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The sustainability communication challenge:

two-sided message framing and virtual reality to tackle the self promoting paradox

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Abstract

Although consumers have proven to be increasingly appreciative of companies' responsibility efforts, sustainability communication toward them is not a widespread practice because of its paradoxical effects on consumers' skepticism. In this thesis, we aimed to investigate effective and innovative ways that companies can use to communicate their sustainability initiatives to consumers. In particular, we tested the effects that two-sided message framing has on consumers, when they are exposed to a sustainability advertisement through virtual reality. We carried on our study by creating two VR advertisements which we submitted to consumers by conducting a field experiment. The analysis of the data collected did not support our thesis that two-sided message framing has a positive effect on consumer behavior, nor that virtual reality as a channel improves such communication. However, our results confirmed the hypothesis that consumer behavior benefits from corporate responsibility communication in general, which increases consumers' brand attitude, purchase intention and evaluation of the company's sustainability efforts.

Keywords: Sustainability Communication, Two-sided, One-sided, Message Framing, Virtual Reality, Telepresence, Mental Image, Credibility, CSR Skepticism, Attitude Toward CSR

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1 Introduction

In today's world sustainability is becoming increasingly important and it is making its way more decisively on companies' agenda. The role of corporations has lately been shifting from pure profit machines, to entities that should be carrying out their operations in a sustainable manner, and whose existence should benefit society as a whole. This, together with increasingly critical natural resources constraints, has put companies under pressure to increase their responsibility efforts. At the same time, consumers have become more conscious about the products they purchase and claim to be willing to support companies who behave responsibly (Crawford & Mathews, 2001; Auger, Burke, Devinney, & Louviere, 2003). Yet, it is hard for consumers to know when a company does, because sustainability communication from corporations is often limited to CSR reporting, which is not an efficient channel for consumers (Du, Bhattacharya, & Sen, 2010).

Companies' hesitation when it comes to sustainability advertising finds its roots in how controversial this topic is. Indeed, while people seem to be interested in companies' responsibility efforts and reward it with loyalty (Bhattacharya & Sen, 2003), purchase intention and willingness to pay higher prices (Möhr & Webb, 2005), they also appear to reject explicit sustainability communication by showing skepticism once they are exposed to it (Morsing, & Schultz, 2006).

Our research aims at investigating new ways in which sustainability communication toward consumers can be done in more engaging and effective ways, through appropriate message framing and innovative channels. In particular, we will analyze the effects of sustainability communication on consumers, when framed in as a two-sided message and delivered through immersive virtual reality.

Two-sided message farming focuses on the disclosure of some negative information related to the product or cause, to provide consumers with a two-sided argument in the message. Such an approach has proven to be beneficial in marketing (Crowley & Hoyer, 1994;

Pechmann, 1990; Eisend, 2007), particularly because of increased credibility (Golden & Alpert, 1987; Kamins & Marks, 1987; Smith & Hunt, 1978).

Virtual reality, on the other hand, is a technology that allows users to experience a sense of presence in real or simulated environments (Steuer, 1992). Virtual experiences with brands have, in addition, proved to positively influence product knowledge, brand attitude and purchase intention (Suh & Lee, 2005; Li, Daugherty, & Biocca, 2002).

After reviewing existing theory on these two topics, we decided to investigate whether two-sided message framing can be a valid alternative in sustainability communication to reduce skepticism. In addition, we decided to test this through virtual reality, since we believe it might represent a good and innovative channel of communication for the matter, because of its immersive properties.

Our research question is therefore:

> *RQ: To what degree is two-sided message framing more effective than one-sided in sustainability communication, when immersive virtual reality is used as a communication channel?*

To answer this we will examine how exposure to a sustainability-related video advertisement impacts consumer behavior. We will do so by conducting a field experiment in which we expose two groups of consumers to one VR video each. While the content of the video will be the same, the audio will be manipulated so that one video presents a one-sided message and the other a two-sided one.

To improve our learning process and to provide our contribution to a real business problem, we decided to cooperate with a company that makes considerable responsibility efforts, but has no current sustainability communication in place.

We found this opportunity in Arla Foods, a Danish multinational company operating in the dairy industry. Arla found it relevant to investigate new ways to communicate its consistent sustainability efforts to consumer, and agreed to do it through VR because of the interest they have been developing in the technology lately. Arla allowed us to develop a suitable real case for our message, and supported us in the creation of the advertising content.

In this paper we will start by assessing the relevant literature building up our arguments. Based on this theory, we will develop and present a set of hypotheses that are relevant to answer our research question. A research model is then presented, followed by the methodology that we have used to design and perform this study. The results of the research will be presented first and then analyzed in the discussion, where implications and contributions will be examined. Lastly, we will discuss the limitations of the study and present directions for further research.

2 Literature Review, Hypotheses, and Research Model

In this chapter we will focus on the three main topics that inspired this thesis and explain how they led to the development of the hypotheses. First of all, we will analyze how corporate sustainability influences consumers' choices, making it increasingly important for companies to communicate it openly. We will go through the challenges that organizations face when it comes to communicate their responsibility efforts and we will explore alternative ways of doing so based on two-sided communication and virtual reality.

We will indeed explain how we consider two-sided communication to be an effective way of addressing sustainability advertisement, mainly due to its ability to increase credibility and, in turn, reduce skepticism. We will then argue how the use of virtual reality as a mean can enhance the effects of two-sided communication and make the message even more effective on consumer behavior.

2.1 Background

In academic literature, sustainability and corporate social responsibility (CSR) are originally associated to two related, but different concepts. In particular, CSR is defined as "firm's consideration of, and response to, issues beyond the narrow economic, technical and legal requirements of the firm" (Davis, 1973, p. 321), while sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43).

Despite this, there is increasingly no clear distinction between the two terms in the literature (Montiel, 2008; Windsor, 2008), as they both refer to the balance or the integration of economic responsibilities with social and environmental ones.

In particular, for the purpose of this thesis we will use the terms *sustainability*, *CSR* and *corporate responsibility* interchangeably, to indicate any action that a corporation voluntarily takes for any motive, that also has a positive effect on the environment or society, or prevents a negative one from occurring.

2.1.1 Corporate Sustainability and its Effect on Consumers

A consistent amount of research reveals the wide range of business benefits that a company can derive from its responsibility efforts (e.g. Du, Bhattacharya, & Sen, 2007; Fombrun, Gardberg, & Sever. 2000; Lichtenstein, Drumwright, & Braig, 2004; Sen & Bhattacharya, 2001; Sen, Bhattacharya, & Korschun, 2006; Turban & Greening, 1997). Numerous studies on sustainability, corporate ethics, and social sponsorship suggest a link between responsibility initiatives and improved financial performance (McGuire, Sundgren, & Schneeweis, 1988; Pava & Krause, 1996; Stanwick, P. A. & Stanwick S. D., 1998), achieved through more committed employees (Sen et al., 2006), motivated investors, and cost savings.

In particular, however, one of companies' biggest gains from sustainability comes from their most important stakeholder group: consumers. A multitude of studies demonstrates the link

between social initiatives and positive responses by consumers, in terms of loyalty, brand attitude and purchase intention among others (Brown & Dacin, 1997; Creyer, 1997; Ellen, Möhr, & Webb, 2000; Folkes & Kamins, 1999; Murray & Vogel, 1997; Sen & Bhattacharya, 2001). For example, research shows that consumers are more interested in paying a "fair and honest" price rather than the lowest price (Crawford & Mathews, 2001), and that their willingness to pay is higher for products made ethically (Auger et al., 2003).
It is also demonstrated that people are likely to identify with brands that offer them a positive and meaningful social identity, and that in turn consumers who identify with companies are more likely to be loyal to them, promote them to others, and be resilient to negative information about them. (Bhattacharya & Sen, 2003).

Lii, Wu, & Ding, (2013) found that different corporate responsibility initiatives, such as sponsorship, cause-related marketing and philanthropy all have a positive effect on consumers' attitude toward the brand. They also go on supporting previous research in showing that attitude toward a brand significantly impacts the consumer's intention to buy their products (Brown & Stayman, 1992; Homer, 1990; MacKenzie et al., 1986; Laroche & Sadokierski, 1994).

Furthermore, Möhr & Webb (2005) indicate that CSR in both the environmental and philanthropic domains, has a significant positive effect on consumers' evaluation of the company and purchase intention. These results support the idea that other aspects of a company beyond its products, such as its reputation (Brown & Dacin, 1997), influence people's evaluation of the company and buying choices.

It is worth mentioning that the literature we have reviewed agrees on the fact that the reaction of consumers toward corporate responsibility is strictly related to the perceived motives driving it, and to whether or not the initiatives align with the consumer's own values (Möhr & Webb, 2005; Lii et al., 2013; Sen & Bhattacharya, 2001). However, this particular aspect is beyond the scope of our research.

2.1.2 Need for Sustainability Communication

We have seen how much corporate responsible behavior can positively influence consumers' attitude toward the company, but the business returns to sustainability are contingent on stakeholders' awareness of a company's efforts in that matter (Du et al., 2010; Bhattacharya & Sen, 2004; Pomering & Dolnicar, 2009).

However, research reveals that consumers have a limited awareness of a company's responsibility efforts, and this constitutes a fundamental limitation to the company's opportunity to derive financial benefits from its CSR activities (Bhattacharya Sen & Korschun, 2008; Du et al. 2007; Sen et al. 2006).

While in the past stakeholders' view on corporate responsibility was mainly limited to the exclusion of particularly controversial industries such as tobacco, weapons and pornography, today sustainability includes a variety of issues that span from child labor to carbon emissions and corruption. As a consequence, corporate responsibility engagement today requires deeper and continuous stakeholder involvement and calls for more sophisticated communication strategies (Morsing & Schultz, 2006).

In addition, research shows that stakeholders such as business press, investors and NGOs are more likely than the general public to proactively search for CSR information about a company through, for instance, their sustainability report (Dawkins, 2004). Consumers, on the other hand, often become aware about a company's responsibility efforts through independent channels, such as different media, word-of-mouth or corporate communication channels, including marketing campaigns, advertising and point of purchase communication (Du et al., 2010; Schmeltz, 2012). However, while eco-labelling might seem like the best option for consumer oriented sustainability communication, Grunert (2011) shows that, for example when it comes to food, this may not be the case. In his study, he highlights the reasons why eco-labels might not necessarily translate into sustainable purchasing choices. Consumers might simply not noticing the label, consumers being time-pressured when shopping, consumers seeing the label but not fully understanding what it means or consumers making "wrong" inferences (Grunert, 2011). These findings further support our view on the need to have strong sustainability communication toward consumers in particular.

