

Social influence to reduce meat intake



Author: EAAE Weller

Student number: 870430 937 090

Course: MCB-80433 MSc Thesis Marketing and Consumer Behaviour

Institute: Wageningen University, the Netherlands

Supervisor: Erica van Herpen

Co-reader: Arnout Fischer

Principal: Natuur & Milieu
Donné van Engelen

Date: February 2012

Preface

Hereby I present my master thesis. The final project were a lot of students are reluctant to. Looking back to the start of my thesis, it feels like only short time when I started.

In this project I worked very closely with some people, which I would like to thank. First of all I would like to thank Erica van Herpen my supervisor for all the advice and support throughout the whole process. Whether I had questions about theory, data collection or the analysis you always provide me with new insights to find a solution. After a meeting with you, I had lots of new inspiration to proceed my work.

Secondly, I am grateful to Arnout Fischer my co-reader. As a second reader you were very committed to my project. With your helicopter view you were able to give a critical reflection on this work which helped me to improve.

Furthermore, my thanks goes to Donné van Engelen my principal at Natuur&milieu. We had some fruitful discussions about the less abstract side of this project. These discussions helped me to reconsider my research. Besides this, it underlined the need for a model to assemble cohesion in the complex processes of consumer behaviour. Moreover, I really enjoyed the time spent at the office of Natuur& Milieu with all my (temporary) colleagues.

Another person which deserves special attention is Marquerite Weller. You took the time to read my Dutch writing style and made suggestions to improve.

Lastly, I would like to thank Matthijs Neppelenbroek, family and close friends for their interest and endless support in me, not only during my thesis but throughout my whole university studies. You gave me courage to continue.

Summary

The aim of this study was to be provided with information how a descriptive norm and a health consequence can be framed in order to reduce meat consumption.

Based on variables of the conceptual model adapted from the Theory of Planned behaviour influence of the descriptive norm, the health consequence and a combination of them was measured.

To test the conceptual model an experiment among 294 respondents of Wageningen University was executed. The experiment was based on a 3 x 3 design. With a manipulation of the descriptive norm (no norm, a standard norm, a deviant norm*) and a manipulation of the health consequence (no consequence, a positive consequence, a negative consequence**) and as dependent variable frequency of meat consumption. To see whether actual meat consumption changed 152 respondents participated in the follow up. They kept a food diary for three consecutive days.

Results on attitude showed little effects. However, men exposed to a deviant norm developed a more positive attitude towards meat. Therefore, the deviant norm is not advised to use. After the second exposure of the manipulated condition in the diary the positive health consequence caused an increase in behavioural intention to replace meat. More specifically, for the eat occasion snacks the positive health consequence increased intention to replace meat. Subsequently, men consumed more meat, had a more positive attitude towards meat consumption and a lower intention to replace meat than women.

In order to change current Dutch meat consumption patterns it is recommended to run an integral campaign, with several exposures towards norms and consequences about meat consumption. People need to be provided with more facts and figures about the actual meat consumption and the possible health effects in order to let the descriptive norm and the health consequence change this habit.

*Standard descriptive norm: Een grote groep Nederlanders eet elke dag vlees. Deviant descriptive norm: Een kleine groep Nederlanders eet elke dag vlees.

**Positive health consequence: Minder vlees eten verlaagt de kans op hart- en vaatziekten. Negative health consequence: Vlees eten verhoogt de kans op hart- en vaatziekten.

Table of content

1.Introduction.....	6
1.1 background.....	6
1.2 Aim	8
1.3 Main question	8
1.4 Objectives.....	8
2. Influencing consumer behaviour.....	9
2.1 Predicting consumer behaviour	9
2.2 Social norms	10
2.3 Factors influencing the power of norms	12
3.Pre-test	17
3.1 Qualitative pre-test	17
3.2 Quantitative pre-test.....	18
3.3 Discussion pre-tests.....	19
4. Method experiment	20
4.1 Experiment	20
4.2 Diary	23
5. Results	25
5.1 Preliminary results.....	25
5.1.1 Experiment	25
5.1.2 Diary	29
5.2 Hypotheses.....	30
5.2.1 Experiment	30
5.2.2 Diary	32
5.2.3 Comparison Experiment and Diary.....	38
6. Conclusion	42
7. Discussion and limitations.....	43
8. Theoretical & practical recommendations.....	46
References.....	48

Appendix 1. Test material	58
Appendix 2. Qualitative questions and results.....	59
Appendix 3. Quantitative questions and results	70

1. Introduction

1.1 background

In 2100 there will be 10.1 billion people in the world (United Nations, 2011). Worldwide an increase in income will lead to an increase in food consumption. Consequently more land is required to feed the world (Gerbens-Leenes & Nonhebel, 2005). The consumption of meat is of a particular concern, since meat production claims 80% of the total agricultural land in the world. This large amount of land only counts for 15% of our diet (van Vuuren & Faber, 2009). It is likely that the current meat consumption per person per day will contribute to an increased risk of a food shortage (Gerbens-Leenes & Nonhebel, 2005). Vegetable proteins are a good replacement for animal proteins, since they require less resources.

The environmental NGO Natuur & Milieu, an independent environmental organization aiming to create a healthy natural environment, launched a so called flexitarian campaign to stimulate Dutch consumers to consume less meat. Flexitarians are defined as people who restrict their meat consumption by having at least one meatless day a week. Preferably they substitute animal proteins by vegetable proteins.

Natuur & Milieu stated that becoming a flexitarian is better for your own health; it can reduce the risk of developing heart and vascular diseases (Appleby, Allen, & Key, 2011; Snowdon, Philips, & Fraser, 1984), cancer (Cross et al., 2007; AICR, 2007), diabetes (UMC, 2011) and becoming overweight (Sabate & Blix, 2001). "On top of this, a lower meat consumption is beneficial for the wellbeing of nature, environment and animals" (Natuur & Milieu, 2011).

The reasons for (not) consuming meat are diverse. Based on other studies there are four reasons to maintain meat consumption at the present level. The first one is the price. The price of meat can function as a quality cue (Van Wezemael, et al., 2010; Bartels et al., 2009; Pollard, Steptoe, & Wardle, 1998; Rappoport, Peters, Huff-Corzine, & Downey, 1992; and Zey & McIntosh, 1992). Meat has a higher price compared to other food categories like vegetables or carbohydrates, and a higher price infers a higher quality. A second determinant is health. Until the 20th century it was generally proclaimed that meat was considered as good and healthy (Bakker & Dagevos, 2010). Still some consumers think that the consumption of meat guarantees good health (Van Wezemael, et al., 2010; Bartels et al., 2009; Pollard, Steptoe, & Wardle, 1998; Rappoport, Peters, Huff-Corzine, & Downey, 1992; and Zey & McIntosh, 1992). Another reason deals with the sensory quality (Pollard et al., 1998; Rappoport et al., 1992 and Zey & McIntosh, 1992). Some people prefer the taste of meat instead of a meat substitute. The last reason is that meat is deeply rooted in our culture (Holm & Möhl, 2000; Pollard et al., 1998; Rappoport et al., 1992). During special occasions often meat is served. A good example is the traditional Christmas dinner (Bakker & Dagevos, 2010).

There are also reasons to lower the meat consumption. Five determinants support this. Again, price matters (Van Wezemael, et al., 2010; Bartels et al.,

2009;Pollard, Steptoe, & Wardle, 1998;Rappoport, Peters, Huff-Corzine, & Downey, 1992; and Zey & McIntosh, 1992). People prefer cheaper products and therefore seek for discounts. Leaving out meat can save money. Furthermore, health is important. It is thought that consumption of meat is not healthy at all (Van Wezemael, et al., 2010;Bartels et al., 2009;Pollard, Steptoe, & Wardle, 1998;Rappoport, Peters, Huff-Corzine, & Downey, 1992; and Zey & McIntosh, 1992). Subsequently, convenience plays a role (Pollard et al., 1998 andRappoport et al., 1992). People leave out meat, since this can be time saving. In addition, altruistic matters, like animal welfare or the preservation of resources are mentioned (Worsley & Skrzypiec, 1998). Finally, social context is becoming increasingly important (Zey & McIntosh, 1992;Bartels et al., 2009;Bakker & Dagevos, 2010). What other people do can influence behaviour (Goldstein, Cialdini, & Griskevicius, 2008;Nolan et al., 2008). The description of what most other people do is called the descriptive norm. Descriptive norms can function as a heuristic (Cialdini, Reno, & Kallgren, 1990). People tend to conform to a descriptive norm since *“if other people are doing so it must be a sensible thing to do”* (Cialdini, 1985).

Descriptive norms show a promising path to influence socially responsible behaviour, as people are willing to act to conform to the prevailing norm (Göckeritz et al., 2009; Nolan et al., 2008). A study of Goldstein, Cialdini, & Griskevicius (2008) reported that the use of a descriptive message, saying that 75% of the customers already reused their towel, led to an increase in the reuse of towels among hotel guests. Another study showed that energy use had decreased after people had been provided with information about the average level of energy use of their neighbourhood (Nolan et al., 2008).

To raise intentions to comply with a descriptive norm a behavioural consequence can be added (Melnyk, 2011). A behavioural consequence describes the results of someone’s actions. For example ‘consumption of meat can lead to an increased risk of becoming overweight’.

Framing can influence how a message will be received (Tversky & Kahneman, 1981). A framed message presents two identical decisions in a different way; messages can be framed in a gain frame or a loss frame. For example ‘a large group of people is flexitarian, less meat reduces the risk on becoming overweight’, or ‘a small group of people eats meat every day, consumption of meat increases the risk of becoming overweight’. The choice for the frame with the optimum effect varies per situation. For instance, a study to evoke organ donation reported that a gain framed message led to more positive intentions to donate (Reinhart, Marshall, Feeley, & Tutzauer, 2007). On the contrary, a study on breast self-examination (BSE) showed that a loss framed message increased intention to perform a BSE (Meyerowitz & Chaiken, 1987). However, studies did not investigate framing in relation to descriptive norms. Therefore, this study will examine a how a descriptive norm and/or a behavioural consequence can be framed in order to influence meat consumption behaviour.

1.2 Aim

In order to keep up with the (future) demand of resources in the world, reducing meat consumption might be one of the solutions. Previous research has shown that descriptive norms can guide behaviour in a desired direction. Current research investigates how to frame a message containing a descriptive norm and a behavioural consequence in order to reduce meat consumption. The dependent variable will be: the frequency of meat consumption.

1.3 Main question

How to frame a descriptive norm and a behavioural consequence in a message to influence behaviour?

1.4 Objectives

Research objective

Examine how to frame a message containing a descriptive norm and a consequence to achieve greatest change on (intentional) behaviour.

Company objective

To be provided with clues and suggestions about the best way of constructing a framed message containing a descriptive norm and a consequence. This information can be applied in the campaigns of Natuur& Milieu, to let people participate in their environmentally friendly activities.

Theoretical relevance

A framed message might direct decisions people make in different ways (Tversky & Kahneman, 1991). Since framing can present two identical decisions in a different way it can be applied to descriptive norms. It is of interest to examine how people will respond to differently framed norms, and what kind of framing will exert the most influence on people's behaviour. To increase the influence of a descriptive norm a behavioural consequence seems to help (Melnyk, 2011). This research aims to explore the effect of a frame in the domain of social norms and behavioural consequences.

2. Influencing consumer behaviour

2.1 Predicting consumer behaviour

Introduction

The Theory of Planned Behaviour (TPB) is a model often used to predict planned consumer behaviour (Ajzen, 1991). The model is used in a variety of behavioural domains (Ajzen, 1991; Armitage & Conner, 2001). Furthermore, the model is regularly used to predict health or environmentally friendly behaviour (van Birgelen, Semeijn, & Behrens, 2011; Gardner & Abraham, 2010; Booth-Butterfield & Reger, 2004; Ravis & Sheeran, 2003; Vermeir & Verbeke, 2008).

Planned behaviour is behaviour with a low level of repetition. If behaviour becomes a habit it is more automatic. The TPB works better in predicting less frequent behaviour (Sheeran & Orbell, 1999). Consequently, the variation of behaviour explained increased if behaviours were planned (Conner & Sparks, 2005; Sheeran & Orbell, 1999). This occurs when behaviours are relatively new and have a low frequency (Sheeran & Orbell, 1999; Verplanken et al., 1998). As is for example the case with meat replacement. In the Netherlands 4.5% of the population has a vegetarian diet (NVB, 2011). So 95.5% of Dutch people eat predominantly meat. The average minimum intake in the Netherlands is more than 100 grams per person per day (Hulshof et al., 2003). Therefore, replacement of meat is not (yet) seen as a habit among Dutch people.

The TPB is designed as following. Behavioural intention is defined by attitudes, the subjective norm and perceived behavioural control. The more favourable an attitude, the stronger the subjective norm and perceived behavioural control, the higher should be the intention to perform a certain behaviour. Perceived behavioural control and intention function as predictors of actual behaviour. However, perceived behavioural control and behavioural intention do not always seem to be good predictors of actual behaviour (Armitage & Conner, 2001).

Kims & Hunter (1993) reported that attitude and behavioural intention have a stronger relationship than the connection between behavioural intention and perceived behavioural control towards behaviour. Which holds that if an attitude is very positive, the behavioural intention is more likely to be positive as well. Perceived behavioural control is independent of attitude and intention. It is an independent predictor. The relationship between intention and perceived behavioural control towards behaviour is much weaker. Conner & Sparks (2005) found in their meta analysis that perceived behavioural control and intention accounted for behaviour in 21% to 36% of the cases. Behaviour shown by people is not entirely in line with the intention of people. Measuring of actual behaviour is a solution to bridge the gap between intention and behaviour (Armitage & Conner, 2001).

Three routes of influence

According to the TPB behaviour is influenced via three routes. First of all by attitude. Attitude stands for 'a psychological tendency that is expressed by evaluating a particular entity with a degree of favour or unfavour' (Eagly & Chaiken, 1993, p1). People like or dislike something, based on their beliefs. Is eating a meat substitute something that is good for their health or the environment and therefore is a person willing to do so? Attitude has a relatively large influence on behavioural intention and is therefore an important predictor (Conner & Sparks, 2005).

Secondly, perceived behavioural control is a factor likely to influence the performance of behaviour. If you are not cooking for just yourself, are your dinner companions willing to replace meat as well? Perceived behavioural control can be influenced by internal factors like information, skills and emotions or by external factors like opportunities, dependence on others and barriers (Conner & Sparks, 2005). If people perceive access to the resources they need and if there are opportunities to act upon the intended behaviour people are more likely to perceive a high degree of behavioural control, which has a positive effect on behavioural intention and behaviour (Ajzen, 1991).

In the third place there is the subjective norm, which is also called social norm. It is created by perceived pressure through peers. Social surroundings influence people's behaviour. Will eating a meat substitute be supported by friends and family? Social pressure can influence someone's behaviour by functioning as heuristic. You copy what others do without changing attitude.

A more recent reason to put more focus on social norms is the fact that social norms have a causal relationship with attitudes (Terry, Hogg, & White, 2000). Based on the meta-analysis of Terry et al., (2000) a link is suggested from social norms to attitudes. Melnyk (2011) also found significant evidence for the relationship of social norms towards attitudes. An example will follow. Person X eats less meat since he thinks this is better for his health. His roommates however consume meat on a daily basis, since they think it is necessary in order to stay healthy (peer pressure). Person X might change his attitude because his roommates do think so. X starts to internalize the opinion and change his attitude. X becomes positive towards eating meat daily. The fact that social norms have increased attention concerning sustainable behaviours has led to the focus on social norms in this study.

2.2 Social norms

Introduction

According to Cialdini et al (1990) there are two types of social norms. The 'injunctive norm' applies to what *ought* to be done in a certain situation. It points to a code of conduct of what is generally approved of or disapproved of by society. For example 'Do not litter the environment' and 'Do not smoke'. The other type of norm defined by Cialdini et al (1990) is called the 'descriptive norm'. The descriptive norm describes 'what *is* actually done in an occasion' (Cialdini et al., 1990). This gives a signal of what

is commonly done in a particular situation. What most other people do is likely to be a good thing. Originally the injunctive norm is used in the TPB (Ajzen, 1991). However Ravis & Sheeran (2003) found that when adding the descriptive norm to the TPB significantly more of the variance in intentions is explained.

This study has chosen to measure the effect of descriptive norms. First of all, injunctive norms might be seen as rules that are imposed, which might lead to resistance. Resistance can arise if a person feels he is losing his personal freedom to decide (Clee & Wicklund, 1980). Injunctive norms are more prescriptions of what one should or should not do and therefore might lead to more resistance compared to descriptive norms (Mann & Hill, 1984). The aim of Natuur & Milieu is not to impose people what to do therefore, descriptive norms are more appropriate for this campaign.

Furthermore, if the injunctive norm is not in line with the prevailing behaviour, the descriptive norm can overrule the injunctive norm. This happened in a study of Schultz et al. (2007). The aim was to reduce energy consumption. A neighbourhood was provided with a descriptive message, stating the average energy consumption in that specific neighbourhood. This resulted in a decrease of households who used energy above the former average level but this had a negative effect on households who were consuming under the former average. The group with low energy consumption suddenly started to increase the use of energy. Consequently, the descriptive norm can have a more direct relation with behaviour compared to the injunctive norm.

Finally, a reason to focus on descriptive norms is that for injunctive norms behaviour needs to be observable for it to be judged (Lapinski & Rimal, 2005). A lower frequency of meat consumption is not easily judged by others.

Therefore descriptive norms, as opposed to injunctive norms, are seen as more appropriate in this study. The relationship between attitude and social norm in the TPB by is considered to be correlated (Ajzen, 1991). However, studies from Melnyk, (2011) and Terry et al., (2000) found a causal relation between social norms and attitudes. In this study it is also believed that there is a causal relation between social norms and attitude. Hence, it is believed that when adding a descriptive norm attitude towards meat consumption will be more negative, behavioural intention to replace meat will become more positive and the frequency of meat consumption will decrease.

H1: when a descriptive norm is used to stimulate desired behaviour then the attitude towards the undesired behaviour will be more negative (1a), the intention to comply with the desired behaviour is higher (1b) and the frequency of the undesired behaviour will be lower (1c) compared to a situation without any norm.

2.3 Factors influencing the power of norms

The likelihood that we will act conform the descriptive norm is influenced by certain factors. The following three factors are mentioned most in other studies concerning descriptive norms.

In the first place, a descriptive norm works best when promoted by relevant (close) peers (Schultz et al., 2007; Terry et al., 2000; Lapinski & Rimal, 2005). The more relevant the source, the more likely the effect of the norm. Therefore, in a campaign it is important that role models are enabled to function as an example for the audience and carry out the message (Cialdini, 1985).

