

Master Thesis;
The effect of second language and sensory description
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1. Abstract

This study aimed to generate knowledge on healthy food marketing through the research question; ‘how can language be used in advertisements to encourage healthy food choices?’. Research on language use in advertisements could help to reduce the rising obesity rates through more effective marketing of healthy food options.

The specific language effects investigated were description types of healthy foods (sensory/neutral/health-conscious) and L1/L2 effects. Namely, sensory language might create food-related mental simulations through its link with the senses and emotions. These mental simulations might, in turn, increase the estimated desirability of food and, subsequently, the purchase intention and attitude towards the advertisement. Health-conscious language might have the opposite effect, as it would not have the same appeal to the senses and emotions and, thus, might cause the food items to be perceived as less desirable. Moreover, L1 or L2 use in advertisements was proposed to have a more positive effect on these variables, either through the link to emotions, the senses and memory (L1) or through weaker affective processing of potential negative stimuli (L2). Furthermore, L1 or L2 use might, in turn, strengthen the effect of sensory description.

Consequently, an experiment was conducted. The participants saw multiple advertisements, each with different description types, all in either their L1 (Dutch) or L2 (English). The advertisements were followed by questionnaires. Description type and second language did not affect the participants’ desire and purchase intention of the food, nor their attitude towards the advertisement. These results might imply that more research is necessary to establish the precise effect of language on healthy food marketing. However, there may also be factors such as proficiency or the participants’ awareness of the descriptions that might explain these results.

Keywords; *advertisements, description, embodied theory of language, grounded theory of desire, health-conscious, language, L1, L2, marketing, obesity, sensory*

2. Introduction

Through a culture of increasing availability of fast and unhealthy food choices and the decreased amount of necessary physical movement per day, a new global problem has arisen; obesity (Kopelman, 2000). Obesity is associated with several health problems, like the development of type 2 diabetes mellitus and coronary heart disease (Kopelman, 2000). As the number of obese people increases, this problem should be recognised and measures should be taken.

Language use in advertisements might be important in affecting food and health-related choices, as the daily exposure to advertisements is quite high; 5000 or more a day (Holmes, 2019; Marshall, 2015). At the moment, a common measure to face this problem is to depict the calories a food item contains (Turnwald, Boles & Crum, 2017a). Another measure is to describe and emphasise the healthy characteristics of food items, in order to persuade people to buy them and live a more healthy lifestyle (Turnwald et al., 2017a). These measures, however, have increasingly been shown to be largely ineffective (Turnwald et al., 2017a; Turnwald & Crum, 2019). The use of a different marketing strategy might, thus, be necessary.

This study proposes an alternative approach to the incorporation of language in food advertisements, in order to positively affect healthy food choices. The use of appealing sensory language, as opposed to health-conscious language, might be able to motivate consumers to choose a healthy food item, and affect the manner in which an advert is evaluated by its viewer (Turnwald et al., 2017a). The sensory language depicted in a specific advertisement could activate the senses and, subsequently, create a desire for the food item in the consumer (Papies, 2013; Papies, Best, Gelibter & Barsalou, 2017). The use of this type of language and the creation of desire for a product might also result in increased purchase intention and, thus, more healthy eating habits.

Furthermore, it might be necessary to be aware of the choice of language used in food adverts to optimise their workings. Whether the advert is written in a person's first language (L1) or a person's second language (L2) might affect the effectiveness of the food advert (Pavlenko, 2012). Namely, there might either be a more positive effect of L1 use, through its stronger mental links to emotion and memory (Pavlenko, 2012; Puntoni, de Langhe & Van Osselaer, 2009), or a more positive effect L2 use, through weaker affective processing of potential negative stimuli (Pavlenko, 2012). This difference in effectiveness might be expressed in the level of desirability, purchase intention or attitude towards the advert shown

by the consumer. Awareness of the most optimal combination of language and description might, thus, produce the best results for healthy food marketing.

This study contributes to the existing literature on food advertisements, as the area of sensory language is relatively new. At the moment, there is little information known about the manner in which language in advertisements can stimulate positive actions from its viewers. Moreover, there is a substantial lack of literature concerning the way in which sensory language and L1/L2 use in food adverts interact. Therefore, this research will try to answer the main research question; how can language be used in advertisements to encourage healthy food choices? This study might contribute to a healthier population and might help to diminish the rising obesity numbers through creating knowledge about prevention methods in food marketing.

3. Literature Review

3.1 Description types

According to the theory of linguistic relativity, language might be able to affect thoughts and the way we perceive reality (Lucy, 1997). The use of a specific language might create linguistic systems that enable different ways of thinking as compared to another language (Wolff & Holmes, 2010). For example, language might affect the way in which distinctions between two colours are made, due to the available descriptions and systems of that particular language (Wolff & Holmes, 2010). The descriptions and systems used might, in turn, affect the way a colour is perceived or thought about. The theory of linguistic relativity could also be applied to real world problems instead of general psycholinguistics, for example to food marketing. Following from this, language might be able to affect the evaluation of an advertisement when it is written in different languages or when different description types are used.

Two possible description types used for food items are health-conscious language and sensory language (Turnwald et al., 2017a). Health-conscious descriptions of food items emphasise the health benefits of eating a certain food, examples could be “nutritious” or “good for you” (Turnwald et al., 2017a). Sensory language descriptions emphasise the tasty aspects of food and refer to the experience of eating the food, examples could be “sweet” and “crispy” (Turnwald et al., 2017a). The usage of these description types might depend on the food described (Turnwald, Jurafsky, Conner & Crum, 2017b). In another study of Turnwald et al. (2017b), the use of these description types in menus of chain restaurants was investigated.

They compared the descriptions used for healthy food items to the descriptions used for regular food items (Turnwald et al., 2017b). Turnwald et al. (2017b) found that the restaurants used significantly less appealing language to describe healthy food items as compared to the regular items. This might imply that the language used for healthy items differs from other food items. Namely, health-conscious language might be used more regularly for healthy foods and sensory language for regular food items. In the present study, another description type will be used, namely neutral language. Neutral language will function as a control condition. It neither refers to the health capacities of a certain food nor its taste, but to other attributes of the food, examples could be ‘green’ or ‘mixed’.

In response to the rising obesity rates the first description type, health-conscious language, is used regularly (Turnwald et al., 2017a). Multiple studies show, however, that the results of using this tactic may be counter-effective, as health-conscious language might be perceived as less appealing (Turnwald & Crum, 2019; Turnwald et al., 2017a). Furthermore, it has been suggested that a product is estimated to be less tasty when it is presented as healthy, is actually considered to be less tasty when eaten and, subsequently, the preference for this healthy food item declines (Raghunathan, Naylor & Hoyer, 2006). Turnwald et al. (2017b) propose that this might contribute to the belief that healthy food is less tasty in general. Subsequently, this might undermine the consumers’ healthier food choices. Healthconscious descriptions in advertisements might, thus, result in a less positive response to the healthy food options. As a consequence, the food item in the advertisement may be perceived as less desirable, the advertisement as less tempting and result in less purchase intention.

A different strategy might alter this occurrence. The studies of Turnwald et al. (2017a) and Turnwald and Crum (2019) imply that labelling food indulgently, using sensory descriptions, could be a promising and effective method. All experiments of both these studies took place in dining areas of universities and were all conducted by labelling vegetables differently and measuring the amount of vegetables that was consumed. Both studies conclude that sensory labelling of healthy food items resulted in more vegetable consumption than health-conscious labelling. The results might imply that sensory labelling of food items in adverts could be an effective means of encouraging healthy food consumption.

Neutral language is used as a control condition, as it does not fit either of these categories. It might, therefore, create a neutral affect as to the participants’ attitude towards the advertisement, their desire for a food item and their purchase intention. It neither gains the assumed advantages of sensory labelling nor the disadvantages of health-conscious labelling.

The positive effects of sensory language might be explained by the embodied theory of language (Turnwald & Crum, 2019; Turnwald et al., 2017a). The embodied theory of language states that the use of sensori-motor cortices, which are parts of the brain responsible for action, emotion and sensory processes, are necessary in order to understand language (Kühne & Gianelli, 2019; Willems & Casasanto, 2011). Therefore, language, emotion, our senses and the following behaviour might be linked to each other, which is called mental simulation. Subsequently, indulgent language might appeal directly to the senses, as it often refers to a visual aspect of the food, the taste, the smell or even the sound of consuming the food. Health-conscious language, however, refers to health capacities of the food, which are often facts. This, therefore, might not maximise the potential of the connection between language, our senses and emotion. Subsequently, the use of sensory language might lead to certain desired behaviours, whereas the use of health-conscious language might not (Willems & Casasanto, 2011). Thus, sensory language might have a more substantial effect on the desirability, attitude towards the advertisement and purchase intention of the food item than health-conscious language (Turnwald & Crum, 2019; Turnwald et al., 2017a). Desirability, attitude towards the advertisement and purchase intention are all important variables in the evaluation of healthy food advertisements, as they help judge the effectiveness of the advertisement and might predict future actions of the viewer.

The link between sensory indulgent language and sensori-motor cortices is, moreover, supported and extended by studies investigating the grounded theory of desire (Papies, 2013; Papies et al., 2017). The grounded theory of desire describes the creation of desire through language use (Papies, 2013; Papies et al., 2017). Papies (2013) found that tempting descriptions of food items activate simulations of eating the food and hedonic enjoyment. This means that the brain activity during the experiment is equivalent to the brain activity of the actual action. This was studied through an experiment in which students were asked to list features of a number of tempting foods and of several healthy foods (Papies, 2013). The features were, subsequently coded. They were coded as features of eating simulations if they referred to the texture, taste or temperature of the food (Papies, 2013). Also references to situations of eating the food and hedonic enjoyment were coded as eating simulations (Papies, 2013). The tempting food items received significantly more features of eating simulations than the healthy food items (Papies 2013). The results might indicate that appetitive stimuli, such as sensory language in food advertisements, could activate simulations of consuming and enjoying those foods, possibly based on previous experience (Papies, 2013; Papies et al.,

2017). In a follow-up study, Papies et al. (2017) offer a theoretical framework for understanding the motivational processes of consumer behaviour and argue that the activation of these food-related simulations can lead to motivated behaviour. These results might imply that the use of sensory language in advertisements might lead to positive associations and actions towards the company and the product through the creation of desire. Subsequently, attitude towards the advertisement, desirability of the product and purchase intention might be positively affected.