Finally, studies carried out in the Nordics (Morsing & Schultz, 2006), show that only few people believe that companies should not communicate about their responsibility efforts at all, while half of the Scandinavian population finds that companies should communicate broadly and openly about such initiatives via advertising and public relations. Other research (Schmeltz, 2012) adds that consumers are interested about sustainability and expect more explicit communication than what is currently assumed by corporations.

As a consequence, the first hypothesis we are investigating states that:

> *H1: Sustainability communication has a positive effect on brand attitude, purchase intention, and evaluation of sustainability.*

2.1.3 Challenges Faced in Sustainability Communication

While it is now evident that communication of responsible corporate behavior to customers is crucial in order for a company to benefit from its sustainability efforts, it is still unclear what consumers expect to hear about CSR (Schmeltz, 2012).

Beyond awareness, the next key challenge of sustainability communication is indeed to minimize stakeholders' skepticism. This is because research indicates that the more companies communicate about their responsibility initiatives, the more likely they are to attract critiques from their stakeholders (Ashforth & Gibbs 1990, Morsing & Schultz, 2006). Indeed, while stakeholders claim that they want to know about the social and environmental efforts of companies, they also easily become suspicious of the CSR motives when corporations actively promote their sustainability efforts (Du et al., 2010). This may be due, for example, to consumers believing that a company has something to hide any time that it shows unusual and apparently unjustified interest in CSR (Brown & Dacin 1997). Gössling & Buckley (2014), on the other hand, argue that this behavior may be due to the fact that people dislike those who claim to be morally superior, because they make them feel inferior by comparison.

Ashforth & Gibbs (1990) refer to the above described phenomenon as the "*self-promoter's paradox*", which they explain as when companies that highlight their corporate legitimacy risk to achieve the opposite effect.

As a consequence, there is a prevailing assumption that companies should apply a very subtle and implicit way of communicating their responsibility efforts, since this will prevent skepticism and increase persuasion (Morsing, Schultz, & Nielsen, 2008; Elving, 2010; Morsing & Schultz, 2006).

However, there is no commonly shared and used practice when it comes to sustainability communication, and we believe there is a gap in the research addressing this topic.

2.2 Message Framing: Two-sided Communication

Traditional communication strategies are based on presenting information that is favorable to the message that wants to be delivered or the product that wants to be sold. However, including in the message some negative information related to the product or cause can prove to be helpful in some cases, as it provides consumers with a two-sided argument (Eisend, 2007). While mentioning negative aspects in an advertisement might seem to be counterintuitive, two-sided message framing is a valid advertising technique (Crowley & Hoyer, 1994; Pechmann, 1990). In this regard, research analyzed by Crowley & Hoyer (1994) shows that two-sided message framing can reinforce credibility, diminish counterarguing, and increase receiver's resilience to negative information.

In particular, we think that two-sided communication would suit the corporate sustainability cause very well, since it would prevent consumers from attributing the company's responsibility efforts to greenwashing attempts. The use of this kind of message framing in sustainability communication is essentially unexplored, with only two studies (Du & Vieira, 2012) briefly mentioning two-sided messages in a CSR context, or making very industry-specific examples of them. None of the two, however, focuses on building a specific stream of research on this type of communication in relation to corporate responsibility.

We would therefore like to contribute filling this gap through our primary hypothesis:

H2: Two-sided message framing has a more positive effect than one-sided message framing on brand attitude, purchase intention, and evaluation of sustainability.

Crowley & Hoyer (1994) also present three main theories that explain two-sided messages' persuasiveness; *attribution theory*, leading to increased credibility; *inoculation theory*, leading to decreased counterarguments; and *optimal arousal theory*, leading to increased attention. In this study we will mainly focus on attribution theory, since it is the one more strongly confirmed by empirical studies (Eisend, 2007), but we will also use optimal arousal theory and inoculation theory to motivate our methodology and explain our findings.

2.2.1 Attribution Theory

Attribution theory (Jones & Davis, 1965; Kelley, 1973) describes the mechanisms through which an individual associates causes to events.

In the particular case of advertising, attribution theory implies that when consumers are exposed to a message, they can either attribute it solely to the marketer's self-interest behind the transmission of that message (such as the desire to sell a certain product), or to actual reasons that are openly communicated by a honest advertiser (Crowley & Hoyer, 1994). According to Crowley & Hoyer (1994), including negative information in a message, increases the advertiser's perceived trustworthiness in the eyes of the receiver. This, in turn, strengthens the credibility of the positive attributes that are included in the communication, by increasing the receiver's positive cognitive responses to the message and decreasing the negative ones (Belch, 1981; Kamins & Assael, 1987; Swinyard, 1981).

In addition, Crowley & Hoyer, (1994) claim that counterarguments are inversely related to the credibility of a two-sided message and that, as a consequence, they will decrease as credibility increases. This happens because consumers are less likely to counterargue with a message they find credible, but it is also due to the fact that two-sided messages already

contain negative information in them, which reduces the receivers' motivation to counterargue. The increase in credibility that a two-sided message brings, is in turn expected to positively influence consumer behavior. Erdem & Swait (2004) show that general brand credibility increases lead to higher chances of consumers purchasing the company's products. More in particular, as the credibility of corporate CSR campaigns increases, consumers are more likely to express positive purchase intention. As a consequence, we formulate our third hypothesis:

> *H3: The effect of two-sided message framing on brand attitude, purchase intention, and evaluation of sustainability is mediated by credibility.*

2.2.2 Inoculation Theory

Inoculation theory (McGuire, 1961 & 1985) implies communicating and then refuting negative arguments within the same message, to strengthen receiver's cognitions. The idea behind it is that by anticipating the criticisms and oppositions that the receiver of a message is going to formulate, and then providing the disproof of them, counterarguments are reduced.

A clear application of inoculation theory is two-sided message framing (Belch, 1981; Kamins & Assael, 1987; Swinyard, 1981). In this circumstance, the reduction in consumers' counterarguments is particularly effective among those receivers who already have a negative initial attitude toward the advertised brand (Sawyer, 1973).
It is worth mentioning, however, that the strength of persuasiveness of two-sided advertising has proven to be enough to show benefits, even when a refutation of the negative claims is not included (Golden & Alpert, 1987; Kamins, 1989; Kamins, Brand, Heoke, & Moe, 1989; Kamins & Marks, 1987; Settle & Golden, 1974; Smith & Hunt, 1978).

As a consequence, we expect two-sided message framing to help reduce CSR skepticism through inoculation theory, and in turn, positively affect consumer behavior:

H4: The effect of two-sided message framing on brand attitude, purchase intention, and evaluation of sustainability is mediated by CSR skepticism.

2.2.3 Optimal Arousal Theory

According to *optimal arousal theory* (Berlyne, 1971; McClelland, Atkinson, Clark, & Lowell, 1953) stimuli that are novel or surprising tend to generate a positive effect, motivating the receivers to pay attention to and process the message, which in turn increases the probability of favorable attitude toward it. However, optimal arousal theory requires said stimuli to be moderate, since it claims they will be preferred over stimuli that offer too much or too little novelty.

Crowley & Hoyer (1994) argue that optimal arousal theory can partially explain the persuasion of two-sided message framing. This is because advertisements that include negative information are somehow perceived novel by consumers and thus positively influence their attitudes, as opposed to one-sided messages which are more in line to what the receivers expect.

Several studies (Belch, 1981; Kamins & Assael, 1987; Swinyard, 1981) support this view by suggesting that two-sided advertisements tend to induce greater motivation to pay attention to and process the information contained in the message, than one-sided ones do. Attention, in turn, is widely demonstrated to play an important role in the persuasion process (Greenwald & Leavitt, 1984; Janiszewski, 1990a, 1990b; MacInnis & Jaworski, 1989; MacKenzie, Lutz, & Belch, 1986; Crowley & Hoyer, 1994).

Overall, we expect the effects of two-sided advertisement to influence *brand attitude*, *purchase intention* and *evaluation of sustainability* through the enhancement of *attitude toward CSR* and the perceived *informativeness* of the message.

H5: The effect of two-sided message framing on brand attitude, purchase intention, and evaluation of sustainability is mediated by attitude toward CSR.

H6: The effect of two-sided message framing on brand attitude, purchase intention, and evaluation of sustainability is mediated by informativeness.

Finally, we expect customers' previous knowledge about the brand to moderate the effect of two-sided advertisement on consumer behavior.

H7: The effect of two-sided message framing on brand attitude, purchase intention, and evaluation of sustainability is moderated by familiarity with the brand.

2.3 Communication Channel: Virtual Reality

In addition to message framing, we considered the communication channel of the message to be crucial for its effectiveness.

Virtual reality is a powerful technology that allows users to experience virtual situations by simulating tasks and behaviors in them. Technically, virtual reality is a computer-generated, real-time 3D setting where individuals act in a simulated environment.

We chose to deliver our message through virtual reality, which is increasingly used for marketing purposes due to its highly interactive qualities. Research has been showing how positively VR can influence consumer outcomes like brand attitude, brand knowledge, and purchase intention. (Suh & Lee, 2005; Li et al., 2002).
In addition, in accordance with the above-explained optimal arousal theory, we concluded that transmitting a message through an innovative mean such as VR would increase the receiver's attention to the information.

Depending on the extent of this immersion, VR applications can be broadly classified into two categories: *immersive VR* and *non-immersive VR*. While in the former users wearing

head-mounted displays (HMD) and are totally surrounded by enclosed virtual environments, the latter is characterized by a limited user experience where the content is delivered on a regular computer display (Mills & Noyes, 1999). To achieve the highest level of immersion possible, we used immersive VR for our experiment.

