“Meat” the opposite side: Effects of a cross-cutting discussion video on attitudes and beliefs towards meat consumption among young adults (19-30 years of age).

Master's Thesis

Supervisor: Dr. Tina Venema

Delphine Fossey (1812270)
Email address: d.a.d.fossey@students.uu.nl

MSc Sustainable Business and Innovation
Faculty of Geosciences

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"When you talk, you are only repeating what you already know. But if you listen, you may learn something new."
-Dalai Lama

Abstract

Introduction. To this day, meat-eaters remain hostile to the idea of eliminating meat completely from their diets and oppose initiatives promoting meat reduction. However, in the context of the environmental crisis, it is of importance to rethink current behaviours and attitudes towards meat consumption. As such, new strategies need to be sought out to encourage meat reduction while lowering public opposition. A cross-cutting discussion (i.e., exchanges of ideas among people who hold differing political and ideological beliefs) was employed to explore whether exposure to this form of discussion, involving meat-eaters and vegetarians, can act as a trigger to change pre-established attitudes and beliefs towards meat reduction. The study specifically focused on young meat-eaters (19-30 years of age).

Theoretical Background. Greater tolerance and better understanding of the opposing side's stances has been associated to cross-cutting discussions, inducing lower polarisation. This could encourage the promotion of perceived benefits of meat reduction, known alongside of ambivalence, to predict intention to reduce meat consumption.

Methodology. A quantitative repeated measure design was conducted on a sample composed of 72 young adults aged between 19 to 30 years old. Data was collected twice through the same survey questionnaire: Before and after watching the video. The collected data was analysed conducting a paired-sample t-test and a McNemar test.

Results. The results show that being exposed to the cross-cutting video had increased public acceptability of meat reduction policies while increasing pro-environmental and pro-animal welfare attitudes in regard to meat consumption. At post-test, 80.6% of participants reported having the intention to reduce their meat consumption. Participants were already open and tolerant to vegetarians; watching the video did not trigger negative attitudes towards this group.

Discussion. Exposure to cross-cutting discussion led young adults to reconsider preconceived beliefs towards meat consumption, translating into more positive attitudes towards meatless diets. However, the video only influenced the cognitive state and not on the emotional state as no feelings of ambivalence were stimulated. Although some limitations were identified, this study presents a first attempt in capturing the effects of watching a cross-cutting video on preconceived attitudes and beliefs.

Conclusion. The research provided new insights on cross-cutting discussion and its potential to affect attitudes and beliefs in favour of meat reduction. Findings of this research can be used in social marketing campaigns or by educational institutions to promote critical thinking and encourage meat reduction.

Introduction

Meat eating and climate change: A call to reduce consumption of meat

In recent years, there has been growing consensus within the scientific sphere that significantly reducing global meat consumption is key to assisting in the mitigation of climate change (Godfray et al., 2018; Graça & Truninger, 2019). Livestock farming is currently responsible for land, water and energy use issues as well as animal diseases and pollution. The meat industry accounts for approximately 15% of global greenhouse gases emissions, making this sector one of the largest contributors to climate change (Gerssen-Gondelach et al., 2017; Gerber et al., 2013). To limit environmental impacts deriving from meat production, global demand for meat must drop and plant-based diets must be encouraged. Yet, such a shift requires a profound societal and economic transition, becoming one of today's biggest challenges.

Interestingly, consumers' awareness of environmental impacts of meat production and consumption is relatively low (Stea & Pickering, 2018). It appears that even when consumers become aware of those impacts, most seem unwilling to cut meat completely from their diets (Hartmann & Siegrist, 2017). Paradoxically, meat consumption worldwide increases steadily every year and is projected to double by 2050, growing concern among scientists and environmental organisations (FAO, 2009). In 2020, Greenpeace estimated that in order for climate goals to be met, meat consumption in the EU needs to be reduced by 70% by 2030 (Greenpeace European Unit, 2020). However, European consumers show resistance to the idea of abandoning meat. Lyon's mayor announced the decision to cut meat from school lunch menus, offered to some 29,000 Lyonnais children each day. This announcement caused a strong wave of opposition to arise, citizens calling this decision "scandalous" or "wrong", as "eating meat is indispensable. Good food, good living and good eating is part of Lyon's culture. Lyon is the capital of French gastronomy" (Yeung, 2021). Such reactions are not surprising, considering how identity and meat consumption are closely embedded within (French) social and cultural norms. Attempts to encourage meat reduction are perceived as a threat to traditions and cultures, and often result in strong opposition (Branković & Budžak, 2021).

However, social norms can and do change. Whilst eating meat is still widely accepted, it is slowly becoming morally questioned from a health, ethical and environmental perspective by a fragment of people. In questioning moral beliefs attached to meat consumption, people challenge established social and cultural norms. When meat-eaters start attributing negative evaluations to meat consumption, they enter a state of cognitive dissonance, creating a conflict between their moral values and their behaviours. Such a psychological state is shown in the literature to lead to more willingness to reduce meat consumption (Berndsen & Van Der Pligt, 2004). It is therefore relevant to seek new ways to stimulate this dissonance and encourage consumers to reduce their meat intake while lowering public opposition.

Social media, a blessing in disguise

Social platforms have the potential to stimulate change: they facilitate knowledge growth as well as the exchange of ideas, opinions and information. Precisely because social environments make information easily accessible to a larger audience, people choose these platforms to raise awareness about diverse societal issues including meat-eating. Consequently, it is not rare to see debates of ideas and opinions occurring on social media. Whilst it could challenge preconceived opinions, it does not ensure their reassessment. People tend to prefer attitude-confirming over attitude-challenging information (Hart et al., 2009; Lueders et al., 2022). Hence, users seek out and consume information favourable to their beliefs, which is enhanced by algorithms rarely offering challenging information content. As a result, users get unnoticeably locked into fragmented social environments, often referred to as *echo-chambers*. i.e. social environments acting as opinion bubbles, in which preconceived beliefs and opinions get reinforced (Cinelli et al., 2021; Müller et al., 2022). Overtime, users who moderately embrace one position may develop stronger attitudes after being exposed to information preaching solely one side (Lueders et al., 2022). The threat of polarisation is therefore highly prevalent on social platforms, which can eventually generate resistance to meat reduction and animosity between the two groups, translating into an "us vs. them" thinking (Bastian & Loughnan, 2017; Bliuc et al., 2020). Most people hold positive attitudes and beliefs towards their own diets while having negative attitudes and beliefs about other diets, which consequently lead them solely to have positive intentions towards their own diets, and not follow others (Povey et al,. 2001).

This dissimilarity between meat-eaters and vegetarians results in another social phenomenon: stigmatisation. The dominance of meat-eaters in today's societies suggests that vegans and vegetarians are more prone to being stigmatised based on their decision to reject meat from their diets (Bresnahan et al., 2016). In this regard, vegetarianism is perceived as a symbolic threat to cultural norms, traditions, identity and ways of living, which in turn, predict negative attitudes towards vegetarians (Branković & Budžak, 2021; MacInnis & Hodson, 2015). Studies have found that vegetarians, although being subject to mockery and negative stereotyping, were perceived in a more positive light than vegans (Chin et al., 2015; Crnic, 2013; Dorard & Mathieu, 2021). Yet, even though the perception of vegetarians does not constitute a barrier to intentions to reduce or cease meat consumption, meat eaters still feel threatened by vegetarianism, which enhances the phenomenon of 'us vs. them' thinking.

Innovating interventions on social media: Bringing a Middle Ground

To encounter the high prevalence of polarisation on social platforms, new concept videos have started appearing that adopt the format of cross-cutting discussions. Cross-cutting discussions consist of exchanges of ideas among people who hold differing political and ideological beliefs (Heatherly, Lu, & Lee, 2016). Popularised by the American Youtube channel *Jubilee*, the series of videos called *The Middle Ground* offer a new approach to

societal topics: two groups sharing opposite viewpoints come together to empathetically discuss statements related to the topic diverging them. The idea is to represent both viewpoints, giving the opportunity to the viewers to be exposed to the two opposing narratives, which would allow them to reflect on their own preconceived beliefs.

Cross-cutting discussion videos receive significant attention from people on social media, from 10 to 30 million of views per video. Hence, cross-cutting exposure is offered in different forms, for example as a short format on TikTok or Instagram; a medium length on Youtube or longer ones through Podcasts. This form of discussion is highly prevalent on social media, yet little empirical research has been conducted to understand its effects on people's attitudes and beliefs. To date, studies of cross-cutting discussions have been limited to political talks and deliberative democracy, with participants being directly involved in the discussion, while overlooking its potential in other areas of interest. To contribute to this field of research, the present study investigates the effects of being spectator of a cross-cutting discussion related to the matter of meat consumption.

The young generation: A key group in the meat debate

To date, there has been little attention given to young people's perception and attitudes towards meat consumption in the literature. However, it is of great interest to study this key group: young adults (i.e., 19-30 years of age) are in a transition phase of their lives, they emancipate from their caretaker's dietary choices, which allows them to make their own decisions. They are more likely to change their dietary habits according to social and cultural influences compared to older adults (Gardner & Steinberg, 2005) and can form their own opinion independently from their parents.

Children and young people tend to show more concerns regarding environmental issues than adults (Sanchez-Sabate & Sabaté, 2019; Martens et al., 2019). A growing body of research reveals that children and young people are subject to experiencing the most emotional, psychological, spiritual and health impacts due to climate change since they will be directly impacted by it. Presumably, such concerns could make them more likely to adopt pro-environmental behaviours. However, a recent report from the EU reveals that although most young Europeans care about the environment, it is not their main concern (Milotay, 2021). Pro-environmental efforts in that regard could be limited. A few studies have found that the youngest groups of participants, under the age of 30, were the least favourable to change to a vegetarian or vegan diet (Crnic, 2013; Ensaff et al., 2015; Lea et al., 2006; Vanhonacker et al., 2013) and prefer to adopt a flexitarian diet (Graça et al., 2015; Kemper & White, 2021). Hence, one of the goals of the present research aims to assess the current stances of young people on the matter of meat consumption. As young adults grew up with digital technologies and are the main users of social media, it is relevant to evaluate whether a cross-cutting discussion video can affect their preconceived beliefs.

Research question

As mentioned above, it is important to understand how societal norms and narratives concerning meat consumption will evolve. In this regard, new strategies stimulating cognitive change need to be explored. For instance, the concept of cross-cutting discussion videos has recently gained popularity on social media and can be an innovative way to approach the matter of meat consumption. Hence, this thesis aims to evaluate whether watching a video with vegetarians and meat-eaters, coming together empathetically to discuss statements related to the topic of meat consumption, can affect young meat eaters' own beliefs and attitudes towards this matter. The following research question is formulated:

What effects does watching a cross-cutting discussion between vegetarians and meat-eaters have on the beliefs and attitudes of young meat-eating adults towards the issue of meat consumption?