In the second place, the degree of ambiguity matters. In uncertain situations norms form the prevailing standard and can guide behaviour (Cialdini et al., 1990). The appropriate course of action is yet unclear to the principal (Griskevicius, Cialdini, & Goldstein, 2008). In an ambiguous situation the prevailing norm seems to be 'certain' and helps to decide how to behave.

A third factor is related to outcome expectations. Outcome expectations refer to the benefits that can be obtained by enacting a certain behaviour (Lapinski & Rimal, 2005). If certain behaviour results in clear benefits it is more likely that people will act conform the norm (Rimal & Real, 2003).

In addition to these three most mentioned factors, framing is expected to have effect as well. Framing can present two similar decision-making scenarios in a different way in order to influence people's choice (Tversky & Kahneman, 1981). Past research has shown that framing influenced the choice people made (Tversky & Kahneman, 1981; Meyerowitz & Chaiken, 1987; Rothman et al., 1993). Even more, a study of Croker, Whitaker, Cooke, & Wardle, (2009) about healthy lifestyle promotion showed that promotion of a behaviour might profit from emphasizing how many people have changed their lifestyle instead of hearing how many people do have poor diets.

Framing in relation to this study can be seen as following; A large group of Dutch people does not eat meat every day (Bakker & Dagevos, 2010; Motivaction, 2011). Less consumption of meat is the desired behaviour. Since a large group eats less meat this behaviour indicates a standard and will therefore be called: the standard descriptive norm. On the contrary a small group of Dutch people demonstrates the undesired behaviour, the daily consumption of meat. Since this is only a small group which shows the undesired behaviour it is seen as the deviant behaviour. Therefore, the norm referring to the small group is called: deviant descriptive norm.

Since people like to conform to what most other people do (Göckeritz et al., 2009; & Nolan et al., 2008) it is expected that people will adapt more easily to the standard descriptive norm. Since people do not prefer to differ from what most others do (Wood et al. 1994; Cialdini & Goldstein, 2004), it is less likely that they will act conform the deviant descriptive norm.

It is expected that exposure to the standard descriptive norm will result in a more negative attitude towards meat, a higher behavioural intention to consume less meat and a lower frequency of meat consumption. Hence, the standard descriptive

norm will have a stronger influence on attitude, intention and actual behaviour in the desired direction compared to a deviant norm.

H2: When a standard descriptive norm is used to stimulate desired behaviour then attitude towards the undesired behaviour will be more negative (2a), the intention to comply with the desired behaviour is higher (2b) and the frequency of the undesired behaviour will be lower (2c) compared to a situation with a deviant descriptive norm.

Descriptive norms have more influence on attitudes and intentions when a behavioural consequence is added (Melnik, 2011). Behavioural consequences are results, effects or outcomes of previous behaviour. A behavioural consequence can be a potential loss when not complying to the norm, or a potential gain when complying to the social norm. Steg & de Groot (2010) found that awareness of the consequences of people's own behaviour increased the likeliness that people felt responsible to engage in the desired behaviour. Moreover if people think that engaging in the desired behaviour will lead to benefits for them they are more likely to do so (Rimal & Real, 2003).

Adding a health consequence to a message can appeal to attitudes of people as is shown by the campaign to reduce fat milk consumption (Booth-Butterfield & Reger, 2004). In this campaign it was stated that it is healthier to drink low fat milk (compared to fat milk). Although people did not prefer the taste of low fat milk, they chose for low fat milk, based on health reasons. In the latter study a health consequence was used to reinforce behaviour change to opt for the more healthy choice. Furthermore, several studies reported that health concerns are important in the domain of food choice (Steptoe et al., 1995;Furst et al., 1996).

Meat consumption is associated with the following health risks: development of heart and vascular diseases (Appleby, Allen, & Key, 2011;Snowdon, Philips, & Fraser, 1984), cancer (Cross et al., 2007;AICR, 2007), diabetes (UMC, 2011) and becoming overweight (Sabate & Blix, 2001). Since meat consumption is associated with above-mentioned health risks, a health consequence will be used in current study. The health consequence will provide people with information about the possible health consequences of their behaviour. It is expected that when a health consequence is used, there will be a more negative attitude towards meat consumption, a higher intention to replace meat and a lower frequency of meat consumption compared to a situation where there is no consequence used at all.

H3:When a health consequence is used to stimulate desired behaviour then attitude towards the undesired behaviour will be more negative (3a), the intention to comply with the desired behaviour is higher (3b) and the frequency of the undesired behaviour (3c) will be lower compared to a situation without any consequence.

Tversky&Kahneman also found that people respond either in a risk taking or risk avoiding way (Tversky & Kahneman, 1981). In an experiment they showed a common pattern. If a choice is framed as an option with positive consequences it usually evokes risk avoiding behaviour. If a choice is framed as an option with negative consequence it often evokes risk taking behaviour. Finding the most optimal frame, depends on the interpretation of the questioned behaviour. Two studies concerning a health issue reported the following effects.

The following case is an example in which a negative frame produced the best results. A framed campaign to increase Breast Self Examination (BSE), showed that participants had a more favourable attitude and behavioural intention when a pamphlet stressed the negative consequences of not performing a BSE (Meyerowitz & Chaiken, 1987). People who do a BSE take the risk of discovering a lump, so performance of a BSE is a form of risk taking behaviour which can be stimulated by framing the consequence in a negative way. These findings match with those of Tversky & Kahneman, (1981) who established that a negative frame works best in a situation in which it is desirable that people adopt a risk taking behaviour.

Another example demonstrates a case which showed that the positive frame had the best results. A study by Rothman et al., (1993) showed that women who read positively framed messages about sun tanning and skin cancer, were more likely to ask for sunscreen with an appropriate factor than women who were presented with the negatively framed message. In the case of the positively framed message, participants tend to be risk avoiding and chose an appropriate sun screen.

From the studies mentioned above it appears that the interpretation of the behaviour determines what type of message will result in the desired behaviour. Intending for a behaviour to be seen as risk taking, a negative frame could work best. On the other hand, when the behaviour is seen as risk avoiding, a positive frame may result in the desired behaviour.

Current research will focus on the frequency of meat consumption. It is expected that a lower frequency of meat consumption will be perceived as risk avoiding behaviour, since it reduces the risk of becoming ill. Likewise a positive frame is expected to attract risk avoiding behaviour. This study assumes that a positive frame will result in a more negative attitude towards meat consumption, a higher intention to replace meat and a lower frequency of meat consumption.

H4: A positive health consequence of the desired behaviour will lead to a more negative attitude towards the undesired behaviour (4a), a higher intention to comply with the desired behaviour (4b) and a lower frequency of the undesired behaviour (4c) compared to a situation with a negative health consequence.

It is expected that the descriptive norm has optimal effect if the standard norm is used and that the health consequence works best if it is kept positive. What would happen if a combination of the norm and the consequence is used? What would then be the optimal combination?

Several studies have shown that causally connected information is better remembered than information presented without causal connection (Duffy, Shinjo, & Myers, 1990; Linderholm et al., 2000). If the message does stay in mind it is more likely that people will remember its content when taking a decision whether to consume meat or not. Some of the messages used in this study have a causal connection. This applies for the messages that use the standard descriptive norm (the large group) together with a positive health consequence or messages that use the deviant norm (the small group) together with the negative health consequence. Providing information about the large group is expected to evoke a 'this is the right thing to do' response. Attaching a positive health consequence is expected to come up as a justification for the behaviour of this large group and vice versa. As interaction effect a causal connection is expected to increase text coherence, which makes a text easier to read (Linderholm et al., 2000). Therefore, it is expected that a message with a standard (deviant) norm and a positive (negative) consequence will result in a more negative attitude towards meat, a higher intention to replace meat and a lower frequency of meat consumption than a message that contains the opposite combination as written above.

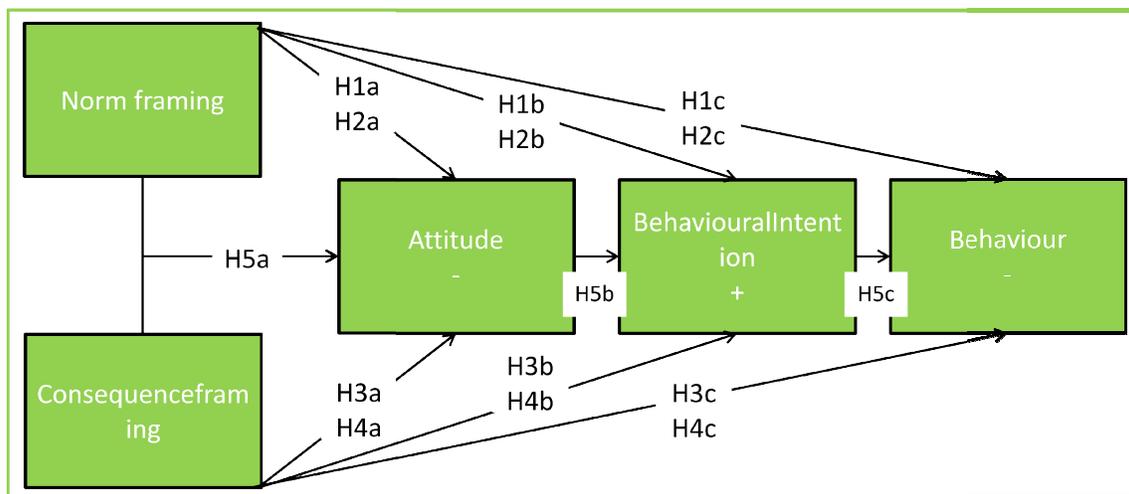
H5: If the paraphrase of the descriptive norm and the consequence have a causal relationship this will lead to a more negative attitude towards the undesired behaviour (5a), a higher intention to comply with the desired behaviour (5b) and a lower frequency of the undesired behaviour (5c) than when there exists no causal relationship.*

**(standard norm + positive consequence vs deviant norm + negative consequence)*

2.4 Conceptual model

The model is adapted from the Theory of Planned behaviour (Ajzen, 1991). Based on literature by Melnyk, (2011) & Terry et al., (2000) a direct link is added from norms towards attitude. In this research it is expected that both the framing of the norm and the consequence will have influence on attitude. Therefore there is a direct arrow from norm and consequence to attitude. According to theory attitude influences intentions. Intentions and perceived behavioural control on its turn will influence behaviour. The composed hypotheses are adjusted in the model, so assumed relationships are visualised. Perceived behavioural control (PCB) is not seen in the conceptual model, since neither the norm nor the consequence would influence PCB directly. However, PCB will be measured to control for differences between condition based on PCB.

Figure 1 Conceptual model adapted from Ajzen (1991)



3.Pre-test

The data in this study were collected in the form of an experiment. In advance two pre-tests had been executed; a qualitative- and a quantitative test. The pre-tests evaluated potential experimental material.

3.1 Qualitative pre-test

Participants

Sixteen qualitative interviews were conducted. Respondents were selected at Wageningen University, where the target group of the study is situated.

Method

Using a qualitative design created a possibility for exploration and a deeper understanding of people's behaviour ('t Hart, Boeije, & Hox, 2005). Open interviews, one to one, were selected as the appropriate form. The one to one focus was chosen to give people the time they need to think and talk about their choices ('t Hart et al., 2005). Moreover, in this pre-test it was not of interest how people develop ideas together. Because the final experiment will be executed individually as well.

The open interview started with a selection of two out of seven images based on the respondents preferences. Four of these images were based on the current campaign of Natuur& Milieu. Three others were added; they had either a link with the target group or with a consumption occasion. Points of interest were why respondents chose this picture, what thoughts they had while seeing it and whether they could identify with the picture, which is important for the success of the norm (Schultz et al., 2007;Melnyk, 2011).

Thereafter, respondents were asked if they could connect one of the health consequences mentioned earlier to the consumption of meat. Subsequently, the type of norm was tested. 'What type of norm would be more convincing to you?': 'Een grote groep Nederlanders eet steeds minder vlees' or 'Slechts een kleine groep Nederlanders eet elke dag vlees'. Thereafter the respondent was shown the message options for one of the conditions. These options varied in text however, their meanings were the same. This question aimed to find the best readable message for each condition. Moreover, credibility was assessed through this question.

Results of qualitative pre-test

Following will be a summary of the major findings. In [appendix 2](#) an elaborated overview of the qualitative study can be found.

Identification with the target group was important. Respondents chose images which they could easily identify with. Images with young people or groups of people were chosen most frequently. On the other hand, the opinions in relation to meat consumption were diverse. Depending on the message (a large group vs a small group) the picture choice of respondents varied. This made clear that the picture for the final experiment needs to be one with young people, preferably in relation to food.

The group size should not be too large, since this does not correspond with the deviant norm. The health risks most related to meat consumption were heart and vascular diseases. Consumption of meat was associated with fat, and this bore a relation with the risk of developing heart and vascular diseases according to the respondents. The type of norm that would convince most of the participants was 'EengroetegroepNederlanderseet steeds minder vlees'. Reasons for this were 'when a large group is doing something, it makes a difference' and 'a large group is more convincing'. Some people said that they would prefer numbers instead of 'a large/small group'. However the decision was made to use large/small instead of numbers, since numbers found in previous research were contradictory. The credibility of the health consequence in relation to meat was low. According to respondents this could be increased by adding a source to the message.

3.2 Quantitative pre-test

Input from qualitative test

The results of the qualitative pre-test gave new insights. A requirement for the picture was that it had to show young people during a consumption occasion. Furthermore, it was found that a source would give more credibility. Since a new picture was needed it was decided to do a quantitative test to find out which of the new pictures corresponded well with the messages.

Participants

Ten respondents participated in the quantitative evaluation of the new images and adjusted messages.

Method

A quantitative approach was chosen since it was of interest that first impressions of respondents were measured (Verschuren & Doorewaard, 2000). Respondents were asked to rate eight combinations of message and image. Two new pictures were chosen one picture showing three young people having dinner and another one showing four girls having lunch/breakfast. Each of the images was shown four times, each time with a different message. The messages that were shown on the images were the messages with a norm and a consequence. These messages were representative of the other messages that contained either a consequence or a norm. Picking these four for the test instead of all nine messages saved time. The quantitative pre-test focused on the combination of text and image. The combination of text and image was evaluated on 'attractiveness', 'credibility', 'beauty of the picture', 'matching of text and image', 'readability' and 'identification with the image'.

Results of the quantitative pre-test

With a Within-subjects test in SPSS the items which were evaluated were checked on significant differences with regard to norm type, consequence type and the type of poster. Attractiveness, credibility, beauty, match, readability, identification and the

poster type were all non significant. For results see [appendix 3](#). However, results of credibility were marginally significant $F(1, 80)=2.88, p=.09$.

There is a difference between the credibility of the positive and the negative consequence. Some respondents said during data collection that they trusted the negative consequence a little less. They were tired of hearing what is bad for their health.

A remark made by one of the respondents was that the sentence 'Het eten van minder vlees' (positive consequence) would have been easier to read if it had been written as 'Minder vleeseten'. To keep the consequences as much the same as possible the first part of the negative consequence ('Het eten van vlees') was also modified into 'Vleeseten'. Furthermore, some respondents expressed their doubts about the sentence 'EenkleinegroepNederlanderseetelke dag vlees'. They expected this group to be much bigger.

3.3 Discussion pre-tests

Qualitative test

Qualitative pre-test responses made clear how the target group evaluated images, norms and health consequences in relation to meat. Likewise theories pointed out that close peers are relevant (Schultz et al., 2007; Terry et al., 2000; Lapinski & Rimal, 2005). The current pre-test has found that this was important as well. Respondents opted for the poster with young people, since they could easily identify with them.

The effect of the norm was also tested in this pre-test. The standard descriptive norm proclaiming 'EengrotergroepNederlanderseet steeds minder vlees' was found best when addressing the respondents. This was conform previous studies (Robert B. Cialdini & Goldstein, 2004; Göckeritz et al., 2009; Nolan et al., 2008; Wood et al., 1994).

The credibility of the health consequence was low. This means that people are not fully aware of the assumed health risks of meat. However, it is expected that after adding a source credibility is not an issue anymore.

Quantitative test

Based on new requirements found in the qualitative pre-test other pictures were found. To see whether respondents would find a match between the image and the text they were asked to rate the new combinations. The negative consequence had a lower credibility than the positive consequence. Respondents said they were getting tired of hearing what they should and should not do. This result with the expectation that a positive health consequence would possibly be received as more positive, since this would evoke risk avoiding behaviour (Meyerowitz & Chaiken, 1987; Tversky & Kahneman, 1991).

Furthermore, it was notable that respondents still thought that a lot of people do eat meat on a daily base. Somehow they had this perception of meat consumption, while actual figures showed that more than half of the Dutch population does not eat meat every day (Bakker & Dagevos, 2010; Motivaction, 2011).

4. Method experiment

4.1 Experiment

An online experiment was executed among 294 respondents. The inclusion criterion was that they were all students from Wageningen University. Excluded were vegetarians, since no changes in meat consumption patterns could be made. Figures from Wageningen UR showed that there is an unequal distribution of gender.

In this research an experiment is chosen to measure the effect of framed descriptive norms and consequences by the frequency of meat consumption. The form of an experiment was most appropriate. An experiment created an opportunity to manipulate the independent variables and to measure their effect on the dependent variable ('t Hart et al., 2005). The design of the experiment was a 3 x 3, i.e. three different types of norm formulation (Standard norm, Deviant norm and No norm) and three different types of consequence formulation (Positive consequence, Negative consequence, No consequence). Respondents were randomly assigned to each of the nine conditions. In figure 2 the messages are presented. Below, in figure 3, there is an example of what the image/text combination looked like in the experiment.

Figure 2 Experimental conditions

	No consequence	Positive consequence	Negative consequence
No norm	Word flexitarier!	Word flexitarier! Minder vlees eten verlaagt de kans op hart- en vaatziekten.	Word flexitarier! Vlees eten verhoogt de kans op hart- en vaatziekten.
Standard descriptive norm	Word flexitarier! Een grote groep Nederlanders eet steeds minder vlees.	Word flexitarier! Een grote groep Nederlanders eet steeds minder vlees. Minder vlees eten verlaagt de kans op hart- en vaatziekten.	Word flexitarier! Een grote groep Nederlanders eet steeds minder vlees. Vlees eten verhoogt de kans op hart- en vaatziekten.
Deviant descriptive norm	Word flexitarier! Slechts een kleine groep Nederlanders eet elke dag vlees.	Word flexitarier! Slechts een kleine groep Nederlanders eet elke dag vlees. Minder vlees eten verlaagt de kans op hart- en vaatziekten.	Word flexitarier! Slechts een kleine groep Nederlanders eet elke dag vlees. Vlees eten verhoogt de kans op hart- en vaatziekten.

