

CONSUMERS' EVALUATION OF WHOLEMEAL BREAD: EFFECTS OF COMMUNICATION CAMPAIGNS STRESSING HEALTH VERSUS PLEASURABLE ASPECTS

Merel Winnemuller

950730963130

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Management and Consumer Studies

Chair group: Marketing and Consumer Behaviour

Faculty of Social Sciences

Wageningen University

Supervisor: Dr. Ir. P.W. van Kleef

Second Reader: Dr. P.T.M. Ingenbleek

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Abstract

The objective of this study was to get insight in the effect of communication campaigns on consumers' evaluation of wholemeal bread. A between-subjects experimental study was designed with two conditions: a communication campaign stressing health benefits of wholemeal bread and a communication campaign stressing pleasurable aspects of wholemeal bread. Consumers' evaluation consisted of the key outcome variables expected taste experience, enjoyment, freshness, healthiness and willingness to pay. Results illustrated that consumers' evaluation of wholemeal bread was not influenced by a particular communication campaign. This suggests that in contrast to the hypotheses, consumers are not stimulated to consume more wholemeal bread after being exposed to a communication campaign stressing pleasurable aspects. Future research could be valuable if there is used actual wholemeal bread as a trigger for consumers' evaluation or if the research is designed with a stronger manipulation.

Table of contents

1.	Introduction.....	5
2.	Theoretical background.....	7
2.1	Barriers for consumption of whole grains.....	7
2.2	Decision making processes of consumers.....	7
2.3	Communication of health aspects of food products.....	8
2.3.1	Health and nutrition claims on packaging.....	8
2.3.2	Nutrition education campaigns.....	8
2.3.3	Providing information to consumers.....	9
2.4	Possible misinterpretations of health and nutrition information.....	9
2.4.1	Simplification.....	9
2.4.2	Health halo effect.....	10
2.4.3	“Unhealthy = tasty” intuition.....	10
2.5	Communication of pleasurable aspects of food products.....	10
2.5.1	Artisanal products and consumers’ evaluation.....	11
2.6	Conceptual model and hypotheses.....	11
3.	Methods.....	13
3.1	Design.....	13
3.2	Participants.....	13
3.3	Procedure.....	13
3.4	Data analysis.....	14
4.	Results.....	14
4.1	General description and randomisation test.....	14
4.2	Effects of communication campaigns on consumers’ evaluation (taste experience, enjoyment, freshness and healthiness).....	15
5.	Discussion and conclusion.....	15
	Limitations and recommendations for further research.....	16
	References.....	17
	Appendix: Questionnaire.....	21

1. Introduction

Whole grains are important sources of nutrients that are necessary in our diet, and therefore universally recommended as an important part of it (Slavin, Jacobs, & Marquart, 1997). Several studies showed that the consumption of whole grains reduces the risk of coronary heart diseases (Cleveland, Moshfegh, Albertson, & Goldman, 2000; the Health Council of the Netherlands, 2015), certain cancers, chronic diseases and all-cause mortality (Cleveland et al., 2000). There is evidence that whole grain consumption consistently decreased when BMI categories increased (Van de Vijver, Van den Bosch, Van den Brandt, & Goldbohm, 2009). The intake of whole grains has positive health consequences. Therefore, the Health Council of the Netherlands developed a guideline in which consumers are recommended to substitute refined grain products by whole grain products, and to consume at least 90 grams of brown bread, wholemeal bread or other whole grain products daily (Health Council of the Netherlands, 2015).

Wholemeal bread is made of whole grains and contains highly milled flour with all the dietary fibre of whole grains, instead of the original form of the whole grains (Jenkins et al., 1988). In the Netherlands, there are no official guidelines for the qualification 'whole grain' except for bread, which has to contain 100% wholemeal flour (Health Council of the Netherlands, 2015). Despite the fact that whole grains have such positive health consequences, the intake is still below the recommended level (Van Rossum, Franssen, Verkaik-Kloosterman, Buurma-Rethans, & Ocké, 2011).

There are many possibilities to change nutritional behaviour of people. An often used strategy is to conduct a nutrition education campaign. For years now, various campaigns have been launched by governments or organizations all over the world to stimulate their inhabitants to eat healthier. The 'Five A Day for Better Health' national health promotion campaign in the USA encourages people to eat at least five servings of fruit and vegetables per day (Blom-Hoffman, Kelleher, Power, & Leff, 2004) and the 'Schijf van Vijf' campaign in the Netherlands encourages people to follow a varied diet existing of five main pillars (The Netherlands Nutrition Centre, 2004).

Nutrition education campaigns are designed to improve nutritional knowledge (Spronk, Kullen, Burdon, & O'Connor, 2014) by providing information to consumers (Ernst et al., 1986). When conducting an education campaign, the expectation is that nutritional knowledge has an impact on nutritional behaviour. Despite the high amount of nutrition campaigns, little knowledge is available about the impact of nutrition knowledge on dietary intake (Spronk et al., 2014). Nevertheless, several studies (Ernst et al., 1986; Lee, Y.M., Lee, M.J. & Kim, 2005; Spronk et al., 2014) show that there is a weak or no significant positive correlation between nutritional knowledge and dietary intake. In some Western countries, the consumption of whole grain food products is still less than one serving per day, even while the benefits of whole grains are already reached with a relatively low intake, as two or three servings per day (Lang, & Jebb, 2003).