More specifically, this study focuses on young meat eaters and aims to assess whether they will be receptive and influenced by the opposing side (vegetarians) by listening to vegetarians' personal experience and self-reflection about meat-eating. The goal is also to evaluate whether such a video can act as a subtle trigger to lower public opposition towards a reduction in meat consumption. Because there is a lack of understanding of indirect impacts of cross-cutting discussions in a context of societal matters, this study contributes to partially filling this gap. Furthermore, the focus on young adults is relevant in the context of this research, not only because little research has been done about this demographic in relation to meat consumption, but also because their current dietary choices and perception on meat-eating may predict future dietary trends. Therefore, to answer this study's research question, the following sub-research questions are defined:

(1) *Does a change in beliefs and attitudes occur after the exposure of a cross-cutting discussion video? What does it reveal about the current stances of young adults towards meat consumption?*
(2) *Does this cross-cutting discussion video act as a trigger to stimulate intention to reduce meat consumption?*

Theoretical Background

2.1. Cross-cutting discussions: Learning from the other side.

To this day, meat consumption is still associated by people with positive attributes such as tastiness or nutrients but also towards feelings of happiness and enjoyment, for instance, when sharing meat-based meals with friends and family (Kemper & White, 2021). In contrast, misconceptions regarding vegetarian diets persist due to low perceived benefits and a lack of information about how to transition. This difference in perception is reinforced by the under-representation of plant-based lifestyles in mainstream media culture, which maintains and conveys a dominant pro-meat consumption narrative. Consequently, resistance to change for plant-based diets intensifies and derogating stereotypes about vegetarians persist (Burgess et al., 2014; Guerin, 2014, MacInnis & Hodson, 2015).

Alternative narratives are recently emerging on social media and try to deconstruct misbeliefs about vegetarian diets while encouraging meat reduction. However, most meat-eaters tend to avoid media content generating guilt as they prefer to consume information reassuring their habits, which in turn, creates more polarisation (Chance & Norton, 2009; Guerin, 2014). An initiative underexplored in academic research is the promotion of cross-cutting exposure on social media as a predictor of attitudes and beliefs change. Studied essentially in light of deliberative democracy, cross-cutting discussions bring people from opposing ideological beliefs to gather and exchange ideas about a common topic (Heatherly, Lu, & Lee, 2016). As discussed by Arendt (1968, p.241), this allows people to form an opinion…

> "...by considering a given issue from different viewpoints, by making present to my mind the standpoints of those who are absent. The more people's standpoints I have present in my mind while I am pondering a given issue, and the better I can imagine how I would feel and think if I were in their place, the stronger will be my capacity for representative thinking and the more valid my final conclusions, my opinion".

Exposure to disagreement promotes greater tolerance and understanding while reducing prejudice towards the opposing group (Mutz, 2002). The fact that cross-cutting discussions are important to comprehend others' views, could lead people to "enlarge their mind" and reframe their preconceived beliefs and opinions to eventually change their behaviours (Fleck & Fitzpatrick, 2010). Research conducted by Nordbrandt (2020) found that individuals of different political orientations who engaged in a cross-cutting discussion on environmental protection showed significantly stronger pro-environmental attitudes compared to those who have not. Although aforementioned findings are relevant in the context of the present study, no empirical research has explored the consequences of cross-cutting exposure outside the field of political theory and on young adults. Therefore, this study will be the first to analyse the effects of watching a cross-cutting discussion on the attitudes and beliefs of young adults

towards meat consumption. From this intervention, and based on the success of these previous findings, it is expected that young meat-eaters will gain knowledge on perceived benefits of plant-based diets but will also increase tolerance towards non-meat eaters.

2.2. The Norm activation theory

There is a call to drastically reduce meat consumption, however, such a change requires a shift in mentality. For some people, meat consumption has moral connotations and for others, it does not, which could result in a sense of pride or guilt towards the act of eating meat. To understand this phenomenon in the context of this research, the 'Norm Activation theory' will be used.

Developed by Schwartz (1977), the Norm Activation theory explains pro-social and pro-environmental behaviours. This model uses three variables to predict individual behaviour, namely: (1) *personal norms*; (2) *awareness of consequences* and; (3) *ascription of responsibility*. *Personal norms* are described as the "feeling of moral obligation to perform or refrain from specific actions" (Steg & de Groot, 2010), based on people's personal views on what is right or wrong. *Awareness of consequences* relates to whether someone is aware of the negative consequences for others or other things when acting or not acting a certain way (e.g., pro-environmentally). Finally, *ascription of responsibility* is defined as feelings of responsibility for the negative consequences of not acting a certain way (De Groot & Steg, 2009). This model assesses that the factors *awareness of consequences* and *ascription of responsibility* directly determine *personal norms*, leading people to act a certain way in response to their moral obligations (see Figure 1).

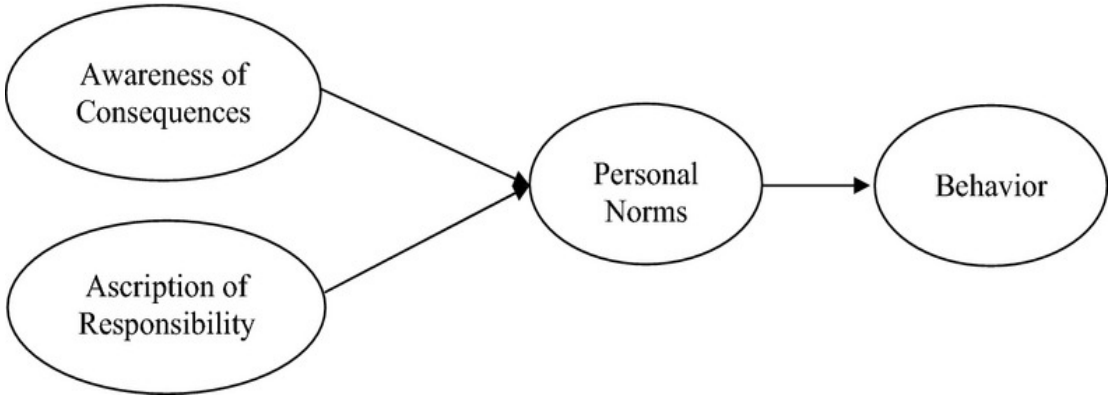


Figure 1: The Norm Activation theory highlights how awareness of consequences and ascription of responsibility can alter personal norms and ultimately influence behaviour.

According to the Norm Activation model, it is assumed that if an individual is aware of the problems caused by certain behaviours, such as eating meat (awareness of consequences), this awareness is followed by a reconsideration of his or her own role in contributing to those issues (ascription of responsibility) and whether or not they feel obliged to help resolving them (Liu, Sheng, Mundorf, Redding, & Ye, 2017). Those variables of the Norm Activation model have been used in relation to the matter of meat consumption in several studies. For instance, research conducted by Borusiak et al., (2022) found *Personal norms* to be the second strongest predictor regarding the intention to reduce meat consumption, based on environmental motivations. This study also shows strong relationships between the three variables of the Norm Activation model, suggesting that an increase of awareness of consequences correlated positively with higher ascription of responsibility for those consequences. Subsequently, these stimulated feelings of personal obligations which led to an increase in intention to reduce meat consumption (Borusiak et al., 2022).

Hence, to initiate behaviour change, exposure to a video of cross-cutting discussion, involving meat-eaters and non-meat-eaters is expected to promote awareness of consequences related to meat consumption and assign responsibility to these impacts.

2.3. Ambivalence towards meat consumption: A Meat Paradox

In an attempt to reconcile their moral values with their behaviour, many meat eaters are confronted with a "meat paradox". They deal with a moral conflict when faced with contradicting thoughts such as the guilt of harming animals or the envisonment vs. the pleasure of eating meat (Buttlar & Walther, 2018). According to Bastian & Loughnan (2017), a cognitive dissonance arises when there are inconsistencies between behaviours and beliefs. People fail to reconcile their beliefs, attitudes and behaviours with the unfavourable perception they hold of themselves. This dissonance translates into the following thinking: "I think killing animals for consumption is terrible but I love eating meat, I am a bad person". In line with the cognitive dissonance theory (Cooper, 2007, Loughnan et al., 2017) argue that the resolution of this conflict can be achieved through two possible approaches. Firstly, individuals can reject meat from their diets to align their behaviour with their moral ideals. Alternatively, individuals can employ psychological strategies to align their beliefs and attitudes with their behaviour. The predominance of meat-eaters globally indicates that the latter approach is usually adopted (Ruby, 2012). In aligning their beliefs and attitudes with their behaviour, meat eaters adopt carnistic defensive strategies. Joy (2009) and Piazza et al., (2015) have identified four common rationalisations used by people to defend their choice of eating meat, referred to as the 4Ns: Necessary, Natural, Normal and Nice. As they explain, eating meat is characterised as:

Natural: Eating meat is aligned with the 'laws of Nature', it is what we naturally crave, our species has evolved to eat meat, it is biologically correct and is part of the food chain.

Normal: Eating meat is what most people in modern societies do and what we are expected to do.

Necessary: We need meat to survive and be healthy. It is essential to our wellbeing.

Nice: Meat is tasty, and we enjoy eating it.

These 4Ns are described as widespread beliefs and are mostly refuted by the scientific sphere. This is because they are ideas not rooted in scientific facts, but rather reinforced and passed on through diverse social means such as family, media, institutions, religion and various other organisations (Joy, 2009; Piazza et al., 2015). Whilst these popular beliefs are persistent, it is of interest to assess whether they can be challenged by listening to people refuting these beliefs.

In the literature, holding increasing ambivalent (i.e conflicting) feelings towards meat eating was found to be a predictor of intention to reduce meat consumption (Berndsen & Van der Pligt, 2004; Buttlar & Walther, 2018). Meat eaters as well as non-meat eaters can be ambivalent about meat, yet, studies show that it is predominantly meat eaters who develop ambivalence towards their own diets (Buttlar & Walther, 2018). Ambivalence is assimilated to experiencing mixed feelings about meat, holding both positive and negative evaluations towards it (e.g ethical values vs. tastiness). More specifically, the literature has identified three distinct strands of ambivalence referred together as the ABC (Affective, Behavioral and Cognitive) model of ambivalence (Van Harreveld, Nohlen, & Schneider, 2015), also known as the tripartite model ambivalence (Berndsen & Van Der Pligt, 2004). Affective ambivalence deals with the emotional aspect of ambivalence involving contradictory feelings or emotions towards the same object of distortion. It is represented through the following thinking : "I feel torn on the matter of meat consumption, on one side, I enjoy eating meat but on the other, I feel a sense of guilt". Behavioural ambivalence represents a form of indecisiveness in actions and behaviours stemming from the conflict of feelings that individuals hold. For instance, behavioural ambivalence may occur at the restaurant when a conflicted individual tries to decide whether to order a meatless dish or not. Finally, cognitive ambivalence deals with the conflicting beliefs and thoughts a person holds about a specific object or situation. In other words, it is about holding two opposing viewpoints about meat consumption. Taken as a whole, these three aspects of ambivalence often co-occur together and are strongly co-dependent as they all strongly influence one another (Armitage & Arden, 2007). The tripartite model of ambivalence enables the evaluation of simultaneous contradictory emotions, thoughts and behaviours experienced by individuals towards the same object which, in the context of this study, is meat consumption.