Procedure

Respondents were informed about the experiment by an email sent by a supervisor, a study advisor and acquaintances of the researcher. Via a link they accessed one of

the experimental conditions. First they rated four advertisements. The last advertisement was one of the manipulated conditions. The second part of the study consisted of consumer behaviour questions about meat consumption. After respondents filled out all the questions they were asked to leave their email addresses in order to win one of the gift cards. To measure actual behaviour (Armitage & Conner, 2001) respondents were asked to participate in the follow up of this experiment. If they liked to participate they would receive a diary in the 2nd week of January. Afterwards respondents received a debriefing in which it was stated that the research was done in collaboration with Natuur& Milieu. On average the experiment took eight minutes.

Figure 3 An example of the text/image combination



* bron: Journal of Clinical Nutrition, 2011

Experimental factors

The control condition was given the message: 'word flexitariër'. This was chosen as the neutral message, which was currently used by Natuur& Milieu in their campaign. This message was used in all the conditions to keep circumstances as much the same as is possible. The descriptive norm was manipulated by selecting a standard norm, which showed the desired behaviour compared to a deviant norm which represented the undesired behaviour. The consequence was manipulated by a positive and a negative message about the relation of meat consumption and heart and vascular diseases.

Experimental measurements

Four variables of the Theory of Planned Behaviour were measured in the experiment. These were measured as follows. *Attitude* was measured by a construct adopted from Arias-Bolzmann, Chakraborty, & Mowen (2000) and was formulated as following: Please state your opinion on the consumption of meat. Answers were given on a 7-pointscale. Categories are: good/bad, like/dislike, favourable/unfavourable, positive/negative, enjoyable/unenjoyable, for me/not for me and healthy/unhealthy. These items had an $\alpha=.93$. In addition, it was expected that attitude would consist of two underlying dimensions. However, factor analysis showed that one factor explained 70.1% of the variance with loadings of .755 and higher. From now on the first seven items of attitude will be used as one construct.

Furthermore, an item from Sheeran & Orbell (1999) was used as manipulation check for the health consequence 'I think that daily consumption of meat is bad for my health', agree-disagree on a 7-point scale'.

Behavioural intention was measured by constructs adopted from Fishbein & Ajzen (2010) and Ajzen & Fishbein (1980) and Elzerman et al., (2010). 'Next time I'm going to eat I will consider leaving out or replacing meat.' Answers were given on a 7-point scale in the categories: Probable/improbable and I will definitely try/definitely not try. Behavioural intention had a high reliability $\alpha=.9$ so will be maintained. Another question about intention was asked. For each consumption occasion the question was asked 'how probable is it that you will leave out/replace meat during a breakfast/lunch/dinner/snack in the future? Answers were given on a 7-point scale ranging from very improbable to very probable. These did not form an appropriate scale, so it was decided to treat them as separate measures.

Actual behaviour was measured at two points in time. The first measuring took place during the experiment when respondents were asked to reproduce their frequency of meat consumption per consumption occasion based on a construct of Sheeran & Orbell (1999). 'On average how often do you consume meat per week during one of the following occasions'; 'breakfast', 'lunch', 'dinner' and 'snacks'. Answers can be given from 0 till 7 days a week. Respondents who filled in 0 for each of the occasions were considered to be vegetarian. The second measuring of actual behaviour was in the food diary. (see paragraph diary).

Subsequently, three items were added to control personal differences between conditions. The first is *Perceived behavioural control* (PCB). PCB can influence behaviour directly according to Ajzen & Fishbein, (1972). Therefore, PCB was measured with three items adapted from Bateson & Hui (1992). 'I would feel that the decision to leave out meat is under my control', 'I would feel difficulty when deciding to leave out meat', which was a reverse question and 'I would feel able to consume less meat'. The three items were rated on a 7-point scale agree/disagree. After recoding the 2nd item the $\alpha=.53$, which was low. Removing the first item increased the α to .62. The first item might have been difficult to understand, so it was left out in further analysis. In addition to the question about perceived behavioural control respondents were asked whether they usually ate together with roommates. If they eat together, this may make it more difficult to leave out meat.

Need for uniqueness Some people try to be counter conform a norm in order to distinguish themselves from others in order to be unique (Nail, 1986). The need for uniqueness of Tian, Bearden, & Hunter, 2001 has three sub dimensions. 'Creative choice counter conformity', 'Unpopular choice counter conformity' and 'Avoidance of similarity'. When looking to the items that loaded on each of the sub dimensions the unpopular choice counter conformity fitted best with consumption of meat.

The following items were chosen: 'I have often violated the understood rules of my social group regarding what to buy', 'I rarely act in agreement with what others think are the right things to buy', and 'I often try to avoid products that I know are bought by the general population'. Responses were given on a 7-point scale; strongly disagree to strongly agree.

After the reliability analysis it turned out that the α was very low. On accidental base the three items were from different sub dimensions. It was decided to leave out need for uniqueness. Even after leaving out the item from the different sub dimension the reliability was $\alpha=.02$. Because of the low α Need for uniqueness was not used in further analysis.

Need to belong As counterpart for the need for uniqueness there are also people who have a need to conform. People with a need to belong, have a (strong) need to interpersonal relationships (Steinle et al., 2010). Therefore, people with a strong need to belong might be more influenced by descriptive norms. Three items adapted from Mehrabian, (1970) were used on a 7-point likert scale. 'If someone is very persuasive, I tend to change my opinion and go along with them', 'I often rely on, and act upon, the advice of others' and 'Basically, my friends are the ones who decide what we do together'. Need to belong had an $\alpha=.71$ which is accepted. After factor analysis it was decided to keep it as one construct. All items loaded at least with .71 on one factor. Moreover, the total variance explained by one factor was 63.7%.

The experiment was ended with an open question, which gathered additional information about circumstances during the experiment.

4.2 Diary

To measure whether behaviour indeed has changed respondents were asked to participate in the follow up of the study; a meat consumption diary. A food diary is another form of self reported behaviour and seems to work well if the period to report is shorter than a week (Krall & Dwyer, 1987). Furthermore, it was required that respondents fill in the diary within 24 hours after the day that they were reporting about. In the second week of January respondents reported their meat intake of three consecutive days, Tuesday, Wednesday and Thursday. These days were picked since the target group were all students and they might stay somewhere else during the weekend, which could have affected their consumption pattern.

Procedure

Respondents who registered to participate received an email on Tuesday the 10th of January. 152 filled in the diary completely. Excluded were vegetarians and people who usually not cook for themselves and had a low influence on the choice of meal that was prepared. Furthermore, people who ate 2 times a week meat during dinner were also excluded. Since, they ate not often meat there is not much possibility to change behaviour. This resulted in 209 respondents who received the diary.

The email did contain a respondent number, to treat them anonymous and three links with the diary for that particular Tuesday, Wednesday and Thursday. The diary for Tuesday started with some general questions about their usual frequency of meat consumption. Thereafter, respondents saw again the manipulated image + text combination from the condition they belonged to during the experiment. Questions about the meat consumption were the same for each different day, to make them easy to compare. On Thursday some additional questions were asked. This was done to see whether a mere exposure effect did occur (Ye & Van Raaij, 1997).

Design diary

The diary on Tuesday started with a repetition of questions from the experiment. 'How often do you usually eat meat during breakfast/lunch/dinner/snack time'? Snacks are divided in: in between breakfast and lunch, in between lunch and dinner and after dinner. The consumption occasions were mentioned separately to help respondents remembering what they ate the other day (Slimani et al., 1999; Slimani et al., 2000). Another reason that these occasions were mentioned is to structure the diary, so no occasion is skipped (Slimani et al., 1999).

After being exposed by their experimental condition, respondents were asked about their actual frequency of meat consumption during each of the occasions for that particular day. These questions were the same for the three consecutive days. Following, questions about the amount of meat consumption per consumption occasion. To see whether the amount of meat varied, a measure of quantity was asked. For breakfast and lunch quantity was asked in the form of 'how many sandwiches covered with meat did you eat?'. With options varying from 1 sandwich to 6 sandwiches. The last option was left open, so that respondents could mention if the quantity or form was something else than a sandwich. The responses for the quantities for breakfast and lunch did not end up in an appropriate scale. Therefore, some categories were taken together. For dinner quantity was asked in grams, often respondents could remember the exact amount they ate. Options were rated on a 5-point likert scale varying from 0-50 grams, 51-100 gr, 101-150 gr, 151-200 gr and 200 or more. Since responses had an appropriate distribution over the categories it was decided to use the amount of meat for dinner as a scale. If respondents said they have been eating meat during one of the occasions, they were asked if the amount of meat during that particular occasion was 'what they ate normal'. Which could be responded with 'less than normal', 'the same' or 'more than normal'.

The diary is ended with a question whether that particular day was as usual days or that the day differed. The reason why their meat consumption differed could be answered based on a pre-defined list: 'I was ill', 'I went out for dinner', 'no hunger', 'I'm on a diet', 'I was on holidays' and an open option.

For the diary on Thursday some additional questions were asked. The questions about attitude, behavioural intention and intention to replace meat per food occasion were repeated see chapter 4.1 experimental measurements to see whether another exposure would change anything.

5. Results

This chapter elaborated on the results of both the experiment and the diary. Firstly, a preliminary analysis was discussed, including all the general findings and measurements that are not part of the conceptual model. Subsequently, the hypotheses from the conceptual model were presented. This hypotheses paragraph is split up in two parts; one part about the experimental results and one part about the diary results. Lastly, a comparison between the results of the experiment and the diary will be made. Since, the variables self reported frequency, attitude and intention were measured in the experiment and the diary. In addition, behavioural intention and actual behaviour will be compared.

5.1 Preliminary results

5.1.1 Experiment

Sample description

The total sample consisted 224 (76.2%) females and 70 (23.8%) males. The unequal distribution reflects the fact that there are more female students (56%) at Wageningen UR (Dijkhuizen, 2010). Subsequently, women are more willing to participate in research. The question 'age' did not require an answer, some people left it open. Therefore, age was missing 30 times. The average age was 21.68 (SD=2.38). With a minimum of 18 years and a maximum of 30 years. The respondents were equally distributed over the conditions, with a minimum of 30 and a maximum of 34 respondents per condition.

Respondents were asked whether they had any influence on the type of meal when they had dinner with others. From the 157 respondents who usually did not cook for themselves they had a slightly to average influence on the choice of dish (3.64 on a 7-point Likert Scale). Their preferences were taken into account average to little (4.79 on a 7-point Likert Scale). This indicated that respondents were not totally dependent in their decision to consume meat or not.

Respondents consumed most often meat during dinner and the least often during snack time. The means including standard deviation can be found in table 1.

With a between subjects test with dependent variables frequency of meat consumption per eat occasions and as independent factor condition, it was shown that the means of each eat occasion did not differ significantly between the nine conditions. This indicated that respondents had the same meat consumption patterns. For breakfast $F(8, 285)=0.98, p=.45$, for lunch $F(8, 285)=0.96, p=.47$, for dinner $F(8, 285)=0.55, p=.82$ and for snacks $F(8, 285)=0.75, p=.64$.

Table 1 Frequencies of meat consumption per eat occasion

	Breakfast	Lunch	Dinner	Snacks
0 days	180 (61.2%)	65 (22.1%)	2 (0.7%)	222 (75.5%)
1 days	40 (13.6%)	39 (13.3%)	16 (5.4%)	57 (19.4%)
2 days	34 (11.6%)	51 (17.3%)	11 (3.7%)	8 (2.7%)
3 days	17 (5.8%)	41 (13.9%)	19 (6.5%)	4 (1.4%)
4 days	10(3.4%)	30 (10.2%)	46 (15.6%)	2 (0.7%)
5 days	5 (1.7%)	26 (8.8%)	60 (20.4%)	0 (0%)
6 days	4 (1.4%)	22 (7.5%)	82 (27.9%)	0 (0%)
7 days	4 (1.4%)	20 (6.8%)	58 (19.7%)	1 (0.3%)
Mean	.94 (SD=1.54)	2.67 (SD=2.2)	5.02 (SD=1.69)	.34 (SD=.77)

To see whether the intention to replace meat differed among conditions a onewayAnova test was executed with dependent variables intention to replace meat for breakfast/lunch/dinner/snacktime and as independent variable condition. However, no differences were found between conditions. See table 2 for the results. Respondents did not differ substantially in their intention to replace meat for one of the eat occasions. Breakfast $F(8, 113)=1.18, p=.32$, lunch $F(8, 228)=0.81, p=.59$, dinner $F(8, 291)=0.84, p=.57$ and snacks $F(8, 71)=1.14, p=.35$.

Table 2 Intention to replace/leave out meat, mean (SD)

	Breakfast	Lunch	Dinner	Snacks
Intention mean	3.38 (SD=1.91)	3.14 (SD=1.84)	3.47 (SD=2)	3.36 (SD=1.9)

Perception of the poster

To see whether the norm and/or the consequence influenced the perception of the posters, respondents were asked to give their opinion about the posters they were provided with during the experiment. The posters were rated on appealingness, clearness and credibility. In table 3 an overview can be found.

Appealingness of the poster was not influenced by the addition of a norm nor a consequence. A between subjects test showed that neither of the main effects, nor the interaction effect were significant. Norm type $F(2, 285)=1.219, p=.297$, Consequence type $F(2, 285)=.975, p=.378$ and interaction effect $F(4,285)=.56, p=.69$.

Clearness: A between subjects test showed that there was a marginal significant main effect of norm type on the clearness of the poster, $F(2, 285)=2.42, p=0.09$. The LSD post hoc test revealed that the clearness of the poster was significantly higher when the standard norm ($M=4.19$) was used compared to no norm ($M=2.94$), $p=.04$. The clearness of the poster was marginal significantly higher when the deviant norm ($M=4.33$) was used compared to the no norm ($M=2.94$), $p=.09$.

There was a significant main effect between the type of consequence used and clearness of the poster, $F(2, 285)=14.3$, $p=.00$. The LSD post hoc test revealed that the clearness of the poster was significantly higher when the positive ($M=4.84$) or negative consequence ($M=5.0$) was used compared to no consequence ($M=2.94$), $p=.00$.

There was a significant interaction effect between the type of norm used and the type of consequence used and the clearness of the poster, $F(4, 285)=2.68$, $p=0.03$. When no consequence is used both the standard norm ($M=4.19$) and the deviant norm ($M=4.33$) had a significantly higher effect on the clearness of the poster compared to no norm ($M=2.94$), $p=.00$. When standard norm is used the positive consequence ($M=5.37$) had a significantly higher effect on the clearness of the poster compared to no consequence ($M=4.19$), $p=.00$. When no norm was used both the positive ($M=4.48$) and the negative consequence ($M=5$) had a higher effect on clearness of the poster compared to no consequence ($M=2.94$), $p=.00$.

Clearness increased significantly when a norm or a consequence was added. Even more, when the standard descriptive norm was used together with the positive health consequence the clearness increased significantly.

Credibility: A between subjects effects test showed that there was a significant main effect between the type of norm and credibility, $F(2, 285)=5.56$, $p=.00$. LSD post hoc test revealed that credibility of the poster was significantly higher when the standard norm ($M=4.03$) and the deviant norm ($M=4.24$) were used compared to no norm ($M=2.71$). There was a significant main effect between the type of consequence used and the credibility, $F(2, 285)=7.03$, $p=.00$. LSD post hoc test revealed that the credibility of the poster was significantly higher when the positive consequence ($M=4.16$) was used compared to no consequence ($M=2.71$), $p=.00$. The positive consequence ($M=4.16$) compared to the negative consequence ($M=3.82$), $p=.00$. There was a significant interaction effect found between the type of norm used and the type of consequence on the credibility of the poster, $F(4, 285)=2.88$, $p=.02$. When no consequence is used both the standard norm ($M=4.6$) and the deviant norm ($M=4.24$) have a significantly higher effect on credibility of the poster compared to the no norm ($M=2.71$), $p=.00$. When the standard norm is used the positive consequence ($M=4.6$) had a higher effect on credibility compared to the negative consequence ($M=3.71$), $p=.02$. When no norm is used then the positive consequence ($M=4.16$) and the negative consequence ($M=3.8$) both have a higher effect on credibility compared to no consequence ($M=2.71$), $p=.00$. increased significantly by the adjustment of a norm regardless of the type of norm.

Furthermore, the positive consequence did increase credibility significantly compared to no consequence and the negative consequence. However, when either a norm or a consequence was used this led to a higher credibility than when none of them was used. The interaction between standard norm and positive consequence had a significant higher effect on credibility than a standard norm together with a negative consequence.

Table 3 Differences per condition in perception of experimental conditions

Norm type: Consequence type:	No, No	No, Neg	Dev, Neg	Dev, No	Dev, Pos	Stan, No	Stan, Pos	No, Pos	Stan, Neg
Appealing	3.41 (1.79)	3.35 (1.67)	3.61 (1.73)	3.94 (1.82)	3.61 (1.68)	3.68 (1.72)	3.77 (1.57)	3.28 (1.61)	3.09 (1.38)
Clear	2.94 (1.79)	5.0 (1.37)	4.64 (1.82)	4.33 (1.96)	5.03 (1.9)	4.19 (1.9)	5.37 (1.47)	4.84 (1.69)	4.76 (1.48)
Credibility	2.71 (1.24)	3.82 (1.71)	3.9 (1.7)	4.24 (1.62)	4.51 (1.56)	4.03 (1.38)	4.6 (1.4)	4.16 (1.61)	3.71 (1.09)

Equality between conditions

Perceived behavioural control and Need to belong were checked in order to see whether respondents did not differ on these variables among conditions.

A between subjects test with dependent variable PCB/need to belong and independent variable condition showed that perceived behavioural control (PCB) and need to belong did not differ between groups. PCB $F(8, 285)=.705$, $p=.69$ and Need to belong $F(8, 285)=.65$, $p=.74$. So no differences between conditions based on PCB and need to belong were observed. Consequently, neither variable was included in subsequent analyses.

Gender

The influence of gender was examined, since previous studies showed differences in meat intake between gender (Science Daily, 2008). With a onewayAnova test with dependent variable frequency of meat consumption and factor gender it was found that men consumed significantly more often meat during breakfast, lunch, dinner and snack time. In table 4 there is an overview of the means and SD's. Test results of the onewayAnova were as following; for breakfast $F(1, 292)=17.10$, $p=.00$, for lunch $F(1, 292)=15.62$, $p=.00$, for dinner $F(1, 292)=4.59$, $p=.03$ and for snacks $F(1, 292)=15.03$, $p=.00$.