As Vekony & Korneliussen (2016) suggest, the positive effects that VR has on consumer behavior are mostly due to three phenomena that characterize the technology, namely *telepresence*, *mental imagery* and *enjoyment* (Suh & Lee, 2005; Suh & Chang, 2006; Schlosser, 2003; Li et al., 2002).

Telepresence is defined by Steuer (1992, p. 104) as "the experience of presence in an environment by means of a communication medium". Mental Imagery refers instead to "a mental event involving visualization of a concept or relationship" (Lutz, K. A. & Lutz, R. J., 1978, p. 611). Finally, enjoyment is about the user's amusement triggered by the *telepresence* and the interactivity of VR (Heeter, 1995).

In this study we decided to focus on *telepresence* and mental imagery.

2.3.1 Telepresence

Telepresence is the perception of being present in a mediated environment, or the feeling of "being there" by means of a communication medium (Steuer, 1992). Based upon sensory stimuli conveyed by a VR interface, human beings can create a perceptual illusion of being present and highly engaged in a mediated environment, while they are in reality physically present in another place (Biocca, 1997).

Steuer (1992) argues that telepresence is constructed of two major dimensions, namely *vividness* and *interactivity*.

Vividness refers to the ability of the medium to create a sensory rich experience for the user, through the number of sensory dimensions simultaneously presented (visual, auditory, touch, taste and smell) and the quality of the information (Steuer, 1992). Interactivity, on the other hand, refers to the receiver's ability to affect the experience, by being able to modify the virtual environment in real time through its own input (Klein, 2003). Studies

suggests that when both vividness and interactivity are present, the highest level of telepresence is created (Suh & Chang, 2006).

According to research, thanks to vividness and interactivity, telepresence positively impacts perceived persuasion (Klein, 2003; Li et al., 2002). In addition, studies show that telepresence has positive effects on brand attitude and consumer preferences (Nelson Yaros & Keum, 2006; Grigorovici & Constantin, 2004; Kim & Biocca, 1997).

As a consequence, for the purpose of our study we hypothesize that the level of *telepresence* brought by the communication channel we use, will help increase the positive effects of the message on consumer behavior.

> *H8: The effect of two-sided message framing on brand attitude, purchase intention, and evaluation of sustainability is mediated by telepresence.*

2.3.2 Mental Imagery

Lutz, K. A. & Lutz, R. J. (1978, p. 611) define *mental imagery* processing as "a mental event involving visualization of a concept or relationship". According to theory, when people mentally imagine something, the images they create in their mind are based on previous experiences and/or available information (Lee & Gretzel, 2012). Through the immersiveness of its experience, VR strongly influences the creation of mental images, by providing the receiver with extensive and rich information on the content of the message.

The reason why mental imagery is worth considering in a setting like ours, is its ability to influence consumers' decision making (Babin & Burns, 1997). In particular, because of the mental effort required to elaborate mental images, the attitudes that are based on mental imagery have proven to be stronger and more stable, last longer, and be more resistant to persuasion (Petty, Haugtvedt & Smith, 1995).

While it is easy to see how mental imagery can positively influence consumer behavior for products that are image intensive, such as in the travel industry (Williams & Hobson, 1995;

Cho Wang & Fesenmaier, 2002), we argue that even when it comes to a conceptual message such as corporate sustainability consumers would assimilate it better by recreating key images in their mind. Therefore, we hypothesize that:

H9: The effect of two-sided message framing on brand attitude, purchase intention, and evaluation of sustainability is mediated by mental imagery.

2.4 Summary and Research Model

The review reveals that sustainability is positively perceived by consumers and that due to this fact there is a need for sustainability communication. However, this kind of advertisement is not always well received as it often leads to an increment in consumers' skepticism.

Despite extensive research on sustainability communication, there is no common understanding of what an effective tactic should involve. We therefore advanced our thesis that two-sided communication might represent a valid approach to sustainability communication, due to its persuasive effects explained by attribution theory, optimal arousal theory and inoculation theory. We then go on examining a channel of communication we deem adequate for the cause, and we introduce virtual reality as such.
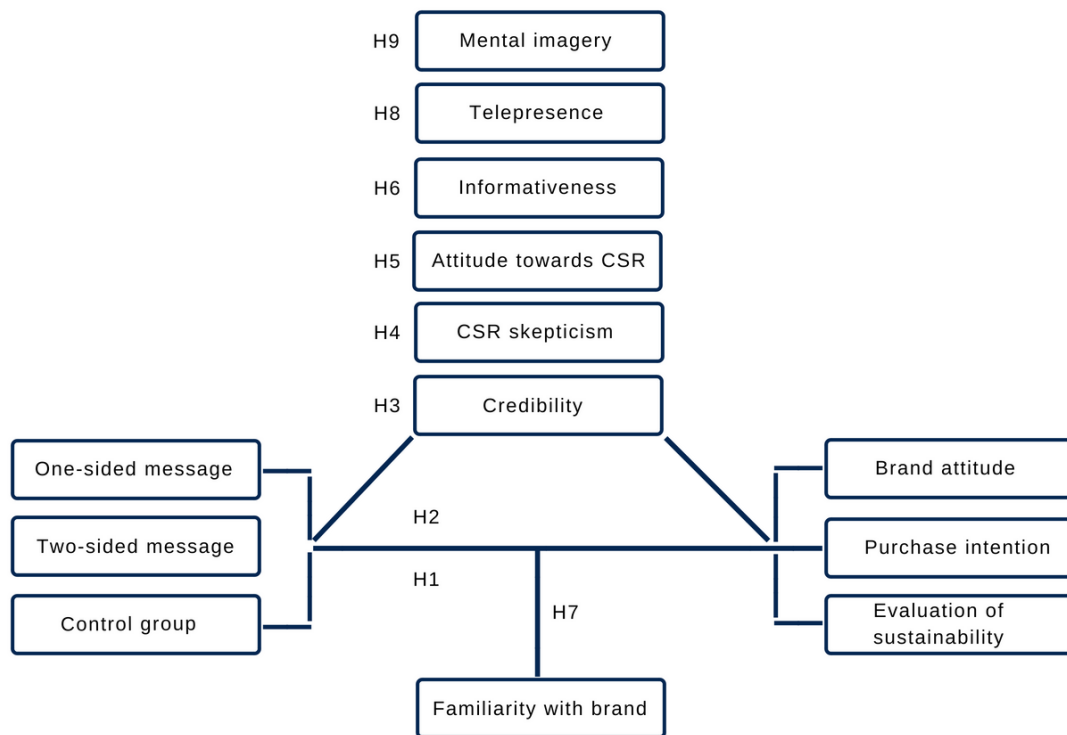
Figure 2-1 Research Model

Figure 2-1 is a visual representation of our hypotheses, and it shows the hypothesized effects of the independent variable on the dependent variables, both directly and indirectly. We propose that exposure to the two-sided sustainability advertisement through VR will have a positive influence as opposed to the one-sided one on the consumer outcomes *brand attitude*, *purchase intention* and *evaluation of sustainability*. We believe this effect to be direct, as well as mediated by *credibility*, *CSR skepticism*, *attitude toward CSR*, *informativeness*, *mental imagery* and *telepresence*.

3 Methodology

In this section, we will illustrate our choice of research design and methodology. We will start by explaining how we created the content of the treatments and conducted the experiment. We will then present measurements and scales used, as well as discuss techniques for data analysis and ethical challenges of the design.

3.1 Experimental Design

This research project is primarily based on a deductive approach to literature, since its primary aim is to test and explain causal relationships among widely explored theoretical concepts (Saunders, Lewis, & Thornhill, 2016). However, we argue that this study also has elements of inductive approach, because we look at these concepts from a different perspective and suggest combinations of them that have not been used before.

The research question has an explanatory approach because we do have preconceptions of what causes variation in our dependent variables. Based on the literature review, we have reasons to believe that there are cause-and-effect relationships between the independent variable and the dependent variables. Furthermore, since the purpose this study is also to expand knowledge about the way in which research can be done through virtual reality, elements of exploratory approach have been applied.

Based on the orientation of the research question, a field experiment was chosen as a research strategy. We used a between-subject-design in which participants were divided into two groups and belonged to either the experimental group or the control group. The experimental group has been further divided into two sub-groups, each of which has then perceived one of two different manipulations, covering one-sided and two-sided message framings respectively, both in the form of VR videos. For this reason, the experimental group is also referred to as the two treatment groups combined. On the other hand, the control group has not received any sort of treatment.

For this study, we have conducted a field experiment, which was carried out in a grocery store and at a shopping mall. The reason for this choice was based on implications from the literature that there is an issue with subjective judgment and interpretation when different stakeholders assess sustainability (AlWaer, Sibley, & Lewis, 2008). For instance, surveys from Nielsen (2012) and Havas Worldwide (2013) imply that younger consumers are more concerned with corporate responsibility than older segments. Therefore, since NHH students are not representative of the greater population due to particular age and education characteristics, we decided to opt for the field experiment in a real context, and thus strengthen external validity of the study. Conducting such field experiments also has weaknesses attached. The underlying requirement for experimental control is more difficult to obtain, due to more uncertainties in surrounding elements compared to lab experiments. This could be a source of noise in the model and can create dependencies in responses, thus representing a threat to internal validity. Regardless of the comparison, experiments still offer the ability to test hypotheses of causal relationships between variables and this is considered one of the strengths of experimental design.

For this field experiment a quantitative methodology has been used. We collected data through a survey, which allowed us to investigate if the results can be generalized to a larger population. This method does, however, offer less freedom to capture a broad set of relevant variables, and therefore the measures to include must be chosen selectively.

Figure 3-1 shows a visualization of the experimental design, which illustrates how participants were randomly assigned to the two treatment groups or the control group, and how their attitudes, behaviors, and intentions were subsequently captured through the questionnaire.