When feeling ambivalent, meat-eaters tend to lean more towards moral disengagement strategies as mentioned earlier, rather than ceasing meat consumption. In attempting to limit the latter, Buttlar & Walther (2018) argue that moral engagement may be achieved by strengthening the attribution of emotional and mental states to animals and by increasing awareness of meat-related environmental costs (Buttlar & Walther, 2018). However, it remains unclear how ambivalence towards meat consumption can be efficiently stimulated. Hence, the present study will assess how ambivalent young people are towards their current diet, and whether watching a cross-cutting video on the matter of meat consumption will stimulate ambivalence.

2.4. Hypotheses

Drawing on the aforementioned theory and previous research, this study aims specifically to evaluate whether exposure to a cross-cutting video can be a factor change for the defined variables (1) *Attitudes towards animal welfare and environmental issues*, (2) *Attitudes towards meat eating,* (3) *Felt Ambivalence*, (4) *Attitudes towards vegetarians* and (5) *Intention to change meat consumption*.

Hence, to answer this study's research question, three hypotheses are formulated as follows:

H1: After watching the video of a cross-cutting discussion, pro-meat attitudes will decrease while pro-environmental and animal welfare attitudes will increase.

H2: After watching the video, participants will feel more ambivalent about their current consumption of meat and will and consequently, it will encourage more meat-eaters to reduce or cease their meat consumption.

H3: After watching the video, participants will attribute more positive attitudes towards vegetarians.

Methodology

3.1. Research Design

In order to investigate whether watching a cross-cutting discussion video has an effect on meat eaters' attitudes and beliefs towards meat consumption, this study was conducted in a quantitative manner using an experiment within-subject design, also known as a repeated-measures design. This design fits the purpose of this research as participants act as their own control group: all are exposed to the same experimental condition (video of a cross-cutting dialogue), the effects of which were measured for each participant. Hence, by comparing pre-test and post-test responses, an experiment within-subject design allows this study to evaluate whether watching a video of a cross-cutting discussion, involving meat eaters and non-meat eaters, can affect young meat eater' preconceived attitudes and beliefs towards meat-eating. Furthermore, using a within-subject design increases statistical power by reducing variability among participants.

In line with the present research, the independent variable is defined as the *Video of a cross-cutting dialogue*. The dependent variables put under investigation are (1) *Attitudes towards animal welfare and environmental issues*, (2) *Attitudes towards meat eating,* (3) *Felt Ambivalence*, (4) *Attitudes towards vegetarians* and (5) *Intention to change meat consumption*. As this study is a repeated-measure design of two levels (Pre-Video and Post-Video), the dependent variables will be measured twice.

3.2. Material

The key element of this research is the video of a cross-cutting discussion between meat-eaters and non-meat eaters. This video is designed to be the intervention factor of this study, acting as a subtle trigger to influence young meat-eaters attitudes and beliefs regarding meat consumption. As mentioned in the introduction, various videos on the internet make use of this concept. However, in the scope of this study, making a custom-made video was preferred over using pre-existing ones. This custom-made video adopted most features of pre-existing videos while dismissing others which did not fit the goals of this study and thus can be personalised to fit the exact goals of the study. Hence, the video was organised as follow:

Five individuals were divided into two groups: Meat-eaters (n=3) and Vegetarians (n=2), with one of the meat-eaters identifying as flexitarian. They were asked to react to four statements inspired by existing-videos and previous studies, namely:

(1) I care about animal well-being and environmental issues
(2) Meat produced in an ethical, local and circular way is fine to eat
(3) Eating meat should be forbidden
(4) I feel stigmatised because of my diet

These statements aimed to share personal experiences, trigger ambivalence and engage in reflection. All participants were students from either the University of Utrecht (n=2) or the Hogeschool of Utrecht (n=3), having either a background in business, sustainability or environmental sciences and the mean age was 22 years old. All of them provided informed consent before filming and after visualising the final video. Participants were also informed of the purpose of the research and how the video would be strictly used in this regard.

A requirement for this video was not only to represent both sides (meat-eaters vs. vegetarians) but also to portray and capture the plurality of viewpoints within these groups. This allows viewers to relate to one of the participants whilst also being exposed to a diverse range of viewpoints. For instance, within the group of meat-eaters, one was knowledgeable about impacts of the meat industry while holding strong carnistic defences, another one was not that aware of issues related to meat and one, the flexitarian, was already limiting meat consumption to specific occasions. These differences were reflected in the video when meat eaters would not share the same opinion, demonstrating the diversity of viewpoints within the same ‘side’. Furthermore, it is relevant to note that the content of the video was solely based on participants' own knowledge and experience towards the matter of meat consumption. None of the discussion was scripted as the goal was to replicate conditions of existing videos. The original footage was three hours long, which was brought down to 20 minutes for the final edited video. The final video was divided into four smaller videos of five minutes each, one video per statement.

It is important to note that the discussion between individuals participating in the video plays a major role in the results of this study. This is due to the fact that participants watching the video will reflect on the arguments mentioned during the cross-cutting discussion. Hence, for a thorough understanding of this study’s result, a script of the discussion with links to the video can be found in Appendix A.

3.3. Sampling Strategy

For the purpose of this study and in order to create a homogeneous sample, the studied population was composed of participants meeting all the following criteria:

- They must be between 19 and 30 years of age.
- They must be currently living in the Netherlands or France, regardless of their nationalities.
- They must be meat-eaters.
- They must live by themselves or with flatmates.
- They must understand English.

The Netherlands and France were selected based on their geographical access, increasing chances of participation. A probability sample was used as it stands a better chance of keeping sampling errors to a minimum when compared in comparison to non-probability sampling (Bryman, 2016). Furthermore, a within-subject design ensures a high statistical power as there is less variability (Brauer, 2018), a sample size of 70 was therefore chosen to ensure a sample size that allows for a small-medium effect size (i.e. statistical power).

3.4. Data Collection and procedure

Data was collected through the use of a questionnaire created with Qualtrics survey software (see appendix). In order to minimise response bias, the purpose of the research was not revealed and, the topic of the survey was mentioned in general terms when approaching potential participants, presented as follows: “This study is interested in your views, beliefs and attitudes towards meat consumption”. Time and procedure were also specified, participants were informed that this study consisted of two parts and were told that they had to watch four 5-minute videos in the second part. At the start of the survey, participants provided informed consent and were notified that their responses were anonymised and they could withdraw from the research at any moment.

Both parts of the study were conducted from the 30th of May until the 25th of July. The first part consisted of a pre-test survey of 6 minutes (T1). The link to this survey was distributed through social media posts on LinkedIn, Facebook and Instagram, and by distributing 150 flyers and posters across Utrecht and The Hague, at universities and student houses. In order to stimulate response rate, prizes were used: two participants could either win 50 euros or a voucher for the clothing brand MR MARVIS, worth 119 euros. To enter the lucky draw, participants had to complete both the pre-test and post-test surveys. This lucky draw was advertised when distributing the first survey. The link to the second part of the study (T2) was sent one week later to participants who completed the pre-test survey by email. This email provided a link to the post-test survey (T2), a duplicate of the pre-test survey, in which they

could engage with the intervention factor (i.e., watching a cross-cutting discussion video on the matter of meat consumption).

3.5. Participants

In total, 153 individuals participated in the pre-test survey and, among them, 41 were excluded as they did not meet the inclusion criteria or did not pass the attention checks (i.e., *Attention check: Please select the option "Somewhat Agree"*). Of the 112 participants eligible for the second phase, 87 filled out the post-test survey. After cleaning out the second dataset based on whether they had passed the attention checks and completed the full survey, the final research sample was defined.

For this study, the total sample group was composed of 72 individuals. Participants were on average 24 years old (*M*= 24, *SD*= 3) and 63.9% of them were identifying as female (n= 46), 34.7 % as male (n= 25) and 1.4 % as non-binary/third gender (n= 1). Furthermore, the majority is currently doing or has completed a degree in higher education, with 61.1% in their Master degree and, 30.6% doing a Bachelor degree, 1.4% holding a PhD (See Table 1).

Table 1. Sociodemographic variables

		Mean	SD	Count	Percentage
Age		24	3		
Gender	Female			46	63.9%
	Male			25	34.7%
	Non binary/ Third gender			1	1.4%
	Prefer not to say			0	0.0%
Education	High school			2	2.8%
	HAVO, VWO, MBO2-4			3	4.2%
	Bachelor degree (HBO/WO)			22	30.6%
	Master degree (HBO/WO)			44	61.1%
	Doctor, PhD			1	1.4%

3.6. Operationalization

For the present research, variables were operationalized based on the relevant concepts and theories found in the literature. Surveys were structured and presented in the following order:

Control variables

In order to reduce bias and minimise the influence of several factors on the relationship between the independent variable and the dependent variables, control variables were selected. These control variable were self-reported by participants and were defined as follow:

1) **Age**, i.e., The age of the participant in years.
2) **Gender**, i.e., To what gender participants identified as between "Female" (1), "Male" (2), "Non binary/ Third gender (3)" or "Prefer not to say" (4).
3) **Education**, i.e., The level of education participants have completed or are currently completing with as choice between "No education" (1), "Primary school" (2), "High school (VMBO, HAVO/VWO junior high" (3), "MBO1), HAVO, VWO, MBO2-4" (4), "Bachelor degree (HBO/WO)" (5), "Master degree (HBO/WO)" (6), "Doctor, PhD" (7).
4) **Frequency_meat_consumpt**, i.e., Approximate frequency of meat consumption with a choice between "Everyday" (1), "Sometimes during the week (once every 2 to 3 days) (2)", "Every two weeks" (3), "None, I don't eat meat (4)".
5) **Liking_meat,** i.e., Participants indicated how much they liked meat on a scale ranging from 0 (Not at all) to 100 (One of their favourite foods in the world).
6) **Predisposition,** i.e., Participants' stance regarding environmental and animal welfare issues with "I care about environmental issues" and "I care about animal welfare", measured on a likert scale of 7 points (1=strongly *disagree*, 4=*neither agree nor disagree*, 7=*strongly agree*).
7) **Cross_cutt_Exposure,** i.e., Familiarity with the video concept displaying cross-cutting discussions. Participants could mention whether it was their first time watching such videos with "Yes" (1) , "Maybe" (2) and "No, not the first time" (3).