Following from the theory of embodied language and the grounded theory of desire, it is hypothesised that;

H1; The use of sensory language in food adverts will have a more positive effect on desirability, attitude towards the advertisement and purchase intention, as compared to the use of neutral or health-conscious language, and neutral language a more positive effect as compared to health-conscious language.

3.2 First language and second language

In addition to the effectiveness of the description types, it might be important to study in which language those description types are most effective; the viewer's native language (L1) or their second language (L2). There is uncertainty about the precise effect of language (L1/L2) on the effectiveness of advertisements and little research has been conducted on the interaction between L1/L2 and description types in relation to advertisements.

The Revised Hierarchical Model (RHM) can be interpreted in relation to the different effects of L1 or L2 use in advertisements (Luna & Peracchio, 2001). The RHM suggests that an L2 is mediated by the L1 until a person is sufficiently proficient in the L2 (Kroll, Van Hell, Tokowicz & Green, 2010). Luna and Peracchio (2001) explain that the RHM, thus, might entail that conceptual or semantic processing of a word is more likely to occur when it is encountered in the viewer's L1 than when it is encountered in their L2. This conceptual or semantic processing can be compared to the embodied theory of language. The embodied theory of language implies that language and behaviour are connected through the senses and our emotions (Kühne & Gianelli, 2019; Willems & Casasanto, 2011). Sensory descriptions of food might, thus, have a greater effect if they are written in the L1 in comparison to the L2, as the link between the L1 and conceptual or semantic processing is stronger (Kroll et al., 2010; Luna & Peracchio, 2001). Namely, a stronger link might result in more mental simulation.

Therefore, the RHM might imply a greater effect of sensory language in advertisements written in the L1.

The RHM further implies that there are stronger links from one's L2 to their L1 than from their L1 to their L2, because of their respective acquisition processes (Luna & Peracchio, 2001). Namely, the L2 is acquired through connecting L2 words to L1 words while the L1 is acquired through experience and linking words to actual situations and objects (Luna & Peracchio, 2001). This means the L1 might have more direct links to the senses and emotions and the L2 has a less direct link to the senses and emotion, as it is mediated by the L1 (Luna & Peracchio, 2001). As the L1 information might be more strongly linked to the senses and emotions than the L2, this could mean that information presented in the L1 is remembered better (Luna & Peracchio, 2001). Moreover, this might result in more automaticity in affective processing of messages and increased reactivity to emotional-laden words (Pavlenko, 2012). So, the RHM might predict that the effects of L1 use in advertisements could be more substantial than those of advertisements written in the L2. This means that the RHM might not only predict a greater effect of sensory language in L1 advertisements, but also a greater effect of the L1 in general. These language effects could become apparent through a more positive attitude towards the advertisement, a higher desirability of the food item and a higher purchase intention of the food item.

This theory is also supported by the anchor contraction effect, which describes the difference in responses on rating scales in a person's L1 and their L2 (De Langhe et al., 2011; Luna & Peracchio, 2001). Due to the anchor contraction effect, more extreme responses are reported on rating scales when questions are presented in a person's L2, which happens because this person actually experiences his or her emotions less intensely in combination with the L2 words (De Langhe et al., 2011). For example, for a Dutch native speaker, 'hate' might be regarded as less emotionally intense than the Dutch equivalent 'haten' and will, thus, evoke a less emotional response. The Dutch person might, for example, experience the emotional intensity of the word 'haten' as 100% while the emotional intensity of the word 'hate' might feel like 80%. These emotional intensities are projected on the Likert scale. Subsequently, the anchors of the scale are less emotional in the L2. The anchor contraction effect, therefore, might support the theory proposed by the RHM and suggest a stronger effect of the L1 because of its stronger links to emotion and the senses.

The L1 might, thus, have a stronger emotional connection and, subsequently, a stronger effect than the L2 (Pavlenko, 2012; Puntoni et al., 2009). However, Pavlenko (2012)

also found positive effects of L2 use in her review of multiple academic articles. As the L2 is less directly connected to the senses and emotions, and there is thus less automaticity in affective processing, there might also be weaker reactions to negative stimuli (Pavlenko, 2012). This is supported by the experiments conducted by Keysar, Hayakawa and An (2012) to investigate a possible discrepancy between decision making in an L1 and L2. In their three experiments, different groups of university students were presented with either a win or loss frame in either their L1 or L2. The experiments showed that the L2 led to a reduction of decision biases and that the students experienced, for example, a reduction of loss aversion (Keysar et al., 2012). Pavlenko (2012) calls this phenomenon disembodied cognition. The weaker response to negative affective stimuli and the reduction of loss aversion might, thus, result in an overall more positive attitude towards the advertisement, the desirability of the food item and the purchase intention of the food item.

As it is not completely clear whether L1 or L2 use will be most preferential in advertisements, this research will aim to establish;

RQ1a; is there a difference between the effect of advertisements written in the participants' L1 or their L2 on desirability, attitude towards the advertisement or purchase intention?

RQ1b; is there a difference between the effect of sensory language on desirability, attitude towards the advertisement or purchase intention presented in the participants' L1 or their L2?

4. Methodology

4.1 Materials

This study investigated the effect of the independent variables 'language' and 'description'. 'Language' was operationalised by a native language (L1) and a second language (L2). In this study, L1 referred to Dutch and L2 referred to English. 'Description' was operationalised by three different description types, namely language highlighting the healthy aspects of food (health-conscious descriptions), sensory language highlighting the tasty aspects of food (sensory descriptions) and neutral language highlighting neither the health capacities nor taste of the food items (neutral descriptions). The health-conscious language descriptions were, for example, descriptions like "low-fat" and "dairy-free". Sensory

language descriptions were, for example, descriptions like “juicy” and “crunchy”. Neutral language descriptions were, for example, descriptions like “new” and “classic”. These description types were used to describe six different food items; a banana waffle, a matcha latte, an avocado toast, tomato soup, a salad and yoghurt. These food items were all chosen since they are generally considered to be healthy foods. Moreover, all food items did not include meat, as a large portion of the Dutch population is vegetarian. Furthermore, all food items were considered to be relatively familiar food items. For the experiment, a picture was taken of each food item by the researcher, ensuring the food item was the central focus of the picture.

These descriptions were embedded in short texts to ensure the descriptions were processed properly. Each food item had a unique text with six different versions. One text contained sensory descriptions, one text contained health-conscious descriptions and one text contained neutral descriptions, both in the L1 (Dutch) and in the L2 (English) of the participants. There was, thus, a total of 36 advertisements (see appendix). Each unique texts contained approximately the same amount of words across the different versions. Each participant saw a total of six advertisements (one of each food item). All saw two advertisements containing health-conscious descriptions, two containing sensory descriptions and two containing neutral descriptions. This group of advertisements was presented in either the L1 or L2 of the participants. This meant the participants saw six advertisements all in Dutch or all in English. Which description type the participant saw per food item was decided according to a Latin square design. The order in which the advertisements occurred was randomised. The randomisation ensured there were no side-effects due to the order in which advertisements were presented.

These advertisements were incorporated in an online questionnaire. The questionnaire, thus, consisted of six different advertisement sections, each including a short survey. The final section of each questionnaire inquired about the participants age, gender, education, language proficiency, hunger level and diet (see appendix).

4.2 Subjects

This study was conducted in the Netherlands with 151 participants, recruited through convenience sampling. 122 participants finished the questionnaire. 6 participants were excluded because they did not meet the participant selection criteria. The number of

participants met the minimum required number of participants, based on G-power (Faul, Erdfelder, Lang & Buchner, 2007).

58 participants were assigned to the L1 condition group and 58 participants were assigned to the L2 condition group. The selection criteria of the participants were based on age (eighteen or older), their L1 (Dutch) and their L2 (English). When all criteria were met and the experiment was completed, the participant was asked to self-rate their language proficiency through questions about their exposure to each language. This ensured all participants were proficient enough to participate in the experiment.

95 women (82 %) and 21 men (18%) took part in the experiment. The men and women were equally divided across the two language conditions (L1/L2). A Chi-square test did not show a significant relationship between gender and assigned language condition ($\chi^2(1) < 1, p = .809$).

The educational level ranged from secondary school to WO. The most frequent level was WO (56%). The least frequent educational level was secondary school (3%). A Chi-square test did not show a significant relationship between educational level and assigned language condition ($\chi^2(3) = 5.22, p = .156$).

The age of the participants ranged from 18 years old to 70 years old. The average age was 31 ($M = 31.32, SD = 14.73$). A Chi-square test did not show a significant relationship between age and assigned language condition ($\chi^2(30) = 39.00, p = .126$).

The participants were either defined to the high hunger level group or the low hunger level group, based on their answers on the questionnaire. Namely, participants were asked how many hours ago they last ate prior to the experiment. The participants were defined based on the median (2 hours ago). There were 52 participants (45%) in the high hunger level group and 64 participants (55 %) in the low hunger level group. A Chi-square test did not show a significant relationship between hunger level and assigned language condition ($\chi^2(1) = 1.26, p = .263$).

The participants were either defined to the diet or the no diet group, based on their answers on the questionnaire. Namely, participants were asked to indicate whether they were currently following a diet. There were 35 participants in the diet group (30%) and 81 participants in the no diet group (70%). A Chi-square test did not show a significant relationship between diet and assigned language condition ($\chi^2(1) = 1.02, p = .312$).

4.3 Design

This study used a mixed-subjects design. ‘Language’ was a between-subjects variable. Furthermore, ‘Description type’ was a within-subjects variable. Thus, all participants were exposed to all description types (sensory/neutral/health-conscious) but only one language condition (L1/L2).

4.4 Instruments

The dependent variables of this study were purchase intention, attitude towards the advert and desirability. A short questionnaire followed after each advert, consisting of 8 items (see appendix). The first item was a multiple choice question. The other 7 items were anchored by a five-point Likert scale. The items were based on previous studies and literature and adapted to fit this research (Hanus & Dickinson, 2019; Infosino, 1986).

The first item checked the participant’s memory and knowledge of the content of the previously shown advertisement (check questions). The check questions used were ‘what was the last sentence of the previously shown advertisement?’, ‘what was a characteristic of the previously shown food item?’, or ‘was a company mentioned in the text of the previously shown advertisement?’. One of these questions followed each advertisement.

The variable desirability was measured through two items (I think the product looks tasty, I want to eat/ drink the product) on a 5-point Likert scale ranging from 1 (absolutely disagree) to 5 (absolutely agree). Cronbach’s alpha was calculated but only serves as an indication of the reliability, as the construct desirability only consisted of two items. The reliability of ‘desirability L1’, comprising two items, was moderate: $\alpha = .47$. The reliability of ‘desirability L2’, comprising two items, was moderate: $\alpha = .53$. Consequently, the means of each were used to calculate the compound variable ‘desirability’, which was used in further analyses.