A possible adverse effect of promoting healthier products by emphasizing their health benefits is the health halo effect. The halo effect is defined as an effect "whereby an initial favorable impression promotes subsequent favorable evaluations on unrelated dimensions" (Schuldt, Muller, & Schwarz, 2012, Introduction). Several studies of Chandon & Wansink (2007) show that consumers are more likely to underestimate the caloric content of main dishes and are choosing for higher-calorie side dishes when a restaurant claims to be healthy. This could mean that consumers who are choosing for

wholemeal bread, that is claimed to be healthy, are more likely to overeat it or choose for higher-calorie toppings and side dishes like sugar- or gingerbread. Next to the health halo effect, the 'unhealthy = tasty' intuition can be a disadvantage of nutritional knowledge. When a food product is described as less healthy, consumers' perceptions are that the food product is better in its inferred taste, is more enjoyed during actual consumption and is more preferred when a hedonic goal is important (Raghunathan, Naylor, & Hoyer, 2006). So if consumers are made aware of the health benefits of wholemeal bread, they can be biased by the 'unhealthy = tasty' intuition when they are making the decision of buying or consuming wholemeal bread.

Because of the still limited intake of whole grain food products, coupled with the risks of health halos, there are increasing concerns that communication strategies focusing on health benefits are less effective in changing consumer behaviour. Rather, it might be more effective to emphasize the pleasure that a healthy food can give to consumers (Pettigrew, 2016). The pleasure a food can provide consists of several hedonic aspects such as the sensory experience (smell, taste, texture). Recently, Cornil and Chandon (2015) studied an innovative way to encourage people to choose and actually prefer smaller food portions. In their research, the participants had to imagine the multisensory pleasure (taste, smell and texture) of three different kinds of hedonic foods, before they had to choose the portion size of another hedonic food. The results were that participants chose smaller portions. In this way, the study showed that by stimulating the pleasure experienced by consumers while eating, consumers seem to be happier with smaller portions of food, which results in a healthier consumption pattern.

In this study, the aim is to explore whether there is a difference in communicating wholemeal bread as healthy or as pleasurable due to artisanal qualities. In the communication strategy stressing health benefits, the bread is presented as rich in nutrients and as a food product that reduces the risk for diseases. This communication strategy will be contrasted with a communication strategy that focuses on the quality of artisanal bread, the pleasure provided by consuming it and the traditional, artisan production process: with passion, instead of being a mass-product. Consumers have an increasing interest in authentic food products. In the last 20 years, consumers pay more attention to what they eat, where their food comes from and the transparency of the food chain (Autio, Collins, Wahlen, & Anttila, 2013; Pearson et al., 2011). This interest is encouraged by the desire for food products that can bring some differentness, and pleasure along with it, in consumers' lives (Groves, 2001).

More specifically, this study attempts to provide evidence that the way in which wholemeal bread is communicated to consumers has an effect on consumers' evaluation of it. The research question that is formulated is as follows:

What is the effect of two different communication campaigns – stressing health benefits versus pleasurable aspects of wholemeal bread – on consumers' evaluation?

A between-subjects experimental study was designed in which participants were divided into two groups. Half of all participants were exposed to a wholemeal bread communication campaign stressing the health benefits of wholemeal bread. The other half of the participants were exposed to a campaign stressing the pleasurable and artisanal aspects of the same bread. The key outcome variables that are part of the evaluation are the expected taste experience, enjoyment, freshness,

healthiness and willingness to pay. After seeing the campaign, participants have to evaluate the bread in a brief questionnaire.

If there can be concluded that communicating wholemeal bread as pleasurable provides a more positive consumer evaluation, this knowledge can be used in developing campaigns to stimulate the intake of wholemeal bread and hereby contribute to public health.

2. Theoretical background

2.1 Barriers for consumption of whole grains

Whole grains are more than just fiber. Research has found that parts of whole grains, among others vitamins and minerals, have some advantageous health consequences. Therefore, recommendations are made to eat at least three servings of whole grain foods a day. Bread is one of the most commonly eaten grain products. Bakke & Vickers (2007) found that refined breads (bread that contain only refined flours) are preferred more than whole wheat breads. In highly refined flour there is a loss of many nutrients and fiber (Liu et al., 1999). Therefore, it is important to stimulate the intake of whole grain products instead of refined grain products. However, convincing consumers to eat the recommended amount of whole grains has still been unsuccessful (Adams & Engstrom, 2000). For consumers, there are several barriers for consuming whole grain foods. Consumers are for example often unable to identify whole grain foods at the point of purchase. Next to this, consumers can perceive the appearance, taste and texture of whole grain foods as unattractive. Another barrier can be the inability to prepare whole grain foods or the fact that consumers don't have the time it takes to prepare them. On the market place, the whole grain foods can be higher priced and less available, which can lead to limited purchase. Another important barrier is consumers' unawareness of the benefits of whole grain foods (Adams & Engstrom, 2000; Burgess-Champoux, Marquart, Vickers, & Reicks, 2006; Kantor, Variyam, Allshouse, Putnam, & Lin, 2001).