Table 4 Differences between gender and meat intake in days per week

	Breakfast	Lunch	Dinner	Snacks
Mean Men	2.59 (SD=1.95)	3.56 (SD=2.44)	5.4 (SD=1.71)	.64 (SD=.96)
Mean Women	.74 (SD=1.33)	2.4 (SD=2.04)	4.91 (SD=1.68)	.25 (SD=.67)

Based on these findings it was decided to add gender as covariate in subsequent analyses of the variables of the conceptual model. Consequently, the covariate will be used in analyses for attitude, behavioural intention and intention to replace meat during each eat occasion.

Manipulation check

Before evaluating the variables of the conceptual model the manipulation check was done to see whether the health consequence had an effect. Respondents did not

differ in their beliefs about the healthiness of meat consumption $F(8, 285)=.561$, $p=.809$.

5.1.2 Diary

Sample description

The total sample consisted of 125 (82.2%) females and 27 men (17.8%). This indicated that the non response was higher among males. The total response was 72.73%. The respondents' distribution over the conditions had a minimum of 13 and a maximum of 23 respondents per condition. The distribution was not as equal as it was in the experiment. The average age was $M=21.67$ ($SD=2.38$). This indicated that the average age from participants in the experiment and the diary did not differ much.

Before the second experimental exposure in the diary respondents rated how often they ate meat per week during each of the specified eat occasions. On average people consumed most often meat during dinner. This corresponded with the experiment. Table 5 shows an overview for breakfast, lunch and dinner.

Table 5 Frequencies of meat consumption in days per week

	Breakfast	Lunch	Dinner
0 days	95 (21%)	17 (3.8%)	1 (0.2%)
1 days	13 (2.9%)	26 (5.7%)	0 (0%)
2 days	16 (3.5%)	25 (5.5%)	3 (0.7%)
3 days	8 (1.8%)	22 (4.9%)	12 (2.6%)
4 days	7 (1.5%)	20 (4.4%)	19 (4.2%)
5 days	4 (0.9%)	20 (4.4%)	35 (7.7%)
6 days	4 (0.9%)	11 (2.4%)	46 (10.2%)
7 days	4 (0.9%)	10 (2.2%)	35 (7.7%)
Mean	1.12	3.03	5.39

Gender

Gender differences in meat consumption have been showed in the experiment therefore, the data of the diary was explored on gender differences as well. However, gender only made a substantial difference for the amount of meat consumed during dinner. Consequently, only for the amount of dinner consumed there was controlled for gender.

5.2 Hypotheses

5.2.1 Experiment

Attitude

With a between subjects test with dependent variable attitude and independent variables norm type, consequence and gender, it was examined whether there was an effect on the hypotheses formulated about attitude (1a, 2a, 3a, 4a, 5a) controlled for gender. To see whether one of the sexes was affected by the use of the norm and/or the consequence, their interaction effects were also examined. In table 6 mean and SD of attitude can be found.

The covariate, gender, was significantly related to attitude towards meat consumption $F(1, 280)=35.06, p=.00$. Women had a more negative attitude towards meat consumption. Furthermore, the interaction effect between norm and gender was marginally significant $F(2, 280)=2.48, p=.09$. Men exposed to a deviant norm had a more positive attitude towards meat consumption ($M=6.54$) compared to men exposed to no norm ($M=6.19$), $p=.03$. Though, this was not a desired effect.

Neither of the main effects, nor the other interactions were significant. Norm type $F(2, 280)=1.64, p=.2$, consequence type $F(2, 280)=0.26, p=.77$ and interaction effect between norm type and consequence type $F(4, 280)=1.13, p=.34$, type of consequence and gender $(2, 280)=0.83, p=.44$.

Attitude for women was substantially lower towards meat than the attitude of men. When the deviant norm was used attitude for men did differ among conditions compared to the no norm situation. Attitude turned more positive. However, this was in contradiction with the hypotheses 1a and 2a, expecting that attitude would become more negative when a descriptive norm is used. The negative effect on attitude was expected to be larger when the standard descriptive norm was used. All the hypotheses formulated about the negative effect on attitude (1a, 2a, 3a, 4a, 5a) were not supported.

Table 6 Mean (SD) for attitude and intention

Norm type: Consequence type:	No, No	No, Neg	Dev, Neg	Dev, No	Dev, Pos	Stan, No	Stan, Pos	No, Pos	Stan, Neg
Attitude	4.99 (1.09)	4.88 (1.02)	5.17 (1.17)	5.06 (1.23)	5.17 (.88)	5.05 (1.01)	4.95 (1.02)	5.26 (1.04)	5.26 (.81)
Intention	3.82 (1.89)	3.54 (1.8)	3.9 (1.97)	3.9 (1.9)	3.76 (1.74)	3.94 (2.04)	3.81 (1.6)	3.53 (1.75)	3.1 (1.44)

Behavioural intention

With a between subjects test with dependent variable behavioural intention and independent variables norm type, consequence and gender, it was examined whether there was an effect on the hypotheses formulated about behavioural intention (1b, 2b, 3b, 4b, 5b) controlled for gender. To see whether one of the sexes

was affected by the use of the norm and/or the consequence, their interaction effects were also examined. In table 6 means and SD for intention can be found.

The covariate, gender, was significantly related to intention to replace meat $F(1, 280)=10.9, p=.00$. Women had a higher intention to replace meat compared to men.

Neither of the main effects, nor the interaction effects were significant. Norm type $F(2, 280)=0.11, p=.9$, consequence type $F(2, 280)=0.19, p=.83$ and interaction effect between norm and consequence $F(4, 280)=0.79, p=.54$, interaction between norm and gender $F(2, 280)=0.43, p=.65$ and interaction between consequence and gender $F(2, 280)= 1.06, p=.35$.

This holds that men and women significantly differed in their intention to replace meat regardless of the norm, consequence or their interaction. The hypotheses formulated about a more positive intention to replace meat after being exposed to a norm, a consequence or their interaction were not supported (1b, 2b, 3b, 4b, 5b).

Intention to replace meat per eat occasion

With a between subjects test with dependent variable intention to replace meat per eat occasion and independent variables norm type, consequence and gender, it was examined whether there was an effect on the hypotheses formulated about behavioural intention (1b, 2b, 3b, 4b, 5b) controlled for gender. To see whether one of the sexes was affected by the use of the norm and/or the consequence, their interaction effects were also examined. It appeared that women had a significantly higher intention to replace meat than men for all eat occasions. However, neither of the main effects nor the interaction effects were significant. Therefore, the hypotheses formulated about intention could not be approved for either of the eat occasions. Table 7 showed mean and SD for men and women.

Breakfast: $F(1, 280)=10.9, p=.00$. Women ($M=3.66$) had a higher intention to replace meat during breakfast than men ($M=2.82$); Norm type $F(2, 280)=0.11, p=.9$, consequence type $F(2, 280)=0.19, p=.83$, interaction between norm and consequence type $F(4, 280)=0.79, p=.54$, interaction between norm and gender $F(2, 280)=0.43, p=.65$ and interaction between consequence and gender $F(2, 280)=1.06, p=0.35$.

Lunch: $F(1, 215)=7.19, p=.00$. Women ($M=3.34$) had a higher intention to replace meat compared to men ($M=2.58$); Norm type $F(2, 215)=0.17, p=.84$, type of consequence $F(2, 215)=0.28, p=.76$, interaction between norm and consequence $F(4, 215)=0.88, p=.48$, interaction between norm and gender $F(2, 215)=0.6, p=0.55$ and consequence and gender $F(2,215)=0.43, p=0.65$.

Dinner: $F(2, 278)=11.44, p=.00$. Women ($M=3.69$) had a higher intention to replace meat during dinner compared to men ($M=2.74$); Norm type $F(2, 278)=0.32, p=.73$, consequence type $F(2, 278)=0.13, p=0.87$, interaction between norm and consequence $F(4, 278)=0.9, p=.47$, interaction between norm and gender $F(2, 278)=0.71, p=.5$ and interaction between consequence and gender $F(2, 278)=0.66, p=.52$.

Snack time: $F(1, 58)=7.3, p=.01$. Women ($M=3.77$) had a higher intention to replace meat during snack time compared to men ($M=2.76$); Norm type $F(2, 58)=0.8, p=.46$, consequence type $F(2, 58)=1.31, p=0.28$, interaction between norm and consequence

$F(4, 58)=1.88, p=.13$, interaction between norm and gender $F(2, 58)=0.69, p=.5$ and interaction between consequence and gender $F(2, 58)=0.48, p=.62$.

Table 7 Gender differences between gender Mean (SD)

	Breakfast	Lunch	Dinner	Snacks
Mean (male)	2.82 (SD=1.83)	2.58 (SD=1.84)	2.74 (SD=2.06)	2.76 (SD=1.83)
Mean (female)	3.66 (SD=1.9)	3.34 (SD=1.8)	3.69 (SD=1.93)	3.77 (SD=1.88)

5.2.2 Diary

Attitude

With a between subjects test with dependent variable attitude and independent variables norm type and consequence, it was examined whether there was a negative effect on attitude (hypotheses 1a, 2a, 3a, 4a, 5a) after a second exposure to the experimental condition. However, there were no significant main effects from type of norm and attitude $F(2, 142)=.40, p=.67$, nor between consequence and attitude $F(2, 142)=1.04, p=.36$. There was no significant interaction effect found $F(4, 142)=1.99, p=.1$. The hypotheses (hypotheses 1a, 2a, 3a, 4a, 5a) stating that exposure to a norm and/or a consequence would result in a more negative attitude towards meat consumption were not supported by the data.

Behavioural Intention

With a between subjects test with dependent variable behavioural intention and independent variables norm type and consequence, it was examined whether there was a positive effect on intention to replace meat (hypotheses 1b, 2b, 3b, 4b, 5b) after a second exposure of the experimental condition.

Between subjects found a marginally main effect between the type of consequence used and intention, $F(2, 141)=2.81, p=.06$. LSD post hoc test revealed that behavioural intention was significantly higher when the positive consequence was used compared to the negative consequence ($p=.03$) and the positive consequence compared to no consequence ($p=.05$). Even more, there was a significant interaction effect found between behavioural intention, the type of norm used and the type of consequence used, $F(4, 141)=3.09, p=.02$. When a negative consequence is used the deviant norm ($M=4.19$) gives a significantly higher intention to replace meat compared to the standard norm ($M=2.47$), $p=.00$.

And with a negative consequence a no norm ($M=3.59$) gives a higher intention than a standard norm to replace meat ($M=2.47$).

This holds that the positive consequence has led to a more positive intention to replace meat. This finding supported the hypothesis 4b that a positive health consequence caused a larger increase in intention than the negative consequence.

The interaction effect found between norm and consequence is that whenever a deviant norm is used together with a negative consequence this will lead to a higher intention to replace meat. This finding partly supported the hypothesis 5b that if the paraphrase of the norm and the consequence have a causal relationship (deviant + negative or standard + positive) then the intention to replace meat will be higher

than in a situation where there is no causal relationship. For the further hypotheses that expected a positive relation with behavioural intention no support was found. H1b: A descriptive norm did not evoke this increase in intention as was expected; H2b: the standard norm did not evoke a higher increase in intention than the deviant norm; H3b: a health consequence on its own did not evoke a higher increase in intention as was expected.

Table 8 Mean (SD) for attitude and intention per condition

Norm type: Consequence type:	No, No	No, Neg	Dev, Neg	Dev, No	Dev, Pos	Stan, No	Stan, Pos	No, Pos	Stan, Neg
Attitude	4.9 (1.1)	4.96 (.98)	5.18 (.81)	4.85 (.93)	4.81 (.72)	5.4 (.93)	4.62 (.97)	5.26 (.96)	5.3 (.61)
Intention	3.41 (1.79)	3.59 (1.89)	4.19 (1.33)	3.19 (1.7)	4.03 (.89)	3.84 (1.87)	4.41 (1.14)	3.92 (1.38)	2.47 (1.01)

Intention to replace meat per eat occasion

With a between subjects test with dependent variable intention to replace meat per eat occasion and independent variables norm type, consequence and gender, it was examined whether there was an effect on the hypotheses formulated about behavioural intention (1b, 2b, 3b, 4b, 5b). Merely, for intention to replace meat during snack time there was a relationship found with the consequence.

Snack time There was a marginally significant main effect found between type of consequence used and intention to replace meat during snacks, $F(2, 142)=2.57$, $p=.08$. LSD post hoc test revealed that behavioural intention was significantly higher when the positive consequence was used compared to the negative consequence ($p=.03$). There was no significant main effect between type of norm used and intention to replace meat during snacks, $F(2, 142)=.68$, $p=.51$. The interaction effect was not significant, $F(4, 142)=.24$, $p=.92$.

For the other eat occasions it turned out that neither of the main effects nor the interaction effects were significant.

Breakfast: $F(2, 142)=.03$, $p=.97$. There was no significant main effect found between the type of consequence used and intention to replace meat during breakfast, $F(2, 142)=.42$, $p=.66$. The interaction effect between the type of norm and the type of consequence used was not significant, $F(4, 142)=.48$, $p=.75$.

Lunch: $F(2,142)=.10$, $p=.90$. There was no significant main effect of the type of consequence used and intention to replace meat during lunch, $F(2, 142)=1.44$, $p=.24$. The interaction effect between the type of norm and the type of consequence used was not significant, $F(4, 142)=.94$, $p=.44$.

Dinner: $F(2, 142)=.39$, $p=.68$. There was no significant main effect found between type of consequence used and intention to replace meat during dinner, $F(2, 142)=1.5$, $p=.22$. There was no interaction effect found between type of norm used and consequence, $F(4, 142)=1.76$, $p=.14$.

Concluding, the positive health consequence has a marginal relationship with the intention to replace meat during snack time. This result supported hypothesis 4b, that a positive health consequence would lead to a higher intention to replace meat however, this holds only for the category snack time. For the further hypotheses that expected a positive relation with behavioural intention no support was found. H1b: A descriptive norm on its own did not evoke this increase in intention as was expected; H2b: the standard norm did not evoke a higher increase in intention than the deviant norm; H3b: a health consequence on its own did not evoke a higher increase in intention as was expected and H5b: a causal relationship (standard + positive or deviant + negative) between the norm and the consequence was also not supported by the data.

Actual behaviour

To find out whether people's intention and behaviour were correlated actual meat consumption, the frequency and the amount, were measured in the diary. Each eat occasion will be discussed separately.

Breakfast

Firstly, frequency of meat consumption during breakfast was analysed. In table 9 it can be seen that from the 17 respondents in the no norm no consequence condition they ate 5 times meat for breakfast during the three consecutive days.

Table 9 Breakfast with meat consumption in three days

Norm type: Consequence type:	No, No	No, Neg	Dev, Neg	Dev, No	Dev, Pos	Stan, No	Stan, Pos	No, Pos	Stan, Neg
Freq breakfast Respondents Per condition	5	8	4	2	6	8	10	10	11
	17	23	16	16	17	16	16	13	18

Whether participants had meat during breakfast (No, Yes) was regressed onto type of norm used, type of consequence used and the possible interaction between these two factors to see whether hypotheses 1c, 2c, 3c, 4c, and 5c about the relationship of norm and/or consequence on actual behaviour were supported. The reference category was the neutral condition; with no norm and no consequence.

The model was marginally significant $\chi^2(8, N=456)=14.91, p=.06$. In table 10 the regression coefficients can be found. Addition of a deviant norm had a marginally negative relation ($B=-0.74$) with meat consumption compared to no norm ($p=.07$). Addition of a deviant norm let meat consumption decrease. A positive consequence had a positive relation with meat consumption ($B=0.85$) compared to no consequence ($p=.03$). Addition of a positive consequence led to more meat consumption. Changing the reference category into standard norm and positive consequence provided no further significant results.

Table 10 Logistic Regression coefficients for meat consumption during breakfast

Included	B	Wald	Df	Sign
Norm		7.77	2	.02
Stand norm	0.344	1.2	1	.27
Dev norm	-0.744	3.37	1	.07
Cons		5.14	2	.08
Pos cons	0.85	4.84	1	.03
Neg cons	0.4	1.0	1	.32
Cons*norm		2.4	4	.66
Pos cons, Stand norm	-0.88	1.22	1	.27
Pos cons, Dev norm	-0.03	0.00	1	.97
Neg cons, Stand norm	0.82	0.01	1	.92
Neg cons, Dev norm	0.55	.26	1	.61
Constant	-1.91	157.08	1	.00

Subsequently, the amount of meat consumed during breakfast was examined. There was not much variation in the answers therefore it was decided to combine the six answer categories in to two scales. Then participants meat consumption (1 sandwich, 2 sandwiches or more) during breakfast was regressed on the type of norm used, type of consequence used and the possible interaction between these two factors. The reference category was again the neutral condition; no norm and no consequence. The logistic regression did not result in significant effects $\chi^2(8, N=456)=11.71, p=.16$. An additional predictor did not make the model fit better with the data.

Summarizing, the results for meat consumption during breakfast did not support the formulated hypotheses. However, the actual behaviour for meat consumption during breakfast was influenced by the deviant norm that led to a decrease of meat consumption and by the positive consequence that led to an increase of meat consumption. The influence showed not the expected effect as formulated in the hypotheses. Namely, h2: that the descriptive norm would lead to a lower frequency of meat consumption than the deviant norm and h4: that the positive health consequence would lead to a lower frequency of meat consumption than the negative health consequence. So none of the hypotheses were supported by the data.

Meat consumption lunch

Then, meat consumed during lunch was analysed. In table 10 it is shown that from the 17 respondents in the no norm, no consequence condition they ate 27 times lunch with meat during the three consecutive days.

Tabel 11 Lunch with meat consumption in three days

Norm type: Consequence type:	No, No	No, Neg	Dev, Neg	Dev, No	Dev, Pos	Stan, No	Stan, Pos	No, Pos	Stan, Neg
Freq lunch	27	34	22	21	21	16	18	17	27
Respondents Per condition	17	23	16	16	17	16	16	13	18

Whether participants had meat during lunch (No, Yes) was regressed onto type of norm used, type of consequence used and the possible interaction between these two factors to see whether hypotheses 1c, 2c, 3c, 4c, and 5c about the relationship of norm and/or consequence on actual behaviour. The reference category was the neutral condition; with no norm and no consequence. Neither of the main effects nor the interaction effect were significant. The overall statistics was not significant $\chi^2(8, N=456)=6.15, p=.63$.

The answers given for amount of meat consumed for lunch were on a continuous scale. Therefore, a between subjects test was executed with dependent variable the amount of meat consumed for lunch and independent variables type of norm and type of consequence and their possible interaction effect. However, neither of the main effects nor the interaction effect was significant. Norm type $F(2, 175)=0.15, p=.86$, consequence type $F(2, 175)=1.38, p=.26$ and the interaction effect between norm and consequence type $F(4, 175)=1.91, p=.11$.

To conclude, the results of meat consumption for lunch did not support any of the formulated hypotheses 1c, 2c, 3c, 4c, and 5c that the norm, consequence or their interaction effects would affect the actual meat consumption.