The variable purchase intention was also assessed through two items (I am interested in this food item, I would buy this food item) on a 5-point Likert scale ranging from 1 (absolutely disagree) to 5 (absolutely agree). Thus, Cronbach’s alpha again only serves as an indication of the reliability. The reliability of ‘purchase intention L1’, comprising two items, was good: $\alpha = .92$. The reliability of ‘desirability L2’, comprising two items, was good: $\alpha = .90$. Consequently, the means of each were used to calculate the compound variable ‘purchase intention’, which was used in further analyses.

The variable attitude towards the advertisement was measured through three items (I find the advertisement convincing, this is a realistic advertisement, I like this advertisement) on a 5-point Likert scale ranging from 1 (absolutely disagree) to 5 (absolutely agree). The reliability of ‘attitude towards the advertisement L1’, comprising three items, was good: $\alpha = .85$. The reliability of ‘attitude towards the advertisement L2’, comprising three items, was good: $\alpha = .90$. Consequently, the means of each were used to calculate the compound variable ‘attitude towards the advertisement’, which was used in further analyses.

The control variables of this study were diet, hunger level and language proficiency. These variables were evaluated in order to ensure the effect of ‘language’ and ‘description’ could be established as precisely as possible without the intervention of other factors. For example, if a participant was more hungry, they could possibly have rated all the advertisements more positively or if a participant was on a specific diet they might not have shown any purchase intention. Also, a low L2 language proficiency could have affected the results of the L2 advertisements, as the descriptions could have been misunderstood. All of these variables were checked through multiple choice or open questions (see appendix).

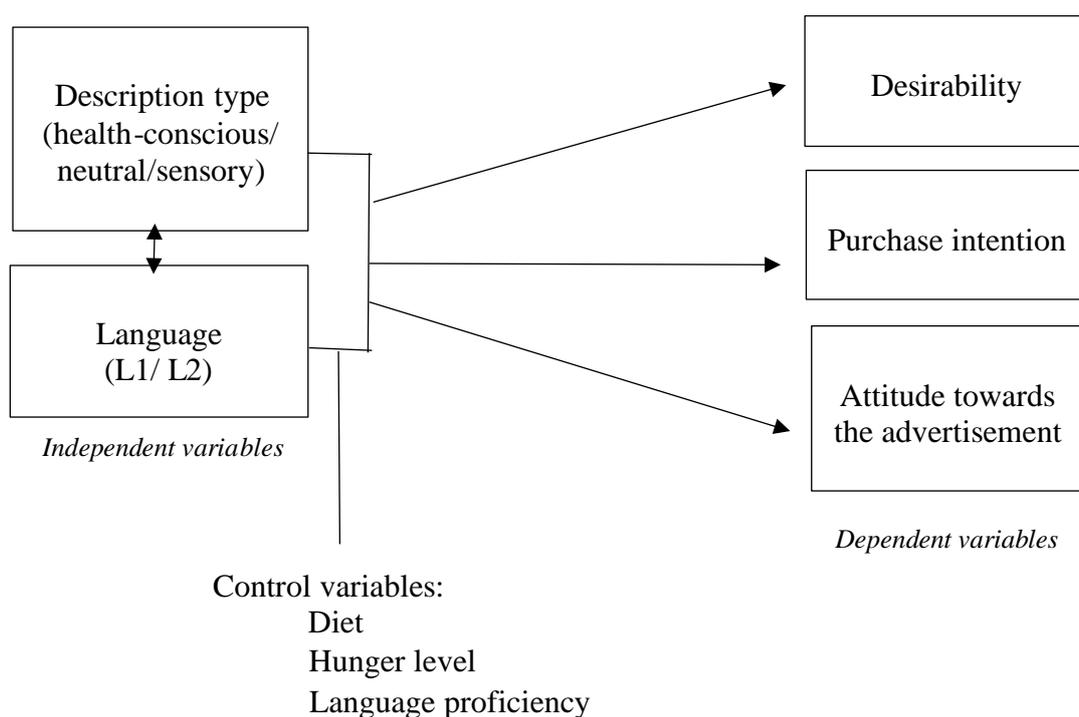
4.5 Procedure

There was no financial or other rewards for participating in the experiment. The participants were approached through text messages and took part in the experiment individually. If a participant was interested in taking part in the experiment, the anonymous link was sent to them. After clicking on the link, they were informed about the nature of the study, and asked to read and sign an online form of informed consent (see appendix). They also received the opportunity to ask questions. The instructions, consent forms, advertisements, questionnaires and final debrief were all either in the L1 or L2 of the participant.

As the experiment started, each advertisement was shown followed by the 8 questionnaire items. The participant was not allowed to ask questions during the experiment to prevent alteration of the results. The participant was allowed to take a break and continue the experiment at a later opportunity. At the end of the experiment, the questionnaire presented questions to the participant on their age, gender, education, diet, hunger level and language proficiency (both English and Dutch). Subsequently, the participant was thanked for participating and a short debrief was provided to explain the aim of the experiment in more detail. There was also another opportunity provided to ask questions or request further information. The participants completed the experiment on their computer or their phone. This

procedure was the same for each subject. The experiment took approximately 10 minutes per participant.

4.7 Conceptual Model



5. Results

The data was prepared for analysis through deleting the incomplete data and incomplete questionnaires. Subsequently, the answers of each participant on the check-questions were evaluated, as well as their language proficiency. If the proficiency of participants was not sufficient (general low scores of 1 and 2 on the self-rated proficiency questions) or if a participant answered more than one check question incorrectly, their data was excluded from analysis.

To analyse the data, mixed ANOVA's for each dependent variable (purchase intention, desirability and attitude towards the advert) were conducted, with 'description' as a

withinsubject factor and ‘language’ as a between-subject factor. This means there were three main analyses.

Furthermore, the control variables were used to define participants to groups (high hunger level/ low hunger level, and diet/ no diet). For both hunger level and diet, separate mixed ANOVA’s were conducted for each dependent variable (purchase intention, desirability and attitude towards the advert), with description type as within subject factor and language and hunger level/ diet as between subject factors. This means there were six control analyses.

5.1 Main analyses; attitude towards the advertisement, desirability and purchase intention

There was no significant main effect of description type ($F(2, 228) < 1, p = .497, \eta_p^2 = .01$) and no significant main effect of language ($F(1, 114) = 1.20, p = .275, \eta_p^2 = .01$) on attitude towards the advertisement. Furthermore, there was no interaction between language and description type on attitude towards the advertisement ($F(2, 228) < 1, p = .934, \eta_p^2 < .01$).

The means and standard deviations are displayed in Figure 1.

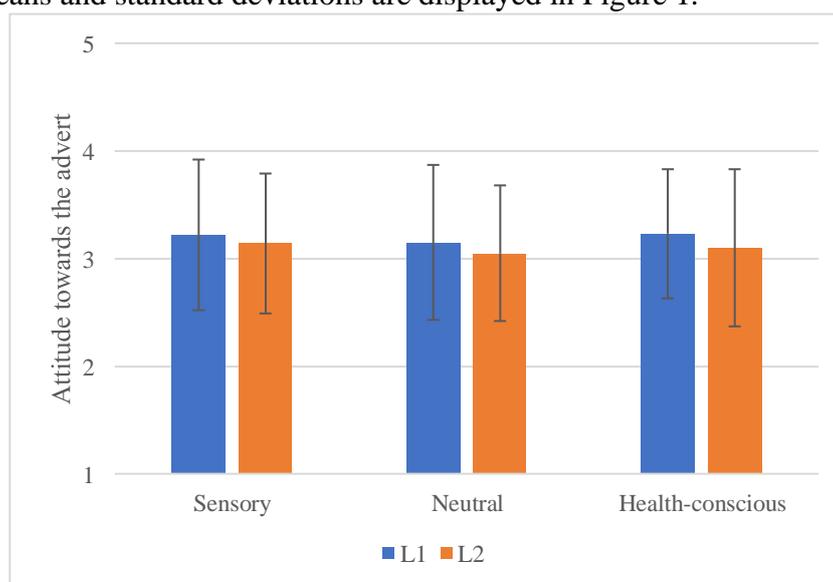


Figure 1; Means and standard deviations of attitude towards the advertisement (N=116), as a function of description types of healthy food items and language (1 = very negative attitude, 5 = very positive attitude).

There was no significant main effect of description type ($F(2, 228) = 1.72, p = .181, \eta_p^2 = .02$) and no significant main effect of language ($F(1, 114) < 1, p = .534, \eta_p^2 < .01$) on desirability. Furthermore, there was no interaction between language and description type on desirability ($F(2, 228) < 1, p = .659, \eta_p^2 < .01$). The means are summarised in Figure 2.

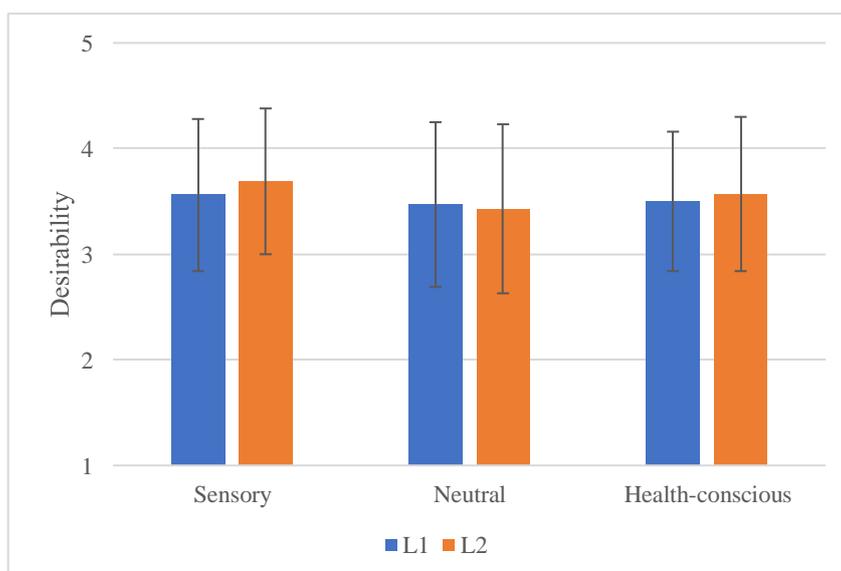


Figure 2. Means and standard deviations of desirability ($N=116$), as a function of description types of healthy food items and language (1 = very low desirability, 5 = very high desirability).

