general by integrating a new concept: Virtue signalling.

As the virtue signalling concept has not yet been studied in the context of offline and/or individual consumption practices, its successful application within this body of research implies that it can provide a relevant perspective for consumer behaviour studies of all kinds. We thus hope to accelerate the concepts' popularity within consumer culture research with this thesis. Especially in the current era of social media and the extensive self-expression of younger generations, the concept of conspicuous virtue signalling has the potential to explain and thus motivate a vast number of sustainable consumption behaviours such as veganism.

Moreover, our theoretical framework confirmed that extending the Theory of Planned Behaviour with additional constructs to identify what drives consumers' attitudes is suitable to explore consumers' purchase intention. As discovered in previous TPB-based studies (e.g. Ajzen, 2015), we also identified attitude as the strongest predictor for purchase intention which again stressed the importance of extending Ajzen's (1991) original theory to truly understand what motivates a positive attitude. The clear findings and positive feedback of the pre-test further suggested that Ajzen's (2006) established TPB questionnaire is suitable for gathering consumer behaviour data regarding regular food choices. Our study found new insights regarding the attitude aspect of the TPB: It can be influenced by personal components such as virtue signalling, which can in return show a strong relationship with perceived subjective norms. This connection implies that all components that influence intentions are interlinked and just as complex as human behaviour in general. Hence, the TPB constructs should not just be analysed separately and unidirectionally but always in relation to each other. Within this context, we also want to point out that the TPB component of perceived behavioural control was not significant for this study's context. Thereby, our research gives the impetus to question the impact of behavioural control when exploring widely available and affordable consumer products.

Finally, this study combined personal and socially influenced factors (White, Habib & Hardisty, 2019): On the one hand, it looked into the impact of peoples' personal perception of different benefits on their overall attitude and purchase intention. On the other hand, it identified the influence of virtue signalling potential as well as subjective norms within one's social environment. According to White, Habib, and Hardisty (2019), those factors of the individual self and social influence constitute two elements that should be included in practical messages to foster pro-

environmental and thus more sustainable behaviours. Additional managerial implications that we derived from this research will be explained in the following section.

## 7.2 Managerial Implications

Besides the theoretical contributions, the model results allowed us also to derive implications and suggestions for (marketing) managers and researchers. Those implications are particularly relevant for producers of vegan food alternatives and could potentially also provide input for non-food plant-based companies.

A more thorough understanding of consumers' personal and socially influenced motives will help firms with a plant-based product portfolio to craft impactful communication and campaign strategies. As mentioned previously, understanding the underlying benefit of virtue signalling constitutes a valuable addition to the current academic conversation. It provides relevant knowledge to create inspiring content that encourages more consumers to try vegan food alternatives or potentially other sustainable behaviours. Consequently, we suggest that brand and marketing managers support the social 'doing good' component in communicating vegan food alternatives. They should have the element of people 'showing off' their sustainable actions in mind. Building on this aspect, even the product design itself could be developed by considering the virtue signalling concept to target consumers who want to appear sustainable and responsible in front of their peers. Additionally, the management of a brand's reputation as sustainable and green is crucial. If consumers can overtly signal and communicate their product consumption to their friends, the purchase intention increases. This intention ultimately increases actual purchase behaviour (Ajzen, 1991; Korcaj, Hahnel & Spada, 2015; Paul, Modi & Patel, 2016; Shah Alam & Mohamed Sayuti, 2011) and thus actual sales. The connection to green consumption could also be achieved by grouping up with a brand that is already known as green and sustainable.

Another approach brand and marketing managers could explore is the indirect communication of the virtue signalling benefit to subconsciously target and increase consumers' perceived benefit from signalling their virtue through visible sustainable consumption. Perceiving a positive effect of overtly buying plant-based food alternatives can provide consumers with instant gratification

when buying vegan products. This instant gratification can especially be considered in online social media settings: Especially in times of social distancing, showing things to friends has an even more prominent effect online (in social networks or communication channels).

Additionally, the study results proved the relevance of the established environmental and especially animal welfare benefits for peoples' attitude and subsequent purchase intention. Thus, we recommend managers consider both benefits as inspirations for communication content and/or packaging design. Moreover, we found that health benefits were not significantly connected with a positive attitude towards vegan food alternatives. Thus, product managers could focus on alternative benefits before incorporating health benefits in a brand's communication as it is not perceived as an important consumption driver for a young and predominantly non-vegan target audience. However, educating consumers by explaining the health benefits through educational campaigns could still add value to brands by providing another argument for consumers.

To conclude, marketing managers should continue to communicate environmental and animal welfare benefits as central characteristics of plant-based products. Furthermore, we recommend keeping virtue signalling an underlying concept in mind when crafting campaigns, reinforcing a sustainable and green reputation, or designing new packaging. According to the scope of this study, those implications are especially relevant when targeting young consumers from Sweden or Germany.

### 7.3 Limitations of this Research

After concluding the results and deriving managerial implications it is important to lay out the limitations within this study. Firstly, the utilized TPB construct will be critically reflected. Secondly, limitations of the overall research design will be pointed out that were caused by the restricted scope and current timing of this paper. Finally, this section ends with prevalent characteristics of the data set that potentially limit its generalizability.

While the TPB, which constituted the central theoretical background of this study, is widely accepted as a tool to predict consumer behaviour, it also comes with several limitations. Its core variables do not encompass the full complexity of human behaviour and, among others, do not account for peoples' emotions (Rapaport & Orbell, 2000) or socioeconomic status (Sniehotta et al., 2013). In line with Ajzen's (2006) recommendation, all TPB components were measured via a self-administered survey instead of analysing actual behaviour data (e.g. sales numbers). According to de Leeuw et al. (2015), this can increase the risk of collecting biased and thus less reliable responses, especially in the context of socially desirable, sustainable behaviours. Due to the short time frame of this study, it was not possible to include follow-up evaluations that could verify if consumers' measured purchase intention of vegan food alternatives led to the corresponding purchase behaviour. Even though this lack is present in various past studies that utilized the TPB (e.g. Korcaj, Hahnel & Spada, 2015; Paul, Modi & Patel, 2016; Shah Alam & Mohamed Sayuti, 2011), there remains a potential gap between intention and specifically green behaviour that has to be kept in mind (Yuriev et al., 2020). Furthermore, the cross-sectional research design only took place at one point in time and thus cannot be considered representative for the 21st century in general.

At this point, we should also mention the timing of this study during the global COVID-19 pandemic which could have had a two-fold impact on consumers' food shopping behaviour and thus our survey: Due to social distancing guidelines, people may feel uncomfortable in supermarkets and do not want to spend extra time to choose new or alternative products. On the contrary, restaurant closures increase the amount of home-cooked meals and spending more time at home might motivate people to try out new recipes or food items. As COVID-19-induced influences could have affected the findings in several directions and remained consistent throughout the study period, this research design did not focus on any details in this context. Nevertheless, the circumstances during the current times should be kept in mind when replicating or expanding this research design.

As previously touched upon, the data set is solely based on survey respondents who currently live in Sweden or Germany. While those two countries can be considered as representatives of first world countries in general, there remain cultural differences to other populations across Europe. Furthermore, the questionnaire was only offered in English and German, which may have caused a language barrier for a small percentage of the Swedish sample. In addition, the final sample

consisted mainly of young adults between 21 to 35 years of age and thus does not represent the actual demographics of the German and Swedish populations. Depending on a company's or researcher's target audience, the age distribution of this study may be beneficial or limiting. Consequently, the generalizability of the findings is limited, and we would recommend companies and researchers from countries other than Sweden or Germany and/or with an older target audience to consider the results mainly as inspirations or to potentially repeat the survey with local and/or older respondents.

Finally, researching the psychologically complex and sensitive motive of virtue signalling via a quantitative survey was ambitious but possible due to pre-existing scale items (Wallace, Buil & de Chernatony, 2020). Nevertheless, the academic discussion on virtue signalling is still young. Even fully anonymous self-guided surveys like ours are likely subject to social desirability bias, partly explaining the lower values compared to participants' perceived environmental, animal welfare, and health-based benefits.

To conclude, this study's theoretical framework and context came with a number of limitations that had to be pointed out. Some of those restrictions inspired ideas and directions for further research which will be elaborated in the following final chapter.

## 7.4 Directions for Future Research

This research has brought up different previously mentioned insights and managerial implications. Nevertheless, we also faced gaps and interesting topics future research could concentrate on.

First of all, our research only focused on the purchase intention of vegan food alternatives. The actual behaviour connected to this intention is one possible future research topic. Finding out if consumers purchase what they intend to could also generate further insights into the conspicuous virtue signalling component. For example, researchers could compare the purchase behaviour of consumers who perceive a virtue signalling benefit with a control group that does not agree with it. Moreover, this focus would bring insights into motivations for behaviour, not just intention, and could help to understand potential intention-behaviour gaps (Yuriev et al., 2020).

Another direction for future research is finding additional motives for the purchase intention of vegan food alternatives that motivate the remaining 49% of the variability in peoples' purchase intention. Furthermore, the health motive has already been studied in detail regarding fully vegan diets but seemed to have a different meaning for the integration of vegan food alternatives into non-vegan diets. Diving deeper into the perception of vegan food alternatives' healthiness could help companies to get to know their consumers better and target them more precisely.

Due to the cross-sectional nature of this study, it could be of interest to observe the development of virtue signalling motives for consuming vegan food alternatives over time, especially considering the fast-paced growth of plant-based food consumption. If the Boston Consulting Group predictions hold up and every tenth meal will be plant-based in the future (Witte et al., 2021), vegan alternatives might become the norm instead of a way to signal one's virtuous and pro-environmental identity. Moreover, further research could analyse the concept of virtue signalling with qualitative methods or in the context of other sustainable consumption behaviours to explore its meanings in more detail.

As we only considered Sweden and Germany in our study, future research could replicate the study, expanding the geographic area on a global or European scale to compare different countries or regions. Similarly, future studies could investigate and compare different sample groups such as vegans and non-vegans or younger and older generations to find out potential differences or shifts. Furthermore, consumers' behaviour could be investigated in further detail to determine if there is a variance in offline and online behaviour.

Finally, we agree with Larson (2019) that the development of a scale that controls social desirability bias would help not only in this context but also improve the results of all surveys concerning social topics.

In sum, there are many possible ways to extend this study on virtue signalling in the context of vegan food alternatives and there is a lot of potential to discover more connections in related fields. We hope this thesis will serve as an inspiration and are curious about future research to unfold new links and discoveries.