2.2 Decision making processes of consumers

Consumers in the Western world face numerous choices about food every day. They have to make repeated decisions about what, when, where, with whom and how much to eat (Rothman, Sheeran, & Wood, 2009). This has to be taken into account when considering consumers' decision making processes. In the introduction is discussed that nutrition education campaigns have limited results. A possible explanation for these limited results is the theory of bounded rationality of Kahneman. He distinguishes two modes of thinking and deciding: system 1 and system 2. System 1 is fast, automatic and intuitive, it is using minimal cognitive resources and is active all the time. System 2 is slow, effortful and conscious, in other words, people are aware of thinking reflectively or using simple decision rules. Behaviour guided by the reflective thinking process is based on deliberation and intention formation, while for behaviour guided by the automatic process, mental representations, like goals, are activated (Kahneman, 2003; Rothman et al., 2009). Kahneman (2003) shows that people behave according their automatic system (system 1) when making decisions about food during grocery shopping. Most food choices that give the impression that they are based on thoughtful processing, may however include little or no deliberation. That consumers' eating behaviour is based on the automatic system can be a result of situational cues. These cues can

provide automatic responses, like an impulsive desire for cookies when perceiving the smell of cookies (Rothman et al., 2009).

Another element that influences the decision making process of consumers is the packaging of a food product. Packaging is an important marketing tool, because unlike traditional advertising, a package is present at two critical moments: the moment of purchasing and of consumption. Where a packaging once was a by-product with only logistic and protective aims, nowadays it forms a communication tool itself. Some parts of a packaging are mandatory, for example size and nutrition information (Chandon, 2013). Nutrition labels provide information to consumers about the nutritional benefits and costs of the particular food product (Rothman et al., 2009). Beside this mandatory information on packages, marketers can design the information that is displayed on packages. This information includes the brand's names and imagery, in particular logos, symbols and slogans. The shape, design, colour and materials of packages all attempt to draw the attention of consumers and create a positive feeling towards the product (Chandon, 2013).

2.3 Communication of health aspects of food products

To improve consumers' ability to identify whole grain foods and help them to make wiser dietary choices, several interventions tools have been developed. The intervention tools that are discussed in the following sections are packaging as a communication tool, communication campaigns and providing information to consumers.

2.3.1 Health and nutrition claims on packaging

Besides information about nutritional benefits on packages, an element that can be added to packages are labels with health claims (Chandon, 2013; Slavin, Jacobs, Marquart, & Wiemer, 2001). Labels containing health claims as "healthy" or "smart choice" influence consumers' experience, in particular their taste and healthfulness perceptions, even when the product formulations are unchanged (Vadiveloo, Morwitz, & Chandon, 2013).

2.3.2 Nutrition education campaigns

Another intervention tool for changing nutritional behaviour of people is to conduct a communication campaign (Snyder, 2007). The main characteristics of communication campaigns are that they are directed to a large group of people, they have a specific goal, have a defined time limit and include organized communication activities (Rogers & Storey, 1987). Communication campaigns differ extensively in the communication activities they use. The communication activities include for example posters, handouts, discussion groups and public service announcements. An important element that has to be considered is the type of behaviour change that is being promoted: the initiation of a new behaviour, discontinuance of an existing behaviour or prevention of an undesired behaviour (Snyder et al., 2004). To increase the success of a communication campaign, it is important to decide which product, service or optimal behaviour has to be promoted, by conducting formative research and pretesting. Another important element for the success of a communication campaign is that according to the mere exposure effect, consumers' affective reactions towards a product are more positively when they have been repeatedly exposed to this product (Harmon-Jones & Allen, 2001). "Mediated campaigns" are communication campaigns that apply at least one form of media in

their campaign (Snyder, 2007). The research of Snyder et al. (2004) shows that in the short term, the measurable effects of mediated health campaigns are small.

2.3.3 Providing information to consumers

Informing consumers about nutritional benefits and costs by providing calorie information in restaurants can be used as an intervention tool as well. This information has to be easy to find and understandable for consumers, without a requirement for special skills. In this way, consumers are able to make informed decisions about the food products (Rothman et al., 2009). Because showing only the calorie information of a meal is not representative for the healthfulness of the total meal, another option is to place more healthful combination meals in a separate section of the menu (Lando & Labiner-Wolfe, 2007). As discussed in section 2.2, consumers make food choices automatically, without considering the benefits and costs of the food product. For this reason, providing information about the food products to consumers have limited effect on a change in their nutritional behaviour (Rothman et al., 2009).

2.4 Possible misinterpretations of health and nutrition information

Benefits of food products for consumers, such as healthiness, pleasantness or sensory perceptions, are difficult to define, not only before, but after the experience as well. When there is no reliable information about how the experience of a food product will be, consumers have a tendency to look at packaged-based marketing claims and design cues. This occurs particularly when they are unfamiliar with the food product (Chandon, 2013). Relying on these kinds of information, can lead to several misinterpretations of health communication.