There was no significant main effect of description type ($F(2, 228) = 1.30, p = .274, \eta_p^2 = .01$) and no significant main effect of language ($F(1, 114) < 1, p = .953, \eta_p^2 < .01$) on purchase intention. Furthermore, there was no interaction between language and description type on purchase intention ($F(2, 228) < 1, p = .688, \eta_p^2 < .01$). The means are summarised in Figure 3.

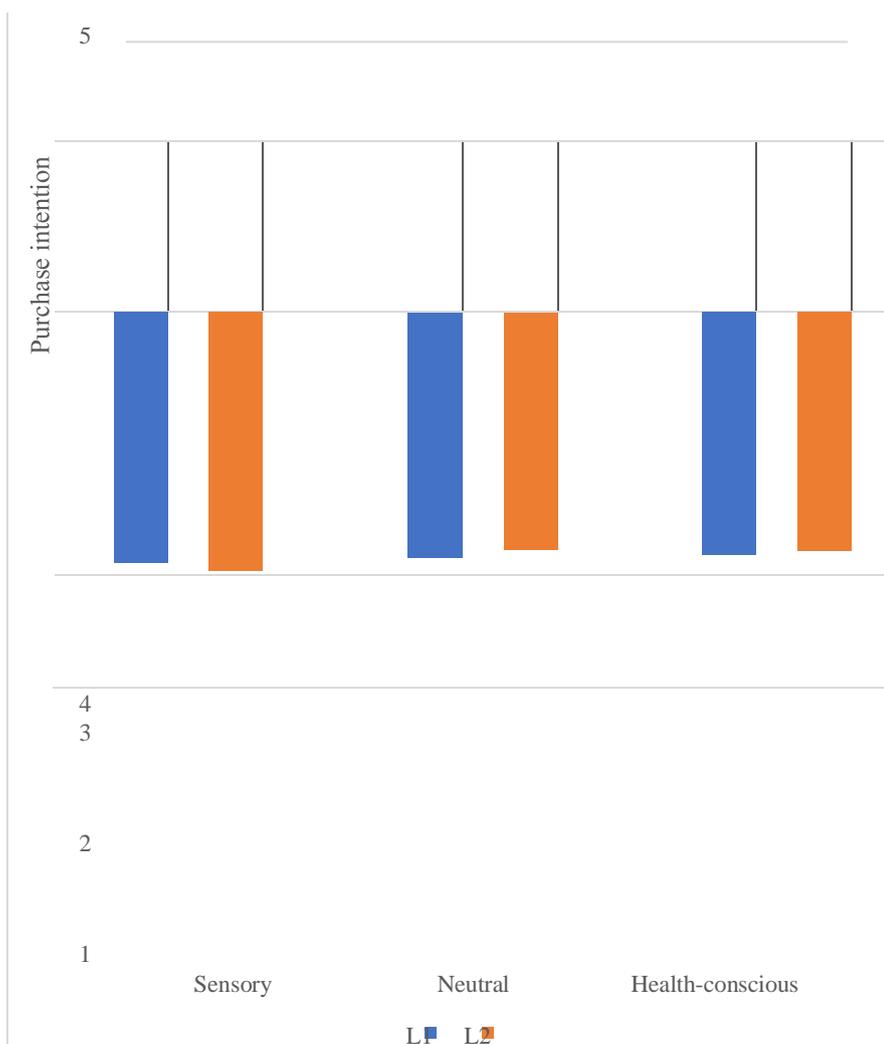


Figure 3. Means and standard deviations of purchase intention (N=116), as a function of description types of healthy food items and language (1 = very low purchase intention, 5 = very high purchase intention).

5.2 Control analyses; hunger level

To analyse the effect of hunger level on the results of the main analyses, the participants were split into two separate groups (low hungerlevel/ high hungerlevel). The hunger level of the participants was determined through participants' statements on the number of hours since they last ate. The groups were split based on the median (2 hours). The analyses were conducted separately for each dependent variable of this study.

There was no significant effect for description type ($F(2, 224) < 1, p = .485, \eta_p^2 = .01$), no significant effect for language ($F(1, 112) = 1.13, p = .291, \eta_p^2 = .01$) and no significant effect for hunger level ($F(1, 112) < 1, p = .606, \eta_p^2 < .01$) on attitude towards the advertisement. Furthermore, there was no significant interaction between description type and language on attitude ($F(2, 224) < 1, p = .903, \eta_p^2 < .01$), no significant interaction between

description type and hunger level on attitude ($F(2, 224) < 1, p = .862, \eta_p^2 < .01$) and no threeway interaction between description type, language and hunger level on attitude ($F(2, 224) = 1.02, p = .363, \eta_p^2 = .01$). The means and standard deviations are summarised in Figure 4.

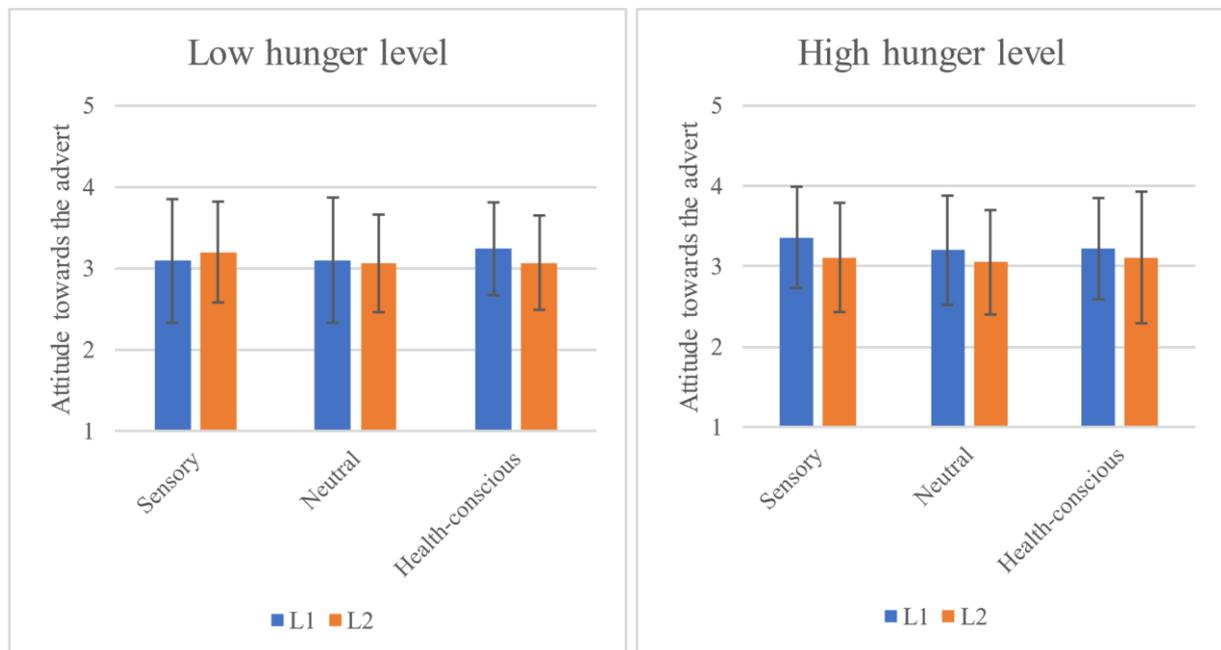


Figure 4. Means and standard deviations of attitude towards the advertisement (N=116), as a function of description types of healthy food items, language and hunger level (1 = very negative attitude, 5 = very positive attitude).

There was no significant effect for description type ($F(2, 224) = 1.92, p = .148, \eta_p^2 = .03$), no significant effect for language ($F(1, 112) < 1, p = .540, \eta_p^2 < .01$) and no significant effect for hunger level ($F(1, 112) < 1, p = .187, \eta_p^2 < .01$) on desirability. Furthermore, there was no significant interaction between description type and language on desirability ($F(2, 224) < 1, p = .565, \eta_p^2 = .01$), no significant interaction between description type and hunger level on desirability ($F(2, 224) < 1, p = .617, \eta_p^2 = 0.1$) and no three-way significant interaction between description type, hunger level and language on desirability ($F(2, 224) < 1, p = .677, \eta_p^2 = .01$). The means and standard deviations are displayed in Figure 5.

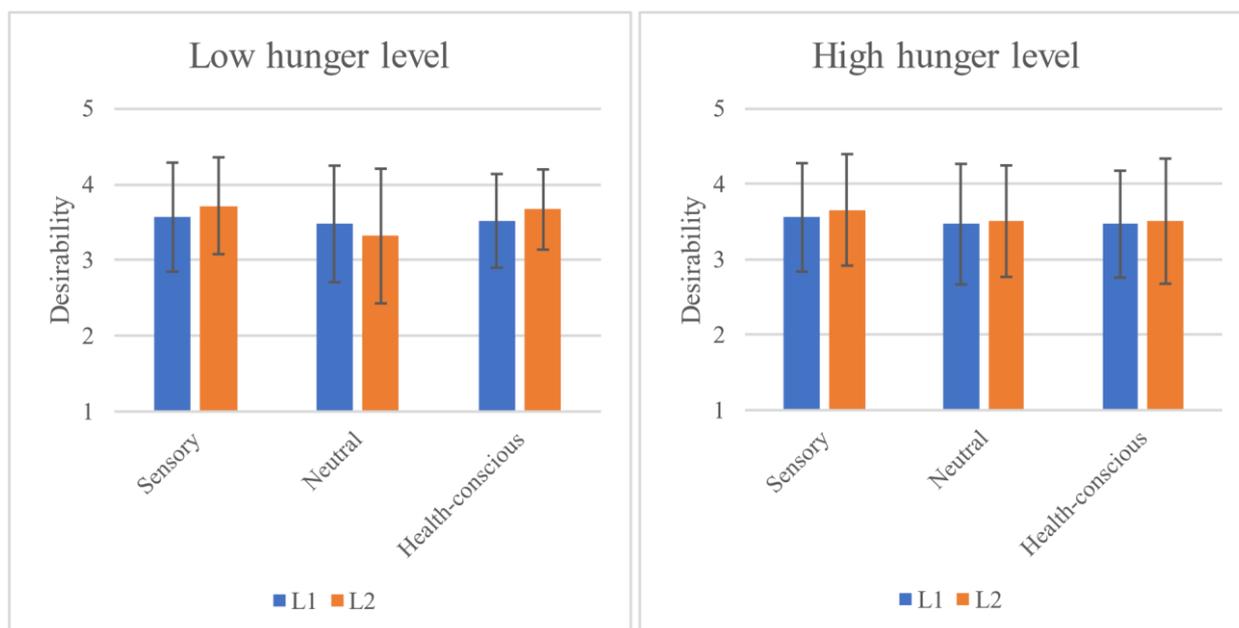


Figure 5. Means and standard deviations of desirability (N=116), as a function of description types of healthy food items, language and hunger level (1 = very low desirability, 5 = very high desirability).