Meat consumption during dinner

Then, meat consumption during dinner was examined. In table 11 it is shown that from the 17 respondents in the no norm, no consequence condition they ate 35 times meat at times of dinner during the three consecutive days.

Tabel 12 Dinner with meat consumption in three days

Norm type: Consequence type:	No, No	No, Neg	Dev, Neg	Dev, No	Dev, Pos	Stan, No	Stan, Pos	No, Pos	Stan, Neg
Freq dinner	35	54	34	33	37	34	30	34	43
Respondents Per condition	17	23	16	16	17	16	16	13	18

Whether participants had meat during dinner (No, Yes) was regressed onto type of norm used, type of consequence used and the possible interaction between these two factors to see whether hypotheses 1c, 2c, 3c, 4c, and 5c about the relationship of norm and/or consequence on actual behaviour. The reference category was the neutral condition; with no norm and no consequence. Neither of the main effects, nor the interaction effect were significant. The overall statistics was not significant $\chi^2(8, N=456)=8.88, p=.35$.

Subsequently, the amount of meat consumed during dinner was examined. Answers had a sufficient variation in order to do a between subjects test. During exploration of the data it was found that gender had an effect on the amount of meat consumed for dinner. Therefore, in this test the covariate gender is added. The dependent variable was amount of meat consumed for dinner and independent variables: type of norm, type of consequence, gender and their possible interaction effects.

The covariate gender had a significant effect on amount of dinner consumed $F(1, 96)=4.00, p=.05$. Men consumed significantly more meat ($M=2.52, SD=1.17$) than women ($M=2.01, SD=0.83$). Neither the main effects, nor the interaction effects were significant. Norm type $F(2, 96)=0.77, p=0.47$, consequence type $F(2, 96)=1.05, p=.36$, interaction effect between norm and consequence type $F(4, 96)=0.44, p=0.78$, interaction between norm type and gender $F(2, 96)=1.24, p=.3$ and interaction between consequence type and gender $F(2, 96)=0.62, p=.54$.

To conclude, the results of meat consumption for dinner did not support any of the formulated hypotheses 1c, 2c, 3c, 4c, and 5c that the norm, consequence or their interaction effects would affect the actual meat consumption for dinner.

Table 13 Regression coefficients for intention predicting consumption of meat for dinner

Norm type: Cons. type:	No, No	No, Neg	Dev, Neg	Dev, No	Dev, Pos	Stan, No	Stan, Pos	No, Pos	Stan, Neg
0-50 gr	10 (12.8%)	13 (16.7%)	10 (12.8%)	14 (17.9%)	8 (10.3%)	4 (5.1%)	8 (10.3%)	6 (7.7%)	5 (6.4%)
51-100 gr	17 (12.4%)	19 (13.9%)	10 (7.3%)	7 (5.1%)	18 (13.1%)	15 (10.9%)	14 (10.2%)	21 (15.3%)	16 (11.7%)
101-150 gr	5 (5.6%)	16 (18%)	11 (12.4%)	9 (10.1%)	5 (5.6%)	12 (13.5%)	8 (9.0%)	6 (6.7%)	17 (19.1%)
151-200 gr	3 (15.8%)	2 (10.5%)	1 (5.3%)	0 (0%)	3 (15.8%)	3 (15.8%)	1 (5.3%)	1 (5.3%)	5 (26.3%)
>200 gr	0 (0%)	3 (33.3%)	1 (11.1%)	3 (33.3%)	2 (22.2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

5.2.3 Comparison Experiment and Diary

The self reported frequency of meat consumption during each of the eat occasions was measured during the experiment and during the diary to see whether the frequency of meat consumption declined due to exposure to the norm and/or consequence as was stated in hypotheses 1c, 2c, 3c, 4c and 5c. With a Paired-Samples T test each eat occasion from the experiment was compared with their equivalent from the diary.

It was expected that people might consume a bit less meat due to the first experimental exposure. However, respondents had a higher self reported consumption of meat for breakfast and lunch in the diary compared to their reported frequency of meat consumption for breakfast and lunch in the experiment.

For breakfast in the diary (M=1.03, SD=1.81) and breakfast in the experiment (M=.7, SD=1.37, $t(106)=3.04$, $p=.00$). For lunch in the diary (M=2.7, SD=.21) and lunch in the experiment (M=2.28, SD=2.07, $t(106)=3.59$, $p=.00$).

For dinner no significant results were found. Dinner in the diary (M=5.26, SD=1.44) and dinner in the experiment (M=5.21, SD=1.44, $t(106)=.72$, $p=.48$.)

Consequently, the hypotheses (1c, 2c, 3c, 4c and 5c) stated that the frequency of meat consumption would decrease after exposure to a norm and/or a consequence were not supported.

Comparison of intention and attitude from experiment and diary

To examine whether a second exposure resulted in a change in attitude respectively in intention a Paired -Samples T test for intention and attitude was conducted. Neither attitude nor intention changed after a second exposure. Attitude $t(148)=-0.46$, $p=.65$. Intention $t(148)=1.03$, $p=.30$.

Though, a second exposure to the experimental conditions did not evoke a change in attitude or intention.

Differences between intention and behaviour?

Intention and behaviour do not always have a high correlation. Therefore, actual behaviour was measured. To see whether behavioural intention and actual behaviour did correspond the question whether respondents had meat during a particular eat occasion (No, Yes) was regressed onto the intention to replace meat during that particular eat occasion. For lunch and dinner there was a significant relationship between intention to replace meat and actual behaviour. For breakfast the effect was marginal.

Breakfast χ^2 (1, $n=452$)=2.74, $p=.09$. The intention to replace meat during breakfast had a negative relationship with actual meat consumption. Which holds that the higher the intention to replace meat, the more respondents did in fact not eat meat during breakfast.

Tabel 14 Regression coefficients for intention predicting consumption of meat for breakfast

Included	B	Wald	Df	Sign
Intention to replace	0.27	2.63	1	.11
Constant	-0.52	0.6	1	.44

Logistic regression for lunch showed $\chi^2 (1, N=452)=3.84, p=.05$. Intention to replace meat during lunch had a negative relationship with the consumption of meat. When respondents had a higher intention to replace meat during lunch, the less meat they actually consumed.

Tabel 15 Regression coefficients for intention predicting consumption of meat for lunch

Included	B	Wald	Df	Sign
Intention to replace	0.2	3.76	1	.05
Constant	-0.82	4.2	1	.04

Logistic regression for dinner showed $\chi^2 (1, N=452)=6.76, p=.01$. Intention to replace meat during dinner had a negative relationship with meat consumption. When respondents had a higher intention to replace meat during dinner, the less meat they actually consumed.

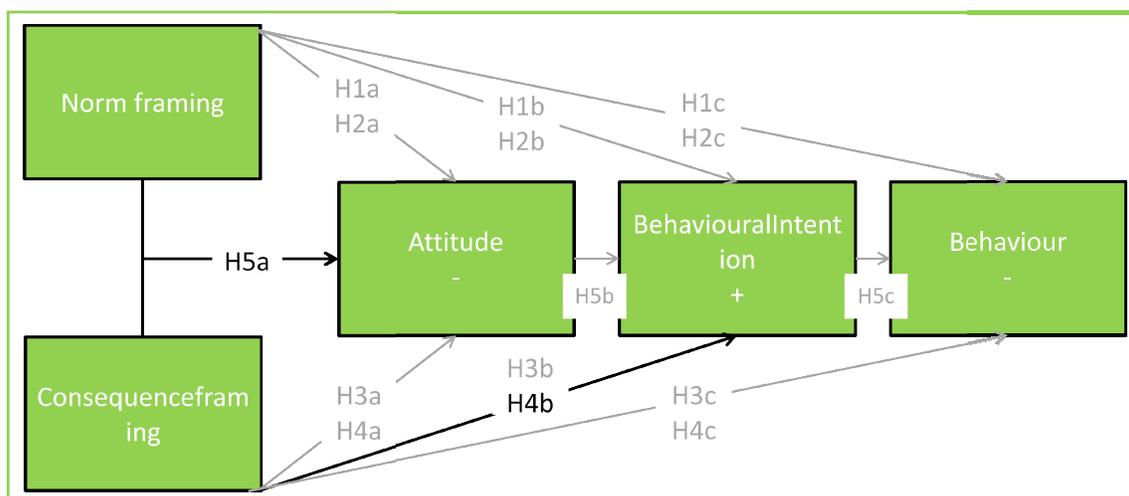
Tabel 16 Regression coefficients for intention predicting consumption of meat for dinner

Included	B	Wald	Df	Sign
Intention to replace	0.32	6.37	1	.01
Constant	-2.49	20.3	1	.00

Evaluation of the hypotheses

After data analysis the hypotheses were evaluated. Here, a summary was written about the findings of the formulated hypotheses. To start with, a rehearsal of the conceptual model wherein the proposed relationships are stated, in figure 4. Due to framing of the norm and the consequence effects were expected. The framing of the norm consisted of two types: the standard norm ('een grote groep Nederlanders eet steeds minder vlees') and the deviant norm ('een kleine groep Nederlanders eet dagelijks vlees'). The framing of the health consequence consisted of two types: the positive health consequence ('minder vlees eten verlaagt de kans op hart- en vaatziekten') and the negative health consequence ('vlees eten verhoogt de kans op hart- en vaatziekten').

Figure 4 Conceptual model adapted from Ajzen (1991)



The hypotheses (1a, 2a, 3a, 4a, 5a) stated that attitude towards meat would become more negative due to exposure of one of the two descriptive norms, one of the two health consequence or their interaction effects were not supported by any of the data. However, a gender difference on attitude was found in the experiment. Men had a more positive attitude towards meat compared to women. Even more, the attitude of men became marginally higher when exposed to the deviant norm 'slechtseenkleinegroepNederlanderseetdagelijksvlees'.

The hypotheses (1b, 2b, 3b, 4b, 5b) stated that behavioural intention to replace meat would become more positive after exposure to one of the two descriptive norms, one of the two health consequences or their interaction effects were not supported by the data of the experiment.

However, the results of the diary supported hypothesis 4b 'a positive health consequence will lead to a more positive intention to replace meat than a negative health consequence'. People exposed to the positive health consequence had a higher intention to replace meat. Hypothesis 5b 'a causal relationship between the norm and the consequence will lead to a more positive intention compared to no causal relationship' was partly supported by the diary data. Behavioural intention was

higher when a deviant norm was used in combination with a negative health consequence. However, when the standard descriptive norm was used in combination with the positive consequence no results were found.

Behavioural intention was divided into the different eat occasions: breakfast, lunch, dinner and snacks. This was done in the experiment and in the diary. However, no effect of the descriptive norm nor the health consequence were found for any of the eat occasions in the experimental data. However, the data from the diary found marginal support for hypothesis 4b 'a positive health consequence will lead to a more positive intention to replace meat' for the eat occasion snack time. People exposed to a positive norm had a higher intention to replace meat during snack time.

The hypotheses (1c, 2c, 3c, 4c and 5c) stated that the frequency of meat consumption, would decrease after exposure to one of the two descriptive norms, one of the two health consequences or their interaction effect were not supported by the data. Surprisingly, for breakfast results were opposite of the expected relationship stated in hypotheses 2c and 4c. According to hypothesis 2c it was expected that 'a standard descriptive norm would lead to a lower frequency of meat consumption than a deviant descriptive norm. According to hypothesis 4c 'a positive health consequence will lead to a more positive intention to replace meat than a negative health consequence'. However, it turned out that a deviant descriptive norm led to a lower frequency of meat consumption during breakfast. And a positive health consequence had led to a higher frequency of meat consumption.

6. Conclusion

This study provides insights in framing a descriptive norm and a health consequence and how these can be applied to reduce meat consumption. First the major findings will be presented. This chapter will end with some useful insights, which were not primary aim of the study.

The descriptive norm hardly shows any effect. Except for men exposed to the deviant descriptive norm ('een kleine groep Nederlanders eet dagelijks vlees'). Even though the undesired behaviour was represented by a small group there is a trend that men turn more positive towards meat consumption. However, this is not desirable when certain behaviour is aimed to reduce. The standard descriptive norm had no influence ('een grote groep Nederlanders eet steeds minder vlees').

The positive health consequence ('vlees eten verlaagt de kans op hart- en vaatziekten') gives a higher intention to replace meat than the negative health consequence ('vlees eten verhoogt de kans op hart- en vaatziekten'). This effect occurs after a second exposure, therefore it is plausible that people need some more exposure to inform them about health consequences of meat.

The interaction between the deviant norm ('een kleine groep Nederlandse eet dagelijks vlees') and the negative health consequence ('vlees eten verhoogt de kans op hart- en vaatziekten') leads to a higher intention to replace meat. Surprisingly, the standard norm and the positive health consequence show no effects.

The following results are not a primary aim of this study, however they provide some useful insights.

To start with a comparison between the experimental results and the diary. Self reported behaviour is rated two times. There is an increase in self reported frequency of meat consumption for breakfast and lunch, but not for dinner. This shows that knowledge about meat consumption for the main meal is more accurate. A second exposure of the norm and consequence about meat leads to more awareness of the actual meat consumption for peripheral meals.

Subsequently, men and women differ a lot concerning their meat consumption. Women are more negative towards meat than men. Furthermore, the intention to replace meat is substantially higher for women. This can be an opportunity to target them differently.

Lastly, the perception of a poster differs when descriptive norms and/or health consequences are adjusted. The perception of clarity increased when either a norm or a consequence was adjusted. Clarity is highest when a standard norm goes together with a positive health consequence ('een grote groep Nederlandse eet steeds minder vlees. Minder vlees eten verlaagt de kans op hart- en vaatziekten'). The credibility is also influenced by the use of a norm. Only the positive consequence gives a higher credibility than the negative consequence. Credibility is the best when using a standard norm and a positive health consequence.

7. Discussion and limitations

This study has a number of limitations that may limit the scope of the interpretation of the results. To start with, some general limitations will be mentioned. Thereafter, the focus will be on the influence of behaviour. Next an explanation of unexpected findings will be given and finally some measurement shortcomings that influence the generalizing abilities of the study.

Influencing behaviour

Based on previous studies and theories it was expected that descriptive norms would have had a certain influence on behaviour (Cialdini & Goldstein, 2004; Melnyk, 2011; Nolan et al., 2008; Schultz et al., 2007). Even people's food intake is shown to be influenced by social norms (Croker, Whitaker, Cooke, & Wardle, 2009; Ravis & Sheeran, 2003). However, this study has found no support for this theory. There are several possible reasons that account for this lack of support.

In the first place, meat consumption is a habit (Ding, Veeman, & Adamowicz, 2011) and is deeply embedded in our culture (Bakker & Dagevos, 2010). Often at traditional celebrations meat is served. Habits are not easily changed, they occur almost automatically when previous behaviour has resulted in a positive outcome (Ouellette & Wood, 1998). A study to reduce smoking succeeded in changing habitual behaviour by using a campaign solely based on repetition of the message in different forms (Hancock, 2003). The second exposure towards the experimental condition gave people more insight in their meat consumption. This might be an indication that a more frequent exposure is needed to change meat consumption.

Furthermore, this study has found no results of the standard norm but did find some small effects due to the deviant norm. A reason to explain this difference is the fact that the deviant norm ('eenkleinegroepNederlanderseetdagelijksvlees') is defined more specifically than the standard norm ('eengrotegroepNederlanderseet steeds minder vlees'). To conform to the latter norm people might want to know what is meant by 'steeds minder'.

In addition, most other studies used accurate figures and/or a more direct approach towards the target group (Croker et al., 2009; Goldstein et al., 2008; Griskevicius et al., 2008; Melnyk, 2011). An example follows from Goldstein et al., (2008): "Almost 75% of the guests who are asked to participate in our new resource savings program do help by using their towels more than once." Taking into account implementation issues it was decided not to use figures since they were not accurate. The same holds for a direct approach to the target group. In this study students from Wageningen UR were target group, however, for Natuur& Milieu Dutch people would be the target.

Finally, to influence behaviour, people should have some familiarity with or knowledge of the prevailing norm. Therefore, (descriptive) norms should have existed in society for some time for them to be judged by others (Melnyk, 2011). Some phenomena are well known as for example is the case with physical activity or the consumption of fruit and vegetables. In health related studies physical activity is seen as good and inactivity is seen as bad. Even so with regard to the consumption of fruits and vegetables people have some idea of what frequency of consumption is

appropriate and what can be improved. Since people are often provided with information about physical activity and the consumption of fruit and vegetables it is assumed that people do have some common knowledge about these phenomena. Consequently they can be easily transformed into a norm. Concerns about the health or environmental effects of meat consumption have started only since the 90s (Bakker & Dagevos, 2010). Recently, the 'Schijf van vijf' was adjusted. Now it also includes meat substitutes. Until then, the prescription of 'Het Voedingscentrum' was to eat animal proteins on a daily base. This relative late substitution towards vegetable proteins might be a reason that people think that meat consumption is higher than it actually is. Likewise, it took time before people started to believe that daily meat consumption was a necessity, it is expected that the development of the norm that a majority of Dutch people does not consume meat on a daily base (Bakker & Dagevos, 2010; Motivaction, 2011) needs some time as well.

The health consequence was expected to influence attitude, behavioural intention and behaviour. Only the positive health consequence had a positive effect on the overall behavioural intention. In particular, for the eating occasion of snack time a positive result was found. This might refer to the fact that meat consumption for the different meals is more a habit than it is for snacks.

Remarkable results

Some of the findings were unexpected based on judging from the hypotheses. A possible explanation follows. The first remarkable findings deal with the actual frequency of meat consumption for breakfast. It was expected that the standard norm would have a negative relationship with actual frequency of meat consumption and the same holds for the positive health consequence. However, the deviant norm had a negative relationship with meat consumption and the positive health consequence resulted in a higher frequency of meat consumption.

Taking a closer look at the data revealed that the deviant norm condition showed very low meat consumption on the reported diary days. The positive norm condition showed a high meat consumption on the reported days. Comparing the conditions of the self reported weekly frequency of meat consumption did not show any differences. Therefore, the results of the deviant norm having a negative effect on meat consumption and the positive consequence having a positive effect on meat consumption might be based on coincidence. Possibly respondents did (not) consume meat on the three reporting days, while they did (not) so on other week days. Furthermore, meat consumption during breakfast is in itself very low. There was a consumption of meat for breakfast in 64 cases compared to a lack of consumption of meat for breakfast in 391 cases. Due to this small group of people who do eat meat during breakfast a small deviation might result in large differences.

Finally, it was expected that a descriptive norm would lead to a lower attitude towards meat consumption. The findings that men exposed to a deviant norm had a more positive attitude towards meat consumption was not expected. However, the results showed that men in general had a more positive attitude towards meat

consumption. The fact that only a small group consumes meat might create the feeling that meat is an exclusive food.