# References

- Abdulrazak, S. & Quoquab, F. (2018). Exploring Consumers' Motivations for Sustainable Consumption: A Self-Deterministic Approach, *Journal of International Consumer Marketing*, [e-journal] vol. 30, no. 1, pp.14–28, Available Online: <https://doi.org/10.1080/08961530.2017.1354350> [Accessed 18 March 2021]
- Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior, in J. Kuhl & J. Beckmann (eds), *Action Control: From Cognition to Behavior*, [e-book] Berlin, Heidelberg: Springer, pp.11–39, Available Online: [https://doi.org/10.1007/978-3-642-69746-3\\_2](https://doi.org/10.1007/978-3-642-69746-3_2) [Accessed 18 March 2021]
- Ajzen, I. (1991). The Theory of Planned Behavior, *Organizational Behavior and Human Decision Processes*, vol. 50, pp.179–211, Available Online: [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T) [Accessed 15 March 2021]
- Ajzen, I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior1, *Journal of Applied Social Psychology*, [e-journal] vol. 32, no. 4, pp.665–683, Available Online: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1559-1816.2002.tb00236.x> [Accessed 15 March 2021]
- Ajzen, I. (2006). Constructing a Theory of Planned Behavior Questionnaire, [e-journal] p.12, Available Online: <http://people.umass.edu/~ajzen/pdf/tpb.measurement.pdf> [Accessed 15 March 2021]
- Ajzen, I. (2015). Consumer Attitudes and Behavior: The Theory of Planned Behavior Applied to Food Consumption Decisions, *Italian Review of Agricultural Economics*, [e-journal] vol. 70, no. 2, pp.121–138, Available Online: [https://www.researchgate.net/publication/295547003\\_Consumer\\_attitudes\\_and\\_behavior\\_The\\_theory\\_of\\_planned\\_behavior\\_applied\\_to\\_food\\_consumption\\_decisions](https://www.researchgate.net/publication/295547003_Consumer_attitudes_and_behavior_The_theory_of_planned_behavior_applied_to_food_consumption_decisions) [Accessed 20 March 2021]
- Ajzen, I. & Fishbein, M. (1980). Understanding Attitudes and Predicting Social Behavior, [e-book] New Jersey: Prentice-Hall, Available Online: <https://www.scienceopen.com/book?vid=c20c4174-d8dc-428d-b352-280b05eacdf7> [Accessed 23 March 2021]
- Alavion, S. J., Allahyari, M. S., Al-Rimawi, A. S. & Surujlal, J. (2017). Adoption of Agricultural E-Marketing: Application of the Theory of Planned Behavior, *Journal of International Food & Agribusiness Marketing*, [e-journal] vol. 29, no. 1, pp.1–15, Available Online: <https://doi.org/10.1080/08974438.2016.1229242> [Accessed 19 March 2021]
- Albarracín, D., Johnson, B. T., Fishbein, M. & Muellerleile, P. A. (2001). Theories of Reasoned Action and Planned Behavior as Models of Condom Use: A Meta-Analysis., *Psychological Bulletin*, [e-journal] vol. 127, no. 1, pp.142–161, Available Online: <http://doi.apa.org/getdoi.cfm?doi=10.1037/0033-2909.127.1.142> [Accessed 18 March 2021]

- Andersen, K. G., Rambaut, A., Lipkin, W. I., Holmes, E. C. & Garry, R. F. (2020). The Proximal Origin of SARS-CoV-2, 4, *Nature Medicine*, [e-journal] vol. 26, no. 4, pp.450–452, Available Online: <https://www.nature.com/articles/s41591-020-0820-9> [Accessed 15 March 2021]
- Armstrong Soule, C. A. & Sekhon, T. (2019). Preaching to the Middle of the Road: Strategic Differences in Persuasive Appeals for Meat Anti-Consumption, *British Food Journal*, [e-journal] vol. 121, no. 1, pp.157–171, Available Online: <https://doi.org/10.1108/BFJ-03-2018-0209> [Accessed 17 March 2021]
- Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L. & Shepherd, R. (2008). Predicting Intentions to Purchase Organic Food: The Role of Affective and Moral Attitudes in the Theory of Planned Behaviour, *Appetite*, [e-journal] vol. 50, no. 2–3, pp.443–454, Available Online: <https://linkinghub.elsevier.com/retrieve/pii/S0195666307003728> [Accessed 17 March 2021]
- Åstrøm, A. N. & Rise, J. (2001). Young Adults' Intention to Eat Healthy Food: Extending the Theory of Planned Behaviour, *Psychology & Health*, [e-journal] vol. 16, no. 2, pp.223–237, Available Online: <https://doi.org/10.1080/08870440108405501> [Accessed 18 March 2021]
- Bartholomew, J. (2015). Easy Virtue | The Spectator, Available Online: <https://www.spectator.co.uk/article/easy-virtue> [Accessed 20 March 2021]
- Belk, R. W. (1988). Possessions and the Extended Self, *Journal of Consumer Research*, [e-journal] vol. 15, no. 2, pp.139–168, Available Online: <https://doi.org/10.1086/209154> [Accessed 18 March 2021]
- Bell, E. & Bryman, A. (2007). The Ethics of Management Research: An Exploratory Content Analysis, *British Journal of Management*, vol. 18, pp.63–77, Available Online: <https://doi.org/10.1111/j.1467-8551.2006.00487.x> [Accessed 18 March 2021]
- Bertuzzi, N. (2020). Becoming Hegemony: The Case for the (Italian) Animal Advocacy and Veganwashing Operations, *Journal of Consumer Culture*, [e-journal] p.1469540520926234, Available Online: <https://doi.org/10.1177/1469540520926234> [Accessed 17 March 2021]
- Birch, D., Memery, J. & De Silva Kanakarathne, M. (2018). The Mindful Consumer: Balancing Egoistic and Altruistic Motivations to Purchase Local Food, *Journal of Retailing and Consumer Services*, [e-journal] vol. 40, pp.221–228, Available Online: <https://www.sciencedirect.com/science/article/pii/S0969698917306355> [Accessed 18 March 2021]
- Bronner, F. & de Hoog, R. (2018). Conspicuous Consumption and the Rising Importance of Experiential Purchases, *International Journal of Market Research*, [e-journal] vol. 60, no. 1, pp.88–103, Available Online: <https://doi.org/10.1177/1470785317744667> [Accessed 19 March 2021]
- Bryman, A. & Bell, E. (2015). *Business Research Methods*, Oxford: Oxford University Press

- Burns, R. P. & Burns, R. (2008). *Business Research Methods and Statistics Using SPSS*, London: SAGE Publications Ltd.
- Carrington, D. (2018). Avoiding Meat and Dairy Is ‘Single Biggest Way’ to Reduce Your Impact on Earth, *The Guardian*, Available Online: <http://www.theguardian.com/environment/2018/may/31/avoiding-meat-and-dairy-is-single-biggest-way-to-reduce-your-impact-on-earth> [Accessed 15 March 2021]
- Cerri, J., Testa, F., Rizzi, F. & Frey, M. (2019). Factorial Surveys Reveal Social Desirability Bias over Self-Reported Organic Fruit Consumption, *British Food Journal*, [e-journal] vol. 121, no. 4, pp.897–909, Available Online: <https://doi.org/10.1108/BFJ-04-2018-0238> [Accessed 6 April 2021]
- Chan, H.-W. (2020). When Do Values Promote Pro-Environmental Behaviors? Multilevel Evidence on the Self-Expression Hypothesis, *Journal of Environmental Psychology*, [e-journal] vol. 71, p.101361, Available Online: <https://www.sciencedirect.com/science/article/pii/S0272494418307059> [Accessed 19 March 2021]
- Chan, T. S. (1996). Concerns for Environmental Issues and Consumer Purchase Preferences:, *Journal of International Consumer Marketing*, [e-journal] vol. 9, no. 1, pp.43–55, Available Online: [https://doi.org/10.1300/J046v09n01\\_04](https://doi.org/10.1300/J046v09n01_04) [Accessed 18 March 2021]
- Chandler, D. & Munday, R. (2020). Virtue Signalling, in *A Dictionary of Media and Communication*, [e-book] Oxford University Press, Available Online: <http://www.oxfordreference.com/view/10.1093/acref/9780198841838.001.0001/acref-9780198841838-e-3987> [Accessed 21 March 2021]
- Chen, E. Y. I., Yeh, N.-C. (Nike) & Wang, C. P. (2008). Conspicuous Consumption: A Preliminary Report of Scale Development and Validation, *ACR North American Advances*, [e-journal] vol. NA-35, Available Online: <https://www.acrwebsite.org/volumes/13362/volumes/v35/NA-35> [Accessed 19 March 2021]
- Chen, M.-F. (2007). Consumer Attitudes and Purchase Intentions in Relation to Organic Foods in Taiwan: Moderating Effects of Food-Related Personality Traits, *Food Quality and Preference*, [e-journal] vol. 18, no. 7, pp.1008–1021, Available Online: <https://www.sciencedirect.com/science/article/pii/S095032930700050X> [Accessed 18 March 2021]
- Christopher, A., Bartkowski, J. P. & Haverda, T. (2018). Portraits of Veganism: A Comparative Discourse Analysis of a Second-Order Subculture, 3, *Societies*, [e-journal] vol. 8, no. 3, p.55, Available Online: <https://www.mdpi.com/2075-4698/8/3/55> [Accessed 17 March 2021]
- Conner, M. & Armitage, C. J. (1998). Extending the Theory of Planned Behavior: A Review and Avenues for Further Research, *Journal of Applied Social Psychology*, [e-journal] vol. 28, no. 15, pp.1429–1464, Available Online: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1559-1816.1998.tb01685.x> [Accessed 19 March 2021]