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                                    │ One-sided treatment (40)  │
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│ Participants (139)  │───│ Randomly assigned     │───│ Two-sided treatment (47)  │   │ Questionnaire (139)       │
└────────────────────┘   └──────────────────────┘   └──────────────────────────┘   └──────────────────────────┘
                                    ┌──────────────────────────┐
                                    │ Control group (52)        │
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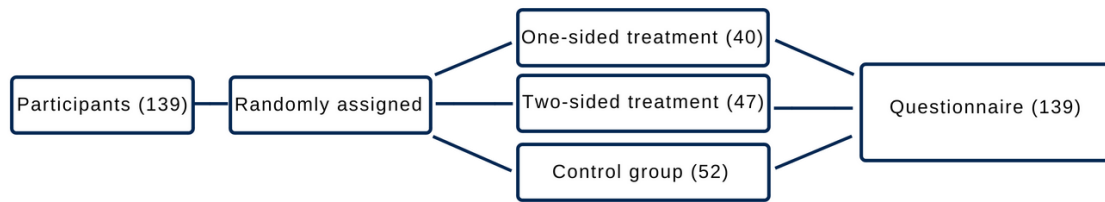
Figure 3-1 Experimental Design

3.2 Content Development

A major part of this study has been to develop content that addresses corporate sustainability initiatives in a novel way through VR. In this section we will discuss all the steps we went through to create the 360° video that we then used as the treatment for the participants of the two treatment groups in our experiment. We will address the planning of the content, the filming, the development of audio and the manipulation that allowed us to carry out our study on two-sided and one-sided communication.

There are several reasons why we chose to develop our own content instead of using existing one. First of all, traditional marketing has always focused on presenting products in a favorable light (Eisend, 2006), meaning that there is limited available material disclosing negative information about a product or a company's operations. More importantly, by developing our own content none of the participants would have seen or heard of the video prior to the experiment, which in turn strengthens internal validity. Finally, through this study we were eager to make a contribution to existing research by providing an example of how a sustainability advertisement can be developed, from the filming of the content to the drafting of voice-over.

3.2.1 Choice of the Issue: Biogas

The first step in creating the video was to decide what the subject of it was going to be. It was important for us to make it as specific as possible, since specific messages are proven to be more credible to the consumer than generic claims (Becker-Olsen Cudmore & Hill, 2006; Atkinson & Rosenthal, 2014; Ogilvy, 1983). We therefore decided to focus on one particular sustainability issue that Arla was addressing, instead of generalizing to the entire sustainability strategy of the company.

The choice fell on Arla's commitment to increase their production and consumption of biogas, a type of biofuel that is naturally produced from the decomposition of organic waste. This is because Arla is working to become a leader in biogas in Denmark, Germany and the UK. On top of being a crucial issue for Arla at the moment, biogas presented a perfect fit with the company's business. Indeed, according to Schmeltz (2012), whether or not there is a logical link between the company's core activities and its choice of sustainability issue plays an important role in trying to minimize skepticism. Stakeholders often expect companies to support only causes that have a logical association with their core corporate activities (Cone, 2007; Haley, 1996).

According to Becker-Olsen et al. (2006), low-fit initiatives negatively impact consumer beliefs, attitudes and intentions. Du et al. (2010) argue that this is because of the fact that low degree of association between the company and the issue is likely to increase cognitive elaboration and in turn increase skepticism. As a consequence, the theme of biogas seemed perfect to describe a concept of circularity in which cows' manure is used to produce biogas, which will in turn power the factories that produce Arla's products. The idea was to show how the use of biogas naturally fits into this process, which allows Arla to use its resources more efficiently while reducing its impact on the environment.

3.2.2 Video Production and Storyline

Once the theme - biogas - and the underlying message - circularity - were defined, we developed the storyline for our video. Traditional advertising for dairy products tends to be overly romantic both in terms of the storyline and the visual content. We decided with our partner company to instead take a purely informative approach, making the video less romantic, and more suitable for VR. To do so, we filmed our content by placing the camera in the middle of the action and recording real scenes from our setting. However, lack of time and resources restricted us to the choice of a storyline that would require limited setup and interaction of actors.

The movie was filmed in two primary locations in Rødkærsbro, near Aarhus, Denmark. The first is one of Arla's farms, which also has its biogas plant adjacent to it, and the second is one of Arla's dairy factories, which produces mozzarella cheese. The two locations represent a great example of circularity since the factory uses the biogas produced from the farm to power its operations.

We planned and filmed 30 different scenes and then a professional editor helped us edit and stitch together those that we chose to include. He also added the music and the voice-over we produced at a later stage. The final video was less than 2 minutes long, a time that we deemed appropriate for the experiment.

The video starts with an overview of the field where the farm and the biogas plant are, and then moves inside the barn where cows are relaxing and being fed. Then the scene moves to the biogas plant, where a tractor is seen transporting manure into the tank where the organic material is transformed in biogas. The following footage is filmed at the mozzarella factory and begins by showing the end of the biogas pipeline as well as the room in which the biogas is turned into electricity. The last scenes show the inside of the mozzarella factory, where the cheese is produced.

3.2.3 **Manipulation**

As already briefly mentioned, both treatments had the same visual content, therefore music and voice-over represented the only sources of manipulation of two-sided as opposed to one-sided message. Similarly, other research studies on message framing in sustainability communication (e.g. Yang, Lu, Zhu, & Su, 2015; White, Macdonnel, & Dahl, 2011), manipulate the message of traditional marketing material by changing headings and bullet points. As an alternative, different video footage could have been created for each treatment to achieve more strength and precision of the manipulations. However, this would have caused some issues due to practical limitations, in addition to weaker internal validity because of more factors varying between one video and the other. As a consequence, the creation of the audio components was central to ensure significant manipulation of the two treatments and in turn insure internal validity.

There was a trade-off in this process. On the one hand, the manipulation should have a certain strength and precision to cause variation (Saunders et al., 2016). Hauser & Luca (2015) for example, suggest to "use a big hammer", meaning that a large enough manipulation is needed to understand if the change makes a difference for the consumer. On the other hand, the treatments should not be systematically different in terms of strength of arguments, number of arguments and differences in the underlying appeal of the message, to maintain experimental control. Therefore, the short length of the movie represents a challenge in developing treatments that are strong enough to bring forth the intended message and make it easily processable, without substantially differing from one another.

When it comes to the language of the voice-over, we decided to opt for Norwegian, primarily because of Arla's explicit interest in analyzing the Norwegian market. In addition, we also wanted to limit potential lack of understanding or misinterpretations that could have arisen from participants being unexpectedly exposed to communication in their second language rather than their mother tongue. Furthermore, we engaged a professional speaker to record the voice-over, to achieve a result that is as close as possible to ordinary advertisement as well as to ensure neutral accent and adequate tone.

The criteria we followed in the creation of the audio content were therefore the following:

1. The manipulation needs to be strong and precise enough to create variation in responses;
2. The strength of the arguments in one-sided and two-sided messages should be the same;
3. The content of the messages needs to be aligned with the company's objectives;
4. Theory from sustainability communication and two-sided messages should be reflected in the treatments, to increase effectiveness of communication;
5. The message should be in Norwegian and should be clear, understandable and professionally recorded.

3.2.3.1 Voice-over Development

In accordance to the previously explained concept according to which the two treatments should be equal on all other variables and differ from each other only in the deliberate manipulation, we drafted a universal message and subsequently adapted specific parts of it to differentiate the two-sided and the one-sided treatment. The two messages can be found in Table 3-1, where the underlined parts represent the ones that differ from one treatment to the other.

First of all, the priority for our voice-over was to support the video in conveying Arla's message of circularity. It was important that the voice-over clearly explained the process shown in the video, by complementing the scenes with clear explanations on the steps that are taken to create biogas, and how it is used in the production of mozzarella.

In addition, the voice-over had to conform to the objective of delivering a rational and informative content, while still being persuasive. To this purpose, we chose to use a concrete appeal as opposed to an abstract appeal. While abstract appeals use unspecific and ambiguous formulations and convey information more vaguely or subjectively (Yang et al., 2015), concrete appeals use detailed and tangible information and frame it in a more specific and objective way (Leonidou, L. C., Leonidou, C. N., Palihawadana, & Hultman,

2011). Not only research observes that concrete appeal is more effective than abstract (Darley & Smith, 1993; Ford, Smith, & Swasy, 1990; Ogilvy, 1983), but there are also studies showing that objective advertising appeal is less suspicious in the eyes of the consumer (Ford et al., 1990).

When it comes to sustainability communication, research shows that customers particularly value aspects that are close to them personally (Schmeltz, 2012). Zaval, Markowitz, & Weber (2015) demonstrated that making individuals concerned for their legacy is a powerful strategy for increasing their action climate change. As a consequence, we assume that our message would be more persuasive if it showed how Arla's sustainability efforts, directly impact products that people consume. Hence, why the choice to start the voice-over with reference to mozzarella cheese, as a pizza topping.

Once the general characteristics of the message had been drafted, we proceeded to apply the manipulation, making one of the voice-overs one-sided and the other two-sided.

The text below in italic, is the English translation of an excerpt from the used voice-over, and is intended to facilitate the comprehension of the different steps we have gone through to draft it. The complete version of the Norwegian voice-over used in the experiment can be found in Appendix 4 - Manuscript Voice-over.

The first step was to decide where the negative information should be added, since the structure of the message is crucial for effective persuasion (Crowley & Hoyer, 1994). In particular, because consumers process information sequentially over time, the order in which the information is presented can affect the impact of the message (Crowley & Hoyer, 1994; Hass & Linder, 1972). We decided to place the majority of negative information at the beginning of the message, both to create a stronger impression and to stimulate a bias in the consumer listening.

Table 3-1 Voice-over Manuscript

Two-sided message	One-sided Message
"Have you ever thought about how the cheese you put on your pizza also affects the environment? From when a cow is born until it becomes an adult milking cow, it requires some care and a large amount of resources. Production of dairy products has a huge impact on the environment - to make only one package of mozzarella, our plant uses as much energy as your mobile phone consumes for one whole month. *At Arla in Denmark, more than 60% of this energy comes from non-renewable energy sources. This negative impact is something we recognize and is a challenge we must overcome. …"*	*"Have you ever thought about where the cheese you put on your pizza comes from? From when a cow is born until it becomes an adult milking cow, we take good care of it. It is the cow that gives us the good dairy products. Here at Arla we do everything we can to make our products in a sustainable manner, which is responsible towards the environment.* *A big part of this is about using energy that comes from renewable sources in our production, and we want to use more of this. …"*

We then kept a part of the message entirely equal, since it applied to both voice-overs. This part was placed in the middle of the text and refers to biogas specifically. We finally added a less consistent amount of negative information toward the end, to reinforce the consumer's perception of the whole message.