2.4.1 Simplification

There is not much attention given to topics such as nutrition and epidemiology in educational organisations, including college. The combination of lack of education and plenteous information about food and health risks causes that many consumers use simplifying strategies and heuristics for making nutritional decisions. Two assumptions that are made because of a simplifying approach are categorical thinking and dose insensitivity. Categorical thinking, or dichotomous thinking, means that consumers tend to think in terms of binary oppositions, they categorise (food) products as either “black or white”, “good or bad” or “healthy or unhealthy” and nothing in between (Palascha, van Kleef, & van Trijp, 2015; Rozin, Ashmore, & Markwith, 1996). When consumers are dose-insensitive, they believe that if a food product is harmful in high amounts, it is harmful in low amounts as well. Rozin et al. (1996) found in their study that the categorical and dose-insensitive heuristics were used more frequently by less educated participants than by higher educated participants. Another simplification used by consumers is found by Oakes (2006). In his study, consumers tend to judge food products by their names rather than by their nutrient profiles. Food names that are judged as unhealthy by consumers are considered to cause more weight gain than food products with a healthier reputation, even when these ‘healthy’ products contain a higher energy content (Oakes, 2006).

2.4.2 Health halo effect

When parts of information on food products are missing, consumers tend to consider marketing claims placed on packages. Consumers make inferences about missing information about food products, based on existing attribute information. If a food product contains one healthy attribute, consumers assume that the food product offers healthy, but unrelated and unclaimed attributes as well. For example, they make inferences about the amount of calories a product contains when seeing a health claim as “reduced nutrient”. This phenomenon is called the “health halo” effect. A health halo makes a food product look like it is healthier than it actually is, and this can lead to overconsumption (Chandon, 2013; Schuldt et al., 2012). Health halos can be created by the name of fast food restaurants and the foods on their menus as well (Chandon, 2013). This general health halo leads participants in the study of Chandon and Wansink (2007) to believe that a Subway meal contains 21.3% fewer calories than a McDonald’s meal with the same amount of calories, even when the participants were familiar with both restaurants.

2.4.3 “Unhealthy = tasty” intuition

Consumers’ perceptions of products and services are often affected by their beliefs and expectations, formed by experiences in their daily lives (Shiv, Carmon & Ariely, 2005). This phenomenon is called the market placebo effect. Because of this phenomenon, consumers have a tendency to judge lower-priced products to be of lower quality (Shiv et al., 2005). This effect concerns not only a price related context, but is valid for non-price marketing variables such as scarcity, packaging and product taste as well (Wright, da Costa Hernandez, Sundar, Dinsmore, & Kardes, 2013). Consumers have a strong tendency to sort food products in categories; in the category “healthy” or in the category “tasty” (Chandon, 2013). When food products are labelled as “unhealthy”, consumers are more likely to choose the product because of positive taste inferences and it is more enjoyed during the actual consumption. Furthermore, the preference for these food products in choice tasks where a hedonic goal is important is greater (Raghunathan et al., 2006).

2.5 Communication of pleasurable aspects of food products

Research on overeating assumes that pleasure and healthy eating are enemies (Cornil & Chandon, 2015). Raghunathan et al. (2006) found that consumers experienced more pleasure during consumption of a food product when it is illustrated as less healthy. However, Cornil & Chandon (2015) have shown the opposite. Focusing on imagining the multisensory pleasure made their participants choose smaller food portions and at the same time realizing greater enjoyment. By imagining the multisensory pleasure, the participants had to focus on several variables including taste, smell and texture. Experiencing these external cues, via seeing, smelling, tasting or eating of the pleasant foods activates the pleasant sites of the brain (Berridge, 2009; Cornil & Chandon, 2016). The participants exposed to the health-based interventions were however choosing for a smaller portion than the one they expected to enjoy most. A possible mechanism that explains the results of multisensory imagery is “sensory-specific satiation”, a phenomenon that clarifies that pleasure peaks with smaller portions and declines with larger portions. Van Kleef, Shimizu, & Wan-sink (2013) have shown that smaller portions and larger portions satisfied participants’ ratings of hunger and cravings similar, while the mean intake of calories in the smaller portions was 103 calories less. The

suggestion is made that after eating the smaller portion, consumers will feel equally satisfied but will have consumed much less.

2.5.1 Artisanal products and consumers' evaluation

Economies have changed a lot in the past decades. Where economies in the first place started with offering goods, subsequently changed to offering services, now businesses respond to consumers' desire for experiences by offering and promoting them (Pine & Gilmore, 1998). Because of this shift, consumers cannot longer be seen in the way traditional marketing viewed them, as rational decision-makers with a focus on functional features and benefits. Nowadays, experiential marketers describe consumers as human beings who tend to accomplish pleasurable experiences (Schmitt, 1999). One way to obtain such an experience is by consuming authentic products. Groves (2011) has shown that consumers' perceptions of authenticity relate to both artisan and mass-produced, branded products.