- Cooke, R. & French, D. P. (2008). How Well Do the Theory of Reasoned Action and Theory of Planned Behaviour Predict Intentions and Attendance at Screening Programmes? A Meta-Analysis, *Psychology & Health*, [e-journal] vol. 23, no. 7, pp.745–765, Available Online: <http://www.tandfonline.com/doi/abs/10.1080/08870440701544437> [Accessed 18 March 2021]
- Costa, I., Gill, P. R., Morda, R. & Ali, L. (2019). “More than a Diet”: A Qualitative Investigation of Young Vegan Women’s Relationship to Food, *Appetite*, [e-journal] vol. 143, p.104418, Available Online: <https://www.sciencedirect.com/science/article/pii/S0195666319305653> [Accessed 17 March 2021]
- Craig, W. J. (2009). Health Effects of Vegan Diets, *The American Journal of Clinical Nutrition*, [e-journal] vol. 89, no. 5, pp.1627S-1633S, Available Online: <https://doi.org/10.3945/ajcn.2009.26736N> [Accessed 17 March 2021]
- Dakduk, S., González, Á. & Portalanza, A. (2019). Learn About Structural Equation Modeling in SmartPLS With Data From the Customer Behavior in Electronic Commerce Study in Ecuador (2017), [e-book] 1 Oliver’s Yard, 55 City Road, London EC1Y 1SP United Kingdom: SAGE Publications, Ltd., Available Online: <http://methods.sagepub.com/dataset/sem-customer-behavior-electronics-ecuador> [Accessed 13 April 2021]
- Dastrup, S. R., Graff Zivin, J., Costa, D. & Kahn, M. (2012). Understanding the Solar Home Price Premium: Electricity Generation and “Green” Social Status, *European Economic Review*, [e-journal] vol. 56, no. 5, pp.961–973, Available Online: [https://econpapers.repec.org/article/eeeeecrev/v\\_3a56\\_3ay\\_3a2012\\_3ai\\_3a5\\_3ap\\_3a961-973.htm](https://econpapers.repec.org/article/eeeeecrev/v_3a56_3ay_3a2012_3ai_3a5_3ap_3a961-973.htm) [Accessed 19 March 2021]
- de Leeuw, A., Valois, P., Ajzen, I. & Schmidt, P. (2015). Using the Theory of Planned Behavior to Identify Key Beliefs Underlying Pro-Environmental Behavior in High-School Students: Implications for Educational Interventions, *Journal of Environmental Psychology*, [e-journal] vol. 42, pp.128–138, Available Online: <https://www.sciencedirect.com/science/article/pii/S0272494415000298> [Accessed 23 April 2021]
- Denegri-Knott, J., Nixon, E. & Abraham, K. (2018). Politicising the Study of Sustainable Living Practices, *Consumption Markets & Culture*, [e-journal] vol. 21, no. 6, pp.554–573, Available Online: <https://doi.org/10.1080/10253866.2017.1414048> [Accessed 18 March 2021]
- Dermody, J., Hanmer-Lloyd, S., Koenig-Lewis, N. & Zhao, A. L. (2015). Advancing Sustainable Consumption in the UK and China: The Mediating Effect of pro-Environmental Self-Identity, *Journal of Marketing Management*, [e-journal] vol. 31, no. 13–14, pp.1472–1502, Available Online: <http://ludwig.lub.lu.se/login?url=https://search.ebsco-host.com/login.aspx?direct=true&db=bth&AN=108899065&site=eds-live&scope=site> [Accessed 18 March 2021]
- dictionary.com. (2021). Definition of Egoistic | Dictionary.Com, *Www.Dictionary.Com*, Available Online: <https://www.dictionary.com/browse/egoistic> [Accessed 17 March 2021]

- Donald, I. J., Cooper, S. R. & Conchie, S. M. (2014). An Extended Theory of Planned Behaviour Model of the Psychological Factors Affecting Commuters' Transport Mode Use, *Journal of Environmental Psychology*, [e-journal] vol. 40, pp.39–48, Available Online: <https://www.sciencedirect.com/science/article/pii/S027249441400022X> [Accessed 24 March 2021]
- Dunlap, R. E. & Liere, K. D. V. (1978). The “New Environmental Paradigm”, *The Journal of Environmental Education*, [e-journal] vol. 9, no. 4, pp.10–19, Available Online: <https://doi.org/10.1080/00958964.1978.10801875> [Accessed 19 March 2021]
- Easterby-Smith, M., Thorpe, R. & Jackson, P. (2015). *Management and Business Research*, 5th edition., Los Angeles: Sage Publications Ltd
- Elliott, R. & Wattanasuwan, K. (1998). Brands as Symbolic Resources for the Construction of Identity, *International Journal of Advertising*, [e-journal] vol. 17, no. 2, pp.131–144, Available Online: <https://doi.org/10.1080/02650487.1998.11104712> [Accessed 18 March 2021]
- Eurostat. (2020). Household Consumption by Purpose - Statistics Explained, Available Online: [https://ec.europa.eu/eurostat/statistics-explained/index.php/Household\\_consumption\\_by\\_purpose#Country\\_specific\\_trends](https://ec.europa.eu/eurostat/statistics-explained/index.php/Household_consumption_by_purpose#Country_specific_trends) [Accessed 18 March 2021]
- Farrow, K., Grolleau, G. & Ibanez, L. (2017). Social Norms and Pro-Environmental Behavior: A Review of the Evidence, *Ecological Economics*, [e-journal] vol. 140, pp.1–13, Available Online: <https://www.sciencedirect.com/science/article/pii/S0921800915301543> [Accessed 19 March 2021]
- Finstad, K. (2010). Response Interpolation and Scale Sensitivity: Evidence Against 5-Point Scales, *Journal of Usability Studies*, [e-journal] vol. 5, no. 3, pp.104–110, Available Online: [https://www.researchgate.net/publication/265929744\\_Response\\_Interpolation\\_and\\_Scale\\_Sensitivity\\_Evidence\\_Against\\_5-Point\\_Scales](https://www.researchgate.net/publication/265929744_Response_Interpolation_and_Scale_Sensitivity_Evidence_Against_5-Point_Scales) [Accessed 22 March 2021]
- Game Changers Film. (2019). The Game Changers Official Film Website | Documentary, *The Game Changers*, Available Online: <https://gamechangersmovie.com/> [Accessed 24 March 2021]
- Garson, G. D. (2016). *Partial Least Squares Regression and Structural Equation Models*, Ashboro, NC: Statistical Associates Publishers
- Gerten, D., Heck, V., Jägermeyr, J., Bodirsky, B. L., Fetzer, I., Jalava, M., Kummu, M., Lucht, W., Rockström, J., Schaphoff, S. & Schellnhuber, H. J. (2020). Feeding Ten Billion People Is Possible within Four Terrestrial Planetary Boundaries, 3, *Nature Sustainability*, [e-journal] vol. 3, no. 3, pp.200–208, Available Online: <https://www.nature.com/articles/s41893-019-0465-1> [Accessed 18 March 2021]

- Gray, S. G., Sütterlin, B., Siegrist, M. & Árvai, J. (2020). The Benefit of Virtue Signaling: Corporate Sleight-of-Hand Positively Influences Consumers' Judgments about "Social License to Operate", *Journal of Environmental Management*, [e-journal] vol. 260, p.110047, Available Online: <https://www.sciencedirect.com/science/article/pii/S0301479719317657> [Accessed 18 March 2021]
- Green, S. B. (1991). How Many Subjects Does It Take To Do A Regression Analysis, *Multivariate Behavioral Research*, [e-journal] vol. 26, no. 3, pp.499–510, Available Online: [https://doi.org/10.1207/s15327906mbr2603\\_7](https://doi.org/10.1207/s15327906mbr2603_7) [Accessed 24 March 2021]
- Greenebaum, J. (2012). Veganism, Identity and the Quest for Authenticity, *Food, Culture & Society*, [e-journal] vol. 15, no. 1, pp.129–144, Available Online: <https://www.tandfonline.com/doi/full/10.2752/175174412X13190510222101> [Accessed 15 March 2021]
- Greenebaum, J. (2018). Vegans of Color: Managing Visible and Invisible Stigmas, *Food, Culture & Society*, [e-journal] vol. 21, no. 5, pp.680–697, Available Online: <https://doi.org/10.1080/15528014.2018.1512285> [Accessed 24 March 2021]
- Greenebaum, J. B. (2017). Questioning the Concept of Vegan Privilege: A Commentary, *Humanity & Society*, [e-journal] vol. 41, no. 3, pp.355–372, Available Online: <https://doi.org/10.1177/0160597616640308> [Accessed 24 March 2021]
- Griskevicius, V., Tybur, J. & van den Bergh, B. (2010). Going Green to Be Seen: Status, Reputation, and Conspicuous Conservation, *Journal of personality and social psychology*, vol. 98, pp.392–404, Available Online: <https://psycnet.apa.org/doi/10.1037/a0017346> [Accessed 22 March 2021]
- Grydehøj, A. & Kelman, I. (2017). The Eco-Island Trap: Climate Change Mitigation and Conspicuous Sustainability, *Area*, [e-journal] vol. 49, no. 1, pp.106–113, Available Online: <https://rgs-ibg.onlinelibrary.wiley.com/doi/abs/10.1111/area.12300> [Accessed 21 March 2021]
- Grydehøj, A. & Kelman, I. (2020). Reflections on Conspicuous Sustainability: Creating Small Island Dependent States (SIDS) through Ostentatious Development Assistance (ODA)?, *Geoforum*, [e-journal] vol. 116, pp.90–97, Available Online: <https://www.sciencedirect.com/science/article/pii/S0016718520302141> [Accessed 21 March 2021]
- Haenlein, M. & Kaplan, A. M. (2004). A Beginner's Guide to Partial Least Squares Analysis, *Understanding Statistics*, [e-journal] vol. 3, no. 4, pp.283–297, Available Online: [https://doi.org/10.1207/s15328031us0304\\_4](https://doi.org/10.1207/s15328031us0304_4) [Accessed 22 March 2021]
- Hagger, M. S., Chatzisarantis, N. L. D. & Biddle, S. J. H. (2002). A Meta-Analytic Review of the Theories of Reasoned Action and Planned Behavior in Physical Activity: Predictive Validity and the Contribution of Additional Variables, *Journal of Sport and Exercise Psychology*, [e-journal] vol. 24, no. 1, pp.3–32, Available Online: <https://journals.humankinetics.com/view/journals/jsep/24/1/article-p3.xml> [Accessed 18 March 2021]