Two-sided message	One-sided Message
"…Of the gas used in Denmark today, about one third comes from biogas, but this figure is increasing continuously. *In just 3 years, our goal is that 50% of the energy we use should be renewable. This will be demanding to implement, but we believe the use of biogas will be the right step in achieving this goal because this allows us to deliver a product that uses less resources, is more responsible towards the environment, and creates less waste in the process. We hope you want to be part of this journey! "*	*"… As of today, already several of the plants are powered by biogas, and the number is increasing continuously. In just 3 years, our goal is that 50% of the energy we use should be renewable. We believe the use of biogas will be the right step in achieving this goal because this allows us to deliver a product that uses less resources, is more responsible towards the environment, and creates less waste in the process. We hope you want to be part of this journey!"*

Finally, we decided to include as many refutational messages as possible in our two-sided voice-over (Allen, 1991). As previously stated, according to inoculation theory (McGuire, 1964), the use of mild attacking arguments and the subsequent act of countering or refuting them strengthens cognitions,

reduces counterarguments, and as a consequence, enhances positive attitudes (Eisend, 2006). At the beginning of the message, we state that the dairy industry has a big impact on the environment and that at Arla more than 60% of the energy used comes from non-renewable sources. However, we then counterargue the claim by stating that Arla recognizes the problem and by explaining how they are overcoming it. Later on, toward the end, we state that only one third of the gas used in Denmark currently comes from biogas, but then we refute by saying that this figure is continuously increasing. We also admit that reaching 50% of renewable energy will be demanding, but then we counterargue by stating that biogas is the correct step to achieve this goal.

3.2.3.2 Choice of Music

The choice of music can affect how participants perceive the information heard and we believe that setting a more positive or negative tone would in some way affect the outcome. When choosing music we had the option of having one track for both videos, or using two different sounds. By using the same music, we could have prevented systematic changes in the responses due to other effects than the manipulation itself. This would have given us more control over the environment, thus creating more internal validity. On the other hand, however, by using two different music tracks we would have been able to influence the mood of the video and this could have brought out greater effects between the two groups.

Therefore, we decided to opt for the use of two separate tracks, which were meant to reflect the mood of the different videos as well as that of the message, without excessively differing between each others, as this would have affected internal validity. In addition to having a similar tone, the two tracks could also not be predominant with respect to the voice-over.

The music we chose for the one-sided video consists of sounds primarily from guitar-finger-play, upbeat drum in the background, along with some harmonic keyboard. This track can be described as a cheerful, carefree, positive, happy and with a strong motivational/encouraging feeling to it. The track we chose for the two-sided video, on the other hand, is primarily played from two finger-playing-guitars, and also has a positive and happy connotation. However, it lacks that motivational/encouraging vibe that we recognized in the one-sided track, and therefore, gives the idea of being more "down to Earth".

3.2.4 Manipulation Check

Before conducting the actual experiment, we carried out a manipulation check to ensure that the differences between the two treatments could be clearly understood by participants and that the messages about one-sided and two-sided communication could be easily singled out.

Since at this stage in time, we were only interested in testing whether or not the two treatments properly conveyed the message we wanted them to, and since the said message was entirely embedded in the audio, we only presented participants with the audio part of the treatment (voiceover and background music). The manipulation check was conducted as a survey in which respondents listened to one audio or the other, randomly assigned, and then answered the following two questions (the below questions are the English translation of the original ones, which can be found in Appendix 6 - Manipulation Check)**:**

The message discloses/contains <u>negative</u> information about the company

The message discloses/contains <u>positive</u> information about the company

Participants were supposed to report on a 7-point Likert scale (7=strongly agree/1=strongly disagree). The manipulation check consisted of a sample of 36 people, which was mainly students at The Norwegian School of Economics (NHH). Because this sample included mainly students, it did not match the characteristics of the sample of the experiment and results could therefore not be entirely representative.

The results of the manipulation check can be found in Table 8-5. The perceived negative information in the messages (negative information: one-sided mean=1.65; while two-sided mean= 3,43), indicates that respondents distinguish between one-sided and two-sided videos, but not in a strong manner. Optimally, the results from the manipulation check should have shown a more clear distinction between the two groups on the question about the perceived negative information. Both groups found a similar level of positive information presented (positive information: one-sided mean=6,0; while two-sided mean=5,90).

Even if the results of the manipulation check could have been more accurate, we decided that they were strong enough to allow us to proceed with the study, and use the audios on our videos.

3.3 Experiment

In this section we will explain the experiment procedure and include detailed information to facilitate replication. We will also go through the location of the experiment, participants, the equipment used, characteristics of the sample.

3.3.1 Location

The field experiment was conducted partly at Meny supermarket inside Åsane Storsenter and partly at Bergen Storsenter. The experiment was held over three days at times spanning from 9 o'clock in the morning to 7 o'clock in the evening.

During the two days we spent at Meny supermarket, we stood in an open space by the dairies fridge, with the intent to attract people that normally consume those products. During the day we spent at Bergen Storsenter shopping mall, we stood in a very central location easily visible from the entrance and with a lot of transit due to the many nearby shops.

Both days we had a Norwegian School of Economics roll-up next to us and we were wearing NHH jumpers, with the intention to increase visibility and legitimacy.

3.3.2 Participants

Both locations we chose are places frequented by a lot of people from different demographic groups. Our sample of participants included 139 people in total, of which 76 women and 63 men, and their mean age was 40 years old for both treatment and control group.

For the experimental group there were 95 people who saw the video, and answered the questionnaire. Some respondents were removed from the sample and the number was reduced to 87. Of these, 40 were exposed to the one-sided treatment while, 47 to the two-sided one. The rationale behind the removal was poor Norwegian skills, clear signs of alcohol of drug use, or excessively young age. In this regard, we removed everyone under high school level of education. The final number of participants for the control group was of 52 people.

3.3.3 Procedure

3.3.3.1 Test of Equipment and Rehearsal

To make sure the technical equipment was well tested and both of us felt confident in controlling it, we conducted a session of testing before the actual experiment. The subjects of the test were a handful of friends and family of different ages and backgrounds. The aim was to limit the possibility of technical issues during the study and to make sure we knew how to fix them if they occurred.

A part of this session was also dedicated to the rehearsal of manuscript which we had drafted before the experiment, to standardize as much as possible our interaction with the participants. This is of great importance as an equal experience for each respondent increases internal validity.

Despite having a detailed manuscript which covered all parts of the interaction with participants, the modalities of approach during the recruitment phase varied according to subsequent trial and error attempts to get people to join the experiment. This difference in how people were approached could ultimately affect the setting or the mood of the respondent and thereby affect the result. As such, it is considered a limitation.

3.3.3.2 Recruitment

First of all, given the importance to recruiting a considerable amount of people and thus get a sample with enough statistical power, we decided to offer participants the opportunity to take part in a draw for two universal gift cards worth 3000,- NOK each.

To make the recruitment process as balanced as possible, we decided that one of us would have always been the one inviting bypasses, while the other would have only taken care of the rest of the experiment, once the participant had accepted to take part of it. Indeed, since one of us does not speak Norwegian, we wanted to avoid unnecessary bias among participants that would be more or less willing to take part in an experiment to which they are invited to participate in their second language.

3.3.3.3 Randomization of Sample and Treatment

To ensure randomization in the submission of one treatment or the other to participants, we used a mobile app which randomly assigned respondents to either the two-sided or one-sided treatment. Based on this we would set the goggles for the next respondent with the one-sided or the two-sided video on them. This was done to prevent underlying researcher biases when picking videos.

We could argue that giving random treatments to couples, or people being in the same group, would more easily lead to participant figuring out the different treatments or further

discussing the topic shown after they viewed the VR content. Since the experiment was held in a public space, from which people tend to leave when they are done shopping, we could argue that the chance for participants to tell someone else about the study was relatively small. As a consequence, there was no need for us to separate people based on which treatment they were assigned to, and we instead chose to do random treatments for everyone.

3.3.3.4 Confidentiality of Participants

To facilitate honest reporting of participant's attitudes and intentions, in addition to prevent participant bias, we ensured confidentiality. However, respondents were directly facing the researchers during the whole experiment, which is not ideal because they might have felt like they were being watched. The closeness to the researchers could have created respondent bias, leading to participants giving the answers they thought the researchers wanted. This was a common experience for all groups and should therefore not have many implications for results. Preventive measures would have been difficult to carry out, however we stated several times that respondents were confidential or anonymous.

The questionnaire used contained only limited questions about demographic characteristics which could be identifying information about respondents. We did however, ask for participants' email to allow them to take part in the draw for gift cards. Because this survey was conducted electronically, in our data email addresses were connected with responses. However, these were moved to separate files and set in random order shortly after data collection to secure respondents' privacy. Participants also had the option not to enter their email, ensuring anonymity.

3.3.3.5 Briefing

The briefing participants received varied depending on whether they were about to receive one of the treatments or just the control group survey. We consider briefing to begin when the participant agrees to partake in the study. From this point, the briefing was done following a manuscript (Appendix 5 - Experiment Manuscript) to ensure that everyone from the experimental group got the same introduction and information.

The experimenter began by welcoming and thanking the participant for accepting to take part in the study and then stated that the experiment is entirely voluntary and confidential. Next, the experimenter explained that the participant would watch a video and would subsequently have to answer a survey. Accordingly, some specific instructions for the use of the VR headset were given.

The control group, on the other hand, had less need for introduction because respondents on average had an understanding of how to fill in a survey. Hence, the experimenter also started by welcoming and thanking the participant, before explaining that the survey was entirely voluntary and confidential.

3.3.3.6 Exposure

In the case of the two treatments, once the briefing was done the researcher would start the video, and then place the VR headset on the participant's head. This was somehow challenging when someone had their hair pulled up or had a large head. However, we found this to be the best way to do it, because of difficulties to explain to participants how to start the video themselves. In this way, we also wanted to avoid that respondents would accidentally switch to the other video treatment when having the headset on, which would have influenced the internal validity greatly.

When testing the equipment before the experiment, some people struggled with engaging with the virtual environment, since instead of exploring their virtual surroundings they looked straight without moving their head, like they would do with a regular video.