All these variables were present solely in the pre-test survey, with the exception of *Cross_cutt_Exposure,* which was asked at the end of the post-test survey.

Dependent Variables

Attitudes towards animal welfare and environmental issues

The dependent variable *Attitudes towards animal welfare and environmental issues* was assessed using the two factors of the Norm Activation model, namely *Awareness of consequences* and *Ascription of responsibility*. According to Schwartz (1977), these variables determine feelings of moral obligations, leading individuals to behave a certain way. This dependent variable aims to evaluate participants' implicit attitudes towards the environment and animal welfare.

Awareness of consequences was measured using a combination of two self-developed items and four items found in two studies (Berndsen & Van Der Pligt, 2004; Hoekstra, Kossakowski, & van der Maas, 2018). Participants were asked to report their agreement/disagreement with the six statements using a 7-point Likert scale (e.g., "Production of meat is harmless for the environment"). All items were reverse-coded, with the exception of the statements "Production of meat involves animal cruelty" and "A plant based diet has less negative impacts on the environment compared to a diet which contains meat". Hence, a high score means an overall agreement towards the fact that meat consumption has negative impacts on the environment and animal welfare. Overall the internal consistency is on the low side for the pre-test survey ($\alpha = 0.482$) and post-test survey ($\alpha = 0.622$). This can be explained by the fact that this variable combines two different matters: Environmental issues and animal welfare. However, as these items were derived from other peer-reviewed studies and that Cronbach's alpha increased for the second round, internal validity can be accepted.

Ascription of responsibility.

For this variable, a self-developed measure of 4 items was used to assess whether participants believe that consumers contribute to problems associated with meat consumption. Using a Likert scale of 7-point (1=*strongly disagree*, 4= *neither agree nor disagree*, 7=*strongly agree*), the following items were formulated.

- "People who eat meat contribute indirectly to the negative impacts on the environment stemming from meat production."
- "People who eat meat contribute indirectly to animal cruelty"
- "Industries are responsible for negative impacts related to the production of meat, not the consumers" (reverse-coded)
- "Industries and consumers are responsible for negative impacts related to the production of meat."

This variable has high internal consistency for the pre-test ($\alpha = 0.718$) and post-test ($\alpha = 0.842$), meaning that it reliably measures whether participants assign responsibility of

meat-related problems to consumers. A higher score indicates more ascription of responsibility.

Attitudes towards meat consumption

Not all meat eaters are pro-meat consumption (Guerin, 2014), hence, in order to capture the general stands of participants towards this matter, the variable *attitudes towards meat consumption* was assessed through two measurement categories:

Rationalization 4Ns.

The first one captured the most common carnistic justifications used by participants, based on the 4Ns classification (Joy, 2009; Piazza et al., 2015). This measure was composed of 4 items, each representing one of the 4Ns, using a Likert scale of seven points. Participants were asked to report whether they find meat consumption (1) Nice, (2) Natural, (3) Necessary and (4) Normal. These carnistic justifications represent 83%-91% of justifications people naturally use to defend meat consumption. The internal consistency of this variable is lower than expected (Pre-test: $\alpha = 0.646$ and Post-test: $\alpha = 0.698$) but because this measure comes from a peer-reviewed study and is used in several other academic works, its reliability is accepted. All four items were reverse coded, therefore higher scores indicate lesser endorsement of meat consumption justifications.

Meat Policies

This variable assesses public acceptance of meat policies and is based on the self-developed measure of Lueders et al., (2022), composed of four items (e.g., "We should encourage younger generations to not eat meat"). Similarly to other variables, a Likert scale of seven points was used, hence, higher values reflected positive attitudes towards meat reduction and low opposition to meat reduction policies. Moreover, the scale had good internal reliability with a Cronbach alpha of 0.721 for the pre-test survey and 0.775 for the post-test survey.

Attitudes towards vegetarians

In the present study, the way vegetarians are perceived by meat-eaters is assessed by the variable *Attitudes towards vegetarians* and employs the measure of Ruby et al., (2016). Participants were asked to indicate on a 7-point Likert scale, (1=strongly *disagree*, 4=*neither agree nor disagree*, 7=*strongly agree*), their agreement/disagreement with the following items: "I admire vegetarians", "Vegetarians bother me" (reverse-coded), and "I would prefer to date a vegetarian". A fourth item was added, namely: "I think that vegetarian food tastes bad" (reverse-coded). Although the Cronbach's alpha for the pre-test ($\alpha = 0.614$) and post-test ($\alpha = 0.688$) surveys are below 0.7, they are still acceptable. Therefore, a high score indicates positive attitudes towards vegetarians.

Felt Ambivalence

To assess participant's ambivalence with regard to meat consumption, the measure of Priester & Petty (1996) was employed. Based on the tripartite model of attitudes, this measure is

composed of three items which include a cognitive component, an affective component and a behavioural component. This measure was also applied in the work of Berndsen & Van Der Pligt (2004), which found a correlation between levels of ambivalence with attitudes towards eating meat and intentions to reduce consumption in the future. Using a 10-point Likert scale, participants were asked to report to which extent their feelings towards meat consumption were mixed (cognitive component) with 0 being “Complete clear reactions", 5 being “Moderate reactions” and 10 being “Mixed reactions”; conflicted (affective component) with 0 being “No conflict at all”, 5 being “Moderate conflict” and 10 being “Maximum conflict”; and indecisive (behavioural component) with 0 being “No indecision at all”, 5 being “Moderate indecision” and 10 being “Maximum indecision”. Internal consistency for this variable was strong for both surveys (Pre-test: $\alpha = 0.821$ and Post-test: $\alpha = 0.832$). The higher the score, the more ambivalence participants feel, indicating a conflict of thoughts regarding meat consumption.

Intentions to change meat consumption

In order to capture participants' intentions to reduce meat consumption, the nominal variable *Intention* was created and was measured through a self-made ordinal scale. Participants could select one of the following options:

(1) No intention to reduce
(2) Intention to reduce my weekly meat intake
(3) Intention to eat meat only for special occasions (e.g Christmas, family reunion etc)
(4) Intention to become vegetarian

To facilitate the analysis of this variable, intention was divided into “No intention to reduce meat consumption” and “Intention to reduce meat consumption” when comparing the results from the pre-survey and post-survey.

3.7. Data Analysis

Once the data from both pre-test and post-test surveys were collected, several steps were taken before undergoing the analysis of data, as detailed in the paragraphs below. First, data was filtered out and variables checked, then datasets from these two surveys were combined and matched together, and finally, data was analysed using different statistical tests.

Data Cleaning and Variable Check

Data was retrieved from Qualtrics through two sav. files in order to be analysed on the statistical software SPSS. Data was then cleaned to have the two datasets ready for analysis. For instance, responses with missing values could not be accepted since as a paired sample

t-test cannot use incomplete cases for both pre-test and post-tests variables. All responses not meeting the inclusion criteria, with missing values or failing the 'Attention Checks' items, were removed from the two datasets. Then, variables were checked to assess if they had the right measurement levels and types. Internal consistency was also checked for each variable and depending on the results, some items were reverse-coded, others removed.

Matching

As the research aims to compare responses of participants from both pre-test and post-test surveys, the two datasets were combined into a single one. Data was merged based on the variable *ID*, matching pre-test and post-test data to each participant who completed both surveys. By doing so, this study could assess for each participant whether a change in attitudes and beliefs occurred after watching the video.

Statistical analysis

To analyse the data and investigate the formulated hypotheses, a description of each statistical analysis is provided below.

Analysis 1. *H1: After watching the video, pro-meat attitudes will decrease while pro-environmental and pro-animal welfare attitudes will increase.*

This hypothesis aims to explore whether watching a cross-cutting video between vegetarians and meat-eaters will (1) raise awareness about consequences of meat consumption on animal welfare and environmental matters and (2) increase feelings of responsibility towards these consequences while (3) reducing beliefs justifying meat consumption and (4) increase public acceptability of meat policies. To determine this, a paired-samples t-test will be used for the variables *Awareness of consequences*, *Ascription of responsibility*, *Rationalisation of 4Ns* and *Meat policies* as it allows the comparison of the means of pre-test and post-test surveys from the same group of participants. This test will determine whether there is a significant difference between the means of each variable *before* and *after* watching the video. Therefore, this study expects an increase in pro-environmental and pro-animal welfare attitudes and simultaneously, a decrease in pro-meat attitudes.

Analysis 2. H2: After watching the video, participants will feel more ambivalent about their current consumption of meat and will and consequently, it will encourage more meat-eaters to reduce or cease their meat consumption.

In the continuity of the first hypothesis, it is expected that by holding both positive and negative attitudes towards meat consumption based on the conflict between the dependent variables *Attitudes towards animal welfare and environmental issues*, measured by awareness

of consequences and ascription of responsibility and; *Attitudes towards meat eating* measured with the variables *Meat policies* and *Rationalisation of 4Ns carnistic justifications*, the video will stimulate felt ambivalence among participants. A paired sample t-test will also be used to evaluate this and will compare the pretest and post-test means of the variable *Felt ambivalence* to determine whether there is a significant change after watching the video.

It is also expected that more intentions to reduce meat consumption will derive from the increased ambivalence. As the variable *Intentions to change meat consumption* was re-coded into a nominal scale, a McNemar test will be used. This test is the equivalent of Pearson's Chi square but suitable for a repeated measure design with nominal data and is useful to see whether participants significantly changed their response from the pretest to post-test surveys.

H3: After watching the video, participants will attribute more positive attitudes towards vegetarians.

The last hypothesis investigates the effects of watching a cross-cutting discussion on the perceptions and attitudes towards vegetarians, the opposing side. Drawing on the literature on cross-cutting discussion, this study expects to find an increase in positive attitudes towards vegetarians, translating into a higher tolerance. To this end, a paired sample t-test was conducted on the variable *Attitudes towards vegetarians*.

Results

The following section presents this study's findings of the analysis conducted with the statistical software SPSS. This analysis investigated whether watching a cross-cutting discussion video would have any effect on participants' beliefs and attitudes towards meat consumption and, whether it would stimulate more intention to reduce meat consumption. First, an overview of participants' characteristics is provided before presenting the results for the dependent variables (1) *Attitudes towards animal welfare and environmental issues*, (2) *Attitudes towards meat eating,* (3) *Felt Ambivalence*, (4) *Attitudes towards vegetarians* and (5) *Intention to change meat consumption*.

4.1. Descriptive statistics

Overall, participants report giving considerable importance to environmental and animal wellbeing matters (*M*= 6.00) while truly enjoying the taste of meat (*M*= 77.44). Most participants are either heavy meat-eaters and consume meat everyday (31.9%) or lean towards a flexitarian diet and limit it to once every two to three days a week (56.9%); only a few reduce it to once every two weeks (11.1%). The high scores for *Meat liking* and *Caring about environmental issues/ animals' wellbeing* indicate a potential predisposition for participants to feel ambivalent when faced with information about negative consequences of meat production. Interestingly, the great majority (61.1%) was already familiar with the concept of cross-cutting discussions videos, which confirms the prevalence of this concept video on social platforms among younger generations.