Food systems in industrialized societies are commonly divided in mainstream and alternative food products. The alternative food products attempt to restore practical and discursive links between production and consumption, and are giving the food products their missing history. This history consists of a combination of the local, the traditional and the authentic (Pratt, 2007). The authentic experience is an important element of artisanal food products. Authenticity relates to the local area, the place of origin, and is "made by local hands" (Chhabra, 2005). Artisanal production has been defined as: "A non-industrial and traditional production process, manufactured on a small-scale with a limited degree of mechanisation" (Kupiec and Revell, 1998). Artisanal food products create a nostalgic feeling in consumers' mind, by showing the relationship between the product and the 'good old days'. Holbrook and Schindler (1991) define nostalgia as "*a preference (general liking, positive attitude, or favorable effect) towards objects (people, places, or things) that were more common (popular, fashionable, or widely circulated) when one was younger (in early adulthood, in adolescence, in childhood, or even before birth)*".

Consumers value sustainable, healthy and tasty locally produced food. They perceive food products as the most authentic local food when the food products are self-produced and/or self-processed. Likewise, local food products are related to craftsmanship and artisan production (Autio et al., 2013).

2.6 Conceptual model and hypotheses

The choice for a communication strategy stressing pleasurable aspects or stressing health benefits can influence consumers' overall evaluation of wholemeal bread through different mechanisms: *expected taste experience, expected structure, expected freshness, expected healthiness and willingness to pay*. Based on the review of the literature, several hypotheses are made. These hypotheses lead to the conceptual model shown in figure 1.

H₁ Compared to consumers exposed to the communication strategy stressing health benefits, consumers exposed to the communication strategy stressing pleasurable aspects are predicted to expect a greater taste experience of the product

H₂ Compared to consumers exposed to the communication strategy stressing health benefits, consumers exposed to the communication strategy stressing pleasurable aspects are predicted to expect a greater enjoyment of the product

H₃ Compared to consumers exposed to the communication strategy stressing health benefits, consumers exposed to the communication strategy stressing pleasurable aspects are predicted to expect a greater freshness of the product

H₄ Compared to consumers exposed to the communication strategy stressing health benefits, consumers exposed to the communication strategy stressing pleasurable aspects are predicted to expect the product to be less healthy

H₅ Compared to consumers exposed to the communication strategy stressing health benefits, consumers exposed to the communication strategy stressing pleasurable aspects are predicted to have a higher willingness to pay for the product

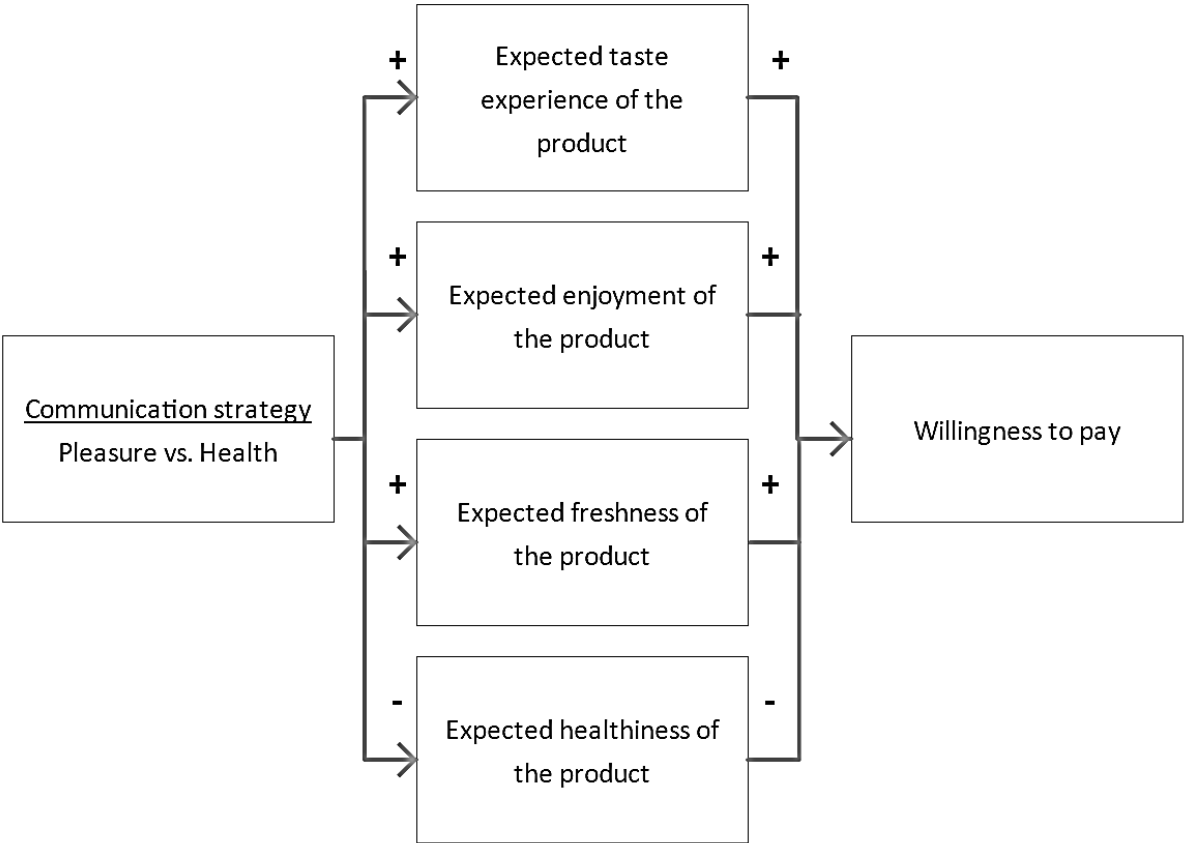


Figure 1. Conceptual model

3. Methods

3.1 Design

A between-subjects experimental study was designed in which participants were randomly assigned to either a health benefits communication campaign condition or a pleasure communication campaign condition. First, participants had to answer some questions about their current mood regarding to food and after that, they were shown the communication campaign. After this they had to fill in some questions about the communication campaign and the survey ended with some control questions.