There was no significant effect for description type ($F(2, 224) < 1.47, p = .233, \eta_p^2 = .01$), no significant effect for language ($F(1, 112) < 1, p = .942, \eta_p^2 < .01$) and no significant effect for hunger level ($F(1, 112) < 1, p = .991, \eta_p^2 < .01$) on purchase intention.

Furthermore, there was no significant interaction between description type and language on purchase intention ($F(2, 224) < 1, p = .622, \eta_p^2 < .01$), no significant interaction between description type and hunger level on purchase intention ($F(2, 224) < 1, p = .809, \eta_p^2 < .01$) and no three-way significant interaction between description type, hunger level and language on purchase intention ($F(2, 224) < 1, p = .391, \eta_p^2 = .01$). The means and standard deviations are summarised in Figure 6.

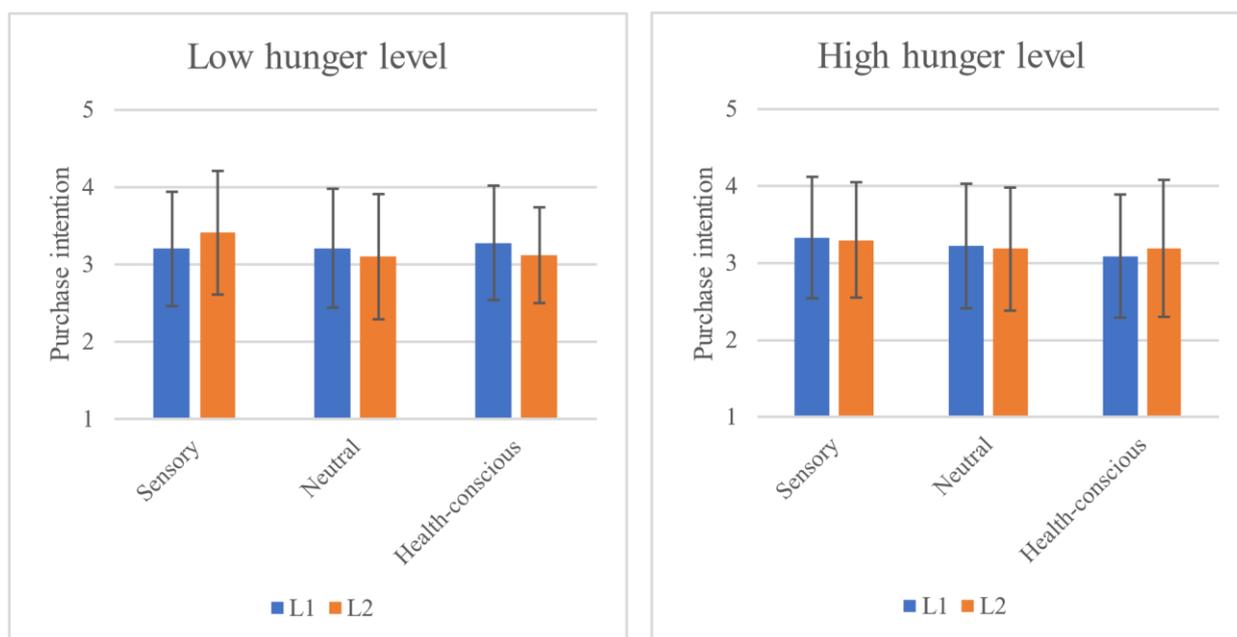


Figure 6. Means and standard deviations of purchase intention (N=116), as a function of description types of healthy food items, language and hunger level (1 = very low purchase intention, 5 = very high purchase intention).

5.3 Control analyses; diet

To analyse the effect of diet on the results of the main analyses, the participants were split into two groups. The first group was not following a specific diet and the second group was following a diet. The analyses were conducted separately for each dependent variable of this study.

There was no significant effect for description type ($F(2, 224) < 1, p = .533, \eta_p^2 = .01$), no significant effect for language ($F(1, 112) < 1, p = .463, \eta_p^2 = .01$) and no significant effect for diet ($F(1, 112) < 1, p = .902, \eta_p^2 < .01$) on attitude towards the advertisement. Furthermore, there was no significant interaction between description type and language on attitude ($F(2, 224) < 1, p = .828, \eta_p^2 < .01$), no significant interaction between description type and diet on attitude ($F(2, 224) < 1, p = .893, \eta_p^2 < .01$) and no three-way interaction between description type, language and diet on attitude ($F(2, 224) = 1.26, p = .287, \eta_p^2 = .01$). The means and standard deviations are shown in Figure 7.

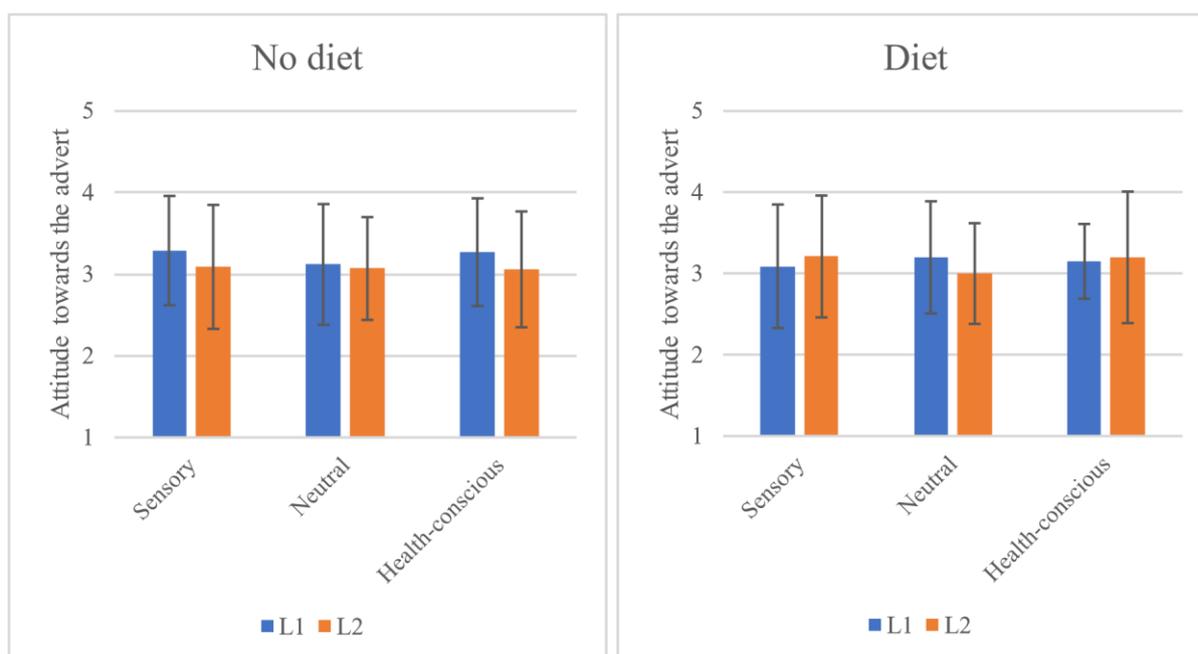


Figure 7. Means and standard deviations of attitude towards the advertisement (N=116), as a function of description types of healthy food items, language and diet (1 = very negative attitude, 5 = very positive attitude).

There was no significant effect for description type ($F(2, 224) = 1.72, p = .181, \eta_p^2 = .02$), no significant effect for language ($F(1, 112) = 1.40, p = .240, \eta_p^2 = .01$) and no significant effect for diet ($F(1, 112) < 1, p = .411, \eta_p^2 = .01$) on desirability. Furthermore, there was no significant interaction between description type and language on desirability ($F(2, 224) < 1, p = .475, \eta_p^2 = .01$), no significant interaction between description type and diet on desirability ($F(2, 224) = 1.13, p = .326, \eta_p^2 = .01$) and no three-way interaction between description type, language and diet on desirability ($F(2, 224) < 1, p = .672, \eta_p^2 < .01$). The means and standard deviations are displayed in Figure 8.

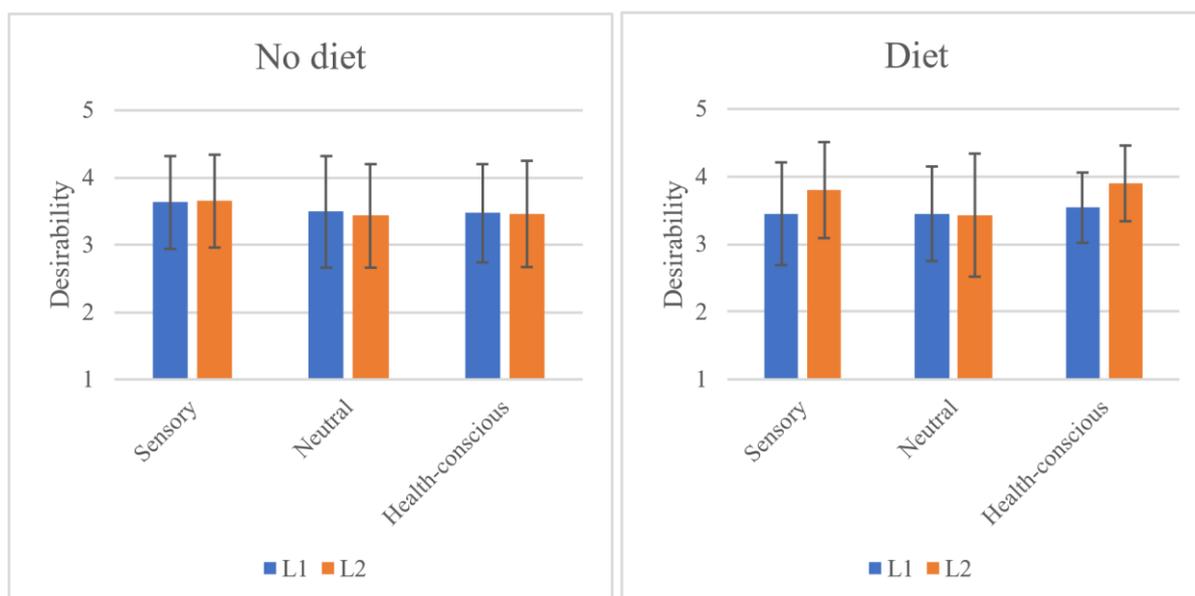


Figure 8. Means and standard deviations of desirability (N=116), as a function of description types of healthy food items, language and diet (1 = very low desirability, 5 = very high desirability).