Table 2. Participants characteristics overview

		Count	Percentage	Mean
Cross-cutting video exposure	First time watching	15	20.8%	
	Maybe watched before	13	18.1%	
	Not the first time watching	44	61.1%	
Meat consumption Frequency (approximate)	Everyday	23	31.9%	
	Every two weeks	8	11.1%	
	Sometimes during the week (once every 2 to 3 days)	41	56.9%	
Meat liking[a]				77.44
Care about environmental issues[b]				6
Care about animals' wellbeing[b]				6

a. How much people like eating meat (Scale: 0-100)

b. On a scale from 1 (Strongly disagree) to 7 (Strongly agree)

4.2. Analysis of effects of cross-cutting exposure

Table 3. Overview of the paired sample t-test results

		Paired Differences			t	Observed Power[a]	df	Significance	
		Mean	Std. Deviation	Std. Error Mean				One-Sided p	Two-Sided p
Pair 1	ASCRIPT_T1 - ASCRIPT_T2	-.23611	.88181	.10392	-2.272	.61	71	.013	.026
Pair 2	AWARN_T1 - AWARN_T2	-.15509	.55477	.06538	-2.372	.65	71	.010	.020
Pair 3	RATIONT1 - RATIONT2	.08681	.59806	.07048	1.232	.23	71	.111	.222
Pair 4	MEAT_POL_T1 - MEAT_POL_T2	-.65972	.85919	.10126	-6.515	1.00	71	<.001	<.001
Pair 5	ATT_VEGE_T1 - ATT_VEGE_T2	-.12500	.62939	.07417	-1.685	.38	71	.048	.096
Pair 6	FELT_AMB_T1 - FELT_AMB_T2	-.25926	1.61102	.18986	-1.366	.27	71	.088	.176

a. Computed using alpha= 0.05

Analysis 1: Pro-meat attitudes vs. Pro-environmental and animals' wellbeing attitudes.

H1: After watching the video, pro-meat attitudes will decrease while pro-environmental and animals' welfare attitudes will increase.

Attitudes towards animal welfare and environmental issues

As mentioned previously, two variables were used to evaluate participants' attitudes towards animal welfare and environmental issues, namely: *Awareness of consequences* and *Ascription of responsibility*.

Awareness. At baseline, participants showed moderate agreement (*M*= 4.51, *SD*= 0.77) with the given statements, regarding their awareness of environmental and ethical problems stemming from meat production. This result shows essentially that participants were for most unaware (4= "Neither agree nor disagree). After watching the video, awareness changed with a mean difference of 0.155 between the pre-test survey and post-test one (*M*= 4.66, *SD*= 0.8). This difference is statistically significant (t= 2.372, p= .020) with an observed power of 0.65 and Cohen's d=0.55. As was hypothesised, watching the cross-cutting video made participants more aware of the environmental and ethical issues stemming from meat production.

Responsibility. Regarding ascription of responsibility, a difference of average means was also noticed between the pre-test survey (*M*= 5.08, *SD*= 1.03) and post-test survey (*M*= 5.31, *SD*= 0.97). This difference is also statistically significant (t= -2.272, p= .026), with Cohen's d

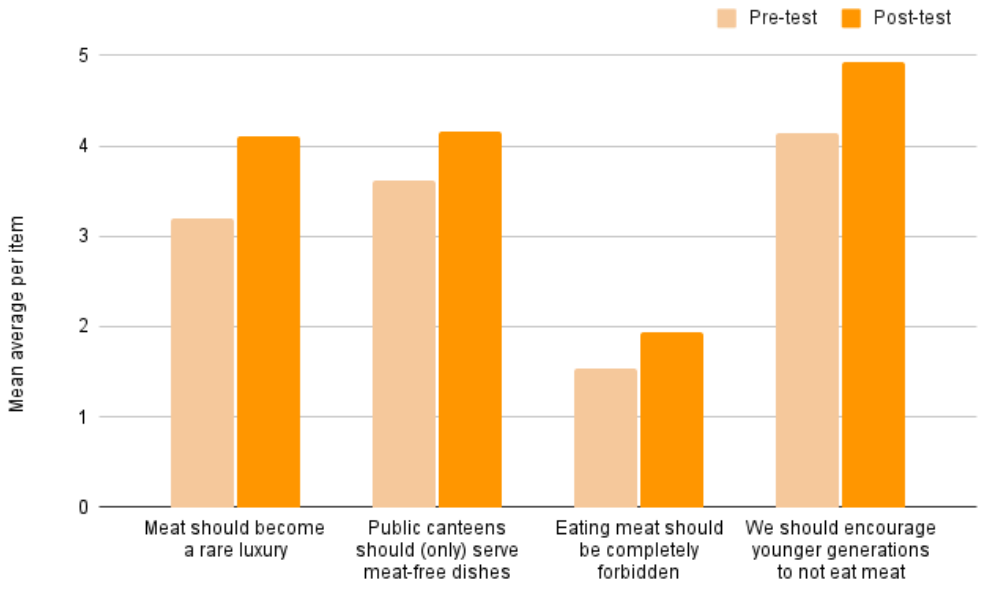
of 0.881. Although the difference of .236 points is slight after watching the video, participants generally think that consumers contribute to meat-related problems, which indicates that they take part of the responsibility for these problems.

Attitudes towards meat consumption

Similarly, this dependent variable was measured with two different categories: *Rationalisation of 4Ns* and *Meat Policies acceptability*.

Meat rationalisation. To measure whether the cross-cutting video changed the endorsement of the four justifications of meat consumption (Normal, Nice, Natural and Necessary), the scores of the pre-test (*M*= 3.09, *SD*= 1.04) were compared with those of the post-test (*M*= 3.01, SD= 0.944). The difference of 0.868 points is however not statistically significant (t= 1.232 , p= .222) This means that the cross-cutting video did not change participants' endorsement of the rationalisation of meat consumption. Overall, perceived benefits of meat are still highly prevalent among participants, which is not surprising considering how much they like eating meat (M= 77.44).

Figure 2. Comparison Pre-test vs. Post-test scores for the variable *Meat policies acceptability*.



Meat policies acceptability. On average, participants were not much in favour of most meat reduction initiatives presented to them (*M*= 3.12. *SD*= 1.19). However, after watching the video, we observe a shift in mentality: The mean difference between the survey at baseline and the one post-test (*M*= 3.77, *SD*= 1.23) is the largest recorded among all variables, with a difference of 0.66 points. Furthermore, this change has a high statistical significance (t= -6.515, p <.001) with Cohen's d of 0.86, indicating that the video has influenced participants' initial opinions and lowered opposition to meat reduction initiatives. Looking in detail at the

four items, change essentially occurred for the items "Meat should become a rare luxury" (T1: *M*= 3, T2: *M*= 4) and "We should encourage younger generations to not eat meat" (T1: *M*= 4, T2: *M*= 5), which is in line with conclusions drawn in the video.

Taken all together, these findings confirm the hypothesis H1, however, to an extent. Positive attitudes towards environmental and animals' welfare did increase but the score regarding justifications of meat-eating remains high, which indicates that participants are still highly attached to meat consumption. Nevertheless, a noticeable change in meat policies acceptability shows an increased tolerance towards meat reduction initiatives following the exposure to the cross-cutting video.

Analysis 2: Felt Ambivalence and Intention to change meat consumption.

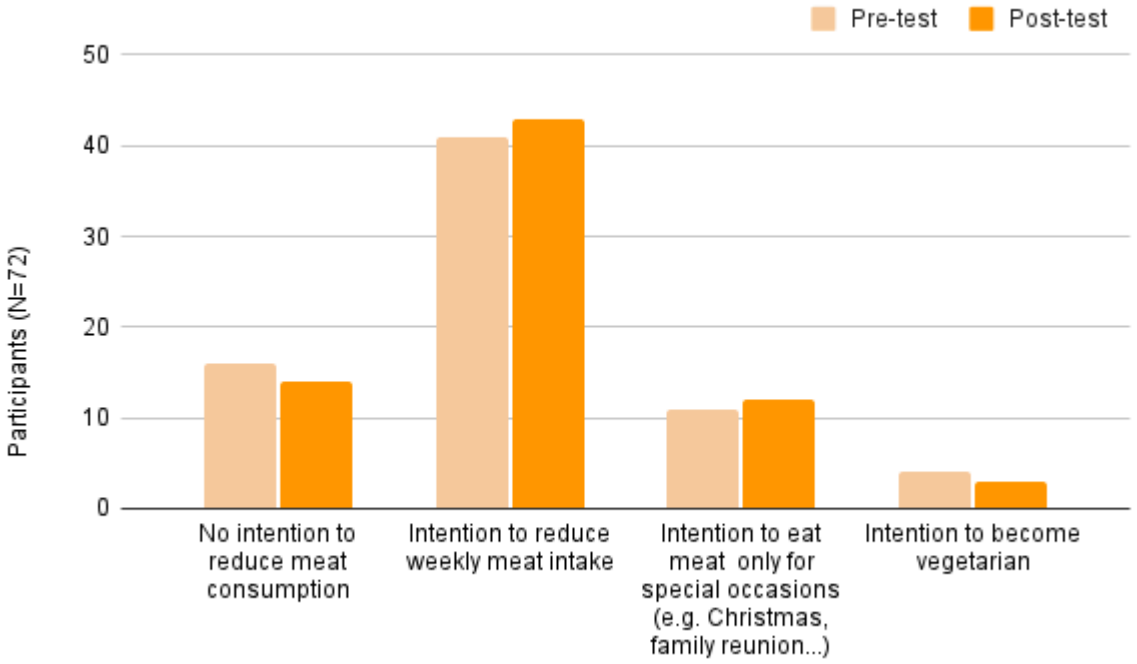
H2: After watching the video, participants will feel more ambivalent about their current consumption of meat and will and consequently, it will encourage more meat-eaters to reduce or cease their meat consumption.

Felt Ambivalence. Surprisingly, despite previous evidence of conflicting attitudes towards meat consumption (Caring for ethical and environmental issues vs. Pro-meat attitudes), the self-reported felt ambivalence is on the low side at baseline (*M*= 4.43, *SD*= 2.66). Furthermore, the video of our cross-cutting discussion did not stimulate much ambivalence among participants as assumed earlier. By comparing the post-test survey (*M*= 4.7, *SD*= 2.33) with the pretest survey, the mean difference slightly increased but was found not statistically significant. (p= 0.176, t= -1.366, Cohen's d= 1.611). The video had therefore not generated a notable change in felt ambivalence.