- Hair, J. F., Hult, G. T. M., Ringle, C. & Sarstedt, M. (2016). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, SAGE Publications
- Hair, J. F., Ringle, C. M. & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet, *Journal of Marketing Theory and Practice*, [e-journal] vol. 19, no. 2, pp.139–152, Available Online: <https://doi.org/10.2753/MTP1069-6679190202> [Accessed 23 March 2021]
- Hair, J. F., Risher, J. J., Sarstedt, M. & Ringle, C. M. (2019). When to Use and How to Report the Results of PLS-SEM, *European Business Review*, [e-journal] vol. 31, no. 1, pp.2–24, Available Online: <https://doi.org/10.1108/EBR-11-2018-0203> [Accessed 23 March 2021]
- Hair, J. F., Sarstedt, M., Ringle, C. M. & Mena, J. A. (2012). An Assessment of the Use of Partial Least Squares Structural Equation Modeling in Marketing Research, *Journal of the Academy of Marketing Science*, [e-journal] vol. 40, no. 3, pp.414–433, Available Online: <https://link.springer.com/article/10.1007/s11747-011-0261-6> [Accessed 18 March 2021]
- Hammad, H., Muster, V., El-Bassiouny, N. M. & Schaefer, M. (2019). Status and Sustainability: Can Conspicuous Motives Foster Sustainable Consumption in Newly Industrialized Countries?, *Journal of Fashion Marketing and Management: An International Journal*, [e-journal] vol. 23, no. 4, pp.537–550, Available Online: <https://doi.org/10.1108/JFMM-06-2019-0115> [Accessed 18 March 2021]
- Haverstock, K. & Forgays, D. K. (2012). To Eat or Not to Eat. A Comparison of Current and Former Animal Product Limiters, *Appetite*, [e-journal] vol. 58, no. 3, pp.1030–1036, Available Online: <https://www.sciencedirect.com/science/article/pii/S0195666312000906> [Accessed 23 March 2021]
- Henseler, J., Ringle, C. M. & Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling, *Journal of the Academy of Marketing Science*, [e-journal] vol. 43, no. 1, pp.115–135, Available Online: <https://link.springer.com/article/10.1007/s11747-014-0403-8> [Accessed 12 April 2021]
- Heshmat, S. (2015). Behavioral Economics of Self-Control Failure, *The Yale Journal of Biology and Medicine*, [e-journal] vol. 88, no. 3, pp.333–337, Available Online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4553655/> [Accessed 22 March 2021]
- Hopwood, C. J., Bleidorn, W., Schwaba, T. & Chen, S. (2020). Health, Environmental, and Animal Rights Motives for Vegetarian Eating, *PLOS ONE*, [e-journal] vol. 15, no. 4, p.e0230609, Available Online: <https://dx.plos.org/10.1371/journal.pone.0230609> [Accessed 17 March 2021]
- Howard, J. A. & Sheth, J. N. (1969). *The Theory of Buyer Behavior*, [e-book] New York: Wiley, Available Online: <http://ludwig.lub.lu.se/login?url=https://search.ebsco-host.com/login.aspx?direct=true&db=cat07147a&AN=lub.569937&site=eds-live&scope=site> [Accessed 29 March 2021]

- Hunt, S. D. & Hansen, J. M. (2009). The Philosophical Foundations of Marketing Research: For Scientific Realism and Truth, *The SAGE handbook of marketing theory*, [e-journal] pp.111–126, Available Online: [https://books.google.de/books?hl=en&lr=&id=gFZ65AZWejMC&oi=fnd&pg=PA111&dq=The+Philosophical+Foundations+of+Marketing+Research:+For+Scientific+Realism+and+Truth+\(Marketing+Science\)+shelby&ots=HwHm-SxpQa&sig=DkxiHINWYKv49W3Q-wO4rR5LBVc&redir\\_esc=y#v=onepage&q=The%20Philosophical%20Foundations%20of%20Marketing%20Research%3A%20For%20Scientific%20Realism%20and%20Truth%20\(Marketing%20Science\)%20shelby&f=false](https://books.google.de/books?hl=en&lr=&id=gFZ65AZWejMC&oi=fnd&pg=PA111&dq=The+Philosophical+Foundations+of+Marketing+Research:+For+Scientific+Realism+and+Truth+(Marketing+Science)+shelby&ots=HwHm-SxpQa&sig=DkxiHINWYKv49W3Q-wO4rR5LBVc&redir_esc=y#v=onepage&q=The%20Philosophical%20Foundations%20of%20Marketing%20Research%3A%20For%20Scientific%20Realism%20and%20Truth%20(Marketing%20Science)%20shelby&f=false) [Accessed 23 March 2021]
- IMDb. (2019). The Game Changers - IMDb Review [Internet Movie Database], *The Game Changers - IMDb Review*, Available Online: <https://www.imdb.com/title/tt7455754/> [Accessed 24 March 2021]
- Jallinoja, P., Vinnari, M. & Niva, M. (2019). Veganism and Plant-Based Eating: Analysis of Interplay between Discursive Strategies and Lifestyle Political Consumerism, in M. Micheletti, P. Oosterveer, & M. Boström (eds), *The Oxford Handbook of Political Consumerism*, [e-book] Oxford University Press, pp.157–179, Available Online: [https://books.google.de/books?hl=de&lr=&id=T\\_eED-wAAQBAJ&oi=fnd&pg=PA157&dq=Veganism+and+Plant-Based+Eating&ots=H7sCGj183H&sig=OfXqcjjsOOeo3PrMxPh30c4caNk#v=onepage&q&f=false](https://books.google.de/books?hl=de&lr=&id=T_eED-wAAQBAJ&oi=fnd&pg=PA157&dq=Veganism+and+Plant-Based+Eating&ots=H7sCGj183H&sig=OfXqcjjsOOeo3PrMxPh30c4caNk#v=onepage&q&f=false) [Accessed 23 March 2021]
- Janssen, M., Busch, C., Rödiger, M. & Hamm, U. (2016). Motives of Consumers Following a Vegan Diet and Their Attitudes towards Animal Agriculture, *Appetite*, [e-journal] vol. 105, pp.643–651, Available Online: <https://linkinghub.elsevier.com/retrieve/pii/S0195666316302677> [Accessed 17 March 2021]
- Judge, M., Warren-Myers, G. & Paladino, A. (2019). Using the Theory of Planned Behaviour to Predict Intentions to Purchase Sustainable Housing, *Journal of Cleaner Production*, [e-journal] vol. 215, pp.259–267, Available Online: <https://www.sciencedirect.com/science/article/pii/S0959652619300356> [Accessed 16 March 2021]
- Kareklas, I., Carlson, J. & Muehling, D. (2013). ‘I Eat Organic for My Benefit and Yours’: Egoistic and Altruistic Considerations for Purchasing Organic Food and Their Implications for Advertising Strategists, SSRN Scholarly Paper, ID 2325108, Rochester, NY: Social Science Research Network, Available Online: <https://papers.ssrn.com/abstract=2325108> [Accessed 18 March 2021]
- Kerschke-Risch, P. (2015). Vegan Diet: Motives, Approach and Duration. Initial Results of a Quantitative Sociological Study, *Ernaehrungs Umschau*, vol. 62, no. 6, pp.98–103, Available Online: [https://www.ernaehrungs-umschau.de/Fileadmin/Ernaehrungs-Umschau/Pdfs/Pdf\\_2015/06\\_15/EU06\\_2015\\_WuF\\_Kerschke-Risch\\_eng.Pdf](https://www.ernaehrungs-umschau.de/Fileadmin/Ernaehrungs-Umschau/Pdfs/Pdf_2015/06_15/EU06_2015_WuF_Kerschke-Risch_eng.Pdf) [Accessed 22 March 2021]

- Kim, S.-W., Lusk, J. L. & Brorsen, B. W. (2018). “Look at Me, I’m Buying Organic”: The Effects of Social Pressure on Organic Food Purchases, *Journal of Agricultural and Resource Economics*, [e-journal] vol. 43, no. 3, Available Online: <https://ideas.repec.org/a/ags/jlaare/276500.html> [Accessed 22 March 2021]
- Kim, Y. G. (2014). Ecological Concerns about Genetically Modified (GM) Food Consumption Using the Theory of Planned Behavior (TPB), *Procedia - Social and Behavioral Sciences*, [e-journal] vol. 159, pp.677–681, Available Online: <https://www.sciencedirect.com/science/article/pii/S1877042814065975> [Accessed 18 March 2021]
- Korcaj, L., Hahnel, U. J. J. & Spada, H. (2015). Intentions to Adopt Photovoltaic Systems Depend on Homeowners’ Expected Personal Gains and Behavior of Peers, *Renewable Energy*, [e-journal] vol. 75, pp.407–415, Available Online: <https://www.sciencedirect.com/science/article/pii/S0960148114006326> [Accessed 15 March 2021]
- Kostadinova, E. (2016). Sustainable Consumer Behavior: Literature Overview, *Economic Alternatives*, [e-journal] no. 2, pp.224–234, Available Online: [https://econpapers.repec.org/article/nweejour/y\\_3a2016\\_3ai\\_3a2\\_3ap\\_3a224-234.htm](https://econpapers.repec.org/article/nweejour/y_3a2016_3ai_3a2_3ap_3a224-234.htm) [Accessed 18 March 2021]
- Krause, D. (1993). Environmental Consciousness: An Empirical Study, *Environment and Behavior*, [e-journal] vol. 25, no. 1, pp.126–142, Available Online: <https://doi.org/10.1177/0013916593251007> [Accessed 18 March 2021]
- LamaPoll. (2021). LamaPoll: Sichere Online Umfrage & Fragebogen erstellen | Umfrage Tool kostenlos testen, Available Online: <https://www.lamapoll.de> [Accessed 23 March 2021]
- Larson, R. B. (2019). Controlling Social Desirability Bias, *International Journal of Market Research*, [e-journal] vol. 61, no. 5, pp.534–547, Available Online: <https://doi.org/10.1177/1470785318805305> [Accessed 18 April 2021]
- Levy, N. (2020). Virtue Signalling Is Virtuous, *Synthese*, [e-journal], Available Online: <https://doi.org/10.1007/s11229-020-02653-9> [Accessed 20 March 2021]
- Lin, D., Wambersie, L., Wackernagel, M. & Hanscom, P. (2020). Calculating Earth Overshoot Day 2020: Estimates Point to August 22nd, Research Report, Global Footprint Network, Available Online: <https://www.overshootday.org/content/uploads/2020/06/Earth-Overshoot-Day-2020-Calculation-Research-Report.pdf> [Accessed 24 March 2021]
- Lindeman, M. & Väänänen, M. (2000). Measurement of Ethical Food Choice Motives, *Appetite*, [e-journal] vol. 34, no. 1, pp.55–59, Available Online: <https://www.sciencedirect.com/science/article/pii/S0195666399902933> [Accessed 24 March 2021]
- Lundahl, O. (2020). Dynamics of Positive Deviance in Destigmatisation: Celebrities and the Media in the Rise of Veganism, *Consumption Markets & Culture*, [e-journal] vol. 23, no. 3, pp.241–271, Available Online: <https://doi.org/10.1080/10253866.2018.1512492> [Accessed 22 March 2021]
- Malhotra, N. K. (2010). Marketing Research: An Applied Orientation, New Jersey: Prentice Hall