Therefore, we encouraged participants to look around during the session, to get a better virtual experience. To make it easier for people to engage with virtual reality, we also suggested them to hold one hand on the table in front of them, to gain more confidence and stability. This helped to prevent people from getting sick or losing their balance.

In the case of the control group, on the other hand, as soon as the briefing was done the participant already started with the survey.

To increase the internal validity of the study, we carried out data collection for treatments and control group at separate times. First of all, when collecting data for the control group, we made sure not to show anything of the VR equipment or talk about the other part of the experiment. We argue that if participants had known about the VR experiment, this could have brought out unwanted systematic differences in variance due to less excitement, or other effects that we could not control. Secondly, we made sure to distribute data collection of both control group and treatment groups homogeneously over the three days of the experiment. This was done to ensure that a similar percentage of people from one day (and in turn from one location) was included in the control group as well as in the experimental group.

3.3.3.7 Questionnaire

Before both groups began answering the survey, the participants were told that there was no right or wrong answer and that they should have answered according to what they felt reflected their attitudes and feelings. Participants were also encouraged to ask if they had questions.

Participants filled out the survey on a tablet. When dealing with the treatment groups, before handing out the tablet to the respondent, the survey was set up according to which video the participant had seen.

The fact that people answered the survey in the presence of both other participants and the researchers, instead of in privacy, could have implications. Ideally, respondents should fill out the survey in privacy, away from researchers and other respondents. However, this

proves to be logistically tricky when conducting a field experiment and what we manage to do was to try to get some distance when respondents filled out the survey. This factor will however, be considered as a limitation of the study.

The questions asked were mostly based on predetermined items to cover theoretical aspects. Between the treatment group and control group there were some changes to the questionnaire, since all questions specifically regarding the video were removed. The two versions of the questionnaire did not however, differ in terms of visualization and design.

3.3.3.8 Debriefing

Lastly, after participants were done with the questionnaire, they were asked not to speak about the experiment to anyone else within a week. This strengthened the internal validity of the study, by preventing any future participant from being affected, or having predetermined expectations.

Participants were finally thanked for having taken part in the experiment and greeted goodbye.

3.3.3.9 Sample and Population

Even though there is a natural diversity of people in supermarkets and shopping malls, which allowed us to gather a good representative sample as opposed to what would have happened by doing a lab experiment on NHH campus, some factors are indicating that there can be skewness in the sample.

Firstly, when experimenting in a public space, stopping passers-by and trying to recruit them for the experiment, some underlying self-selection biases will occur. People who are interested in trying the technology or want to partake in the draw of gift cards will be overly represented in the sample due to self-selection, while people who find VR scary or hesitant

to try will be left out. In addition, there is also a selection bias related to researchers as they might be more inclined toward approaching a particular type of people.

Secondly, people who have tried VR before had a tendency not to be drawn to the experiment, passing on the opportunity to participate. This indicates that the sample is overly represented of people who are first-time users of VR.

Thirdly, even though the experiment took place throughout tree entire days, people with a 9 to 5 job might have been underrepresented. This is because during office hours they were at work, while during lunch time and after-work hours they might not have had the time to stop by since they were rushing home or back to work. This may have left us with an underrepresented sample of parts of the working force.

3.3.4 Equipment

The movie was filmed with Samsung Gear 360° camera. During the experiment, we used the Samsung VR goggles with Samsung S7 attached. This equipment is simple, intuitive, and does not require a technical background to film with nor use. The video quality is however limited. In addition, Samsung VR is limited with respect to interactivity, since the only control option participants have is where to look.

There is more advanced equipment available on the market, which would have drastically increased the quality. However, it is particularly expensive and it would have required a more powerful computer due to significantly bigger file size. Even though the quality can look "grainy" and not smooth on the Samsung VR, external validity should not be affected, as both treatment groups will be exposed to the same quality.

3.4 Measurements

The questionnaire used was designed to capture participants' attitudes, behaviors, and intentions, by coding abstract theoretical concepts into measurable questions (Jacobsen, 2015). The data collected through questionnaires rely to a large extent on the design of the questions to get internal validity and reliability (Saunders et al., 2016). To create meaningful questions capturing a nuanced picture of the theoretical concepts addressed in the literature, we looked at previous research to adopt and adapt established scales of measures (Bourques & Clark, 1994). Despite finding established scales for most measures, some of them have been edited to fit our particular context, to facilitate robust measurements validity. Moreover, all the items have been translated into Norwegian. To make sure that the items were perceived as intended after translation, we consulted with other researchers to get objective feedback to preserve the items' original meaning.

We chose an 11-point scale for most questions, to enable respondents to express their view on a subject accurately, and to capture variation in opinions. At the same time, we acknowledge that participants can find it confusing to be exposed to more alternatives, as they might not perceive two options as different.

The point in time in which participants answers would be captured matters for the outcome of reported scores. Familiarity with the brand and prior *attitude toward CSR* should preferably be captured before being exposed to the manipulation. The rationale behind this is that in this way participants' responses would have not been affected by the treatment. However, we were concerned that by doing so participants would have been affected by their previous answers, once they answered the part of the survey that followed the treatment. This phenomenon, known as context-effect, would have made the effects of the manipulation weaker (Schuman & Presser, 1996). Besides, we feared that answering the survey in two times would have made participants perceive it as more extended and more time consuming, decreasing their willingness to continue the survey once they had finished watching the video. These concerns made us settle on the choice to capture responses on all items in a single questionnaire.

3.4.1 Dependent Variables

Brand attitude – Brand attitude is the consumer's overall evaluation of a brand (Keller, 1993). With brand attitude the goal was to capture participants' attitude toward Arla Foods. The variable was constructed of four items, the first three of which were found in Becker-Olson (2003) and Rodgers (2004). The fourth item was taken from Pope, Voges, & Brown (2004) and Javalgi, Traylor, Gross, & Lampman (1994). These questions used an 11-point semantic scale with extremes "bad / good", "negative / positive", "disliked / liked", "low quality / high quality".

Purchase intention – Intention to purchase Arla's products was measured using three items. The first and second items were adopted from (Baker & Churchill 1977), while for the third Burton, Garretson, & Velliquette (1999) was used as inspiration. An 11-point semantic scale was used, with extremes "not probable / very probable" for the first two items, and "less likely / more likely" for the third.

Evaluation of sustainability – This dependent variable was intended to measure respondents' perception of Arla's sustainability initiatives. The variable was constructed of three items, the first two of which were adopted from Leonidou & Skarmeas (2015). The third item was inspired by Connors, Anderson-MacDonald, & Thomson (2017). The questions were shaped as claims, and an 11-point semantic scale was used. The extremes of the scale were "completely disagree / completely agree".

3.4.2 Mediating Variables

Credibility – This measure was intended to capture the credibility of the message and, in turn, the trustworthiness toward Arla. Three items were used, the first one of which was adopted from Williams & Drolet (2005); Yoon & Schwarz (2006); and Connors et al. (2017). The second was adopted from Goldsmith, Lafferty & Newell (2001); and MacKenzie & Lutz (1989), while the third was adapted from the same sources. An 11-point semantic scale was used, with extremes "not believable / believable", "not honest / honest", "strongly disagree / strongly agree".

Attitude toward CSR– This variable is a construct of three items originated from Obermiller & Spangenberg (1998); Connors et al. (2017); Constantinos & Skarmeas (2015); and Leonidou & Skarmeas, (2015). The variable used claims with an 11-point semantic scale, and labels "completely disagree / completely agree".

CSR skepticism – This variable was constructed by two items taken from Leonidou & Skarmeas (2015). Respondents answered claims on an 11-point semantic scale with the extremes "completely disagree / completely agree".

Informativeness – This variable intended to capture respondents' perceptions about how informative the presented treatment was. Three items were used. The first one was adopted from Edwards, Li, & Lee (2002), while the last two were developed by the researchers of this paper. The questions were shaped as claims to be answered on an 11-point semantic scale, with the extremes "completely disagree / completely agree".

Familiarity with the brand – This variable was intended to measure whether or not participants were somehow familiar with Arla Foods from before. Respondents looked at a picture of Arla's logo while answering these questions. The two items used originated from Simonin & Ruth (1998) and Fombrun et al. (2000). The second item was adapted to fit better with the translation to Norwegian. The scale used was an 11-point semantic scale, with extremes "very little familiar / very familiar".

Telepresence – This variable intended to capture to what extent participants felt present in the VR environment. Two items were used, on an 11-point semantic scale, with the extremes "completely disagree / completely agree". The first item was adapted from Hyun & O'keefe (2012), while the second one was taken from Klein (2003) and Nah, Eschenbrenner, & DeWester (2011).

Mental imagery – This item was used to measure how participants could mentally picture Arla's sustainability initiatives. Lee & Gretzel (2012) was used as inspiration for this question. Respondents answered the claim on an 11-point semantic scale with the extremes "completely disagree / completely agree".

3.4.3 Control Variables

Negative feelings with VR – This variable was meant to report participants' feelings with the VR experience, Since if people had a bad experience in terms of nausea, feeling uncomfortable, or dizziness, this could have affected their responses. Three items were used on an 11-point semantic scale with the extremes "not at all / to a very large degree".

Demographics – Three demographic questions were asked, namely age, sex, and level of education. Age was an open question were participants entered their age, while sex was a binary question. Level of education was an ordinal scale with the options "Videregående skole", "Bachelorgrad" or "Mastergrad".

Respondent didn't pay attention – A question was asked to respondents, to investigate the degree to which they felt like they paid attention during the treatment. The single item was a claim on an 11-point semantic scale with extremes "strongly disagree / strongly agree".

3.4.4 Other Variables

Glasses – We noted when participants used glasses underneath the VR headset, or when they normally used glasses, but took them off during treatment.

Technical challenges – We noted whether technical challenges occurred during the experiment after respondent was finished.

Reasons to remove – We noted if there was any reason to remove the participant from the sample.

3.4.5 Factor Analysis and Internal Reliability Check

Through factor analysis, we aim to analyze our set of variables and items and investigate whether there are ways to reduce or summarize the data material (Pallant, 2010). Kaiser's criterion and scree test have been used in this factor analysis.