Intention. Because this variable is nominal and not continuous, a McNemar test was conducted to evaluate whether a significant change in intention occurred after watching the video. Interestingly, the great majority of participants (77.8%) reported in the pre-test survey already having the intention to reduce meat consumption and, after the visualisation of the video, the number went up to 80.6%. Looking specifically at the four options given in the survey, a change only occurred from "No intention to intention to reduce meat consumption". However, according to the McNemar test, this slight increase is not statistically significant (p= 0.774) with a test statistic of .083, hence, we conclude that the video had no effects on the intention to reduce meat consumption. Nevertheless, the noticeable high score for both surveys shows a general and common desire for lower meat consumption.

Hence, the hypothesis H2 is rejected as no significant changes have been observed for the variables *Intentions* and *Felt ambivalence.*

Figure 3. Comparison Pre-test vs. Post-test scores for the variable *Intention to change meat consumption.*



Analysis 3: Attitudes towards vegetarians.

H3: After watching the video, participants will attribute more positive attitudes towards vegetarians.

Attitudes towards vegetarians. At baseline, the general perception of vegetarians was overall positive (*M*= 4.99, *SD*= 0.95). After watching the cross-cutting video, the mean score increased by 0.125 points (*M*= 5.12, *SD*= 0.89), however, this increase is not statistically significant (p= .096). Therefore, the video did not improve or worsen the general perception of vegetarians, indicating that participants held constant positive attitudes towards vegetarians throughout the present research. Despite the rejection of the third hypothesis, this score indicates that, overall, young adults perceive vegetarians positively and show tolerance towards this group.

General Discussion

This study aimed to investigate whether watching a video displaying a cross-cutting discussion between meat-eaters and vegetarians led young people to reevaluate their attitudes and beliefs towards their own meat consumption. Through this study, the current stances of young adults in regard to the matter of meat consumption are assessed.

In line with the first hypothesis, findings show that exposure to a cross-cutting video has contributed to increase pro-environmental and pro-animals' wellbeing attitudes while partially decreasing pro-meat consumption attitudes. These results are consistent with previous research (Kemper & White, 2021) and indicate that overall, young adults are aware of consequences stemming from meat production and acknowledge that, as meat-eaters, they play a role in regard to those issues. These results are also in alignment with participants' self-report of their careness towards the environment and animal welfare. Yet, participants remain attached to meat consumption as evidenced by the high score of meat-eating rationalisations, both at pre-test and post-test. The video had therefore no significant effect on the way young people perceive meat, which is still associated with the beliefs that meat is natural, normal, necessary and nice. Based on theory, the discrepancy between the negative and positive evaluations attributed to meat should translate into an increased ambivalence, which is known to be a predictor of meat reduction (Buttlar & Walther, 2018; Loughnan et al., 2017). However, the results show moderate low scores for felt ambivalence both for pre-test and post-test measures. Surprisingly, although the video contributed to increased awareness and assigned responsibility, increasing negative attitudes towards meat consumption, it did not stimulate further ambivalence among participants. This is likely due to the fact that people tend to not acknowledge or report their level of conflict in the most accurate way as they tend to inhibit negative emotions associated with ambivalence, unpleasant to experience (Moss, 2010). It could also be that the content of the video did not raise feelings of guilt and actually comforted participants into their current behaviour. For instance, vegetarians who participated in the video were not talking in a confronting and blaming way, but rather in a tolerant one, insisting that their views are subjective to them.

Similarly, the cross-cutting video neither encouraged nor discouraged people to -further- reduce their meat consumption. Surprisingly, post-test results reveal that the majority of participants (80.6%) are inclined to reduce their meat intake and among them, only 4.1% have the intention to adopt a vegetarian diet. These findings are consistent with other studies reporting that individuals are more likely to reduce meat consumption rather than completely ceasing it (Graça et al., 2015; Lea et al., 2006; Vanhonacker et al., 2013). Furthermore, a study suggests that heavy meat-eaters are becoming a minority in Germany as meat-eating becomes more frowned upon (Bryant et al., 2020). Hence, among young adults, meat-eating becomes less of the norm: Among the 20% who responded not having the intention of reducing their meat consumption, 64.3% already limit their consumption to 'Sometimes during the week (once every 2 to 3 days)' and may consider that they do not have to reduce further their meat intake. A possible explanation for this, which also relates to the moderate low scores of ambivalence, is the fact that flexitarianism allows a flexibility

opposite of the ‘all or nothing’ approach (Kemper & White, 2021). Hence, by limiting meat consumption to a few times a week, individuals temper their conflicting ambivalent feelings without giving up completely on meat-eating, using the process-thought mentioned in the video: “It is better than nothing. Eating less meat than a normal average consumer already has an impact ”. Previous research reports that the age group 18-35 years old is the largest age group adopting a flexitarian diet (Kemper & White, 2021), which is consistent with this study’s results.

Although exposure to the cross-cutting discussion video did not trigger ambivalence nor intentions to reduce meat consumption, it did decrease participants' hostility towards policies promoting meat reduction. At post-test, findings show that young people are more accepting of the idea of encouraging plant-based diets, especially within younger generations. Furthermore, findings reveal that young people’s attitudes towards vegetarians remain positive from pretest to post-test. Contrary to the assumption, the video did not result in further positive attitudes towards vegetarians. It is likely due to the fact that perceptions of vegetarians were already positive at pretest and the fact that the video did not generate negative attitudes towards vegetarians. Interestingly, these findings differ from previous studies who found that meat-eaters, also in their twenties, hosted negative reactions towards vegetarians after being exposed to talks about plant-based diets, involving vegetarian participants (Guerin, 2014; Rothgerber, 2014). Hence, using a cross-cutting discussion format might decrease meat-eaters’hostile reactions to visualising content discussing meat reduction with vegetarians. Over time, this could encourage meat-eaters to be more open to visualise more content on vegetarianism on social media, which in turn, would lower polarisation between meat eaters and non-meat eaters.

Taken all together, this study’s results show that meat-eaters were receptive to the other side’s arguments. Interestingly, changes were solely observed on variables capturing evaluations and judgments from participants and not on variables aimed to report internal states, feelings, and behaviours (i.e., *Felt ambivalence* or *Intentions to change meat consumption*). This indicates that being exposed to a cross-cutting discussion principally engaged people’s reflective system, which induced a cognitive change. Such findings provide new insights regarding the effects of cross-cutting exposure on preconceived beliefs. Unlike most previous research which limit their approach to direct cross-cutting interactions (i.e., Being part of the discussion), this study shows that watching a cross-cutting discussion allows people to enter a more critical thinking mindset towards their own preconceived beliefs.

Limitations and future research

As discussed above, the research findings have provided new insights to the literature on cross-cutting exposure and reduced meat consumption strategies. Yet, the research presents a few limitations, which could point to future directions.

Firstly, the sample was primarily composed of highly educated individuals, the great majority being female participants, and did not take into consideration external factors such as religion, urban/rural geolocalisations, cultures or social background, which decrease the

broader applicability of results. Thus, it is of interest for future research to incorporate a more diverse sample representative of the young adults' population in the Netherlands and France.

Furthermore, as previously mentioned, the video content is a key element of the present study's results. Although participants in the video had all convincing arguments as reflected in the results, the cross-cutting discussion lacked explanations regarding the benefits of plant-based diets as well as the exact impacts stemming from meat production, which could have benefitted the present research. Depending on the purpose of the study, future research on cross-cutting discussion could consider intervening in the cross-cutting discussion by either structuring some arguments in advance or by providing guidance to participants when filming. By doing so, the video could add a more educational component to it to better deconstruct widespread beliefs regarding both diets. Similarly, it could encourage heavy meat eaters watching the video to consider a reduced meat consumption considering the fact that positive attitudes towards plant-based diets and their perceived benefits are found to be strong predictors of meat reduction (Borusiak et al., 2022). Similarly, this study was solely interested in the effects of watching a cross-cutting discussion and did not look into the specific aspects of the video influencing a change in beliefs and attitudes. In order to capture a thorough understanding of the causal effects of cross-cutting discussion videos, future research could look into identifying what aspects of the cross-cutting discussion video trigger a cognitive change when watching it. For instance, it could identify new message framing strategy, which could then be used in other social marketing campaigns.

Another limit of this research is that recorded measures were self-reported and do not evaluate the long term behavioural and attitudinal outcomes. Future research could implement longitudinal studies in order to look into the long-term implications of being exposed to a cross-cutting video. A potential approach could be to compare two groups overtime, one group watching once the video and the other group watching the video several times across time. By measuring at multiple times attitudes and beliefs of these groups towards meat consumption, this research could evaluate whether cognitive change triggered by the cross-cutting video persist overtime and whether watching the video multiple times reinforces new beliefs and attitudes.

Conclusion

The current study is the first research attempt exploring whether watching a cross-cutting discussion, involving meat-eaters and vegetarians, affects attitudes and beliefs of young people towards meat consumption. To this effect, the current stances of young meat eaters towards meat consumption were assessed through this study while evaluating whether being exposed to such a video led young adults to reconsider their preconceived views and, encourage them to take a step further towards meatless diets. A quantitative repeated-measure design was conducted on a sample composed of 72 young adults aged between 19 to 30 years old. Data was collected twice through the same survey questionnaire: at pretest (i.e., before watching the video) and post-test (i.e., after watching the video). The collected data was then analysed conducting a paired-sample t-test and a McNemar test to observe whether a change in attitudes and beliefs occurred from pre-test to post-test.

The present study found that watching a cross-cutting discussion video, involving meat-eaters and vegetarians, had affected young people's beliefs and attitudes in favour of meat reduction. Results show that at post-test, awareness of negative consequences, stemming from meat production, increased as well as their ascription of responsibility. Furthermore, watching the cross-cutting discussion has contributed to significantly lower participants' hostility towards meat policies. However, the video did not change participants' attitudes towards vegetarians and has not stimulated ambivalence nor intentions to reduce meat consumption. As such, exposure to cross-cutting video has solely affected the cognitive state of participants.

Overall, these results are in line with previous research and reveal that young adults in their twenties are, for most, willing to reduce their meat consumption on a weekly basis rather than eliminating meat completely from their diets. They hold both positive and negative attitudes towards meat consumption as they are attached to meat but are also conscious of impacts stemming from meat production on environmental and animal welfare issues. This indicates that future dietary trends in Europe lean towards a decrease in meat consumption. This is already observed in this study among young adults of 19 to 30 years of age who, for the large part, already limit their consumption of meat to a few times a week.

The present research has therefore shown encouraging results regarding effects of cross-cutting discussion videos and could therefore be used as a strategy to increase awareness on meat-related issues. For instance, it could be used in high schools to challenge students 'preconceived beliefs and opinions in order to develop a critical thinking. Furthermore, in order to decrease public hostility towards reduced meat consumption initiatives, this video can be used for social marketing campaigns on social media, aimed to decrease polarisation. This could contribute building a new narrative about meat consumption by communicating further the perceived benefits of meat-consumption and by associating meat with more negative attributes without triggering negative reactions from meat-eaters.