- Marchand, A., Walker, S. & Cooper, T. (2010). Beyond Abundance: Self-Interest Motives for Sustainable Consumption in Relation to Product Perception and Preferences, *Sustainability*, [e-journal] vol. 2, no. 5, pp.1431–1447, Available Online: <https://www.mdpi.com/2071-1050/2/5/1431> [Accessed 18 March 2021]
- Marcoulides, G. A. (1998). *Modern Methods for Business Research*, Psychology Press
- Markowski, K. L. & Roxburgh, S. (2019). “If I Became a Vegan, My Family and Friends Would Hate Me:” Anticipating Vegan Stigma as a Barrier to Plant-Based Diets, *Appetite*, [e-journal] vol. 135, pp.1–9, Available Online: <https://www.sciencedirect.com/science/article/pii/S0195666318313874> [Accessed 18 March 2021]
- Masud, M. M., Al-Amin, A. Q., Junsheng, H., Ahmed, F., Yahaya, S. R., Akhtar, R. & Banna, H. (2016). Climate Change Issue and Theory of Planned Behaviour: Relationship by Empirical Evidence, *Journal of Cleaner Production*, [e-journal] vol. 113, pp.613–623, Available Online: <https://www.sciencedirect.com/science/article/pii/S0959652615017503> [Accessed 17 March 2021]
- Mirkarimi, K., Mansourian, M., Kabir, M. J., Ozouni- Davaji, R. B., Eri, M., Hosseini, S. G., Qorbani, M., Safari, O., Rastgari Mehr, B., Noroozi, M., Charkazi, A. & Shahnazi, H. (2016). Fast Food Consumption Behaviors in High-School Students Based on the Theory of Planned Behavior (TPB), *International Journal of Pediatrics*, [e-journal] vol. 4, no. 7, pp.2131–2142, Available Online: [https://ijp.mums.ac.ir/article\\_7011.html](https://ijp.mums.ac.ir/article_7011.html) [Accessed 18 March 2021]
- Napoli, J. & Ouschan, R. (2020). Vegan Stories: Revealing Archetypes and Their Moral Foundations, *Qualitative Market Research: An International Journal*, [e-journal] vol. 23, no. 1, pp.145–169, Available Online: <https://doi.org/10.1108/QMR-06-2018-0064> [Accessed 17 March 2021]
- O’Cass, A. & McEwen, H. (2004). Exploring Consumer Status and Conspicuous Consumption, *Journal of Consumer Behaviour*, vol. 4, pp.25–39, Available Online: <http://dx.doi.org/10.1002/cb.155> [Accessed 17 March 2021]
- O’Donoghue, T. & Rabin, M. (2000). The Economics of Immediate Gratification, *Journal of Behavioral Decision Making*, vol. 13, pp.233–250, Available Online: [https://doi.org/10.1002/\(SICI\)1099-0771\(200004/06\)13:2%3C233::AID-BDM325%3E3.0.CO;2-U](https://doi.org/10.1002/(SICI)1099-0771(200004/06)13:2%3C233::AID-BDM325%3E3.0.CO;2-U) [Accessed 17 March 2021]
- Onwezen, M. C., Reinders, M. J., van der Lans, I. A., Sijtsema, S. J., Jasiulewicz, A., Dolors Guardia, M. & Guerrero, L. (2012). A Cross-National Consumer Segmentation Based on Food Benefits: The Link with Consumption Situations and Food Perceptions, *Food Quality and Preference*, [e-journal] vol. 24, no. 2, pp.276–286, Available Online: <https://www.sciencedirect.com/science/article/pii/S0950329311002382> [Accessed 17 March 2021]

- Oreg, S. & Katz-Gerro, T. (2006). Predicting Proenvironmental Behavior Cross-Nationally: Values, the Theory of Planned Behavior, and Value-Belief-Norm Theory, *Environment and Behavior*, [e-journal] vol. 38, no. 4, pp.462–483, Available Online: <https://doi.org/10.1177/0013916505286012> [Accessed 19 March 2021]
- Oxford Dictionary. (2021). Definition of VIRTUE SIGNALLING, *Lexico Dictionaries | English*, Available Online: [https://www.lexico.com/definition/virtue\\_signalling](https://www.lexico.com/definition/virtue_signalling) [Accessed 20 March 2021]
- Paddock, J. (2017). Household Consumption and Environmental Change: Rethinking the Policy Problem through Narratives of Food Practice, *Journal of Consumer Culture*, [e-journal] vol. 17, no. 1, pp.122–139, Available Online: <https://doi.org/10.1177/1469540515586869> [Accessed 17 March 2021]
- Paul, J., Modi, A. & Patel, J. (2016). Predicting Green Product Consumption Using Theory of Planned Behavior and Reasoned Action, *Journal of Retailing and Consumer Services*, [e-journal] vol. 29, pp.123–134, Available Online: <https://www.sciencedirect.com/science/article/pii/S0969698915301181> [Accessed 18 March 2021]
- Peters, M. (2015). Virtue Signaling and Other Inane Platitudes - The Boston Globe, *BostonGlobe.Com*, Available Online: <https://www.bostonglobe.com/ideas/2015/12/24/virtue-signaling-and-other-inane-platitudes/YrJRcvxYMofMcCfGORUcFO/story.html> [Accessed 21 March 2021]
- Pettersen, B. J., Anousheh, R., Fan, J., Jaceldo-Siegl, K. & Fraser, G. E. (2012). Vegetarian Diets and Blood Pressure among White Subjects: Results from the Adventist Health Study-2 (AHS-2), *Public Health Nutrition*, [e-journal] vol. 15, no. 10, pp.1909–1916, Available Online: <https://www.cambridge.org/core/journals/public-health-nutrition/article/vegetarian-diets-and-blood-pressure-among-white-subjects-results-from-the-adventist-health-study2-ahs2/428A8F6A59D3433B1A87B7B0D1F3FD28> [Accessed 26 March 2021]
- Poore, J. & Nemecek, T. (2018). Reducing Food’s Environmental Impacts through Producers and Consumers, *Science*, [e-journal] vol. 360, no. 6392, pp.987–992, Available Online: <https://science.sciencemag.org/content/360/6392/987> [Accessed 17 March 2021]
- Puska, P., Kurki, S., Lähdesmäki, M., Siltaoja, M. & Luomala, H. (2018). Sweet Taste of Prosocial Status Signaling: When Eating Organic Foods Makes You Happy and Hopeful, *Appetite*, [e-journal] vol. 121, pp.348–359, Available Online: <https://www.sciencedirect.com/science/article/pii/S019566631730524X> [Accessed 17 March 2021]
- Rapaport, P. & Orbell, S. (2000). Augmenting the Theory of Planned Behaviour: Motivation to Provide Practical Assistance and Emotional Support to Parents, *Psychology & Health*, [e-journal] vol. 15, no. 3, pp.309–324, Available Online: <https://doi.org/10.1080/08870440008401995> [Accessed 23 April 2021]

- Reese, G., Loew, K. & Steffgen, G. (2014). A Towel Less: Social Norms Enhance Pro-Environmental Behavior in Hotels, *The Journal of Social Psychology*, [e-journal] vol. 154, no. 2, pp.97–100, Available Online: <https://doi.org/10.1080/00224545.2013.855623> [Accessed 19 March 2021]
- Rezvani, Z., Jansson, J. & Bengtsson, M. (2018). Consumer Motivations for Sustainable Consumption: The Interaction of Gain, Normative and Hedonic Motivations on Electric Vehicle Adoption, *Business Strategy and the Environment*, [e-journal] vol. 27, no. 8, pp.1272–1283, Available Online: <http://ludwig.lub.lu.se/login?url=https://search.ebsco-host.com/login.aspx?direct=true&db=edsswe&AN=edsswe.oai.lub.lu.se.6dfb803f.ffa.4e77.a925.f9c80a4625d9&site=eds-live&scope=site> [Accessed 18 March 2021]
- Ritchie, H. & Roser, M. (2019). Meat and Dairy Production, *Our World in Data*, Available Online: <https://ourworldindata.org/meat-production> [Accessed 22 March 2021]
- Roberts, J. A. (1996). Green Consumers in the 1990s: Profile and Implications for Advertising, *Journal of Business Research*, [e-journal] vol. 36, no. 3, pp.217–231, Available Online: <https://www.sciencedirect.com/science/article/pii/0148296395001506> [Accessed 18 March 2021]
- Rosenfeld, D. L. (2019). A Comparison of Diatarian Identity Profiles between Vegetarians and Vegans, *Food Quality and Preference*, [e-journal] vol. 72, pp.40–44, Available Online: <https://www.sciencedirect.com/science/article/pii/S0950329318304944> [Accessed 22 March 2021]
- Ruiz de Maya, S., López-López, I. & Munuera, J. L. (2011). Organic Food Consumption in Europe: International Segmentation Based on Value System Differences, *Ecological Economics*, [e-journal] vol. 70, no. 10, pp.1767–1775, Available Online: <https://www.sciencedirect.com/science/article/pii/S0921800911001881> [Accessed 21 March 2021]
- Salehi, G., Carmona, E. D. & Redondo, R. (2020). Sustainability: New Challenges for Marketing and Socioeconomic Development, 19th International Congress on Public and Nonprofit Marketing, 18 June 2020, p.6, Available Online: [https://d1wqtxts1xzle7.cloudfront.net/63693438/Consumers\\_switching\\_to\\_vegan\\_diets\\_a\\_systematic\\_review\\_IAPNM\\_19th20200621-96547-1763ow0.pdf?1592724122=&response-content-disposition=inline%3B+filename%3DCONSUMERS\\_SWITCHING\\_TO\\_VEGAN\\_VEGETARIAN.pdf&Expires=1616060898&Signature=agHB-0x6O3GQhO4JJ81KMs-wTQ54jLK-QaTq8pPlydXIOTwtTYFoJHlPjzpRBFypClWP0uOKzi-LbkeKpRZObnYc-TGaN9bgT4DQBbpZaV2BlEkOCzgeLqtmewh0KV3klBRomOlja5mfBFojGHt9AwlT-KuGL6Gx7~XU7m2MXBY2V1WHtGnDvKX2cusRBpL2JPyg~5aZcb9QC9urcd4TbFn0s6RBohWivc8StteV3yKWq2kDtCvHtcdPKmdPZAYnxYKk0F1cnpuBLoG8j89tRTImBNMgjJTzOQHQjfk22bzYBbRnSmikW-ManxftfrVTjNYk59EqaLKUOE9kLZF9QliA\\_\\_&Key-Pair-Id=APKAJ-LOHF5GGSLRBV4ZA](https://d1wqtxts1xzle7.cloudfront.net/63693438/Consumers_switching_to_vegan_diets_a_systematic_review_IAPNM_19th20200621-96547-1763ow0.pdf?1592724122=&response-content-disposition=inline%3B+filename%3DCONSUMERS_SWITCHING_TO_VEGAN_VEGETARIAN.pdf&Expires=1616060898&Signature=agHB-0x6O3GQhO4JJ81KMs-wTQ54jLK-QaTq8pPlydXIOTwtTYFoJHlPjzpRBFypClWP0uOKzi-LbkeKpRZObnYc-TGaN9bgT4DQBbpZaV2BlEkOCzgeLqtmewh0KV3klBRomOlja5mfBFojGHt9AwlT-KuGL6Gx7~XU7m2MXBY2V1WHtGnDvKX2cusRBpL2JPyg~5aZcb9QC9urcd4TbFn0s6RBohWivc8StteV3yKWq2kDtCvHtcdPKmdPZAYnxYKk0F1cnpuBLoG8j89tRTImBNMgjJTzOQHQjfk22bzYBbRnSmikW-ManxftfrVTjNYk59EqaLKUOE9kLZF9QliA__&Key-Pair-Id=APKAJ-LOHF5GGSLRBV4ZA) [Accessed 18 March 2021]