3.2 Participants

After removing participants that did not complete the survey, the final sample of this study consisted of 95 participants (34 men, 61 women). The age of the participants was between 16 and 60, and the mean age is 27.7 (SD= 12.4).

3.3 Procedure

The survey was distributed and administrated using the online software Qualtrics. First, participants had to answer two questions about their mood regarding to food at the moment of filling in the survey. The first question was about the extent to which they were hungry. This question had a Likert scale of 0 (= not hungry at all) to 7 (= extreme hungry). The second control question was about the extent to which the participants had a desire to eat. This question had a Likert scale of 0 (= no desire to eat) to 7 (= an extreme desire to eat) as well.

After these questions, participants were randomly assigned to one of the two conditions: the health condition or the pleasure condition. Both conditions started with a short text in which participants were steered in particular directions. In the health condition, the health benefits were highlighted, while in the pleasure condition attention was drawn to pleasurable aspects (such as the smell of the bread while baking) of the artisan production process of wholemeal bread. In both conditions, participants were exposed to two images that were representative for that condition: an image of two people jogging in the health condition and an image of a man dressed as a baker on a farmland with corn in the pleasure condition. Next to these images, there was an image of wholemeal bread, which was the same in both conditions.

After seeing these images, there was a quote to strengthen the persuasiveness of the communication campaigns. The first two questions after seeing the campaign were two hypotheses about the persuasiveness and attractiveness of the campaign. Participants had to give an indication to which extent they agreed with the two hypotheses (from totally disagree to totally agree).

Subsequently, participants had to answer some hypotheses regarding their opinion about wholemeal bread. The aspects that were discussed are taste, enjoyment, satisfaction, freshness, structure, healthiness and nutrient. Furthermore, they had to give an indication of a price in euros that they considered to be an honest and worthy price for the wholemeal bread on the image they had seen in the campaign.

In the end, participants had to answer some control questions. These questions were about some personal characteristics, participants' gender and age specifically and about participants' experiences with bread. Their experiences were tested in two questions: the frequency of which they consume wholemeal, brown and/or white bread and their general taste experience of these breads.

3.4 Data analysis

Using analyses of variance (ANOVA) there is first carried out a randomisation test, in which is checked if there were differences between the communication campaign condition (health versus pleasure) and the control variables hungry, desire to eat, age, gender, frequency of consuming wholemeal, brown and white bread and general taste experience of wholemeal, brown and white bread. To execute this analysis, first is checked if control variables can be combined into scales, using Reliability Analysis. If Cronbach's Alpha has a value higher than 0.70, the variables are merged into a scale. To test the effect of the communication campaigns on taste experience, enjoyment, freshness and healthiness, ANOVAs are being used. To get from the dependent variables to these four dependent factors, Reliability Analyses with Cronbach's Alpha are used again to merge the variables into the four factors (all Cronbach's Alpha > 0.70).

4. Results

4.1 General description and randomisation test

The final sample consisted of 34 men and 61 women. The average age of participants was 27.7 (SD= 12.4). The age and gender of participants were randomly assigned to the conditions (both $ps > 0.05$). The variables hungry (to which extent the participants were hungry) and desire to eat (the extent to which the participants had the desire to eat) are merged into the scale 'hunger' (Cronbach's Alpha= 0.932), with a mean of 2.616 (SD= 1.710). There was no difference in the frequency of consuming wholemeal, brown and white bread and participants' general taste experience of the three different kinds of bread between the conditions (all $ps > 0.05$) (table 1). The 'health' communication campaign and 'pleasure' communication campaign were equally persuasive ($p= 0.503 > 0.05$) and attractive ($p= 0.091 > 0.05$).

Table 1 Mean (SD) of randomisation test of control variables in conditions

Control variables	Health communication campaign (n= 49)	Pleasure communication campaign (n= 46)	p-value
Hunger	2.44 (1.73)	2.80 (1.68)	0.300
Age	27.63 (12.69)	27.76 (12.20)	0.960
Gender	1.67 (0.47)	1.61 (0.49)	0.516
Frequency of consuming wholemeal bread	3.90 (1.26)	3.65 (1.29)	0.350
General taste experience wholemeal bread	5.30 (1.28)	4.78 (1.82)	0.107
Frequency of consuming brown bread	3.27 (1.27)	3.52 (1.33)	0.339
General taste experience brown bread	4.76 (1.32)	4.52 (1.97)	0.497
Frequency of consuming white bread	1.53 (0.84)	1.83 (1.10)	0.144
General taste experience white bread	3.45 (2.09)	3.96 (2.37)	0.270

4.2 Effects of communication campaigns on consumers' evaluation (taste experience, enjoyment, freshness and healthiness)

There are some small, but non-significant differences in the effects of the communication campaigns (table 2). For all the four factors, the mean has a higher value in the condition of the health communication campaign compared to the condition of the pleasure communication campaign. But participants' evaluations regarding taste experience, enjoyment, freshness and healthiness did not significantly differ after being exposed to different communication campaigns (all p s > 0.05) (table 2).