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Appendix A: Script of the custom-made cross-cutting video

I care about animal well being and environmental issues

Link: https://youtu.be/sSniJKP7WD4

All agreed and moved forward

Meat eater 1: I feel like, maybe, as a meat eater, we have a bit more to explain here, because obviously from your side (vegetarians), one of the main reasons why you'd be vegetarian is for sustainable reasons and, I say as a meat eater I do also care about that. But the question is: What do I sacrifice to care for that? Do you have double glass windows for example for your house?And I think that eating meat, especially as a consumer, which is like the smallest amount: It isn't worth the sacrifice, to stop eating meat, considering the health benefits, for example proteins etc…Therefore, especially for animal well-being, I care a lot , but it is also easy to close your eyes to largest scale industrial issues considering as a single consumer you don't impact it as much. So that's my stand on this.

Vegetarian 1: As a vegetarian, I indeed chose to be a vegetarian because of the animals and the environment as well. For me it's like… a little bit the same argument also: willing to sacrifice. For me, sacrificing a bit of something that tastes well…Like it is a little sacrifice for me whereas on the opposite it's good for the environment…and it's better for animals, in my opinion at least…to not eat meat… that it tastes well and it has protein for example, because that's also the thought process that I went through when I became a vegetarian, but I found out that you can also get it out of other foods for example. So yeah, for me it doesn't feel like a sacrifice

Vegetarian 2: I agree with that, it is hard sometimes, you know, to get the amount of protein that's required. But of course, the benefits it has and the impacts it has on the environment, it's for sure larger than you think I guess. But of course, as you said, also as a consumer, industry is so much bigger than that. Of course I think you can do your part in other ways and still be a meat eater and it doesn't mean that you don't care about the environment or the animals but for sure, I think it has a big impact on the environment, being a vegetarian.

Flexitarian: Yeah I think I agree with both of you and also you, because I feel like there is a lot of things that do affect sustainability like large corporations and things like that…That's why I went from being a more strict vegan/vegetarian/flexitarian to being less strict because I was like: «Ok the amount of impact that I have is not as much as I would like it to be»
but then at the same time, I feel like by eating less meat than a normal average consumer has an impact and I feel that also transcends into my friends and family, but for me also like

animal welfare and stuff is also important. So I also eat way… 90% or 80% of the time, I am vegan, and I think, I choose each and every time that I eat (meat), I'm like «Ok is it worth it this time or is it not?» and I think… For example milk is also not good for animal welfare; and protein is important so …I try to balance it and justify each time and if it's like a special occasion it's like more… nicer to eat

Meat eater 1: I think that just says like normal human beings, especially in a younger age group where you may eat with your friends or your parents, It's also really to look at it from a practical perspective.Cause, you know, you're not gonna be at a bbq with your friends and everyone eats meat and then, for example you have the option to not eat meat and it's just about us saying «Ok keep it easy, keep it simple for people to be able to also work with it» and so I think it's also an active decision to close your eyes to say: ok industrial… animal harm, because like, animal friendly meat doesn't really exist if you think about it but I think that's an active decision and then comes the question «How much are you ready to sacrifice?»

Meat eater 2: I feel like listening to everyone, I wish I could say I was more conscious of the way that I eat meat because I feel like I don't think I am in a point of my life where I can be… you know, like, it's not practical for me right now and, I do avoid… like for example I know that beef is the most harmful, so I try to not eat beef but that's kind of the most I do. Yeah, it's about the practicality and what I'm willing to sacrifice, I feel like I take care… I do things in other aspects but not in food.

Meat produced in an ethical, local and circular way is fine to eat

Link: https://youtu.be/bZ4J98Q4umk

Only two meat eaters agreed and moved forward

Meat eater 1: Alright here we are. Obviously I think it's logical that we sit here but I don't think it's about the local, the logical thing, it's like… Is it meat or is it not? So I understand that the other participants here are still standing there because it's still meat at the end of the day. For me eating meat in general is fine, so of course even if it is produced local etc

Meat eater 2: I mean, to me, that's like … Better! I would still eat meat

Meat eater 1: Animal friendly meat doesn't exist so if it's local, if it's animal friendly, doesn't really matter. It doesn't matter to vegetarians, it doesn't matter to non vegetarians. It's basically like a selling point of like feeling less bad and paying extra

Those who disagreed stepped forward and joined the two who agreed with the statement

Flexitarian: I disagree with you when you said earlier about 'it doesn't matter' I think… I just didn't move forward because of the word 'fine', I don't think it's fine but I think it's better. I genuinely think if it's … like the question was, if it was 'circular and sustainable' I do think it's

better if you have like bio or things like that, I think it's worth the extra but I still think there is no way for it to be…if it's for profit and if it's for selling out I don't think it's gonna be ethical or fully circular, especially for beef or pork or chicken

Vegetarian 1: I think it depends indeed on why you're eating the way you're eating. If you choose to be a vegetarian, it is for animal welfare reasons, I think you feel a bit differently about this point in the sense that killing any animal for whatever reason under any circumstances are bad things. So even if it's bio, even if it's sustainable and whatever, then still it is not good. I think that, personally I'm a bit strong with this because on the one hand, I think that it is a good thing like you explained, I agree with that, it's better than nothing at least but at the same time, it is also a sort of facade for everything that is going on that is, in my opinion, going a bit wrong and then this feels like we are sort of prolonging… When do we finally realise that it is not a good thing and it feels like this is sort of like putting on…

Flexitarian: Meat production? I also don't think ethical meat production exists. You can't because the cow's lifetime is cut off.. or pigs.. whatever… it's cut off his lifetime purposively and it's purposively brought into this world, so I don't think there is an ethical way to do that unless it's like what I said before: you have a pet cow and she's lived her life fully and she's about to die and then you eat her.

Vegetarian 1: Still, the pig is being killed and it's being killed for you to taste well, so why does the animal needs to be dead even when it's done ethically with the cow and the pig is being happy while it's being killed or whatever,then still the pig is being killed for you while otherwise he wouldn't even have been brought into this world and then be killed. Like it's just… in any way, unethical to me at least.

Vegetarian 2: Yeah as you said, it's a contradiction, I just don't think ethical and a dead animal in a sentence can even go together, like it doesn't exist. For some people, they think killing them not as painful as possible, that's ethical for them but that's just a lie and most of the industries and slaughterhouses, they just don't do that. And I think even some, they label it as "ethical" and then you see a report and it shows that it's just a lie.

Meat Eater 2: I never thought of it as «This industry is just selling dead animals» I think we just grow up normally, at least in Third World countries, where I come from like you just grow up with meat. I had never in my life, before I moved to the Netherlands, seen a meat replacement or no one near me was a vegetarian or anything like that, so I just grew up thinking that was normal and never thought: "it's dead animal", it's food to me, you know?

Eating meat should be forbidden

Link: https://youtu.be/IGsCVMC4Imc

Only the Flexitarian agreed and moved forward

Flexitarian: I agree in the sense that it would be easier for everyone. If it is forbidden, then it's just crazy people breaking the law to eat meat and then it would just be easier for everyone to kind of like have better meat alternatives or have cheaper meat alternatives and everything like that and just remove all this discussion. Obviously it's easier said than done and I don't think it would happen…I don't know that's just like a dystopy ... like that'd be kinda cool, you know?

Those who disagreed stepped forward and joined the Flexitariant

Vegetarian 1: I think I totally agree, in my opinion: We can do it tomorrow. For me, it wouldn't make a difference because I don't eat meat and then, it would be better for the animals and it would be better for the environment, so from that point of view: definitely. But at the same time, I feel like right now already like not even forbidding meat but already offering alternatives is already making people really mad. So just being realistic about it and then thinking about what it will do to people and polarisation and all that stuff, I think that it would be the worse thing.

Meat Eater 1: At Erasmus (= Dutch University located Rotterdam), they forbid their employees and I think the general cafeteria. They won't have anything that is meat based in here anymore and, of course, there was incredible backlash. It's not surprising that, let's say an educational institution is the first in leading this cause, they are typically a bit more advanced than the rest but I don't think that's progress either. That may have to do with the fact that I eat meat…but whereas you could offer people both meat and non-meat and give them the choice, suddenly: there is no choice anymore. It's the same as saying to vegetarians: "We're only gonna serve meat", because then you exclude those people from making a choice. So, where do you find, let's say, eating meat or non-meat objectionable or morally superior over the other? You still exclude people from making a choice, so I think that's wrong too.

Flexitarian: I think for institutions, or certain companies or certain areas, to do it, I think it's a great idea, from my perspective, because for example, vegans and vegetarians already struggle with that day-to-day, not just for a week. They are like "Ok, what do I eat here? I can't eat anything". It's not completely eliminating their choice because you can go to Spar, you can go somewhere else and if you don't like that, then you can eat whatthey are serving and that kind of, I think, already gives you choice and also nudges you in a direction that is better for the animals. And I think as an educational institute, if you're going like 'Oh 2025, we're gonna be carbon neutral' and then you are serving beef everyday, then it just makes no sense. So then, I think there is a push, that's like, it's controversial for you to be serving a lot of meat if you're advocating for sustainability.

Meat eater 2: I also think, this would work best in like, elementary schools where kids are just learning behaviour because it is hard to go ... I mean, imagine this: Grandparents or whatever... People who have lived their whole life a certain way, and then (have to stop eating meat)...no, that's not right. But I do think that growing up is when you can really make an impact.

Meat eater 1: I don't think that any of this is right cause what happens to an individual's choice? I don't think it's up to an institution at all to say: 'You're eating not this and you're eating this instead'.

Meat eater 2: I think ... the way it works now is that you're kinda encouraged to eat meat anyway so why not present both options?

Meat eater 1: Are you encouraged to eat meat?

Meat eater 2: In general, I think we all grew up probably in an environment where we had meat.

Meat eater 1: That's more common, I agree with that

Meat eater 2: And so, I think it would be… It seems like a good move to, instead of providing meat to a bunch of little kids, encourage them to eat something that is better for the world. And in the end, we always say that this generation is the one who can make a change.

Flexitarian: I absolutely agree with that. I think it actually went the other way around where, in the beginning, the meat industry or the dairy industry… I don't know if in the Netherlands it's like this, but in Japan, it's like, every single day you have to have milk and they push milk and it was kinda like this healthy thing but when you think about it, it's really not essential to your life, because it's like it's an industry thing: It's not essential, it could just be water but milk was really pushed. So I don't think it's weird to have a opposite side push of having like "Ok: somedays, we have/eat meat, somedays, we don't". And kids are gonna think it's more normal to not eat meat instead of growing up thinking: Meat is like a super essential part of their life and then, like meat is like... the ultimate best. It's hard to get out of that thinking.