Measurements

The manipulation check for the health consequence did not result in significant differences between conditions. This might indicate that people did not see the health consequence or that it was already known by the respondents. However, effects of the health consequence were found after a second exposure. This might indicate that this information was new to people and that they needed some repetition in order to internalize it. In addition, people might not be familiar with the fact that it is possible for meat consumption to have health consequences because of the only recent attention for the bad influences of meat consumption.

The self reported measurements of behaviour for breakfast and lunch differed significantly between the experiment and the diary whereas it had been considered that frequency of meat consumption would not differ on a weekly base. A reliable measure for meat consumption should include eating occasions to help respondents remember when they actually consumed meat.

The generalization of these results is limited since the study was conducted among students from Wageningen University. Students from Wageningen UR are generally more conscious of food since this is a returning subject in their curriculum. The study might therefore show different results when held among students from other areas. Moreover, students in general have irregular lifestyles. Due to these irregular lifestyles their food consumption might differ. Furthermore, students often eat together with different people and therefore do not always decide themselves on what to eat. Finally, the students in this study all pursued a higher education. If people with a different level of education are targeted, a study should be done in order to see their responses and preferences.

Although we did our very best to hide the aim of the study, respondents might have understood that it was about a reduction in meat consumption. If they indeed recognised the aim, then their responses could have been socially desirable.

Another limitation of the diary is that it is a self reporting measurement. How accurate was the respondents' memory of what they ate when filling out the diary? To overcome this limitation, respondents were asked to fill in the diary preferably the same day and otherwise before the next day 12.00 am.

8. Theoretical & practical recommendations

Theoretical recommendations

This paragraph deals with suggestions for further study norms in the domain of habits. To change habitual behaviour with the use of norms it is necessary that respondents are familiar with correct facts and figures about the habit. In a pre-test it would be useful to find out what their current perception of meat consumption is. What are their ideas about 'How many people do actually eat meat?' 'How often do they eat meat?' 'How much meat do they eat?' This is advised in order to apply a strategy to provide people with accurate norms. When people have a perception of how often others eat meat, but this seems too high, this perception should be changed. In order to teach people the correct information about a habit a long-term intervention is needed. This intervention should consist of more specific norms containing figures and boundaries for the specific behaviour. Boundaries can help people to judge others, but more importantly this can help them guide their own behaviour. Furthermore, a call for a specific target group can be used. Applying all the above mentioned advice a norm would look like this: "75% of the students of Wageningen University consume meat less than five days per week."

Besides, there seems to be a tendency that mentioning undesired behaviour by only a small group leads to a more positive attitude. Whether or not this is the case is not proved. It might be of interest to execute this norm framing with the use of more specific norms in a qualitative study in order to explore what this produces in people.

For any research in which self reported measurements concerning meat consumption are used it is important that these be as specific as they can be in order to help respondents remember what they eat.

Practical applications

This paragraph deals with the practical applications for Natuur & Milieu in particular.

Based on literature the following steps are recommended:

- Identification with the target group is important. Relevant close peers are more appropriate to communicate the message. If there are different targets try to adjust the campaign more specifically to each of them.
- If the aim is to show that a large group is flexitarian, then this should be visible in the campaign, meaning that pictures should consist of a group of people instead of just one person.
- Positive behavioural outcomes show people possible (positive!) effects of their behaviour. Negative behavioural outcomes seem to attract risk taking behaviour. Therefore, a positive behavioural outcome works best when trying to reduce meat consumption.

Based on this study the following steps are recommended:

- People can still learn a lot about flexitarianism. How many people do actually eat meat every day? Teach people the accurate facts. In the context of a 'new phenomenon', which flexitarianism is, behaviour can be guided by specific norms. The more specific the better. However, be fair and use accurate facts and figures. Otherwise people will start to question the information given.
- Positive health consequences will lead to a higher intention to replace meat. On the other hand, there is still a need for people to learn about meat consumption and negative (health) consequences.
- It is advised not to communicate that the undesired behaviour is only shown by a small group. The effect on men resulted in a more positive attitude towards meat consumption. A more positive attitude might lead to a lower intention to replace meat and therefore a higher meat consumption.
- To make flexitarianism accepted and become embedded in our culture, it is advised to work with credible partners. If the advice to reduce meat consumption is underpinned by other organizations/institutions, such as 'Het Voedingscentrum' or other governmental parties aiming to promote national health, it will be more convincing.
- Choose a target group. A substantial difference between genders was found. In general women are more negative towards meat consumption and have a higher intention to replace meat. Consequently, there might be better possibilities to change women's meat consumption pattern. Furthermore, women have an influence on groceries and on what is served for breakfast, lunch, dinner and in between. So targeting them would have the advantage that other family members could be influenced as well.
- People still associate meat with the main meal of the day and do not recall that they also consume meat for breakfast, lunch or in between. When measuring how many people consume meat, this should be specified in order to collect reliable responses.
- Furthermore, the most often meat is consumed for dinner. Since the amount of meat for dinner is in general more than meat consumed for breakfast or lunch, it might be wise to focus first on dinner. Replacement of meat for dinner will give the largest benefits.
- The definition of a flexitarian can 'punish' some people who are consuming less meat. For example someone does not consume meat on Tuesday evening, and not for breakfast and lunch on Wednesday, is he/ or she a flexitarian? According to the definition this person would not be a flexitarian. And what about people who decrease their meat intake with 50%, versus someone who consumes 200 gram meat one day and the next day he has a meatless day.

References

- 't Hart, H., Boeije, H., & Hox, J. (2005). *Onderzoeksmethoden* (6th ed.). Boom Onderwijs.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179–211.
- Ajzen, I., & Fishbein, M. (1972). Attitudes and normative beliefs as factors influencing behavioral intentions. *Journal of personality and social psychology*, 21(1), 1.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall Inc.
- American Intitution of Cancer Research. (2007). *Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective*. Washington DC.
- Appleby, P., Allen, N., & Key, T. (2011). Diet, vegetarianism, and cataract risk. *American Journal of Clinical Nutrition*, 93(5), 1128–1135.
- Arias-Bolzmann, L., Chakraborty, G., & Mowen, J. C. (2000). Effects of absurdity in advertising: The moderating role of product category attitude and the mediating role of cognitive responses. *Journal of Advertising*, 29(1), 35–49.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40(4), 471–499.
- Bakker, E. de, & Dagevos, H. (2010). *Vleesminnaars, vleesminderaars en vleesmijders* (Lei-Rapport No. 21242) (pp. 1–207). Den Haag: Lei, onderdeel Wageningen UR.

- Bartels, J., Onwezen, M. C., Ronteltap, A., Fischer, A. R. H., Kole, A. P. W., van Veggel, R. J. F. M., & Meeusen, M. J. G. (2009). *Eten van Waarde* (Peiling Consument en Voedsel No. 31651). Den Haag: Lei, onderdeel Wageningen UR.
- Bateson, J. E. G., & Hui, M. K. (1992). The Ecological Validity of Photographic Slides and Videotapes in Simulating the Service Setting. *Journal of Consumer Research*, *19*(September), 271–281.
- Booth-Butterfield, S., & Reger, B. (2004). The message changes belief and the rest is theory. *Preventive medicine*, *39*(3), 581–588.
- Cialdini, R.B. (1985). Science and practice. *Scott, Foresman and Company*.
- Cialdini, R.B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, *58*(6), 1015–1026.
- Cialdini, Robert B., & Goldstein, N. J. (2004). Social Influence: Compliance and Conformity. *Annual Review of Psychology*, *55*, 591–621.
- Clee, M. A., & Wicklund, R. A. (1980). Consumer behavior and psychological reactance. *Journal of Consumer Research*, 389–405.
- Conner, M., & Sparks, P. (2005). Theory of Planned behavior and health behavior. *Predicting Health behavior* (2nd ed., pp. 170–222). Berkshire, England: Open University Press.
- Crocker, H., Whitaker, K., Cooke, L., & Wardle, J. (2009). Do social norms affect intended food choice? *Preventive medicine*, *49*(2-3), 190–193.
- Cross, A., Leitzmann, M., Hollenbeck, A., Schatzkin, A., & Sinha, R. (2007). A prospective study of Red and Processed Meat Intake in Relation to Cancer Risk.

- PLoS Medicine*, 4(e325). Retrieved from Link:
<http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.0040325>
- Dijkhuizen, A. (2010). *Annual Report Wageningen UR 2010* (Annual Report). Wageningen: Wageningen UR.
- Ding, Y., Veeman, M. M., & Adamowicz, W. L. (2011). Habit, BSE, and the Dynamics of Beef Consumption. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, 59(3), 337–359. doi:10.1111/j.1744-7976.2010.01205.x
- Duffy, S., Shinjo, M., & Myers, J. L. (1990). The Effect of Encoding Task on Memory for Sentence Pairs Varying in Causal Relatedness. *Journal of memory and language*, 29, 27–42.
- Eagly, A. H., & Chaiken, S. (1993). The nature of Attitudes. *Psychology of Attitudes* (p. 1). Harcourt Brace Jovanovich College Publishers.
- Elzerman, J. E., Hoek, A. C., van Boekel, M. A. J. S., & Luning, P. A. (2010). Consumer acceptance and appropriateness of meat substitutes in a meal context. *Food Quality and Preference*.
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The Reasoned Action Approach*. New York: Psychology Press Taylor & Francis Group.
- Furst, T., Connors, M., Bisogni, C. A., Sobal, J., & Falk, L. W. (1996). Food choice: a conceptual model of the process. *Appetite*, 26(3), 247–266.

- Gardner, B., & Abraham, C. (2010). Going Green? Modeling the Impact of Environmental Concerns and Perceptions of Transportation Alternatives on Decisions to Drive. *Journal of Applied Social Psychology, 40*(4), 831–849.
- Gerbens-Leenes, W., & Nonhebel, S. (2005). Food and land use. The influence of consumption patterns on the use of agricultural resources. *Appetite, 45*(1), 24–31.
- Göckeritz, S., Schultz, P. W., Rendón, T., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2009). Descriptive normative beliefs and conservation behavior: The moderating roles of personal involvement and injunctive normative beliefs. *European Journal of Social Psychology, 40*, 514–523.
- Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels. *Journal of Consumer Research, 35*, 472–482.
- Griskevicius, V., Cialdini, R. B., & Goldstein, N. J. (2008). Applying (and resisting) peer influence. *MIT Sloan Management Review, 49*(2), 84–88.
- Hancock, L. (2003). Virginia Commonwealth University- Smokefree VCU. *National Social Norm Institute*. Retrieved February 15, 2012, from <http://www.socialnorm.org/CaseStudies/vcuinter.php>
- Holm, L., & Möhl, M. (2000). The role of meat in everyday food culture: an analysis of an interview study in Copenhagen. *Appetite, 34*, 277–283.
- Hulshof, K. F. A. M., Brussaard, J. H., Kruizinga, A. G., Telman, J., & Löwik, M. R. H. (2003). Socio-economic status, dietary intake and 10 y trends: the Dutch

- National Food Consumption Survey. *European Journal of Clinical Nutrition*, 57(1), 128–137. doi:10.1038/sj.ejcn.1601503
- Kims, M. S., & Hunter, J. E. (1993). Relationships among attitudes, behavioral intentions and behavior- A meta analysis of past research. *Communication Research*, 20(3), 331–364.
- Krall, A. E., & Dwyer, J. T. (1987). Validity of Food Frequency Questionnaire and a food diary in a short term recall period. *Journal of the American Dietetic Association*, 87(10), 1374–1377.
- Lapinski, M. K., & Rimal, R. N. (2005). An explication of social norms. *Communication Theory*, 15(2), 127–147.
- Linderholm, T., Everson, M. G., van den Broek, P., Mischinski, M., Crittenden, A., & Samuels, J. (2000). Effects of Causal Text Revisions on More- and Less-Skilled Readers' Comprehension of Easy and Difficult Texts. *Cognition and Instruction*, 18(4), 525–556. doi:10.1207/S1532690XCI1804_4
- Mann, M. F., & Hill, T. (1984). Persuasive communications and the boomerang effect: some limiting conditions to the effectiveness of positive influence attempts. *Advances in Consumer Research*, 11, 66–70.
- Mehrabian, A. (1970). Some determinants of affiliation and conformity. *Psychological reports*, 27, 19–29.
- Melnyk, V. (2011). *What is normal to do social norms as determinants in consumer decision making* (PhD. 139). Wageningen University, Netherlands.

- Meyerowitz, B. E., & Chaiken, S. (1987). The effect of message framing on breast self-examination attitudes, intentions, and behavior. *Journal of personality and social psychology*, 52(3), 500.
- Motivaction, N. (2011). *Motivaction, onderzoek naar vlees consumptie in Nederland*. Utrecht.
- Nail, P. R. (1986). Toward an integration of some models and theories of social response. *Psychological Bulletin*, 100(2), 190.
- Natuur & Milieu. (2011). Natuur & Milieu - Home. Retrieved October 6, 2011, from <http://www2.natuurenmilieu.nl/home/>
- Nolan, J. M., Schultz, P. W., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2008). Normative Social Influence is Underdetected. *Personality and Social Psychology Bulletin*, 34, 913–923.
- NVB. (2011). Vegetariers.nl Vegetarisme. Retrieved December 2, 2011, from <http://www.vegetariers.nl/vegetarisme.aspx>
- Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: Multiple processes by which past behavior predicts future behavior. *Psychological Bulletin*, 124(1), 54–74.
- Pollard, T. M., Steptoe, A., & Wardle, J. (1998). Motives underlying healthy eating: using the Food Choice Questionnaire to explain variation in dietary intake. *Journal of biosocial science*, 30, 165–179.
- Rappoport, L., Peters, G. R., Huff-Corzine, I., & Downey, R. (1992). Reasons for eating: An exploratory cognitive analysis. *Ecology of Food and Nutrition*, 28, 171–189.

- Reinhart, A. M., Marshall, H. M., Feeley, T. H., & Tutzauer, F. (2007). The Persuasive Effects of Message Framing in Organ Donation: The Mediating Role of Psychological Reactance. *Communication Monographs, 74*, 229–255.
- Rimal, R. N., & Real, K. (2003). Understanding the influence of perceived norms on behaviors. *Communication Theory, 13*(2), 184–203.
- Rivis, A., & Sheeran, P. (2003). Descriptive norms as an additional predictor in the theory of planned behaviour: A meta-analysis. *Current Psychology, 22*(3), 218–233.
- Rothman, A. J., Salovey, P., Antone, C., Keough, K., & Martin, C. D. (1993). The influence of message framing on intentions to perform health behaviors. *Journal of Experimental Social Psychology, 29*, 408–433.
- Sabate, J., & Blix, G. (2001). Vegetarian Diets and Obesity Prevention. *Vegetarian Nutrition* (pp. 91–107). CRC Press.
- Schultz, P., Nolan, J., Cialdini, R., Goldstein, N., & Griskevicius, V. (2007). The Constructive, Destructive, and Reconstructive Power of Social Norms. *Psychological Science, 18*, 429–434.
- Science Daily. (2008). Men and women have different eating habits, study shows. Retrieved February 2, 2012, from <http://www.sciencedaily.com/releases/2008/03/080319120318.htm>
- Sheeran, P., & Orbell, S. (1999). Implementation intentions and repeated behaviour: augmenting the predictive validity of the theory of planned behaviour. *European Journal of Social Psychology, 29*, 349–369.

- Slimani, N., Deharveng, G., Charrondière, R. U., van Kappel, A. L., Ocké, M. C., Welch, A., Lagiou, A., et al. (1999). Structure of the standardized computerized 24-h diet recall interview used as reference method in the 22 centers participating in the EPIC project. *Computer methods and programs in biomedicine*, *58*(3), 251–266.
- Slimani, P., Ferrari, P., Ocké, M., Welch, A., Boeing, H., Liere van, M., Pala, V., et al. (2000). Standardization of the 24-hour diet recall calibration method used in the European Prospective Investigation into Cancer and Nutrition (EPIC): general concepts and preliminary results. *European Journal of Clinical Nutrition*, *54*, 900–917.
- Snowdon, D., Philips, R., & Fraser, G. (1984). Meat consumption and fatal ischemic heart disease. *Preventive medicine*, *13*(5), 490–500.
- Steg, L., & de Groot, J. (2010). Explaining prosocial intentions: Testing causal relationships in the norm activation model. *British Journal of Social Psychology*, *49*(4), 725–743.
- Steinel, W., Van Kleef, G. A., Van Knippenberg, D., Hogg, M. A., Homan, A. C., & Moffitt, G. (2010). How intragroup dynamics affect behavior in intergroup conflict: The role of group norms, prototypicality, and need to belong. *Group Processes & Intergroup Relations*, *13*(6), 779–794.
- Step toe, A., Pollard, T. M., & Wardle, J. (1995). Development of a measure of the motives underlying the selection of food: the food choice questionnaire. *Appetite*, *25*(3), 267–284.

- Terry, D. J., Hogg, M. A., & White, K. M. (2000). Attitude-behavior relations: Social identity and group membership. *Attitudes, behavior, and social context: the role of norms and group membership* (pp. 67–94). London: Lawrence Erlbaum.
- Tversky, A., & Kahneman, D. (1981). The Framing of Decisions and the Psychology of Choice. *Science, New Series*, 211(4481), 453–458.
- Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, 106(4), 1039.
- UMC. (2011). Eiwitrek dieet verhoogt kans op diabetes. *www.uu.nl*. Hospital website. Retrieved November 28, 2011, from <http://www.uu.nl/NL/Actueel/Pages/Eiwitrijkdieetvergrootkansopdiabetes.aspx>
- United Nations, U. (2011). *World Population Prospects: The 2010 Revision*. Department of Economic and Social Affairs. New York: UN.
- van Birgelen, M., Semeijn, J., & Behrens, P. (2011). Explaining pro-environment consumer behavior in air travel. *Journal of Air Transport Management*.
- van Vuuren, D. P., & Faber, A. (2009). *Growing within limits. A report to the Global Assembly 2009 of the Club of Rome* (No. 500201001). Bilthoven.
- Van Wezemael, L., Verbeke, W., De Barcellos, M., Scholderer, J., & Perez-Cueto, F. (2010). Consumer perceptions of beef healthiness: results from a qualitative study in four European countries. *BMC Public Health*, 10(1), 342.
- Vermeir, I., & Verbeke, W. (2008). Sustainable food consumption among young adults in Belgium: Theory of planned behaviour and the role of confidence and values. *Ecological Economics*, 64(3), 542–553.