In particular, with the Kayser-Meyer-Olkin criterion we extract factors with eigenvalues greater than 1, while Catell's scree test (1966) involves plotting the eigenvalues for each factor and finding where the curve changes direction and becomes horizontal. Catell (1966) suggests to keep all values above the breaking point. Both the Kaiser's criterion and the scree test have a tendency to overestimate the number of factors retained (Hubbard & Allen, 1987; Zwick & Velicer, 1986).

The variables suggested for this study are adopted or developed from the literature and represent theoretical concepts. This would indicate that the components in the factor analysis could be correlated and following this assumption, we use a oblimin solution, which is an oblique rotation method which allows the factors to be correlated (Hair, Black, Babin, Anderson, & Tatham, 2006). We used a principal component analysis to investigate if the information could be abbreviated to a smaller set of factors (Hair et al., 2006). The analysis also provide as an indicator for how well the variables fit the data (Pett, Lackey, & Sullivan, 2003). The Barret's test was significant for both groups on a 99% level. The Kayser-Meyer-Olkin was observed to be 0.67 for both groups, which should be above 0.6. These test indicate an acceptable variable-data-fit. Furthermore, we extracted 8 components with an eigenvalue >1.0. The factor loadings in the pattern matrix was investigated, and items with higher factor loading than 0.5 were retained. Four items were removed due to this criteria (see Appendix 1 - Factor analysis and Cronbach's alpha). We observed that the variables *evaluation of sustainability* and *mental imagery* loaded on the same factor. When assessing redundancy in these construct; theoretical, empirical and pragmatic perspectives from Singh (1991) was used. We argue that these concepts could be overlapping and connection to the same underlying phenomenon, hence, these variables were merged. The hypothesis H9 will, hence not be tested.

There was also another case of variables loading on the same component, namely *brand attitude* and *credibility*. Such cross-loading between a dependent variable and a mediating

variable of conceptual importance for the study is not ideal. Using Singh's (1991) framework for assessing redundancy in constructs we assessed the theoretical dimension by looking into the literature on these constructs. Theoretically these are both well-established constructs with well tested scales. Empirically, we investigated how the factor loadings changed with performing changes in the constructs. By removing further items we observed changes in the *credibility* variable. By changing the number of items, the *credibility* construct would show signs of cross-loading on other factors as well. This indicate that the *credibility* variable does not fit the data well. We chose to keep these variables distinct, because of the ambiguity of results from the EFA, we could not be certain how well *brand attitude* and *credibility* overlap, even though they are competing constructs.

When investigating the items regarding the *informativeness* variable, we observed that these were loading on two factors. The cross-loadings was weaker than 0.5, however, this would be an indication that the data does not fit the variable optimally. It is also worth noticing the weak loadings on the *purchase intention* items. Five of the twenty-three items in the factor analysis were loading <0.6. Hair et al. (2006) state that 0.6 is the level in which the cross loading is considered high.

Furthermore, we assessed the reliability of variables. The reliability of the variables is affected by the study's sample size. The issue has been investigated by Tabachnick and Fidell (2007), and they suggest to use a sample larger than 300. They also state that it should be sufficient with smaller sample size if the analysis shows several high loading factors (>0.8). Since in our data some items showed with low cross loading, we can argue that this would affect the reliability of some variables, including *purchase intention*.

An internal reliability check was conducted to control the internal consistency of the scales, which is according to Pallant (2010) one of the main issues regarding reliability of the study. We used one of the most commonly used analyzes, the Cronbach's alpha coefficient (Saunder et al., 2016; Pallant, 2010). The alpha values for each scale should exceed 0.7 to represent an acceptable internal consistency (Pallant, 2010; Hair et al., 2006; DeVellis, 2003; Reve, 1985; Saunders et al., 2016). An alpha value of 0.7 can be considered to be the lower limit. Furthermore, the preferable alpha values are higher than 0.8 (Pallant, 2010; Reve, 1985).

When considering the coefficients, the number of items should be taken into account. The coefficient is sensitive to the number of items, meaning it is harder to get decent Cronbach's alpha scores when few (less than 10) items are used to construct the variable (Pallant, 2010). Using fewer items, three or four per construct can create a more unidimensional factor, than using more items (Hair et al., 2006). A more substantial number of items can give greater cross-loadings and thus make a case for multicollinearity. In this study, the case for such an issue is weak because no more than four items per construct have been used.

3.4.6 Adjusted Research Model

Based on the results from the exploratory factor analysis, in which *mental imagery* was combined with *evaluation of sustainability*, an adjusted research model is made.
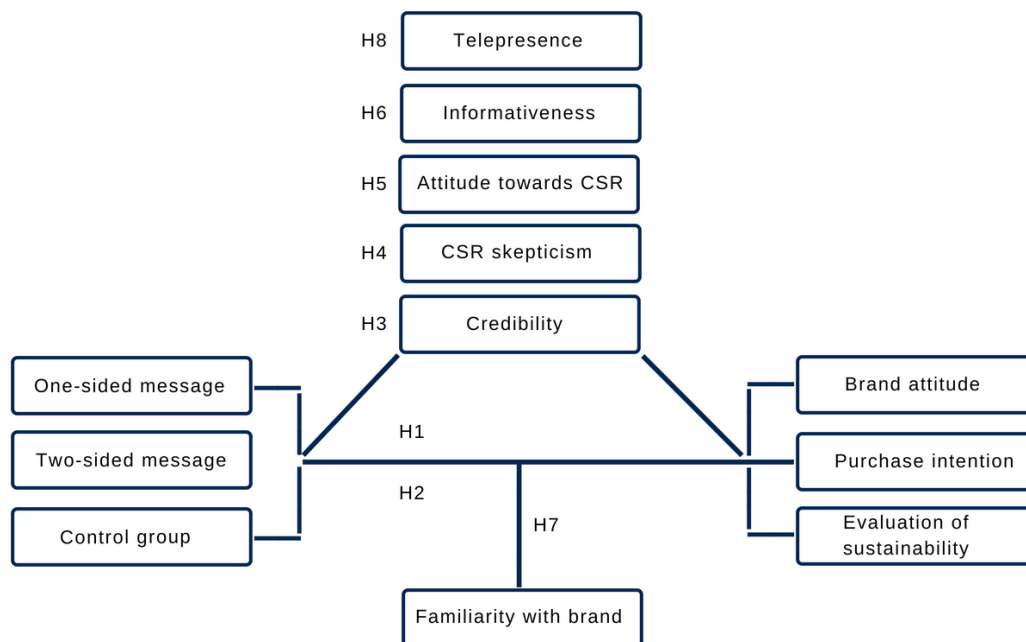

Figure 3-2 Adjusted Research Model

3.5 Data Analysis

Several statistical techniques have been used to analyze our data. We started off by investigating the data material with descriptive statistics. The purpose of this was to get familiar with the data set (Saunders et al., 2016), by addressing the distribution of variable scores, variable means, and standard deviations. These were compared between one-sided and two-sided message treatment groups, in addition to comparing the whole experimental group and the control group.

The main effect, which refers to the effect of the independent variable on the dependent variables, was tested with an independent sample t-test. This analysis compares mean values between groups and is suitable because of the simplicity of the model. We measured the main effect of one-sided and two-sided treatments, as well as of the two treatment groups combined and the control group. Furthermore, to measure mediating and moderating effects, Preacher and Hayes' bootstrapping procedure have been used.

3.5.1 Indirect effect

Mediation effect is a common part of hypotheses in behavioral science (Preacher & Hayes, 2008), which occurs when there is an intervening variable indirectly affecting the relationship between the independent and the dependent variable. As shown in the research model simple mediation has been measured. Preacher & Hayes (2008) argue that the most commonly used method for assessing mediation effects is the Sobel test (Sobel, 1982). There have been discussions about whether causal step strategy is the best way to address mediation and several studies have criticized and discussed the weaknesses of this method (Preacher & Hayes, 2004; Preacher & Hayes, 2008; Hayes 2009). We therefore choose to use a more rigorous method, the process macro by Preacher & Hayes (2008), to test for intervening mediating effects. This method is a bootstrapping procedure, which takes multiple samples from the dataset and creates a more robust analysis. Preacher & Hayes (2008) recommend using this method whenever possible because the method is the most powerful and reasonable under most conditions.

3.6 Ethical Challenges

Lastly, we address the ethical challenges of conducting the study and the ways to mitigate their impact. Research ethics apply to the whole research process, from designing the study to data collection and reporting (Saunders et al., 2016). Research ethics refers to moral principles and values affecting how the research is conducted (Grønhaug & Ghauri, 2010), and furthermore refers to how appropriate the researchers' choices and behaviors are, especially regarding respondents and people affected by the study (Jacobsen, 2015; Saunders et al., 2016).

Giving participants sufficient information on the experiment, as well as the opportunity to ask questions and the time to make their considerations before beginning, is important to ensure informed consent (Saunders et al., 2016). Through the briefing phase of the experiment, respondents chose whether to continue or not. However, some also chose to quit during the VR session or the questionnaire. According to Saunders et al.'s (2016) suggestions on privacy, we can argue that participants' privacy was respected.

There was no false, or purposely left out information in this experiment which would have added additional requirements for debriefing.

Participants have the right to be confidential and anonymous when such a promise has been made, and researchers must ensure that these criteria are met (Saunders et al., 2016). Respondents had the ability to be anonymous if preferred, by not including their email to the draw for gift cards. Additionally, participants taking part in the draw were confidential. The emails collected were only used to pick winners of the draw, and were deleted soon afterwards.

4 Results

In this chapter we will assess whether assumptions for parametric statistical techniques are met, including independence of observations, normality of distribution, and homogeneity of variance. Furthermore, we will go through the results of the main effect, in addition to the indirect effects through mediation and moderation.

4.1 Test of Assumptions

When applying multivariate analysis, meeting the assumptions of the models is of great importance to get the best possible results, and to ensure that results are representative of the sample (Pallant, 2010). Some statistical writers also claim that most parametric tests are quite robust and can handle minor violations of assumption (Pallant, 2010).