Meat eater 1: I think that at the end of the day, it's like smoking. They've just made it incredibly difficult and expensive and if you want it, you're free to go but you're gonna pay the price for it. And I think, if we come to that point, where it's perceived as such: Do that then.But don't make amended of like 'You cannot anymore'. I think that's also kinda… As the West, we're kinda 'Ahead of the Rest', we've got all these values etc.. and I think part of the morals for forbidding meat in general is because, you know, we see it from an enlightening perspective but at the same time, we kinda limit personal freedom which was also one of our selling points. Where does that leave you then?

Vegetarian 1: I was just thinking that there may be a point in the future that it is really necessary, like you said, it is hard to imagine that it will happen but there might come a point that it is really necessary. Because if you compare the impact that the meat industry has on the environment and compare that to other things that are bad for the environment like transports and all that sort of stuff, then eating meat has a huge impact. So, there might come a time that we're so screwed that indeed, we really have to forbid it and there is no other options.

I feel stigmatised because of my diet

Link: https://youtu.be/AJ7jemH9T60?si=2nPzh-c2VkMC3UW_

All agreed and moved forward

Vegetarian 1: I think it depends on the bubble that you're in, like for me at University I think that vegetarianism is becoming more normal or it's actually the norm over there, you can see that with the decision of Erasmus to completely ban meat. So especially at Unis and among students and so on, I think that vegetarianism is more normal than it was back in the days and then I can understand that as a meat eater you feel stigmatized. But I think like in general, in society and I think the parts at least where I don't come often, with older people and in other parts of the country… not in in the big city… meat is completely still super normal and as a vegetarian you're weird over there. So I think it depends on the bubble that you're in how much you feel stigmatized.

Meat eater 1: I think you're totally right it's like your bubble. You hang with people that are like you; and people that are like you, make the same decisions and when you step outside of that bubble, you tend to realise that not everyone agrees with you.

Vegetarian 2: You only think within your bubble and you're not, you know, fully aware of what's going on outside of your bubble and like not only in other countries or something like cultures, it can come from multiple different things and aspects not only like 'we're vegetarians/ we're non-vegetarians".

Meat eater 1: I don't think stigmas are that bad. People that disagree with you, and so what? You know like…? Sue me: I disagree... I may disagree with her decision, she disagrees with mine, doesn't mean that we'd have to hate each other. How important is it to please other people? Your family is important but then apart from that let's say most serious situation... with your University: How important is it that you agree with them? You know, how important is it that you agree with your friends?

Vegetarian 1: Honestly, I drove a scooter and I was judged for it. In our sustainable master… I came with my scooter because... I sometimes use it. But that's a stigma in our studies, it definitely is, like everyone was asking me: "why the F*** are you…(using a scooter to come to univeristy)? In that sense I think it depends on your personality, whether you feel bad about it, but it is a stigma. So I think there, I was stigmatized and I think that like in general, also vegetarians, but I can understand meat eaters as well are stigmatized.

Meat eater 1: You drive a scooter? So what ? You get stigmatised with people who probably are also vegetarians for the sake of the environment but you use a litre of fuel to get to school a day and you get stigmatised for doing the wrong thing, and meanwhile corporations are pumping up millions and millions of millions.

Vegetarian 1: But still like I understand their point of view because it also made me think about my own behaviour and I honestly I changed it, because I think that they're right.

Meat eater 1: So you conformed to them, in this case.

Vegetarian 1: I conformed to my own ideals and they made me aware of my own ideals by stigmatizing my behaviour or sort of, what a sustainable person should be.

Meat eater 1: It's interesting. So: you weren't aware of the fact that it was perhaps hypocritical and then they reminded you of it, and then you found it hypocritical…?

Vegetarian 1: I was aware of the fact that it was hypocritical but I was always joking about it like "hahaha, I do this master…(and I drive a scooter everyday)"

Meat eater 1: What are you supposed to do? Are you supposed to not go on holidays either anymore because you can't fly?

Vegetarian 1: Well that's the discussion !

Meat eater 1: How far do you take it ? How far do you conform?

Flexitarian: It's hard because I think you shouldn't be like pointing fingers at like what people are doing.

Vegetarian 1: I think like, honestly as a person who experienced it. I think that it's not a bad thing that people like do that to one another because it helps you change your behavior in the good direction in my opinion. And I also think that I think that it was brought up like several times during the whole discussion, today, is that “Is it a corporations or is it like you, yourself, your own behaviour and how big of an impact can you have as an individual?”. And I think that all these individuals added up together is a great force. So I think that you should be responsible about the effects (of) the choices that you make and what impacts that has and then not thinking of yourself only but then, as the total force of all the people that think that.

Appendix B: Survey questionnaire

Default Question Block

Hello and Welcome!

Thank you participating in this survey for my MSc Sustainable Business and Innovation thesis

This research is designed to gather information over a period of time about your views, beliefs and attitudes towards meat consumption. It is therefore divided in two phases: The first part is the following survey, in which you will be asked whether you agree or disagree with the statements given. The second phase takes part a week after completing this survey. You will be asked to respond to the same survey, the only difference is that you will be requested to watch four videos of approximately five minutes each.

When filling out the survey, be true to yourself, there are no right or wrong answers: Only your opinions and views matter :)

Please note that your participation in this study is entirely voluntary, and you have the freedom to withdraw at any time. Your responses will be anonymized and treated with the utmost confidentiality according to the GDPR. Only aggregated data will be reported, ensuring that your individual responses remain confidential and cannot be traced back to you.

By completing this questionnaire **and the second one**, you get a chance to win a product from MR MARVIS, a slow fashion clothing brand for men, or 50 euros as a token of our gratitude for your participation. This raffle will take place on the 31st of July.

If you have a question, feel free to send an email to d.a.d.fossey@students.uu.nl

Please, read the statements below and tick the box at the bottom of the page to indicate that you consent to take part of this research.

- I have received adequate information about the survey and about my ethical rights
- I declare that I am 18 years old or older
- I understand that only summarized anonymous results will be shared
- I voluntarily agree to participate in this research study, I know that I can stop participating any time.

I hereby give my consent and agree to participate in this research study.

◯ Yes
◯ No

Please, write below the last three letters of your name followed by the last three digits of your phone number (e.g. name: Anna, phone number ********098, it would be **NNA098**)

What is your age? (Please write in numbers, for example: 23)

To which gender do you most identify as?

◯ Female
◯ Male
◯ Non binary/ Third gender
◯ Prefer not to say

What is the highest level of formal education you have completed or are completing?

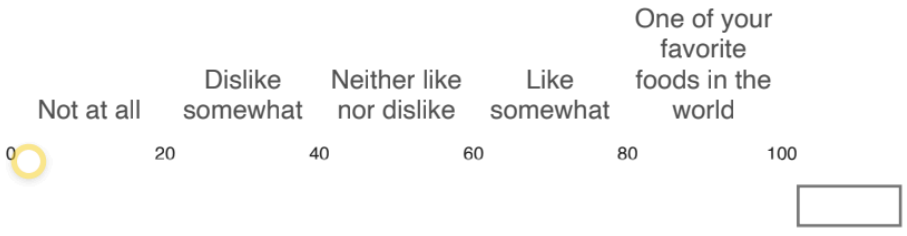
- ◯ No education
- ◯ Primary school
- ◯ High school (VMBO, HAVO/VWO junior high, MBO1)
- ◯ HAVO, VWO, MBO2-4
- ◯ Bachelor degree (HBO/WO)
- ◯ Master degree (HBO/WO)
- ◯ Doctor, PhD

At what frequency do you, approximately, eat meat? (Select the option that fits the most your current diet)

Meat: Flesh of an animal when it is used for food (Fish and seafood fall within this category)

- ◯ Everyday
- ◯ Sometimes during the week (once every 2 to 3 days)
- ◯ Every two weeks
- ◯ None, I don't eat meat

How much do you like meat?



Please, select below what best represents your stand on the following statements:

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I care about environmental issues	○	○	○	○	○	○	○
I care about animals' wellbeing	○	○	○	○	○	○	○

Complete the following statement: "Eating meat is..."

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Necessary: it brings essential nutrients and proteins to human bodies.	○	○	○	○	○	○	○
Natural: We have been doing it for thousands of years, humans are carnivores.	○	○	○	○	○	○	○
Normal.	○	○	○	○	○	○	○
Nice, pleasurable.	○	○	○	○	○	○	○

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Production of meat is harmless for the environment	○	○	○	○	○	○	○
Please select the option 'Somewhat agree' for this attention check	○	○	○	○	○	○	○
Killing animals for consumption is justified	○	○	○	○	○	○	○
Meat produced in an ethical, local and circular way is fine to eat	○	○	○	○	○	○	○
Production of meat involves animal cruelty	○	○	○	○	○	○	○
A plant-based diet has less negative impacts on the environment compared to a diet which contains meat	○	○	○	○	○	○	○
Eating meat helps to maintain an ecological balance	○	○	○	○	○	○	○

Please, select below what best represents your stand on the following statements:

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strong agre
People who eat meat contribute indirectly to the negative impacts on the environment stemming from meat production.	○	○	○	○	○	○	○
People who eat meat contribute indirectly to animal cruelty.	○	○	○	○	○	○	○
Industries **and** consumers are responsible for negative impacts related to the production of meat.	○	○	○	○	○	○	○

Please, select below what best represents your stand on the following statements:

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Eating meat should be completely forbidden by the government	○	○	○	○	○	○	○
Public canteens (e.g schools, universities, workplaces) should (only)serve meat-free dishes	○	○	○	○	○	○	○
We should encourage younger generations to not eat meat	○	○	○	○	○	○	○
Meat should become a rare luxury	○	○	○	○	○	○	○

Please, select below what best represents your stand on the following statements:

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I would prefer to date a vegetarian	○	○	○	○	○	○	○
Vegetarians bother me	○	○	○	○	○	○	○
I admire vegetarians	○	○	○	○	○	○	○
Vegetarian/Vegan food taste bad	○	○	○	○	○	○	○

When eating meat, I have...

- Clear reactions: Holding only positive attitudes (Eating meat is fine)
- Mixed reactions: Holding both positive and strong negative attitudes (I shouldn't eat meat but I like it)

Complete clear reactions					Moderate reactions					Mixed reactions
0○	1○	2○	3○	4○	5○	6○	7○	8○	9○	10○

When eating meat, I feel...

- No conflict: I feel good about it
- Conflict: I feel bad about it

When eating meat, I feel...

- No indecision: I don't doubt
- Indecision: I ask myself whether I should eat it or not

In the foreseeable future, what is your intention towards eating meat?

- ◯ No intention to reduce
- ◯ Intention to reduce my weekly meat intake
- ◯ Intention to eat meat only for special occasions (e.g Christmas, family reunion etc)
- ◯ Intention to become vegetarian