Table 2 Mean (SD) of effects of communication campaigns

	Health communication campaign (n= 49)	Pleasure communication campaign (n= 46)	p-value
Taste experience	4.89 (1.09)	4.74 (1.36)	0.557
Enjoyment	5.07 (1.15)	4.73 (1.32)	0.178
Freshness	4.99 (0.83)	4.70 (1.19)	0.179
Healthiness	5.57 (0.87)	5.46 (0.82)	0.508

In the health communication campaign, participants are willing to pay €1,78 on average (SD= 0.46) for the bread showed in the questionnaire, while in the pleasure communication campaign participants are willing to pay €1,85 on average (SD= 0.49). This is a small difference, but it is not significant ($F(1, 93) = 0.509$ and $p = 0.477 > 0.05$).

5. Discussion and conclusion

Despite the fact that whole grains are important sources of nutrients that are necessary in our diet (Slavin et al., 1997), the intake of whole grains is still below the recommended level (Van Rossum et al., 2011). Because the intake still is limited, this research has focused on stimulating consumption by using different communication campaigns. The first communication campaign stressed health benefits, a way in which wholemeal bread is often seen nowadays, as a healthy food product. The second communication campaign stressed the pleasurable aspects of wholemeal bread. There is chosen for this campaign because nowadays consumers are described as human beings who tend to accomplish pleasurable experiences (Schmitt, 1999) and for campaigns it might be more effective to emphasize the pleasure that a healthy food can give to consumers (Pettigrew, 2016). These pleasurable experiences could be reached by describing aspects of the artisanal production process of wholemeal bread in the campaign.

The dependent variable consumers' evaluation consisted of four factors: (expected) taste experience of wholemeal bread, (expected) enjoyment resulting from consumption of wholemeal bread and the (expected) freshness and (expected) healthiness of wholemeal bread. From a theoretical perspective, a communication campaign stressing pleasurable aspects of wholemeal bread should lead to a more positive overall evaluation and a higher willingness to pay for the wholemeal bread. In the communication campaign stressing health benefits, the factor healthiness should be higher evaluated, and the factors taste experience, enjoyment and freshness should be less evaluated.

Results of this research showed that consumers' evaluation of wholemeal bread after being exposed to a communication campaign stressing pleasurable aspects of wholemeal bread is not significantly

different compared to being exposed to a communication campaign stressing health benefits of wholemeal bread. The expectation based on literature review was that the factors taste experience, enjoyment and freshness would be more positively valued in the pleasure condition and that the factor healthiness would be more positively valued in the health condition. Results showed on the other hand that the average evaluation for all four factors does not significantly differ in the health condition compared to the pleasure condition.

Furthermore, the expectation was made that participants were willing to pay a higher price for the wholemeal bread in the pleasure condition. Results of this research have shown that there was a small difference in the price the consumers would like to pay, but this price difference was not significant.

Limitations and recommendations for further research

A possible explanation for the limited results found in this research, is the fact that in the experiment participants had to evaluate the wholemeal bread based on the expected factors taste experience, enjoyment, freshness and healthiness. This was simply an expectation, they haven't seen, smelled, touched or tasted the actual bread. There is a strong possibility that if participants actually try the wholemeal bread, this affects their evaluation. Considering the halo effect, participants could evaluate all the aspects of the wholemeal bread more positively when they only like a single aspect of the bread, for example the smell (Schuldt et al., 2012). This might lead to differences in effects of the communication campaigns.

Another limitation is the possibility that the manipulation in the experiment was not strong enough to evoke more positive feelings towards the wholemeal bread in the pleasure condition. The communication campaigns in both conditions consisted of a few lines of text, two images and a quote. These campaigns might be more effective when a more persuasive campaign was designed. If participants were repeatedly exposed to a campaign presenting the wholemeal bread, this could increase their positive affective reactions towards the wholemeal bread, according to the mere exposure effect (Harmon-Jones & Allen, 2001).

Furthermore, the final sample of the experiment consisted of 95 participants with an age between 16 and 60 years. Although a broad range of age is represented in the sample, other personal details as level of education and general consumer behaviour are not taken into account. Additionally, the sample size is relatively small. These limitations make it impossible to generalize the results of this research to all consumers.

Despite the fact that the results of this research were not significant, this topic can be interesting for further research. Using actual wholemeal bread, that consumers can actually see, smell, touch and taste, might lead to more legitimate evaluations. Furthermore, in further research a stronger manipulation can be used and this might influence consumers' evaluations as well. If there is used a larger sample size and if more control questions were added, the results would be generalizable to all consumers.