- Sarstedt, M. & Cheah, J.-H. (2019). Partial Least Squares Structural Equation Modeling Using SmartPLS: A Software Review, *Journal of Marketing Analytics*, [e-journal] vol. 7, no. 3, pp.196–202, Available Online: <https://doi.org/10.1057/s41270-019-00058-3> [Accessed 18 March 2021]
- Sarstedt, M., Ringle, C. M. & Hair, J. F. (2017). Partial Least Squares Structural Equation Modeling, in C. Homburg, M. Klarmann, & A. Vomberg (eds), *Handbook of Market Research*, [e-book] Cham: Springer International Publishing, pp.1–40, Available Online: [http://link.springer.com/10.1007/978-3-319-05542-8\\_15-1](http://link.springer.com/10.1007/978-3-319-05542-8_15-1) [Accessed 18 March 2021]
- Schau, H. J. (2018). Identity Projects and the Marketplace, in E. J. Arnould & C. J. Thompson (eds), *Consumer Culture Theory*, London: SAGE Publications Ltd., pp.87–106
- ScienceDirect. (2021). The Theory of Planned Behavior, *Organizational Behavior and Human Decision Processes*, Available Online: <https://www.sciencedirect.com/science/article/pii/S074959789190020T> [Accessed 24 March 2021]
- Septiani, S., Najib, M. & Sumarwan, U. (2019). Egoistic and Altruistic Motives on the Purchasing Behavioral Model of Organic Food in the Indonesian Market, in *Proceedings of the 2019 International Conference on Organizational Innovation (ICOI 2019)*, Proceedings of the 2019 International Conference on Organizational Innovation (ICOI 2019), Ulsan, South Korea, 2019, Ulsan, South Korea: Atlantis Press, Available Online: <https://www.atlantis-press.com/article/125919286> [Accessed 17 March 2021]
- Shah Alam, S. & Mohamed Sayuti, N. (2011). Applying the Theory of Planned Behavior (TPB) in Halal Food Purchasing, *International Journal of Commerce and Management*, [e-journal] vol. 21, no. 1, pp.8–20, Available Online: <https://doi.org/10.1108/10569211111111676> [Accessed 17 March 2021]
- Shariatmadari, D. (2016). ‘Virtue-Signalling’ – the Putdown That Has Passed Its Sell-by Date, *The Guardian*, 20 January, Available Online: <https://www.theguardian.com/commentis-free/2016/jan/20/virtue-signalling-putdown-passed-sell-by-date> [Accessed 21 March 2021]
- Simmons, D. & Widmar, R. (1990). Motivations and Barriers to Recycling: Toward a Strategy for Public Education, *The Journal of Environmental Education*, [e-journal] vol. 22, no. 1, pp.13–18, Available Online: <https://doi.org/10.1080/00958964.1990.9943041> [Accessed 18 March 2021]
- SmartPLS. (2021). Model Fit, Available Online: <https://www.smartpls.com/documentation/algorithms-and-techniques/model-fit> [Accessed 11 April 2021]
- Sniehotta, F. F., Gellert, P., Witham, M. D., Donnan, P. T., Crombie, I. K. & McMurdo, M. E. (2013). Psychological Theory in an Interdisciplinary Context: Psychological, Demographic, Health-Related, Social, and Environmental Correlates of Physical Activity in a Representative Cohort of Community-Dwelling Older Adults, *International Journal of Behavioral Nutrition and Physical Activity*, [e-journal] vol. 10, no. 1, p.106, Available Online: <https://doi.org/10.1186/1479-5868-10-106> [Accessed 23 April 2021]

- Spencer, E. A., Appleby, P. N., Davey, G. K. & Key, T. J. (2003). Diet and Body Mass Index in 38 000 EPIC-Oxford Meat-Eaters, Fish-Eaters, Vegetarians and Vegans, 6, *International Journal of Obesity*, [e-journal] vol. 27, no. 6, pp.728–734, Available Online: <https://www.nature.com/articles/0802300> [Accessed 26 March 2021]
- Statista. (2015). Global Growth: Products Labeled as Vegan 2015, *Statista*, Available Online: <http://www.statista.com/statistics/542021/growth-of-products-labeled-as-vegan-world-wide/> [Accessed 22 March 2021]
- Statista. (2018). Vegan Food: Global Launches Share by Category 2018, *Statista*, Available Online: <https://www.statista.com/statistics/890705/global-new-vegan-food-launch-share-by-country/> [Accessed 22 March 2021]
- Statista. (2020a). Coronavirus: Plant-Based Foods Growth U.S. 2020, *Statista*, Available Online: <https://www.statista.com/statistics/1120804/coronavirus-plant-based-food-retail-sales-growth-us/> [Accessed 22 March 2021]
- Statista. (2020b). Vegan Market - Statistics and Facts, *Statista*, Available Online: <http://www.statista.com/topics/3377/vegan-market/> [Accessed 22 March 2021]
- Steinberg, D. (2021). TIME100 Most Influential Companies 2021: Beyond Meat, *Time*, Available Online: <https://time.com/collection/time100-companies/5953579/beyond-meat/> [Accessed 19 May 2021]
- Steptoe, A., Pollard, T. M. & Wardle, J. (1995). Development of a Measure of the Motives Underlying the Selection of Food: The Food Choice Questionnaire, *Appetite*, [e-journal] vol. 25, no. 3, pp.267–284, Available Online: <https://www.sciencedirect.com/science/article/pii/S019566638570061X> [Accessed 17 March 2021]
- Stokes, R. (2014). EMarketing: The Essential Guide to Marketing in a Digital World, [e-book] Quirk eMarketing, Available Online: <https://open.umn.edu/opentextbooks/textbooks/14>
- Terpitz, K. (2021). Lebensmittel: Veggie-Boom bringt die Rügenwalder Mühle an Kapazitätsgrenzen, Available Online: <https://www.handelsblatt.com/unternehmen/handel-konsumgueter/lebensmittel-veggie-boom-bringt-die-ruegenwalder-muehle-an-kapazitaetsgrenzen/27097748.html> [Accessed 18 April 2021]
- The Vegan Society. (2014). Ripened by Human Determination, Available Online: <https://www.vegansociety.com/sites/default/files/uploads/Ripened%20by%20human%20determination.pdf> [Accessed 22 March 2021]
- Tosi, J. & Warmke, B. (2016). Moral Grandstanding, *Philosophy & Public Affairs*, [e-journal] vol. 44, no. 3, pp.197–217, Available Online: <https://onlinelibrary.wiley.com/doi/abs/10.1111/papa.12075> [Accessed 20 March 2021]

- Trelohan, M. (2021). Do Women Engage in Pro-Environmental Behaviours in the Public Sphere Due to Social Expectations? The Effects of Social Norm-Based Persuasive Messages, *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, [e-journal], Available Online: <https://doi.org/10.1007/s11266-020-00303-9> [Accessed 19 March 2021]
- Tukker, A., Goldbohm, R. A., de Koning, A., Verheijden, M., Kleijn, R., Wolf, O., Pérez-Domínguez, I. & Rueda-Cantuche, J. M. (2011). Environmental Impacts of Changes to Healthier Diets in Europe, *Ecological Economics*, [e-journal] vol. 70, no. 10, pp.1776–1788, Available Online: <https://www.sciencedirect.com/science/article/pii/S092180091100190X> [Accessed 17 March 2021]
- United Nations. (1987). Report of the World Commission on Environment and Development: Our Common Future, Available Online: <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf> [Accessed 14 March 2021]
- United Nations. (2021). Sustainable Consumption and Production, Available Online: <https://sustainabledevelopment.un.org/topics/sustainableconsumptionandproduction> [Accessed 26 March 2021]
- Uren, H. V., Roberts, L. D., Dzidic, P. L. & Leviston, Z. (2019). High-Status Pro-Environmental Behaviors: Costly, Effortful, and Visible, *Environment and Behavior*, [e-journal] p.0013916519882773, Available Online: <https://doi.org/10.1177/0013916519882773> [Accessed 23 March 2021]
- van der Wal, A. J., van Horen, F. & Grinstein, A. (2016). The Paradox of ‘Green to Be Seen’: Green High-Status Shoppers Excessively Use (Branded) Shopping Bags, *International Journal of Research in Marketing*, [e-journal] vol. 33, no. 1, pp.216–219, Available Online: <https://www.sciencedirect.com/science/article/pii/S0167811615001408> [Accessed 19 March 2021]
- van Houten, A. (2021). TIME100 Most Influential Companies 2021: Oatly, *Time*, Available Online: <https://time.com/collection/time100-companies/5949988/oatly/> [Accessed 19 May 2021]
- Veblen, T. (2006). Chapter Four: Conspicuous Consumption, in *Theory of the Leisure Class by Thorstein Veblen*, [e-book] Project Gutenberg Literary Archive Foundation, pp.32–46, Available Online: <https://eds.b.ebscohost.com/eds/detail/detail?vid=2&sid=7f77e54b-ba1a-4380-bd61-6ff666e5d0f2%40pdc-v-sessmgr02&bdata=JnNpdGU9ZWRzLWxpdmUmUmc2NvcGU9c2l0ZQ%3d%3d#AN=34327517&db=lfh> [Accessed 19 March 2021]
- Veganuary. (2021). Veganuary in Numbers, *Veganuary*, Available Online: <https://veganuary.com/> [Accessed 22 March 2021]
- Veganuary. (2021a). Veganuary - the International Movement Inspiring People to Try Vegan!, *Veganuary*, Available Online: <https://veganuary.com/> [Accessed 17 March 2021]