There was no significant effect for description type ($F(2, 224) < 1, p = .392, \eta_p^2 = .01$), no significant effect for language ($F(1, 112) < 1, p = .752, \eta_p^2 = .03$) and no significant effect for diet ($F(1, 112) = 2.85, p = .094, \eta_p^2 < .01$) on purchase intention. Furthermore, there was no significant interaction between description type and language on purchase intention ($F(2, 224) = 1.07, p = .345, \eta_p^2 = .01$), no significant interaction between description type and diet on purchase intention ($F(2, 224) = 1.59, p = .206, \eta_p^2 = .01$) and no three-way interaction between description type, language and diet on purchase intention ($F(2, 224) = 1.61, p = .203, \eta_p^2 = .01$). The means and standard deviations are displayed in Figure 9.

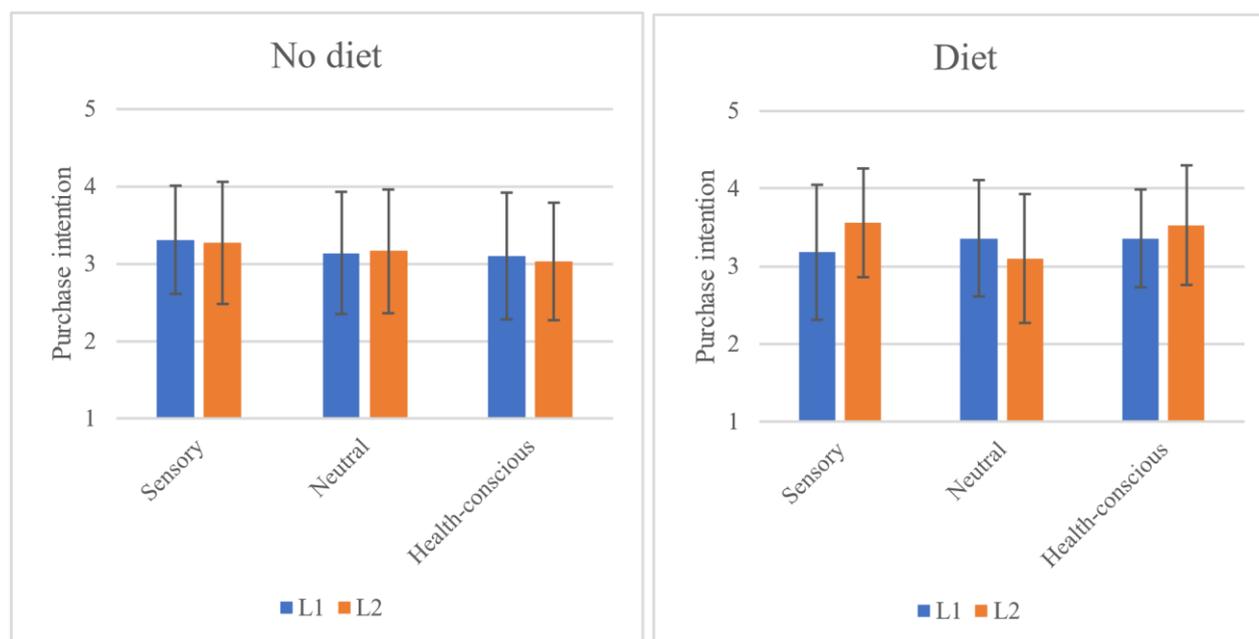


Figure 9. Means and standard deviations of purchase intention (N=116), as a function of description types of healthy food items, language and diet (1 = very low purchase intention, 5 = very high purchase intention).

6. Conclusion

The aim of this study was to investigate in what ways language could be used to encourage healthy food choices. This was investigated through an experiment with multiple advertisements, varying in language (L1/L2) and description types of the food (Sensory/neutral/health-conscious), followed by questionnaires.

The results did not provide enough evidence to support the hypothesis and research questions of this study. There was no difference between the experienced levels of desirability, purchase intention or attitude towards the advertisement caused by the description types used in the advertisement (sensory/neutral/health-conscious). The participants reported comparable scores despite the varying description types.

Furthermore, language (L1/L2) did not affect the desirability, purchase intention or attitude towards the advertisement. The reported scores were comparable across the two language groups.

Also, the results of the experiment showed that there was no interaction between the use of description types (sensory/neutral/health-conscious) and language (L1/L2) on the experienced levels of desirability, purchase intention or attitude towards the advertisement.

Thus, there was no joined effect of description types and L1 or L2 use.

Furthermore, hunger level and diet played no role in the participant's desire, purchase intention and attitude towards the food item. The participants reported similar scores across the diet and hunger level groups.

Therefore, the findings of this study might suggest that the research question 'how can language be used to encourage healthy food choices?' could possibly not be answered yet and might need further research to establish the precise effects of language.

7. Discussion

For this paper, an experiment was conducted to investigate possibilities of language effects in healthy food marketing.

The effect of various description types of food items (sensory/neutral/healthconscious) was not consistent with previous literature on the embodied theory of language or the grounded theory of desire (Naylor & Hoyer, 2006; Papies et al., 2017; Papies, 2013; Raghunathan et al., 2006; Turnwald & Crum, 2019; Turnwald et al., 2017a, Turnwald et al., 2017b). These studies suggested that sensory language might cause food-related mental simulations through the link between sensory language, the senses and emotions. These mental simulations might, in turn, increase the perceived desirability of a food item and, subsequently, the purchase intention and attitude towards the advertisement of a viewer (Naylor & Hoyer, 2006; Papies et al., 2017; Papies, 2013; Raghunathan et al., 2006; Turnwald & Crum, 2019; Turnwald et al., 2017a). Moreover, a negative effect of health-conscious descriptions of food items was suggested, as these descriptions would cause the food item to be estimated as less tasty or appealing (Raghunathan et al., 2006). The present study, however, did not find evidence of the suggested beneficial effect of sensory descriptions nor the suggested negative effect of health-conscious descriptions. Namely, the participants of this study rated their desire for, purchase intention of and attitude towards healthy food items equally, despite the varying description types used. The present study might possibly imply that food-related descriptions may not always affect the viewer's reaction to the advertisement. However, more research is necessary to investigate this possibility, to understand the precise effect of language descriptions and their possible limitations.

However, these findings might also be explained by the methodology of the present study. Namely, an experiment with multiple advertisements and questionnaires was conducted. The repetitive exposure to advertisements and the varying description types might

have caused awareness of the manipulations, as the participants were able to compare between adverts and descriptions. After completing the experiment, some participants also reported their awareness of the three description types (sensory/neutral/health-conscious).

This conscious awareness might have affected the participants' answers. It could, for example, have caused social desirability response bias (Van den Mortel, 2008). This means that, for example, the health-conscious advertisements might have received more positive responses, as the participants might have been inclined to portray a healthier image of themselves to comply with societal ideals (Van den Mortel, 2008). Subsequently, the sensory advertisements might have received more negative responses. Therefore, the possibility of the participants' conscious awareness of the varying description types might have affected the validity of the present study.

This could be compared to the methodologies of previous studies (Turnwald & Crum, 2019; Turnwald et al., 2017a; Turnwald et al., 2017b). Namely, the experiments of the previous literature involved the different labelling of healthy food items, followed by measurements of the amount of food that was eaten without the subjects' conscious awareness. The results of these experiments might, thus, have been based on subconscious actions following from the participants' exposure to sensory or health-conscious descriptions. As the participants were less likely to be aware of the descriptions, an effect due to social desirability response bias might have been less likely (Van den Mortel, 2008). Therefore, the participants might have been stimulated to portray more realistic behaviour caused by their exposure to the descriptions. This difference in methodology between previous studies and the present study might explain the difference in results. The findings of the present study might, thus, imply that the effect of descriptions on healthy food choices may be largely subconscious. This might indicate that the hypothesised positive effect of sensory language is only applicable when a subject is not consciously aware of its presence. However, more research is needed to establish the effect of conscious awareness of description types on advert evaluation.

To control for social desirability response bias and the possible effect of awareness, future research could use the social desirability scales mentioned in the study of Van den Mortel (2008). These scales are designed to detect, minimise and neutralise the effects of social desirability responding and, thus, enhance the validity of research (Van den Mortel, 2008). Another suggestion for future research could be to show less advertisements per participant to limit their opportunity to compare. This might, subsequently, decrease the social

desirability responding effect and the awareness of participants concerning the varying description types. Another option would be, for example, to change the design to a betweensubjects design, in which participants see advertisements including only one description type (sensory/neutral/health-conscious). However, this experiment design might be complex and would require many participants.

Another factor that might explain the discrepancy between the results of description type of previous studies and the present study might be found in the questionnaires (Papies et al., 2017; Papies, 2013; Turnwald et al., 2017a; Turnwald & Crum, 2019). The experiment of the present study required participants to consciously evaluate the food advertisements and self-rate their reactions. Self-ratings require individuals to judge their own thoughts and actions. This could be compared to the methods of previous literature (Papies et al., 2017; Papies, 2013; Turnwald et al., 2017a; Turnwald & Crum, 2019). In these studies, measures such as feature-listing or the measurement of the food eaten were used to determine the participants' thoughts and actions without their own judgement. Self-ratings might have affected the results, because it is difficult to examine their correctness or reliability (Lee, Drinnan & Carding, 2005, Robbins & Larson, 1985). The participants could, for example, have misinterpreted their actual desire, purchase intention or attitude (Lee et al., 2005; Robbins & Larson, 1985; Van den Mortel, 2008). Therefore, the questionnaires might have possibly affected the validity of this study.

In order to minimise the effect of these self-ratings, the advertisement could, for example, not be followed by a questionnaire but by the presentation of the actual food of the advertisement, and the measurement of the food eaten. This would link the subconscious elements of the previous literature to the investigation of advertisements of the present study (Turnwald et al., 2017a; Turnwald & Crum, 2019). Another option would be to ask the participant to choose one food item out of the advertised food items. This might simulate the desire and purchase intention of the participant. These future studies might reflect reality more truthfully, as the participant's actions would reflect the effectiveness of the advertisement instead of their own conscious judgement. Through this experiment, more valid results might be obtained as compared to the self-ratings of the present study.