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Appendix: Questionnaire

Fijn dat je mee wilt doen aan deze studie over volkorenbrood. Het invullen van de vragenlijst zal ongeveer 5 minuten duren. Als deelnemer aan dit onderzoek blijf je geheel anoniem. Er zijn geen risico's of voordelen verbonden aan het invullen van de vragenlijst. Je kunt op ieder moment beslissen om te stoppen met invullen. Voor eventuele vragen kun je contact opnemen met Merel Winnemuller (merel.winnemuller@wur.nl).

Door op 'ja' te klikken geef je aan dat je bovenstaande hebt gelezen en ermee instemt;

Ja, ik doe mee aan dit onderzoek.

Hoe hongerig voel je je op dit moment?

In hoeverre verlang je naar eten op dit moment?

Health condition

Op de volgende pagina volgt een reclame campagne voor brood. Lees de campagne rustig door en geef daarna je mening.

Volkoren bevatten belangrijke voedingsstoffen zoals vitamines en mineralen. Hierdoor zijn volkorenproducten een essentieel onderdeel van het voedingspatroon. Volkorenbrood is een van de meest geconsumeerde volkorenproducten. En dit is natuurlijk niet zomaar, want het eten van volkorenproducten zoals volkorenbrood heeft positieve gezondheidsconsequenties, zoals een verminderd risico op hartziekten, verschillende soorten kanker en chronische ziekten. Maar volkorenbrood heeft niet alleen voordelen op de lange termijn, het zit ook boordevol vitamines en de vezels zorgen ervoor dat het brood daarnaast ook erg goed vult!



“Topfit met volkoren in plaats van wit”

Geef aan of je het eens bent met de volgende stellingen over deze campagne.

	helemaal mee oneens	mee oneens	beetje mee oneens	neutraal	beetje mee eens	mee eens	helemaal mee eens
Dit is een overtuigende campagne	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dit is een aantrekkelijke campagne	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Geef aan of je het eens bent met de volgende stellingen.

	helemaal mee oneens	mee oneens	beetje mee oneens	neutraal	beetje mee eens	mee eens	helemaal mee eens
Volkorenbrood is erg lekker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood is erg voedzaam	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik geniet van het eten van volkorenbrood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Click to write Statement 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood proeft erg vers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood heeft een goede, stevige structuur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De structuur van volkorenbrood is knapperig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood is erg gezond	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood is erg voedzaam	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Wat is volgens jou een goede prijs in EUR voor het brood dat te zien is op het plaatje?

_____ .

Pleasure condition

Op de volgende pagina volgt een reclame campagne voor brood. Lees de campagne rustig door en geef daarna je mening.

Er is een steeds meer opkomende trend van ambachtelijke producten. Ambachtelijke producten zoals volkorenbrood worden gemaakt in een traditioneel productieproces; door de bakker zelf, op een kleine schaal en er wordt weinig mechanisatie toegepast. Ambachtelijk volkorenbrood krijgt door het rustige rijs- en bakproces een krokante korst en een heerlijke geur. Doordat het afwegen en opbollen van het deeg en het afbakken ervan door de bakker zelf wordt gedaan ontstaan er afwisselende nuances in de smaak en het uiterlijk van het brood. Hierdoor refereert dit brood naar de goede oude tijd en maakt het eten van het brood een ware smaakervaring!



“Genieten is groot met ambachtelijk volkorenbrood”

Geef aan of je het eens bent met de volgende stellingen over deze campagne.

	helemaal mee oneens	mee oneens	beetje mee oneens	neutraal	beetje mee eens	mee eens	helemaal mee eens
Dit is een overtuigende campagne	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dit is een aantrekkelijke campagne	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Geef aan of je het eens bent met de volgende stellingen.

	helemaal mee oneens	mee oneens	beetje mee oneens	neutraal	beetje mee eens	mee eens	helemaal mee eens
Volkorenbrood is erg lekker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood is erg voedzaam	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik geniet van het eten van volkorenbrood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Click to write Statement 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood proeft erg vers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood heeft een goede, stevige structuur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De structuur van volkorenbrood is knapperig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood is erg gezond	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volkorenbrood is erg voedzaam	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Wat is volgens jou een goede prijs in EUR voor het brood dat te zien is op het plaatje?

_____ .

Control questions

Wat is je geslacht?

- man
- vrouw

Wat is je leeftijd?

_____ leeftijd in jaren

Geef aan hoe vaak je de volgende voedingsmiddelen eet.

	1 keer per maand of minder	2 tot 3 keer per maand	1 keer per week	2 tot 3 keer per week	elke dag
Volkorenbrood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bruinbrood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Witbrood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Geef aan in hoeverre je het eens bent met de volgende beweringen.

_____ Volkorenbrood vind ik erg lekker

_____ Bruinbrood vind ik erg lekker

_____ Witbrood vind ik erg lekker

Als je verder nog opmerkingen hebt voor de onderzoekers, schrijf ze dan hieronder:

Aan Wageningen Universiteit worden vaker studies gedaan waarvoor deelnemers nodig zijn. Als je af en toe per e-mail benaderd wilt worden, schrijf dan hieronder je e-mailadres op. Dit e-mailadres wordt niet aan anderen gegeven. Bedankt!

Hartelijk dank voor je deelname aan het onderzoek!

Klik op het pijltje rechts om de vragenlijst in te sturen.