- Verplanken, B., Aarts, H., Knippenberg, A., & Moonen, A. (1998). Habit versus planned behaviour: A field experiment. *British Journal of Social Psychology*, 37(1), 111–128.
- Verschuren, P., & Doorewaard, H. (2000). *Het ontwerpen van een onderzoek* (3rd ed.). Utrecht: Lemma.
- Wood, W., Lundgren, S., Ouellette, J. A., Busceme, S., & Blackstone, T. (1994). Minority Influence: A Meta-Analytic Review of Social Influence Processes. *Psychological Bulletin*, 115(3), 323–345.
- Worsley, A., & Skrzypiec, G. (1998). Do attitudes predict red meat consumption among young people? *Ecology of Food and Nutrition*, 37, 163–195.
- Ye, G., & Van Raaij, W. F. (1997). What inhibits the mere-exposure effect: Recollection or familiarity? *Journal of economic psychology*, 18(6), 629–648.
- Zey, M., & McIntosh, W. A. (1992). Predicting intent to consume beef: Normative versus attitudinal influences. *Rural Sociology*, 57(2), 250–265.

Appendix 1. Test material

Posters for the pre-tests



1. Meisje (student) met boek



2. Groepmensen



3. Peulvrucht



4. FabrieksarbeiderGuus



5. Happy family ontbijttafel



6. Moeder met baby



7. Hardloper



Appendix 2. Qualitative questions and results

Respondent kiest 2 van de zes posters.

Code poster:

1. Wat is je eerste gedachte bij het zien van deze poster?
 2. Trekt deze poster je aandacht?
 3. Vind je hem aantrekkelijk?
 4. Vind je jezelf bij de doelgroep horen bij het zien van de poster?
 5. Roept het vragen op?
- Zoja, welke?

Gezondheidsrisico's in relatie tot vleesconsumptie

1. Welk gezondheidsaspect zou voor jou een reden zijn iets te veranderen?

Hart- en vaatziekten

Kanker

Overgewicht

Diabetes

2. Welke van deze vier zou je associëren met het eten van vlees?

3. Wat is voor jou meer overtuigend?

Een grote groep Nederlanders eet steeds minder vaak vlees? Of Slechts een kleine groep Nederlanders eet dagelijks vlees.

(respondenten krijgen van één conditie de verschillende opties voor de boodschappen voorgelegd)

Code boodschap:

1. Waarom heb je deze boodschap gekozen?
2. Ben je van plan na het lezen/zien van deze boodschap iets te veranderen? Zo ja, wat?
3. Draagt de boodschap bij aan kennis over het eten van vlees in Nederland?
4. Komt de informatie bedreigend over?
5. Wat is je houding ten opzichte van vlees eten?
6. Vind je de boodschap geloofwaardig?
7. Lengte tekst?

Poster + boodschap:

1. Wat vind je van de illustratie? Past deze bij de tekst? En zo niet, welke dan wel?

Qualitative results

People got the question to choose two images out of seven, based on their own preferences. Afterwards they were asked to choose their most preferred image and explain why this particular one. First the most preferred images from respondents will be enumerated.

The most preferred picture was picture two with the crowd. Seven people from the sixteen chose this image as their 1st choice and two as 2nd choice. The reason for most of the respondents to choose for number 2 is that this group represents mostly young people. Respondents had the idea that the group consisted of students.

Picture one girl with the books, is chosen one time as first choice, but seven times as 2nd best. People explained that they could easily identify themselves with her, since they were all studying.

Picture seven with the running man was chosen three times as a 1st choice. And one time as 2nd best choice. It gives a sporty image and the sportive people who are running can easily identify themselves with him.

Picture five, with the happy family having breakfast is chosen two times as a first choice and two times as second best choice. People who choose this picture said that it reminds them of the Sunday morning with their own family and that they see a future like this. Furthermore they think that this picture embodies coziness and warmth of a family.

Picture three with the legume is chosen two times as first choice and another time as second choice. One respondent mentioned the relationship with food, another thinks it is an artificial picture which appeals to her. It was hard for respondents to identify themselves with this picture.

Picture six, the mother with the baby is chosen one time as first choice. There was nobody who chose this picture as a second choice. The reason that this picture was chosen was that the mother and baby gave a feeling of happiness to the respondent. The recognition was based on the fact that the picture shows a strong relationship between the mother and baby.

Picture four, with the factory worker was never chosen as first or second best.

The amount of attention that the posters will attract differs. Respondents tried to imagine seeing this poster somewhere on the street but in most cases they think it will not attract their attention.

Respondents were asked for what kind of health risk they would be willing to change their behaviour in order to reduce the risk, no matter what type of behaviour. They got to choose among: heart- and vascular diseases, cancer, overweight and diabetes and why this particular choice was made. The most mentioned health risk to reduce was heart- and vascular diseases. Seven out of sixteen people mentioned this. Reasons were diverse. For some respondents it runs in the family, it is cause of dead number one. But some respondents compared the four health risks with each other and then concluded to choose for heart- and vascular disease. They stated that cancer was something that had too much causes and statistically there is a large chance you will get cancer at a moment, overweight is seen as something that is dependent on the amount of food and the quality of it ('it needs to be healthy') and for diabetes it was mentioned that there was no direct risk.

Cancer was mentioned five times as a risk that respondents wanted to reduce. Reasons were that this was the worst disease that they could imagine and that people in their surroundings are threatened by it.

Overweight is mentioned four times as a reason to change behaviour. Reasons to choose this health risk were the following; one respondent mentioned that overweight is related to all the other health risks according to him/her, the fear of binge eating and that this was the main risk for a

respondent. One respondent mentioned overweight as second choice since her parents were dieticians.

The following question was if the respondents could relate one of the four items to a lower meat intake. Heart- and vascular diseases is mentioned the most frequent; eight out of sixteen people named this in relation to meat consumption. Reasons for naming this health risk were the following; 'meat consumption increases cholesterol', 'it runs in the family', 'heard/read something that lowering meat consumption is good', 'the (high) fat content in meat let arteries clogging'. One respondent said explicitly that she did not believe anything anymore about heart- and vascular diseases, since she heard too much about it. One respondent mentioned cancer in relation to red meat consumption.

Overweight was mentioned two times; without further reasons. Diabetes was mentioned one time, this person thought that in meat there is mainly good stuff. Four respondents mentioned that they did not see a relation between meat consumption and one of the four health risks. One did not care at all, but did name the fact 'that in pork meat there is a high amount of cholesterol but that he preferred to eat what he wanted'. One person mentioned that 'as long as she did not eat too much meat this should be oke' (not too much is at most 100 gr/day). Two respondents did not refer to a health risk but saw 'less consumption of meat as a solution to the world food problem'.

Another question was asked to see whether descriptive norms had influence and whether the formulation was clear to them. People got to choose from two sentences which they prefer more; 'A large group of Dutch people eats more frequently fewer meat' and 'Only a small group of Dutch people eats meat on a daily base'. Eleven of the sixteen respondents have chosen for the large group. Reasons for this were; 'if a lot of people are doing it, it makes sense/ a difference to do it as well'; 'the 'small group' sentence is weird I do not believe that so little people are eating meat daily. I think this group is much bigger, since you can also reduce the portions'; 'I don't like meat so much'; 'the large group is more convincing'; 'what a big group does seems to be good behaviour. I do believe that people eat less meat since we are in a recession and saving period'.

Five respondents choose for the 'small group' sentence. Reasons for this were the following: 'this sentence is more specific, with the 'big group' you cannot compare yourself so you don't know if you are on the right track. If it was written down like people eat five times a week than I can compare myself, if I for example eat it four times a week I'm on the good way', 'this sentence is more powerful, the word 'often' (dutch translation) is too much in the other sentence', 'I'm against the grain therefore I choose to belong to the small group', 'this message seems to be more positive than in real, (I think more people do eat meat on a daily base) with a big group I think you want to persuade me to change', 'the 'big group' formulation seems diffuse therefore I choose for the small group , but I would like to belong to the big group'.

Some people ask for numbers, what is a big group? And how many times are people eating meat a week?

Believability is of great concern. Almost all the respondents have question marks and prefer to see a source which understates the health risks of meat consumption. About the readability; people thought that some message were a little long. However the message will not be displayed in this way, but will be spread out over an image.

The fact that the message differs (small Group vs large Group) made respondents chose for other images. When they choose the picture with the crowd, they immediately said that there was no relation with heart- and vascular diseases nor with meat. They also remarked that the message about a small group would not fit on the image with the crowd. Taking these comments into account, a picture should be found which contains young people having dinner.

Table: the different types of messages with their code.

Messages	No	Yes positive	Yes negative
No	1.1 Word flexitariër!	1.2a: Word flexitariër! Het eten van minder vlees verlaagt de kans op hart- en vaatziekten. 1.2b: Word flexitariër! Het eten van minder vlees verlaagt de kans op kanker. 1.2c: Word flexitariër! Het eten van minder vlees verlaagt de kans op overgewicht. 1.2d: Word flexitariër! Het eten van minder vlees verlaagt de kans op diabetes.	1.3a: Word flexitariër! Het eten van vlees verhoogt de kans op hart- en vaatziekten. 1.3b: Word flexitariër! Het eten van vlees verhoogt de kans op kanker. 1.3c: Word flexitariër! Het eten van vlees verhoogt de kans op overgewicht. 1.3d: Word flexitariër! Het eten van vlees verhoogt de kans op diabetes.
Yes positive	2.1a: Word flexitariër! Een grote groep Nederlanders eet steeds minder vlees. 2.1b: Word flexitariër! Een grote groep Nederlanders eet steeds minder vaak vlees.	2.2a: Word flexitariër! Een grote groep Nederlanders eet steeds minder vaak vlees. Het eten van minder vlees verlaagt de kans op hart- en vaatziekten. 2.2b: Word flexitariër! Een grote groep Nederlanders eet steeds minder vlees. Het eten van minder vlees verlaagt de kans op kanker. 2.2c: Word flexitariër! Een grote groep Nederlanders eet steeds minder vaak vlees. Het eten van minder vlees verlaagt de kans op overgewicht. 2.2d: Word flexitariër! Een grote groep Nederlanders eet steeds minder vlees. Het eten van minder vlees verlaagt de kans op diabetes.	2.3a: Word flexitariër ! Een grote groep Nederlanders eet steeds minder vlees. Het eten van vlees verhoogt de kans op hart- en vaatziekten. 2.3b: Word flexitariër ! Een grote groep Nederlanders eet steeds minder vaak vlees. Vlees eten verhoogt de kans op kanker. 2.3c: Word flexitariër ! Een grote groep Nederlanders eet steeds minder vlees. Het eten van vlees verhoogt de kans op overgewicht. 2.3d: Word flexitariër ! Een grote groep Nederlanders eet steeds minder vaak vlees. Het eten van vlees verhoogt de kans op diabetes.
Yes negative	3.1a: Word flexitariër! Nog slechts een kleine groep Nederlanders eet elke dag vlees. 3.1b: Word flexitariër! Slechts een kleine groep Nederlanders eet elke dag vlees.	3.2a: Word flexitariër! Nog slechts een kleine groep Nederlanders eet elke dag vlees. Minder vlees eten verlaagt de kans op hart- en vaatziekten. 3.2b: Word flexitariër! Slechts een kleine groep Nederlanders eet elke dag vlees. Het eten van minder vlees verlaagt de kans op kanker. 3.2c: Word flexitariër! Nog slechts een kleine groep Nederlanders eet elke dag vlees. Minder vlees eten verlaagt de kans op overgewicht.	3.3a: Word flexitariër ! Nog slechts een kleine groep Nederlanders eet elke dag vlees. Vlees eten verhoogt de kans op hart- en vaatziekten. 3.3b: Word flexitariër ! Slechts een kleine groep Nederlanders eet elke dag vlees. Vlees eten verhoogt de kans op kanker. 3.3c: Word flexitariër! Nog slechts een kleine groep Nederlanders eet elke dag vlees. Vlees eten verhoogt de kans op overgewicht. 3.3d: Word flexitariër! Slechts een kleine groep Nederlanders eet elke dag vlees. Vlees eten verhoogt de kans op diabetes.

3.2d: Word flexitariër! Slechts een kleine groep Nederlanders eet elke dag vlees. Het eten van minder vlees verlaagt de kans op diabetes.

Codes posters:

1. Meisje (student) met boek in handen
2. Groep mensen
3. Peulvrucht
4. Fabrieks arbeider Guus
5. Happy family ontbijttafel
6. Moeder met baby
7. Hardloper

Which image do people prefer?

Resp # + poster	Waarom	Gedachte	Aandacht	Aantrekkelijk	Passenddoelgroep	Vragen?
#1 + 2	Doet me denken aan New York zoveel mensen.	Deze situatie komt vaak voor. Je vraagt je af wat en waarom.	Nee, niertussenanderen.	Ja	Ja	-
#2 + 3	Natuur en groente komt erin voor.	Niet speciaal, zie veel groente dus eraan gewend.	Jawel...	Jawel, zelf voedsel organic achtergrond → zal gaan over landbouw.	Nee, maar er staat niks bij.	-
#3 + 2	Verscheidenheid, de rest is burgerlijk	Drukte = positief mensen zijn bezig.	Ja	Nee, het blijft gewoon een leeg papiertje. Tekst is nodig.	Ja, jonge mensen lijken met leeftijd.	-
#4 + 2	Qua fotografiemooiste	Mooi meisje, jongen trekt raar gezicht → mensen kijken vrolijk	Ja, veel mensen vraag me af wat ze denken en waar ze heen gaan.	Ja, Mooiefoto	Ja, jonge mensen/studenten met rugzakken. Zelfdeleeftijdalsik.	Waarom schreeuwt een bepaalde jongen?
#5+5	Gezellig, kids. Leukesituatie	Gezellig aan het ontbijt, zondagochtend gevoel	Niet direct, tekst mist.	Ja, duidelijk beeld. Vrolijk beeld.	Ja..(met het oog op later)	-
#6 + 7	Sport komt naar voren, dat vind ik belangrijk	Hardlopen en dat doe ik zelf ook	Tussen de andere posters wel, maar ergens anders niet per'se.	Nietzo nee.	Ja	Waaromdezefoto?
#7+2	Grote gemeleerdesamenleving	Dat ze ergens heen gaan, ze stralen tevredenheid uit	Op straat niet opvallend, wel op de universiteit	Gemiddeld...niet bijzonder. (Waar is hij genomen?)	Misschien,,hij lijkt niet in Nederland te zijn genomen	Waar gaan ze heen? Wat doen ze?
#8+ 5	Dit is voor mij een toekomstdroom	Gelukkig, vaste familie, gezellig, thuisgevoel	Ja, jezelf erin zien (toekomst)	Nee, dat is voor iedereen anders. Hij valt ook niet zo op tussen anderen	Ja, uiteindelijk wil ik zelf moeder worden	-
#9 + 2	Zoveel mensen dat is intrigerend	Zezijn in protest	Nu wel, normaal gesproken niet	Ja	Wel herkenbaar, qua uiterlijk en de groeps grootte, dat is ook herkenbaar	Wanneer genomen/waaron zijn die mensen er?
#10 + 1	Hoe ik mijzelf zie in de toekomst.	Iemand die studeert, dus vrij neutraal	Nee	Nietbijzonder	Ja, ik zit in dezelfde situatie	Nee
#11+7	Sportiefleuk! (serieuzer/saaier)	Doet me denken aan sporten, loop zelf ook hard	Nietspeciaal	Spreek me aan, want het is actie	Ja	-
#12+3	Artistiek	Geen mensen, dus meer arty. Andere foto's zien eruit alsof	Twijfel, het is anders dan anderen voedingsproducten. Dit is	Als er iets bij zou staan. Als foto alleen zou het wel mijn aandacht trekken. Miseengoedezin/eyecatcher	Nee	Wat willen ze ermee bereiken?

		ze op straat zijn gemaakt.	zondermerknaam	.		
#13+2	Die trekt aandacht, met name man met pet.	Vraag me af waarom focus op man met pet	Ja, misschien wel	Nee, niet echt mooi gefotografeerd	Ja, dat past	Nee
#14+6	Van die baby wordt je vrolijk	De moeder is heel blij met het kind	Nee, niet zo	Jawel	De mensen hebben een band, dat is herkenbaar	Waarom is daar die hangmat? Wat heeft dat ermee te maken?
#15+2	Mooiste foto, met veel mensen erop dat trekt aan.	Op straat, maar de nr 1, denk ik op school.	Minder, druk beeld er is geen eyecatcher	JA	Ja, het zijn jongeren/studenten . Het lijkt wel een ander land.	Waar is de foto genomen? Waarom staat er één oudere vrouw in?
#24+7	De man is sportief, daar kan ik mezelf aan spiegelen (ook hardloper)	Man lekker aan het hardlopen	Nietblijvenhangen	Nee niet zozeer, saai plaatje	Identificeer met sportiviteit	Zit er nog een doel bij?

Testing which health consequence is most appealing.