- Veganuary. (2021b). What We Do | About Us, *Veganuary*, Available Online: <https://veganuary.com/about/about-us/> [Accessed 2 April 2021]
- Verain, M. C. D., Sijtsema, S. J., Taufik, D., Raaijmakers, I. & Reinders, M. J. (2020). Motive-Based Consumer Segments and Their Fruit and Vegetable Consumption in Several Contexts, *Food Research International*, [e-journal] vol. 127, p.108731, Available Online: <https://www.sciencedirect.com/science/article/pii/S0963996919306179> [Accessed 17 March 2021]
- Vernelli, T. (2021a). Veganuary's Rise Is Unstoppable as 2021 Becomes Biggest Year Yet, *Veganuary*, Available Online: <https://veganuary.com/veganuary-2021-becomes-biggest-year-yet/> [Accessed 17 March 2021]
- Vernelli, T. (2021b). Veganuary 2021: The Official Survey Results Are In!, *Veganuary*, Available Online: <https://veganuary.com/veganuary-2021-survey-results/> [Accessed 2 April 2021]
- Wallace, E., Buil, I. & de Chernatony, L. (2020). 'Consuming Good' on Social Media: What Can Conspicuous Virtue Signalling on Facebook Tell Us About Prosocial and Unethical Intentions?, *Journal of Business Ethics*, [e-journal] vol. 162, no. 3, pp.577–592, Available Online: <https://doi.org/10.1007/s10551-018-3999-7> [Accessed 18 March 2021]
- Weiber, R. & Mühlhaus, D. (2014). *Strukturgleichungsmodellierung: Eine anwendungsorientierte Einführung in die Kausalanalyse mit Hilfe von AMOS, SmartPLS und SPSS*, Springer-Verlag
- Westhoek, H., Lesschen, J. P., Rood, T., Wagner, S., De Marco, A., Murphy-Bokern, D., Leip, A., van Grinsven, H., Sutton, M. A. & Oenema, O. (2014). Food Choices, Health and Environment: Effects of Cutting Europe's Meat and Dairy Intake, *Global Environmental Change*, [e-journal] vol. 26, pp.196–205, Available Online: <https://linkinghub.elsevier.com/retrieve/pii/S0959378014000338> [Accessed 17 March 2021]
- White, K., Habib, R. & Hardisty, D. J. (2019). How to SHIFT Consumer Behaviors to Be More Sustainable: A Literature Review and Guiding Framework, *Journal of Marketing*, [e-journal] vol. 83, no. 3, pp.22–49, Available Online: <https://doi.org/10.1177/0022242919825649> [Accessed 20 March 2021]
- White, K. M., Smith, J. R., Terry, D. J., Greenslade, J. H. & McKimmie, B. M. (2009). Social Influence in the Theory of Planned Behaviour: The Role of Descriptive, Injunctive, and in-Group Norms, *British Journal of Social Psychology*, [e-journal] vol. 48, no. 1, pp.135–158, Available Online: <https://bpspsychub.onlinelibrary.wiley.com/doi/abs/10.1348/014466608X295207> [Accessed 22 March 2021]
- White, R. (2018). Looking Backward/Moving Forward. Articulating a “Yes, BUT...!” Response to Lifestyle Veganism, and Outlining Post-Capitalist Futures in Critical Veganic Agriculture, *EuropeNow*, no. 20, Available Online: <http://shura.shu.ac.uk/22661/4/White%20Looking%20backward%20moving%20forward.pdf> [Accessed 23 March 2021]

- Whitmarsh, L. & O'Neill, S. (2010). Green Identity, Green Living? The Role of pro-Environmental Self-Identity in Determining Consistency across Diverse pro-Environmental Behaviours, *Journal of Environmental Psychology*, [e-journal] vol. 30, no. 3, pp.305–314, Available Online: <https://www.sciencedirect.com/science/article/pii/S0272494410000046> [Accessed 18 March 2021]
- Wiidegren, Ö. (1998). The New Environmental Paradigm and Personal Norms, *Environment and Behavior*, [e-journal] vol. 30, no. 1, pp.75–100, Available Online: <https://doi.org/10.1177/0013916598301004> [Accessed 19 March 2021]
- Wirnitzer, K. C. (2018). Chapter 21 - Vegan Nutrition: Latest Boom in Health and Exercise, in A. M. Grumezescu & A. M. Holban (eds), *Therapeutic, Probiotic, and Unconventional Foods*, [e-book] Academic Press, pp.387–453, Available Online: <https://www.sciencedirect.com/science/article/pii/B9780128146255000200> [Accessed 17 March 2021]
- Witte, B., Obloj, P., Koktenturk, S., Morach, B., Brigl, M., Rogg, J., Schulze, U., Walker, D., von Koeller, E., Dehnert, N. & Grosse-Holz, F. (2021). Food for Thought: The Protein Transformation, *BCG Global*, Available Online: <https://www.bcg.com/publications/2021/the-benefits-of-plant-based-meats> [Accessed 18 April 2021]
- Wong, K. K.-K. (2013). Partial Least Squares Structural Equation Modeling (PLS-SEM) Techniques Using SmartPLS, *Marketing Bulletin*, [e-journal] vol. 24, pp.1–32, Available Online: <http://ludwig.lub.lu.se/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=93456838&site=eds-live&scope=site> [Accessed 18 March 2021]
- Yuriev, A., Dahmen, M., Paillé, P., Boiral, O. & Guillaumie, L. (2020). Pro-Environmental Behaviors through the Lens of the Theory of Planned Behavior: A Scoping Review, *Resources, Conservation and Recycling*, [e-journal] vol. 155, p.104660, Available Online: <https://www.sciencedirect.com/science/article/pii/S092134491930566X> [Accessed 19 March 2021]
- Žabkar, V. & Hosta, M. (2013). Willingness to Act and Environmentally Conscious Consumer Behaviour: Can Prosocial Status Perceptions Help Overcome the Gap?, *International Journal of Consumer Studies*, vol. 37, no. 3, pp. 257-264, Available Online: <https://doi.org/10.1111/j.1470-6431.2012.01134.x> [Accessed 20 March 2021]

# Appendix A

## Online Survey Design - English

### Page 1: Introduction



# LUND

## UNIVERSITY

0% (0/9)

### Hej and welcome to our survey!

We are Anika and Svenja, two master students in International Marketing and Brand Management at Lund University and this is the survey to our final project, the Master Thesis. Thank you for giving us 10-15 minutes of your time today by participating in our survey on vegan food consumption!

Don't worry, you do **not** have to be vegan to answer the questions, just think of vegan food alternatives in general (eg. oat milk, soy yoghurt, meat replacements, plant-based cheese) 😊

Please only continue with our survey if you are **at least 18** and currently live in **Germany or Sweden**.

If you like, you can provide an email address at the end of the survey to join the lottery and potentially win a 200kr/20€ Amazon voucher. Of course, your data will be treated anonymously and with confidentiality!

In case you have any questions or comments, don't hesitate to contact us via email: sv4074ma-s@student.lu.se & an4360al-s@student.lu.se

Let's go...

Next >



# LUND UNIVERSITY

11% (1/9)

## Survey

**★ Please rate the following statements**

Rate from 1 = **strongly disagree** to 7 = **strongly agree**

	1	2	3	4	5	6	7
Vegan food alternatives (eg. oat milk, meat replacements, soy yoghurt) have less of an impact on the environment than animal products.	<input type="radio"/>						
Vegan food alternatives are more sustainable.	<input type="radio"/>						
Vegan food alternatives are environmentally-friendly.	<input type="radio"/>						
Through the consumption of vegan food alternatives, I contribute to the protection of animal rights.	<input type="radio"/>						
Through the consumption of vegan food alternatives, I prevent animals from experiencing pain.	<input type="radio"/>						
Consuming vegan food alternatives is nutritious.	<input type="radio"/>						
Consuming vegan food alternatives keeps me healthy.	<input type="radio"/>						
Consuming vegan food alternatives is good for my skin/teeth/hair/nails etc.	<input type="radio"/>						
It increases my self-respect when people in my environment notice my consumption of vegan food alternatives.	<input type="radio"/>						
It makes me feel good when people in my environment notice my consumption of vegan food alternatives.	<input type="radio"/>						
I like to show my consumption of vegan food alternatives so that people know I am a good person.	<input type="radio"/>						
I like to post vegan food alternatives on social media because it makes me look good.	<input type="radio"/>						

**\* Purchasing and consuming (more) vegan food alternatives when I go food shopping would be / is...**

bad        good  
unpleasant        pleasant

**\* Rate from 1 = strongly disagree to 7 = strongly agree**

	1	2	3	4	5	6	7
Most people who are important to me approve of my buying of vegan food alternatives.	<input type="radio"/>						
Most people who are like me buy vegan food alternatives.	<input type="radio"/>						
I am confident that I can purchase and consume vegan food alternatives if I want to.	<input type="radio"/>						
Purchasing vegan food alternatives is up to me.	<input type="radio"/>						
I intend to purchase and consume vegan food alternatives.	<input type="radio"/>						

[< Back](#)

[Next >](#)

67% (10/15)



# LUND

## UNIVERSITY

### General Questions

---

**★ Please specify your gender**

Male

Female

not specified

---

**★ How old are you?**

---

**★ What is your country of residence?**

Germany

Sweden

Other (please specify)

---

**★ Please select your highest educational degree**

Highschool

Apprenticeship (Ausbildung)

Bachelor

Master

Doctor

---

**★ What is your monthly household income?**

[< Back](#)[Next >](#)



**LUND**  
UNIVERSITY

100% (15/15)

**Thank you** for participating in our study!  
In case you have any further questions, feel free to contact us: sv4074ma-s@student.lu.se (Svenja) & an4360al-s@student.lu.se (Anika)

To complete the study, *click "Finish"* :)

**Have an amazing day!!**

If you would like to join the lottery to get the chance of winning a 200kr/20€ Amazon voucher, please provide your email address below:

Email

[< Back](#)

[Finish >](#)

Survey created with  
 LamaPoll

# Appendix B

## Online Survey Design - German

### Page 1: Introduction



**Hej und willkommen zu unserer Umfrage!**

Wir sind Anika und Svenja, zwei Masterstudentinnen im Fach International Marketing und Brand Management an der Lund Universität und dies ist die Umfrage für unsere Masterarbeit. **Riesen Dank**, dass Du uns heute 5-8 Minuten Deiner Zeit schenkst, um an unserer Studie teilzunehmen! Es geht um den Konsum von veganen Produktalternativen.

Keine Sorge, Du brauchst Dich **nicht** vegan zu ernähren, um die Fragen zu beantworten. Es geht lediglich um Deine generelle Einstellung bezüglich veganen Nahrungsmitteln, wie *beispielsweise* Hafermilch, Sojajoghurt, Fleischalternativen oder pflanzenbasiertem Käse 🍌

Bitte nimm nur an diesem Fragebogen teil, wenn Du **mindestens 18 Jahre alt** bist und in **Deutschland oder Schweden** lebst.