Furthermore, L1 and L2 effects in advertisements were investigated. The literature suggested that there might either be a more positive L1 effect (De Langhe et al., 2011; Luna & Peracchio, 2001; Pavlenko, 2012; Puntoni et al., 2009) or a more positive L2 effect (Keysar et al., 2012; Pavlenko, 2012). The positive L1 effect would have been caused by the stronger

links to the emotions, senses and memory (Pavlenko, 2012; Puntoni et al., 2009). This implies that stimuli would have a stronger effect through the L1 and, thus, that L1 use was most preferential in advertisements to create desirability, purchase intention and a positive attitude. The positive L2 effect would have been caused by weaker affective processing of potential negative stimuli (Keysar et al., 2012, Pavlenko, 2012). This means that the negative stimuli might have been experienced less intensely, which would have caused an overall stronger positive effect of the L2 on desirability, purchase attention and attitude. The findings of the present study are not in line with either view, as language (L1/L2) did not affect the participants' evaluation of the advertisements. The participants rated the effectiveness of the advertisements equally in both their L1 (Dutch) and their L2 (English). This may indicate that the use of the viewer's L1 or L2 might not always affect the viewer's reaction to the advertisement. However, more research is necessary to understand the exact effects of either L1 or L2 use in adverts.

It is also possible that the results of the present study were caused by a simultaneous positive effect of both L1 and L2 use. The assumed positive effects of L1 use (Pavlenko, 2012; Puntoni et al., 2009) could have been balanced out by the positive effects of L2 use in the experiment (Keysar et al., 2012; Pavlenko, 2012). This might have resulted in an equal positive effect of either language. This possibility might be investigated in future research through increasing the amount of either positive emotional or sensory stimuli (to evoke the positive L1 effect) or negative stimuli (to evoke the positive L2 effect) in the advertisements. This study might highlight the L1 and L2 effects more clearly.

Additionally, all participants were native Dutch speakers and most participants were very proficient English speakers. This might have reduced the language effects. Namely, according to the RHM, the L2 might only be mediated by the L1 until a speaker would require enough proficiency in the L2 (Kroll et al., 2010). Subsequently, the L1 mediation might weaken or disappear (Clenton, 2015). As a consequence, the beneficial effect of L1 use, in relation to desire, purchase intention and attitude, might have been weakened too. The participants of this study might, thus, have been too proficient in English for L1/L2 effects to occur. This could be addressed in future research through incorporating different proficiency levels or to investigate a different population. This population might be less proficient in English in general, for example the Italian or French population.

Furthermore, previous research implied a possible difference in the effect of sensory language combined with either L1 or L2 use in advertisements (De Langhe et al., 2012;

Pavlenko, 2012; Puntoni et al., 2009). This suggestion is not supported by the results of the present study. There was no main effect of either L1 use or L2 use on the participants' evaluation of the advertisements and the effect of description might have been diminished by the participants' conscious awareness of the manipulations and the self-ratings. This could have caused the link between language and description types to not have been strong enough for a measurable joined effect.

Additionally, there were some limitations due to the design of the experiment that might explain the results of this study. Some participants commented that the six advertisements and following questionnaires caused the experiment to be repetitive or lengthy in their experience. Moreover, some participants mentioned that the texts of the advertisements were rather lengthy too in their opinion. As a consequence, these elements of the experiment might have caused the participants to experience boredom and pay less attention (Danckert & Merrifield, 2016; Eastwood et al., 2012; Kass, Wallace & Vodanovich, 2003; Malovski et al., 2012). This might have caused participants to be less capable of completing the experiment successfully and truthfully, as boredom might cause a failure to engage executive control networks (Danckert & Merrifield, 2016; Eastwood et al., 2012). As a result, participants might have chosen answers less critically or more quickly than they would have done without a boredom effect. This might have affected the validity of the present study. In future research, the participants might be presented with fewer advertisements or less texts to control for this possible boredom effect.

A number of participants, moreover, commented that the relatively large amount of text displayed on the advertisements might have limited the realism of the advertisements in their experience. They argued that advertisements rarely display large amounts of texts and, therefore, were less realistic. Furthermore, the participants explained that this complicated their judgement of the advertisements. These comments were, however, not reflected in the data of the experiment, as most participants answered 'agree' on the statement 'I find this advertisement realistic'. However, the texts of the advertisements could be shortened or spread across the advertisement to enhance their realism even more in future research. This might resemble traditional advertisements to a better extent and comply with the comments of the participants of this study.

The descriptions used in the advertisements should have induced enough sensory simulation. The sensory descriptions were based on previous research on description types of healthy food marketing and might, thus, be generally recognised as sensory descriptions

(Papies et al., 2017; Papies, 2013; Turnwald et al., 2017a; Turnwald & Crum, 2019; Turnwald et al., 2017b). Moreover, the health-conscious descriptions also complied with these studies and all highlighted the nutritional aspects of food sufficiently. The neutral words might have induced different connotations depending on the specific neutral description used. ‘Green’ might have induced different connotations than ‘mixed’ or ‘typical’, for example. However, this neutral group is important in order to establish the effect of sensory or health-conscious descriptions. In future research, the category of neutral descriptions might be more limited. For example, all neutral words could refer to a visual aspect of the food without referring to its taste or health-capacities. This might reduce the number of connotations stimulated by the neutral descriptions, which might create a more reliable control condition. This could in turn positively affect the reliability of the study.

This study aimed to contribute to existing theory in a number of ways. First of all, it intended to add to the studies on sensory and health-conscious language, the embodied theory of language and the grounded theory of desire. Furthermore, this study aimed to contribute to the debate on L1/L2 differences and, more specifically, to the debate on effectiveness of L1/L2 use in advertisements. The results of this study are relevant to the field of healthy food marketing. The results might contribute to increasing healthy food choices. However, further research is necessary in order to investigate the precise effect of language and description in healthy food advertisements and their potential to reduce the rising obesity rates.

Words; 9065

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Appendix I; questionnaire English

- A. What was the last sentence of the previously shown advertisement?
 B. What was a characteristic of the previously shown food item?
 C. Was a company mentioned in the text of the previously shown advertisement?

1. I am interested in or excited about this product

Completely disagree *Completely agree*

2. I would buy this product

Completely disagree *Completely agree*

3. This product looks tasty

Completely disagree *Completely agree*

4. I want to eat/drink this product

Completely disagree *Completely agree*

5. I find this advertisement convincing

Completely disagree *Completely agree*

6. This is a realistic advertisement

Completely disagree *Completely agree*

7. I like this advertisement

Completely disagree *Completely agree*

Are you currently following any of these diets? Multiple boxes can be ticked.

- Vegetarian
 - Vegan
 - Lactose intolerant
 - Gluten-free diet
 - No
 - Other
-

How many hours ago did you last eat?

.....

What is your gender?

- Male Female
- Rather not say
- Other

.....

What is your age?

.....

What is the highest level of education you completed?

- None Highschool MBO HBO WO

What is your native language/ mother tongue?

.....

At what age have you begun to learn the Dutch language?

.....

How often do you read Dutch texts?

- Daily or almost daily
- Weekly Monthly
- A few times a year
- Never

How often do you speak Dutch?

- Daily or almost daily
- Weekly Monthly A few
- times a year Never

At what age have you begun to learn the English language?

.....

How often do you read English texts?

- Daily or almost daily
- Weekly Monthly
- A few times a year
- Never

How often do you speak English?

- Daily or almost daily
- Weekly Monthly A few
- times a year Never

Appendix II; questionnaire Dutch

A. Wat was de laatste zin van de advertentietekst?

B. Werd er een bedrijf genoemd in de advertentietekst?

C. Wat is een kenmerk van het product volgens de advertentietekst?

1. Ik ben geïnteresseerd in dit product

Helemaal oneens

Helemaal eens

2. Ik zou dit product kopen

Helemaal oneens

Helemaal eens

3. Dit product ziet er lekker uit

Helemaal oneens

Helemaal eens

4. Ik zou dit product eten/drinken

Helemaal oneens

Helemaal eens

5. Ik vind deze advertentie overtuigend

Helemaal oneens

Helemaal eens

6. Deze advertentie is realistisch

Helemaal oneens

Helemaal eens

7. Ik vind deze advertentie leuk

Helemaal oneens

Helemaal eens

Volgt u momenteel een van de volgende diëten? Meerdere antwoorden kunnen worden gekozen.

- Vegetarisch
- Veganistisch
- Lactose intolerant
- Glutenvrij dieet
- Nee Anders
-

Hoeveel uur geleden heeft u voor het laatst gegeten?

.....

Wat is uw gender?

- Man
- Vrouw
- Zeg ik liever niet
- Anders
-

What is uw leeftijd?

.....

Wat is uw hoogste level onderwijs dat u heeft afgerond of aan het afronden bent?

- Geen
- Middelbare school
- MBO HBO
- WO

Wat is uw moedertaal?

.....

Op welke leeftijd bent u begonnen met het leren van de Nederlandse taal?

.....
Hoe vaak leest u Nederlandse teksten?

- Dagelijks of bijna dagelijks
- Wekelijks Maandelijks Een
aantal keer per jaar Nooit

Hoe vaak spreekt u Nederlands?

- Dagelijks of bijna dagelijks
- Wekelijks Maandelijks
- Een aantal keer per jaar
- Nooit

Op welke leeftijd bent u begonnen met het leren van de Engelse taal?

.....

Hoe vaak leest u Engelse teksten?

- Dagelijks of bijna dagelijks
- Wekelijks Maandelijks
- Een aantal keer per jaar
- Nooit

Hoe vaak spreekt u Engels?

- Dagelijks of bijna dagelijks
- Wekelijks Maandelijks
- Een aantal keer per jaar
- Nooit

Appendix III; Advertisements

L1/ neutral



Wist je dat een van de meest gegeten ontbijten yoghurt met muesli en fruit is? Deze combinatie is niet alleen lekker maar geeft je ook genoeg energie voor de rest van je dag! Probeer ons yoghurt ontbijt met gemixte muesli en meerdere fruitsoorten!

L1/ health-conscious



Wist je dat een van de meest gegeten ontbijten yoghurt met muesli en fruit is? Deze combinatie is niet alleen lekker maar geeft je ook genoeg energie voor de rest van je dag! Probeer ons yoghurt ontbijt met vezelrijke muesli en gezond fruit!

L1/sensory



Wist je dat een van de meest gegeten ontbijten yoghurt met muesli en fruit is? Deze combinatie is niet alleen lekker maar geeft je ook genoeg energie voor de rest van je dag! Probeer ons yoghurt ontbijt met knapperige muesli en zoet fruit!