Resp #	Aspect	Waarom	Relatievlees	Waarom	Groeps grootte	Waarom
#1	Hart- en vaatziekten		Overgewicht	Ka krijgt iedereen, h&v teveel uitgemolken, Dia komt door overgewicht, dus overgewicht.	Slechtseenkleinegroep.	Deze is krachtiger, het woord vaak in 1 ^{ste} is teveel.
#2	Hart- en vaatziekten	Zit in de familie Ka is te algemeen, OV: meer sporten en gezond eten	Hart- en vaatziekten	Zit in de familie.	Grote groep 2) probleem lijkt kleiner waarom zou ik eraan meedoen.	1)Is positief, veel mensen doen het dan heeft het zin.
#3	Hart-en vaatziekten	Eigenlijk alle 4 niet, ka associeer ik niet met vlees eten, OV teveel eten niet perse door vlees, Dia door suiker, niet door vlees.	Geen. In the long run eist vlees productie teveel energie op.	-	Kleinegroep	Want ik ben tegendraads.
#4	Hart en vaat	Ka: verband met vlees? OV en Dia: geen risico voor mij	Veel varkensvlees met cholesterol, maar interesseert me niet.	Ik eet liever waar ik zin in heb.	Grote groep	In d media hoor je er veel over. Maar de media manipuleert je.
#5	Hart en vaat	Doodsoorzaak nummer 1, maar mis link met vlees.	Niet geloofwaardig zonder bron. Voor de wereld zelf, voedselprobleem zou een reden kunnen zijn		Grote groep	Als iedereen het doet heeft het zin, dan levert iedereen wat in.
#6	Overgewicht	Overgewicht heeft met allemaal te maken	Overgewicht en hart- en vaatziekten	-	Grote groep	Dan doen meer mensen het, maakt het een verschil.
#7	Kanker	Die is het ergste voor mij	Hart- en vaatziekten	Veel vlees eten verhoogd het cholesterol en daardoor aderen die dicht slibben.	Grote groep	2 ^{de} zin is raar, volgens mij zijn er meerdere die dagelijks vlees eten. Je kanook op de portiegrootteletten.
#8	Overgewicht	Bang voor eetbuien, dus die is het ergste	Hart- en vaatziekten (diabetes op 2)	Daar had ik iets over gelezen, en het is goed om vlees te verminderen	Grote groep	Ik hou zelf niet zo van vlees
#9	Hart/ en vaatziekten	Staat het dichtstbij	Hart/ en vaatziekten	-	Grote groep	Daar wordt het positieve meer in benadrukt
#10	Kanker	Meer voorkomend in omgeving	Hart- en vaatziekten	-	Grote groep	Het gaat over een geheel. De 2 ^{de} is selecter
#11	Kanker	Zou het allemaal doen om mijn gezondheid te verbeteren	Kanker (rood vlees)	Iets over gelezen/gehoord	Kleinegroep	De 1 ^{ste} is omslachtiger. Ik zou wel liever bij grote groep horen.
#12	Kanker	Ernstiger	Hart-en vaatziekten (ook wel kanker)		Kleinegroep	Hij lijkt positiever dan werkelijkheid, want meer mensen eten wel vlees. Bij grote groep denk ik dat je me wil overhalen.
#13	Kanker en overgewicht	K: in familie O: familielididietist	Alle vier niet. Zolang ik niet teveel vlees eet. Niet teveel is ongeveer 100 gr/dag		Grote groep	Grote groep wil je sneller bijhoren en is overtuigender.
#14	Overgewicht	Met de anderen heb ik niets te maken	Hart-en vaatziekten	In vlees zit veel vet daardoor kunnen je aderen dichtslibben	Kleinegroep	Deze is specifieker, duidelijk. Met de eerste kan je jezelf niet vergelijken. Als er 5x staat dan weet je ok, ik ben goed bezig of ik kan beter.
#15	Hart- en	H&v: kan je met	Hart- en		Grote groep	Een grote groep laat zien dat ze het doen, dat

	vaatziekten	gedrag veranderen K; krijg je statistisch gezien toch wel O: komt door wat je eet en weet ik al Di: niet aan de orde	vaatziekten (kanker)			lijkt dan goed gedrag. Wat een kleine groep doet is minder interessant. Ik geloof het ok wel dat mensen minder vlees eten → past wel bij recessie en bezuinigingen.
#24	Hart en vaatziekten	Dit komt het meeste voor in familie, maar de rest is ook belangrijk	Diabetes (h&v)	Denk dat in vlees veel goede dingen zitten.	Grote groep	Komt bij de menigte meer over. Op mijzelf: ben een echte vleeseter, dus het helpt niet me te overtuigen. Framennaarengroetgroepzalbeteraankomen.

One condition, with several messages, which is the most appealing?

Resp # boodschap	Waarom	Veranderen	Kennis	Bedreigend	Houdingvlees	Geloofwaardig	Leesbaarheid
#1 + 3.3a	Identificatie met rookcampagne	Nee, ik eet al niet elke dag vlees. Ben goed bezig Geloofwaardigheid twijfelachtig...	Ja, als ik zou weten dat het echt waar is.	Nee, afgestompt door rook reclames.	Hoeft niet elke dag. Denk dat het goed is minder vlees te eten.	Niet helemaal geloofwaardig, bron mist.	Ietste lang.
#2 + 2.2a	Minder vaak klinkt beter (frequentie vs porties aanpassen). En deze heeft H&V.	Ik wil al flexitariër worden, spreekt me aan dus ja.	Hoe groot is die groep dan? Niet iedereen is er bewust mee bezig.	Nee, positief dat het niet benadrukt hoe slecht iemand bezig is. Het komt niet belerend over dat is goed!	Niet altijd (eerst geld overweging). Nu alleen biologisch en meer afwisseling dus niet altijd vis/vlees.	Denk dat het wel een trend is, voedingsbewustheid onder mensen. Ik zie meer bio producten in de winkelliggen.	Onder elkaar is het te lang, maar als je het verdeelt over poster dan is het beter.
#3 + 3.3a	(hart en vaatziekten)	Nee	Ik twijfel of t waar is. Hoe wel: gedegen bron erbij.	Naja...wel door lettertype, nogal druk.	7 dagen/week vlees/vis. Omdat lekker. Het moet niet biologisch zijn, slechter voor t milieu.	Nee	-
#4 + 2.2a	Het is goed om cholesterol te verlagen (dus h&v)	Nee vlees is belangrijk	Nee	Nee	Essentieel bij de maaltijd	Ja, voor mij wel. Voor een andere categorie is het niet geloofwaardig.	Als dit een slogan is moet 't korter (idee: norm eruit).
#5 + 3.3a	Kanker en overgewicht sowieso niet	nee	Ja, als het echt waar is draagt het bij.	Nee, informatief. Heb je kans op overgewicht dan spreekt dit aan.	Goed om een dagje te minderen, wel ok om vlees te eten. Probeer 1 dag zonder.	Komt niet heel geloofwaardig over zonder bron. Logo vertrouwde instelling kan helpen.	Hij is vrij compact, meer info zou mogen.
#6 + 2.3A + C	Door ziektenbeelden	Nee, ik let er al op. Misschien kan het nog wat meer.	Nee	Ja, vooral het deel 'verhoogt de kans op'.	Vlees is niet nodig, eet nog wel vaak vlees, maar probeert te minderen 6/7 x per week	Nog niet, ik heb meer info nodig	Goed
#7 + 1.3a	-h&v ziekten. Nee, ik denk dat ik sowieso niet overmatig vlees eet.	Nee, het lijkt erop alsof iemand de vlees consumptie graag wil verminderen	Nee, het uitroepen geeft een enthousiasme weer. Kans verhoogt → is bedreigender /dwingend	Ik eet al minder vlees dan bij mijn ouders (portie grootte)	Geen onderbouwing, maar vind t wel een goed streven. Wat betekent flexitariër?	Lente is oke.	
#8+1.2C	Spreekt het meeste aan bij mensen. Ov is zichtbaarder, KA dat hoor je overal al	Als ik veel vlees zou eten wel, maar woon met 2 vego's.	Nee, vertelt niet waarop het gebaseerd is	Nee, staatsbij.	Ik hou niet zo van vlees, woon met 2 vego's, dus eten vaak geen vlees	Nee, er staat geen bewijs of onderzoek	Welgoed
#9+2.1b	Omdat er vaak in staat, lijkt sterker	Nee, blijf bij mijn eigen gewoonten	Nee	Nee	Hoeft niet altijd, ben flexitariër. Af en toe eet ik geen vlees tijdens avondeten.	Nee, een grote groep hoegroot is dat? Vaak, wat deden ze dan daarvoor? Verbeteren door cijfers toe te voegen	Prima
#10 +3.2A (3.2B)	'NOG'geeft aan dat je het moet worden.	Nee, ik eet niet elke dag vlees	Nee	Nee	Vlees vind ik niet zo lekker	Ik weet niet of ik het geloof, ik mis een bron	Prima.
#11+2.3b	Als mensen dit zien, dan is er eerder actie. Wat is flexitariër?	Ja, ik zou het doen	Ja, blijkt dat een grote groep dit doet (trend). Gezondheidsrisico's van vlees bekend.	Nee.	Probeer minder vaak vlees/vis te eten. Ook voor dierenwelzijn. 3x vlees 1x vis	Geloofwaardig als het als kopje ergens zou staan, dan zou ik zeker verder lezen naar de achtergrond info.	Goed.
#12+3.2a	Denk dat mensen wel met H&V bezig zijn, andere ziekten geassocieerd met	Nee, ik eet niet zoveel vlees.	Flexit is nieuw, maar wordt duidelijk uit	Nee	Niet zoveel vlees. Niet zo lekker. Vaak kleinere porties. Ik kook het liefst in	Heb geen echte achtergrondheir. Dus voor mij geloofwaardig.	Niet zo: andere zinnen/meer ruimte/centreren.

	suiker.		de tekst. Misschien is het meer voor mensen die cholesterol willen verlagen, die zullen dit wel weten. Het kanwelaan het denkenzetten .		één pan. Soms heeft vlees veel bacteriën of ziekten en dat kan niet in één pan.	Misschien voor anderen niet.	
#13+2.1b	Doe het zelf al, wel lastig in een studentenhuis.	Doe ik al	Nee	Nee, eerderpositief	Vlees is lekker, af en toe een dagje zonder moet ook wel (om de vleesindustrie af te remmen)	Ja, zou er niet over twijfelen.	Prima
#14+3.2b	Kanker is een veel gehoorde doodsoorzaak	Nee, ik eet niet elke dag vlees, dat is wel goed zo.	Ja, blijkbaar heeft vlees eten een verhoogde kans op kanker.	Nee	5x per week, af en toe vegetarisch (burgers/blokjes)	Op zich goed. Ze zeggen over zoveel zaken dat ze de kans op kanker verhogen. Dan denk ik, laatdan maar.	Vind ik goed, korte zinnen!
#15+2.2a	Beetjebemoederend (vegoboodschap)	Nee, ik vind dat ik al gezond eet	Het is abstract (word er niet door overtuigd) kennis wist niet dat het kans geeft op H&v ziekten	Nee	Gezond eten: veel groetne, weinig kant en klaar. Eke dag zelf koken, overdag geen snacks. Vlees elke dag (veel). Vlees= nietongezond	De grote groep NL= autoriteit (iemand die me wil pushen). Denk niet dat mensen minder vlees eten voor hun gezondheid. Trektwel de aandacht.	Goed, flexitarier is een leuk woord.
#24+2.2b	Het meest opvallend, denk dat kanker voor veel mensen ernstig klinkt	Nee, ik hou van vlees. Eenzijdig beeld geeft het, nu lijkt het alsof je alleen door vlees eten bepaalde ziekten kan krijgen	Nee, als dit blanco ergens staat. Waar is het op gebaseerd? bron?	Nee, niet echt. Kanker zal wel bij meeste mensen bedreigend overkomen.	Vrijwel elke dag (op brood) avond het liefst ook.	Zou best kunnen kloppen, niet heel erg overtuigend.	De betekenis van flexitarier weet ik niet.

Combination with message and image?

Resp #	Poster/boodschap	Passend?	Betereoptie?	Waarom?
#1	1 en 3.3a	Geen verband, dit onderwerp past niet in studie omgeving.	3.3a met 5 of 7 4: bij grote groep Nederlanders past deze.	5: jong gezin, daardoor kinderen behoeden 7: gaat over gezondheid. (2 zeker niet, tekst zegt kleine groep)
#2	2+ 2.2a	Wil een grote groep mensen stimuleren, jong dynamisch.	3.3a: zinsbouw is raar. (nog slechts niet goed) 3.3b is beter (begint met slechts). 3.3b met poster 3, danslaat het terug op eten.	Niet: 5 (gezin is geen afspiegeling) 6 (komt niet overeen met grote groep). 1,4 geen associatie met eten. 3 zegt niks over gezondheid. 7 geeft hartstichting/ziektebeeld weer.
#3	2 + 3.3a	Past niet, veel mensen op foto, vs kleine groep.	Bij 2 Steeds meermensen....	Dan komt het wel overeen.
#4	2 + 2.2a	Ja, het gaat over een grote groep. Boodschap is te lang.		
#5	5 + 3.3a	Dan mist de link, combinatie is niet goed.	3.3a + 2:	dan is de link een grote groep (iedereen). Een kleine groep zou verwarrend zijn bij poster 2.
#6	7+2.3c	Goed passend gaat over overgewicht en relatie eten en sporten		(poster 1 is 2 ^{de} optie, want is aan de studie gerelateerd)
#7	2 +1.3a	Zou me niet verbazen als al deze mensen flexitariër zijn. Hele jonge mensen, hart- en vaatziekten zie je niet terugkomen.	2+ 1.2a 4+ 1.3a	De man op poster is wat ouder en dat associeer ik eerder met hart- en vaatziekten dan jongeren.
#8	5 + 1.2c	Niet zo'n match. Gevoel dat de poster geeft en vlees eten heeft geen relatie.	1.2C met 7 of 1	1 staat dan ook voor kennis (hebben over het eten van vlees)
#9	2 + 2.1b	Nee, past niet. De poster roept op tot protest. Dat past niet bij boodschap.	5+2.1b	Flexitariër associeer ik met huiselijkheid., met jonge kinderen en bewust kiezen.
#10	1 + 3.2a	Niet passend. Foto geeft een ander beeld dan boodschap.	3.2a + 7	Past beter. Hangt meer samen met gezondheid.
#11	7+2.3b	Past, gezondheid straalt het uit	Nog beter: iets met groente 5:	Blij gezin, dan eten ze geen vlees.
#12	3+3.2a	Niet passen. Peul kan een vleesvervanger zijn. Maar dit is alleen aantrekkelijk voor iemand die al minder vlees eet.	7 + 3.2a Of 2 + 2.3b	Past beter
#13	2 + 2.1b	Niet zo passend. Foto focused op één persoon. Minder vlees eten komt er ook niet in terug.	5 + 2.1b	Foto gezin, maakt het lijkt op ontbijt, gezond en aantrekkelijk ziet het eruit.
#14	6 + 3.2b	Past niet echt bij elkaar. Kanker associeer ik met de dood/ziekte en dit is een baby.	3.2b + 5	Gelukkig gezin, stel dat één van de ouders doodgaat aan kanker, dan ga je meer erover nadenken.
#15	2+2.2a	Dan denk je bijna, dit is dus de grote groep. Maar het zijn geen NL-ers, opzich als je deze foto zou zien denk ik daar niet direct over na (of het NL is). Lijkt op hoogopgeleide mensen, dit geeft t beeld dat ze weten wat gezond is. Het versterktelkaarwel.	4 + 2.2a:	dan is dit een voorbeeld van een flexitariër, werkt nog steeds in de bouw omdat hij flexitariër is.
#24	7 + 2.2b	Niet passend bij het plaatje. Meer beweging verlaagt juist de kans..	2 + 2.2b 5+ 2.2b	Omdat het een grote groep is. Mensen zijn aan het eten Maar bij 3.3a zou 2 niet passen.

Appendix 3. Quantitative questions and results

Code poster:

1. Hoe aantrekkelijk vind je deze poster

Onaantrekkelijk 0 0 0 0 0 Zeer aantrekkelijk

2. Vind je hem geloofwaardig?

Zeker niet 0 0 0 0 0 Zeker wel

3. Is deze poster goed opgezet?

Zeker niet 0 0 0 0 0 Zeker wel

4. Passen beeld en tekst bij elkaar?

Zeer goed 0 0 0 0 0 Zeer slecht

5. Is de boodschap duidelijk?

Erg duidelijk 0 0 0 0 0 Erg onduidelijk

6. Vind je jezelf passen bij de doelgroep van deze poster?

Niet passend 0 0 0 0 0 Erg passend

7. Heb je nog opmerkingen/vragen na het zien van deze poster?

Geslacht

0 Man 0 Vrouw

Leeftijd:.....

Studie:.....

Quantitative results

Anova tests were done, with independent factors: norm type (standard/deviant), consequence (positive/negative) and type of poster (1 girls or 2 three people).

There were no significant main effects, nor was there a significant interaction effect. Type poster $F(1, 80)=1.14$, $p=.29$, type of norm $F(1, 80)=1.14$, $p=.29$, type of consequence $F(1, 80)=.00$, $p=.94$. Interaction effects poster/norm, poster/consequence, norm/consequence: $F(1, 80)=.00$, $p=.94$. Interaction effect poster/norm/consequence $F(1, 80)=.55$, $p=.46$.

There were no differences between the posters on attractiveness found.

There were no significant main effects, nor was there a significant interaction effect. Type poster $F(1, 80)=.92$, $p=.34$, type of norm $F(1, 80)=1.97$, $p=.17$, type of consequence $F(1, 80)=2.88$, $p=.09$. The interaction effects poster/norm and poster/cons $F(1, 80)=.14$, $p=.71$, the interaction effect between norm/consequence $F(1, 80)=.27$, $p=.61$ and interaction effect poster/norm/consequence $F(1, 80)=.44$, $p=.51$.

The credibility of the type of consequence was marginally significant different. Some respondents mentioned that they had some doubts about the negative consequence. The reason mentioned was 'there is already so much bad for your health'.

There were no significant main effects, nor was there a significant interaction effect. Type poster $F(1, 80)=1.58$, $p=.21$, type of norm $F(1, 80)=.1$, $p=.75$, type of consequence $F(1, 80)=.22$, $p=.64$, interaction effect poster/norm $F(1, 80)=.39$, $p=.53$, interaction effect poster/consequence $F(1, 80)=.62$, $p=.43$, interaction effect norm/consequence $F(1, 80)=.62$, $p=.43$ and interaction effect poster/norm/consequence $F(1, 80)=.22$, $p=.64$. There were no differences in the posters concerning beauty.

There were no significant main effects, nor was there a significant interaction effect. Type poster $F(1, 80)=.37$, $p=.54$, type of norm $F(1, 80)=.81$, $p=.37$, type of consequence $F(1, 80)=.12$, $p=.73$, interaction effect poster/norm $F(1, 80)=.01$, $p=.95$, interaction effect poster/consequence $F(1, 80)=.12$, $p=.73$, interaction effect norm/consequence $F(1, 80)=.23$, $p=.63$ and interaction effect poster/norm/consequence $F(1, 80)=.04$, $p=.84$.

There no significant main effects, nor was there a significant interaction effect. Type poster $F(1, 80)=.4$, $p=.53$, type of norm $F(1, 80)=.03$, $p=.88$, type of consequence $F(1, 80)=.1$, $p=.75$, interaction effect poster/norm $F(1, 80)=.03$, $p=.88$, interaction effect poster/consequence $F(1, 80)=1.6$, $p=.21$, interaction effect norm/consequence $F(1, 80)=.03$, $p=.88$ and interaction effect poster/norm/consequence $F(1, 80)=.62$, $p=.43$.

There no significant main effects, nor was there a significant interaction effect. Type poster $F(1, 80)=.07$, $p=.8$, type of norm $F(1, 80)=.02$, $p=.9$, type of consequence $F(1, 80)=.00$, $p=1$, interaction effect poster/norm $F(1, 80)=1.04$, $p=.31$, interaction effect poster/consequence $F(1, 80)=.02$, $p=.9$, interaction effect norm/consequence $F(1, 80)=.07$, $p=.8$ and interaction effect poster/norm/consequence $F(1, 80)=.02$, $p=.9$.

Remarks from respondents

The sentence 'Het eten van minder vlees' got some comments. Respondents thought that it would be better to read when it was written like 'minder vleeseten'. Furthermore, respondents had some doubts about the fact 'een kleine groep Nederlanders eet dagelijks vlees'. They expected this Group to be much bigger.