Wenn Du magst, kannst Du am Ende eine E-Mail Adresse angeben, um an unserer Verlosung teilzunehmen und mit etwas Glück einen 20€ Amazon Gutschein zu gewinnen. Selbstverständlich werden alle Daten anonym und GDPR-konform behandelt.

Falls Du eine Frage hast, kontaktiere uns gerne per E-Mail: sv4074ma-s@student.lu.se (Svenja) & an4360al-s@student.lu.se (Anika)

**Let's go...**

**★ Bitte bewerte die folgenden Statements**

Bewerte von 1 = **stimme überhaupt nicht zu** bis 7 = **stimme voll zu**

1 2 3 4 5 6 7

Vegane Produktalternativen (z.B. Hafermilch, Sojajoghurt, Fleischalternativen) haben einen geringeren Einfluss auf die Umwelt als Tierprodukte.	<input type="radio"/>						
Vegane Produktalternativen sind nachhaltig.	<input type="radio"/>						
Vegane Produktalternativen sind umweltfreundlich.	<input type="radio"/>						
Durch den Konsum von veganen Produktalternativen trage ich zu dem Schutz von Tierrechten bei.	<input type="radio"/>						
Durch den Konsum von veganen Produktalternativen verhindere ich, dass Tiere Schmerzen erleiden müssen.	<input type="radio"/>						
Vegane Produktalternativen sind nährstoffreich.	<input type="radio"/>						
Vegane Produktalternativen halten mich gesund.	<input type="radio"/>						
Der Konsum von veganen Produktalternativen ist gut für meine Haut/Zähne/Haare usw.	<input type="radio"/>						
Es erhöht mein Selbstwertgefühl, wenn Menschen in meinem Umfeld bemerken, dass ich vegane Produktalternativen konsumiere.	<input type="radio"/>						
Ich fühle mich gut, wenn Menschen in meinem Umfeld bemerken, dass ich vegane Produktalternativen konsumiere.	<input type="radio"/>						
Ich zeige gerne meinen Konsum von veganen Produktalternativen, sodass andere wissen, dass ich ein guter Mensch bin.	<input type="radio"/>						
Ich poste vegane Produktalternativen gerne auf Social Media Kanälen (z.B. Instagram, Facebook), da es mich gut dastehen lässt.	<input type="radio"/>						

**★ Der Kauf und Konsum von (mehr) veganen Produktalternativen wenn ich einkaufen gehe, wäre / ist ...**

schlecht        gut

unangenehm für mich        angenehm für mich

**★**

Bewerte von 1 = **stimme überhaupt nicht zu** bis 7 = **stimme voll zu**

1 2 3 4 5 6 7

Die meisten Menschen, die mir wichtig sind, finden es gut, dass ich vegane Produktalternativen kaufe.	<input type="radio"/>						
Die meisten Menschen, die so sind wie ich, kaufen vegane Produktalternativen.	<input type="radio"/>						
Ich bin mir sicher, dass ich vegane Produktalternativen kaufen kann, wenn ich das möchte.	<input type="radio"/>						
Vegane Produktalternativen zu kaufen ist meine eigene Entscheidung.	<input type="radio"/>						
Ich habe vor (mehr) vegane Produktalternativen zu kaufen und zu konsumieren.	<input type="radio"/>						

## Generelle Fragen

**\* Bitte gib dein Geschlecht an**

- männlich
- weiblich
- divers

**\* Wie alt bist du?**

- 18-20
- 21-25
- 26-30
- 31-35
- 36-40
- 41-45
- 46-50
- 51-55
- 56-60
- 61-65
- 66-70
- 71-75
- 76-80
- 81-85
- 86-90
- 91-95
- 96-100

**\* In welchem Land ist dein Wohnsitz?**

- Deutschland
- Schweden

**\* Was ist dein höchster abgeschlossener Bildungsstand?**

- Schule
- Ausbildung
- Bachelor
- Master
- Doktor

★ **Wie hoch ist dein monatliches Haushaltseinkommen?**

- Ich bevorzuge, nicht zu antworten.
- weniger als 1.000€
- 1.000 - 2.000€
- 2.000 - 3.000€
- 3.000 - 4.000€
- 4.000 - 5.000€
- Mehr als 5.000€

Page 4: Identification Information

**Vielen Dank**, dass du an unserer Studie teilgenommen hast!

Falls du weitere Fragen hast, kannst du uns gerne kontaktieren: [sv4074ma-s@student.lu.se](mailto:sv4074ma-s@student.lu.se) (Svenja) &  
[an4360al-s@student.lu.se](mailto:an4360al-s@student.lu.se) (Anika)

Um den Fragebogen abzuschicken, klicke bitte auf "**Finish**" :)

**Hab' einen wunderschönen Tag!**

Wenn du an der 20€ Amazon-Gutschein Verlosung teilnehmen möchtest, gib bitte unten deine E-Mail-Adresse an:

Email

Survey created with  


# Appendix C

## Means and Standard Deviations

<b>Construct / Variable</b>	<b>Item</b>	<b>Mean</b>	<b>Standard Deviation</b>
Environmental Benefit	Vegan food alternatives... ...have less of an impact on the environment than animal products.	6.023	1.385
	...are sustainable.	5.409	1.430
	...are environmentally- friendly.	5.413	1.356
Animal Welfare Benefit	Through the consumption of vegan food alternatives... ...I contribute to the protection of animal rights.	6.158	1.422
	...I prevent animals from experiencing pain.	6.168	1.426
Health Benefit	Consuming vegan food alternatives... ...is nutritious.	5.188	1.531
	...keeps me healthy.	5.119	1.509
	...is good for my skin/teeth/hair/nails etc.	4.908	1.482
Virtue Signalling Benefit	It increases my self-respect when people in my environment notice my consumption of vegan food alternatives.	3.934	2.182
	It makes me feel good when people in my environment notice my consumption of vegan food alternatives.	4.033	2.180
	I like to show my consumption of vegan food alternatives so that people know I am a good person.	3.350	2.257
	I like to post purchased vegan food alternatives on social media because it makes me look good.	2.663	2.318

Attitude	Purchasing and consuming (more) vegan food alternatives when I go food shopping would be / is... ...Good	6.132	1.230
	...Pleasant	5.904	1.367
Subjective Norm	Most people who are important to me approve of my purchases of vegan food alternatives.	5.079	1.769
	Most people who are like me buy vegan food alternatives.	4.512	1.840
Perceived Behavioural Control	I am confident that I can purchase and consume vegan food alternatives if I want to.	6.254	1.174
	Purchasing vegan food alternatives is up to me.	6.469	1.104
Purchase Intention	I intend to purchase and consume vegan food alternatives.	5.548	1.670

# Appendix D

## Correlation Matrix

Correlation Matrix

		EB1	EB2	EB3	AW1	AW2	HB1	HB2	HB3	VS1	VS2	VS3	VS4	A1	A2	SN1	SN2	BC1	BC2	PI1
EB1	Pearson's r	—																		
	p-value	—																		
EB2	Pearson's r	0.537***	—																	
	p-value	<.001	—																	
EB3	Pearson's r	0.541***	0.813***	—																
	p-value	<.001	<.001	—																
AW1	Pearson's r	0.511***	0.533***	0.536***	—															
	p-value	<.001	<.001	<.001	—															
AW2	Pearson's r	0.441***	0.486***	0.483***	0.789***	—														
	p-value	<.001	<.001	<.001	<.001	—														
HB1	Pearson's r	0.481***	0.625***	0.597***	0.472***	0.437***	—													
	p-value	<.001	<.001	<.001	<.001	<.001	—													
HB2	Pearson's r	0.458***	0.616***	0.661***	0.477***	0.448***	0.770***	—												
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	—												
HB3	Pearson's r	0.447***	0.646***	0.603***	0.422***	0.366***	0.750***	0.801***	—											
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—											
VS1	Pearson's r	0.326***	0.500***	0.493***	0.303***	0.257***	0.510***	0.529***	0.600***	—										
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—										
VS2	Pearson's r	0.403***	0.504***	0.506***	0.349***	0.303***	0.521***	0.545***	0.640***	0.889***	—									
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—									
VS3	Pearson's r	0.314***	0.450***	0.504***	0.246***	0.186**	0.472***	0.492***	0.594***	0.806***	0.823***	—								
	p-value	<.001	<.001	<.001	<.001	0.001	<.001	<.001	<.001	<.001	<.001	<.001	—							
VS4	Pearson's r	0.234***	0.413***	0.464***	0.150**	0.116*	0.471***	0.517***	0.625***	0.723***	0.705***	0.833***	—							
	p-value	<.001	<.001	<.001	0.009	0.044	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—						
A1	Pearson's r	0.504***	0.463***	0.484***	0.448***	0.422***	0.446***	0.482***	0.414***	0.410***	0.450***	0.327***	0.313***	—						
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—					
A2	Pearson's r	0.484***	0.393***	0.409***	0.415***	0.391***	0.482***	0.457***	0.455***	0.447***	0.490***	0.423***	0.386***	0.783***	—					
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—				
SN1	Pearson's r	0.378***	0.436***	0.444***	0.412***	0.415***	0.504***	0.443***	0.495***	0.574***	0.592***	0.521***	0.504***	0.505***	0.546***	—				
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—			
SN2	Pearson's r	0.405***	0.440***	0.489***	0.322***	0.327***	0.498***	0.525***	0.533***	0.555***	0.573***	0.596***	0.596***	0.485***	0.521***	0.662***	—			
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—		
BC1	Pearson's r	0.297***	0.274***	0.272***	0.277***	0.262***	0.311***	0.304***	0.260***	0.202***	0.271***	0.157**	0.194***	0.368***	0.344***	0.319***	0.357***	—		
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	0.006	<.001	<.001	<.001	<.001	<.001	<.001	—	
BC2	Pearson's r	0.194***	0.180**	0.217***	0.232***	0.239***	0.192***	0.214***	0.200***	0.131*	0.246***	0.177**	0.124*	0.312***	0.261***	0.219***	0.231***	0.494***	—	
	p-value	<.001	0.002	<.001	<.001	<.001	<.001	<.001	<.001	0.023	<.001	0.002	0.032	<.001	<.001	<.001	<.001	<.001	<.001	—
PI1	Pearson's r	0.454***	0.436***	0.502***	0.442***	0.437***	0.530***	0.509***	0.477***	0.503***	0.539***	0.471***	0.464***	0.625***	0.606***	0.565***	0.584***	0.323***	0.212***	—
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001

Note. \* p < .05, \*\* p < .01, \*\*\* p < .001