L2/ neutral



Did you know that yoghurt, muesli and fruit is one of the most eaten breakfasts? This combination is not only delicious but also boosts your energy for the rest of your day! Try our yoghurt breakfast with mixed muesli and various fruits!

L2/ health-conscious



Did you know that yoghurt, muesli and fruit is one of the most eaten breakfasts? This combination is not only delicious but also boosts your energy for the rest of your day! Try our yoghurt breakfast with fiber-rich muesli and healthy fruit!

L2/ sensory



Did you know that yoghurt, muesli and fruit is one of the most eaten breakfasts? This combination is not only delicious but also boosts your energy for the rest of your day! Try our yoghurt breakfast with crunchy muesli and sweet fruit!

L1/ neutral



L1/ health-conscious



L1/ sensory



L2/ neutral



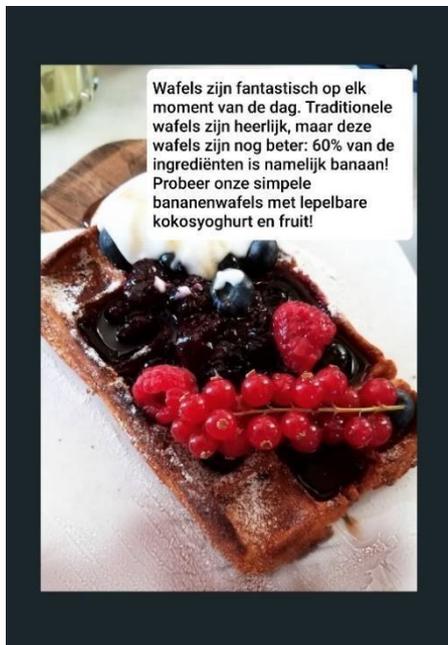
L2/ health-conscious



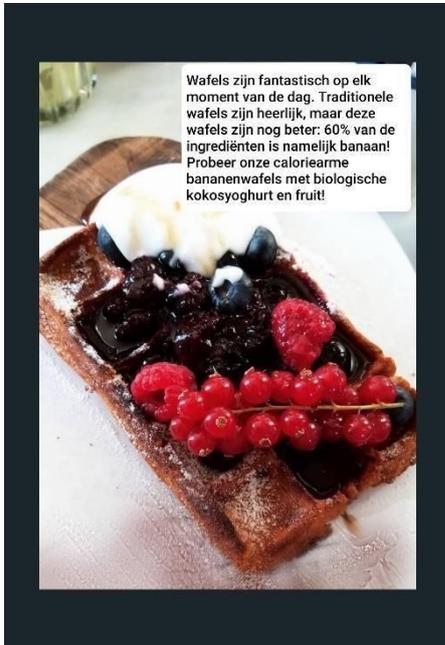
L2/ sensory



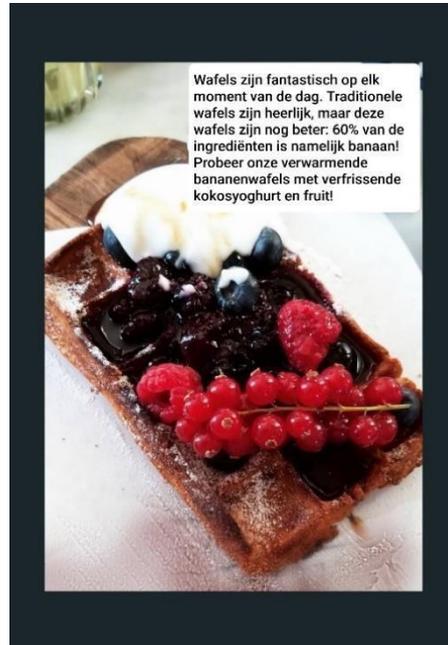
L1/ neutral



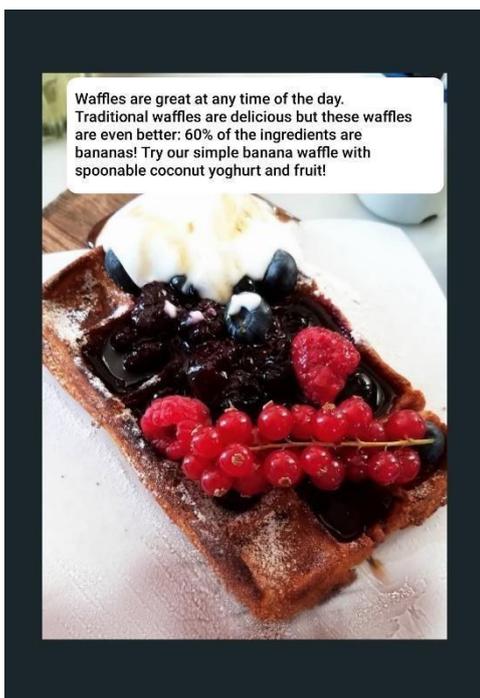
L1/ health-conscious



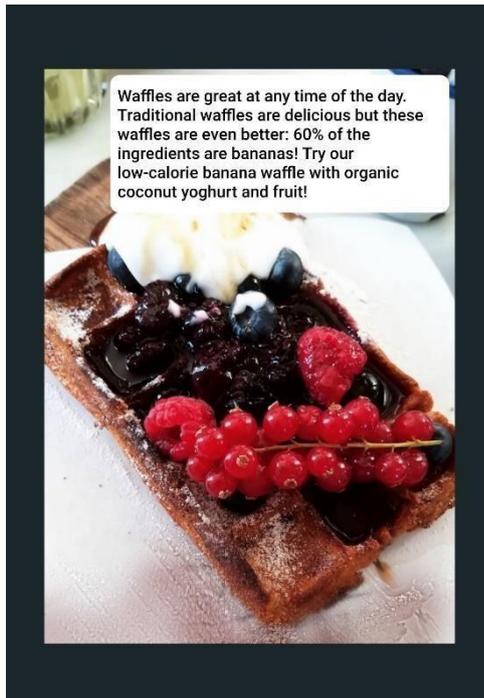
L1/ sensory



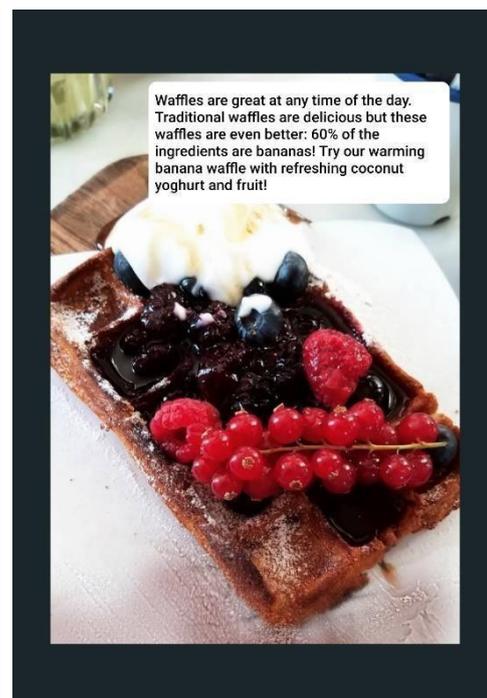
L2/ neutral



L2/ health-conscious



L2/ sensory



L1/ neutral



L1/ health-conscious



L1/ sensory



L2/ neutral



L2/ health-conscious



L2/ sensory



L1/ neutral



L1/ health-conscious



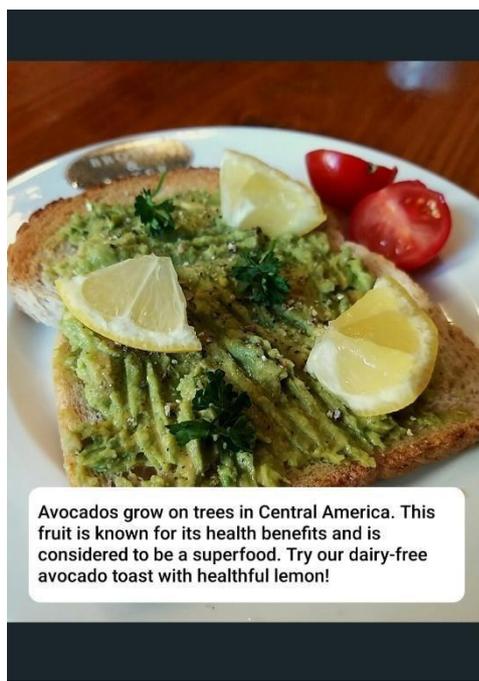
L1/ sensory



L2/ neutral



L2/ health-conscious



L2/ sensory



L1/ neutral



L1/ health-conscious



L1/ sensory



L2/ neutral



L2/ health-conscious



L2/ sensory



Appendix IV; Consent form used in questionnaire English

Please read the following and tick the box at the end of the message if you agree to take the questionnaire.

Title: Marketing of Food Adverts

Principal Investigator: Emma Adams

Purpose: Master Thesis

- This message is to certify that I freely agree to participate as a volunteer in this questionnaire and research project under the supervision of dr. L. Speed.

- I have been provided a cover message and a consent message that fully explain the research project; they invite me to take the questionnaire; describe the procedures of this investigation; and present any risks, discomforts, and benefits associated with my participation.

- I have been given an opportunity to ask questions, and all such questions and inquiries have been answered to my satisfaction.

I understand that I am free to decline to answer any specific items in the questionnaire.

- I understand that all data will remain confidential and anonymous.

- I understand that there are no risks or benefits beyond those that exist in daily life associated with participation in the questionnaire.

- I understand that the anonymous data will be used for a Master Thesis and I understand that the anonymous data may also be used in a journal article or other manuscript.

- I understand that participation in this research project is voluntary and not a requirement or a condition for being the recipient of benefits or services from the University of Radboud.

- I understand that the approximate length of time required for participation in this research project is 12 minutes.

- I understand that if I have any questions concerning the purposes or the procedures associated with this research project, I may write: Emma Adams.

- I understand that it will not be necessary to reveal my name in order to obtain additional information about this research project from the principal investigator.

- I understand that if I have any questions or concerns about the treatment of human subjects in this study, I may write: Emma Adams. I understand that all inquiries will be kept in the strictest confidence.

- I UNDERSTAND THAT I AM FREE TO WITHDRAW MY CONSENT AND DISCONTINUE MY PARTICIPATION IN THIS RESEARCH AT ANY TIME.

Please tick the following box if you have read the consent form and agree to the terms.

- I have read the consent form and agree to the term