4.1.1 Independence of Observations

Lack of independence among observations is one of the most basic, yet most serious violations of an assumption in a statistical model (Hair et al., 2006). In this study, an effort was made in order for participants of the control group not to be aware of the experimental group. As for the treatment group, participants were randomly assigned one of the two treatments. However, because of some capacity constraints in the experiment, some participants were standing in line to take part in the study and the respondents who had just finished often gave comments about their experience with the virtual environment. This might have been received by the participants waiting and might have created expectations about the following experience, causing levels of dependence between responses and, in turn, some sort of correlation among results (Hair et al., 2006). It is however less likely that there are more substantial systematic dependencies between the groups. The effects mentioned were not investigated further with statistical methods, but the phenomenon was noted as a weakness.

4.1.2 Normality

Normality is the degree to which the sample distribution resembles the normal distribution. According to Hair et al. (2006), multivariate normality is challenging to measure, but univariate normality should be sufficient. This means that when individual variables are normally distributed, their combination is also normal. We follow this logic when assessing the normality of sample distribution, by using descriptive statistics and the Kolmogorov-Smirnov's test. A non-significant result of the Kolmogorov-Smirnov test indicates normality (Pallant, 2010). Of the nine tested variables in the treatment group, only *purchase intention* (sig. 0.12) and *evaluation of sustainability* (sig. 0.2) did not fail the Kolmogorov-Smirnov test (Table 8-3). The six variables in the control group all failed the Kolmogorov-Smirnov test with significant results. Failing the test indicates a non-normally distributed variable, which in turn could affect the results.

In addition to Kolmogorov-Smirnov test of normality, we looked at the distribution of variable values using skewness- and kurtosis scores. The skewness value indicates the symmetry of distribution, while the kurtosis value provides information about the peakedness of distribution (Pallant, 2010). A perfect normally distributed sample would give a score of 0 to both skewness and kurtosis. A positive (negative) skewness score indicates that distribution is clustered to the left (right) at the low (high) values. Positive kurtosis indicates a peaked distribution, with values focused in the center.

There was one variable in which the skewness scores stood out, namely *attitude toward CSR*, for which a score of -1.27 indicates a clustered distribution around the high values of the scale (Table 8-3). Moreover, some kurtosis scores were noteworthy. Variables with scores larger than 1 or smaller than -1 were *attitude toward CSR* (1.86) and *familiarity with the brand* (-1.21) from the treatment group, and *brand attitude* (-1.09), *evaluation of sustainability* (2.31), and *CSR skepticism* (-1.17) from the control group. Given that *brand attitude* and *evaluation of sustainability* are dependent variables, it is especially notable that these show weaknesses concerning the assumption of normality.

We can therefore, conclude that there are signs from the Kolmogorov-Smirnov test and skewness and kurtosis scores that some variables fail to meet the assumption of normal distribution. Departure from normality can influence the results considerably, however, the severity of non-normal distribution becomes greater with smaller sample sizes (Fabachnich & Fidell, 2007; Hair et al., 2006), which is a concern for this study due to a total sample size of 139.

4.1.3 Homogeneity of Variance

Homogeneity of variance, also commonly known as homoscedasticity or constant radiance, is the final assumption addressed. Because we assume both the two treatment groups as well as the control group belong to the same population, we assume equal variance of responses in these groups. To test for homoscedasticity, we used a Levene's test. According to Hair et al. (2006), the Levene's test is less affected by deviation from normal distribution which is considered one of its strengths. Interpreting the Levene's test is done reversely, which means significant results are the unwanted outcome, while a non-significant result indicates that the variance of two groups is equal (Pallant, 2010). We performed the test both between the whole experimental group and the control group, and between the two treatment groups (see Table 8-4). We found two variables that did not meet the assumption, both of them in the comparison between the experimental group and the control group. These were *evaluation of sustainability* and *attitude toward CSR*. Since parametric statistics assume that samples are taken from populations with similar variability scores, violations of this assumption will be considered a weakness.

4.2 Main Effect (H1 and H2)

The main effect of this experiment is about the influence that sustainability communication has on consumer behavior. However, we test this effect from two perspectives, since we both investigate the effect that the two treatment conditions combined have on the dependent variables (H1), as well as the effect that the one-sided and two-sided messages specifically cause (H2). Both between subject examinations measure the effect on the dependent variables *brand attitude*, *purchase intention* and *evaluation of sustainability*.

Firstly, we assess the treatment groups separately. We test the hypothesis H2, in which two-sided message framing is expected to outperform one-sided on all three dependent variables. To assess the differences in means between the groups, we use an independent samples t-test. The results from the test (Table 4-1) showed no significant main effect on the dependent variables. Statistically, there are no grounds to support H2, and thus we reject this hypothesis. The low difference in mean scores for the treatments is notable.

Secondly, we investigate if the treatment groups combined show systematic differences from the control group. According to the hypothesis H1 we expect to find positive effects on all dependent variables. The results indicate considerable differences in mean. The positive effect between treatment condition and control group on the dependent variables are all significant on a 1% level. The significant direct effect gives reason to support hypothesis H1.

Table 4-1 Direct Effect

Independent samples t-test One-sided/two-sided				
Variable	**Mean One-sided**	**Mean Two-sided**	**t**	**Sig.**
Brand attitude	8.79	8.62	.43	.67
Purchase intention	8.28	8.05	.53	.60
Evaluation of sustainability	7.93	8.27	-.89	.37
Attitude toward CSR	9.67	9.55	.40	.69
CSR skepticism	8.35	8.29	.14	.89
Familiarity with the brand	6.16	5.43	1.06	.29
Credibility	9.20	8.93	.66	.51
Telepresence	8.94	8.82	.30	.76
Informativeness	8.89	8.90	-.03	.97
Independent samples t-test Control/VR				
Variable	**Mean Control**	**Mean VR**	**t**	**Sig.**
Brand attitude	7.90	8.85	-2.96	**.00***
Purchase intention	6.85	8.16	-3.56	**.00***
Evaluation of sustainability	6.08	8.11	-7.29	**.00***
Attitude toward CSR	9.08	9.61	-1.81	.07
CSR skepticism	7.92	8.32	-1.15	.25
Familiarity with the brand	4.26	5.78	-2.64	.01*

4.2.1 Control Variables

Questions regarding general demographics in addition to other variables including a *didn't-pay-attention*-variable were reported. We investigated whether these variables could be used as covariates. Due to a requirement for analysis of covariance is a correlated relationship between dependent variables and control variables (Hair et al., 2006), we assessed this by running a correlation analysis. We did not observe any correlated relationship between dependent variables and control variables. Thus, we did not find any covariate relationship with the direct effect.

4.3 Indirect Effects (H3-H8)

The absence of direct effects, which is the case between two-sided and one-sided message framing, does not rule out potential indirect effects (Preacher & Hayes 2008). However, from the independent samples t-test, we also measured the direct effects of one-sided and two-sided messages on the mediating variables (X→M1). We observe the absence of significance between independent variable and mediating variables. Because this relationship is a part of the indirect effect (X→M1→Y), this indicates no mediating effects.

The aim for hypotheses H3-H6 and H8 is to investigate the mediating effect on the dependent variables *brand attitude*, *purchase intention* and *evaluation of sustainability*, while H7 investigates how *familiarity with the brand* moderates the relationship with the same dependent variables.

H3 predicts that two-sided message framing enhances perceived *credibility*, which have a mediating effect on dependent variables. H4 predicts that two-sided messages decrease *CSR skepticism* which increases dependent variables, while H5 predicts a mediating effect of *attitude toward CSR*. H6 would furthermore, predict that two-sided messages increase perceived *informativeness* of the message, and that this have an mediating effect. H7 predict a moderating effect of *familiarity with the brand*, while H8 is predicting *telepresence* to have a mediating effect on consumer behaviors.

The results are found in Table 4-2, with measured effect size and the following confidence interval for a 95% level. Significant mediation occurs when the observed confidence interval does not include zero.

Between the treatment groups, no significant results were found for any of the dependent variables. Hypotheses H3-H6 and H8, demonstrate no mediation effect, while H7 shows insignificant moderation (Table 4-3). Thus, these hypotheses were rejected.

Table 4-2 Mediation Effect Experimental Group

One-sided/Two-sided			
Dependent variable	**Brand attitude**		
		95% Confidence Interval	
Mediator:	Effect size	Lower level	Upper level
Attitude toward CSR	-0.0607	-0.1469	0.0430
CSR skepticism	0.0022	-0.0410	0.0915
Credibility	-0.0931	-0.5208	0.1400
Telepresence	-0.0056	-0.1130	0.0445
Informativeness	0.0000	-0.1042	0.0923
Purchase intention	-0.0593	-0.2965	0.1737
Evaluation of sustainability	0.1020	-0.0920	0.4029

One-sided/Two-sided			
Dependent variable	**Purchase intention**		
		95% Confidence Interval	
Mediator:	Effect size	Lower level	Upper level
Attitude toward CSR	-0.0001	-0.1406	0.1005
CSR skepticism	-0.0023	-0.1160	0.0601
Credibility	-0.0393	-0.4020	0.0650
Telepresence	-0.0244	-0.2518	0.1391
Movie informative	0.0031	-0.2244	0.2858
brand attitude	-0.0892	-0.5780	0.2893
Evaluation of sustainability	0.0611	-0.0428	0.3970

One-sided/Two-sided			
Dependent variable	**Evaluation of sustainability**		
		95% Confidence Interval	
Mediator:	Effect size	Lower level	Upper level
Attitude toward CSR	-0.0109	-0.1853	0.0438
CSR skepticism	-0.0107	-0.1982	0.1400
Credibility	-0.0111	-0.2228	0.0775
Telepresence	0.0084	-0.0414	0.1543
Movie informative	0.0042	-0.2749	0.2846
brand attitude	-0.0654	-0.4677	0.2127
Informativeness	-0.0051	-0.1756	0.0610

Table 4-3 Moderation Effect Experimental Group

One-sided/Two-sided		
Dependent variable	**Brand attitude**	
Independent variable	One-sided/two-sided	
Moderator	Familiarity with the brand	
	Effect size	P-value
Familiarity with the brand	-0.2418	0.8095
Experimental group	-1.1449	0.2555
Interaction	1.2482	0.2154

One-sided/Two-sided		
Dependent variable	**Purchase intention**	
Independent variable	One-sided/two-sided	
Moderator	Familiarity with the brand	
	Effect size	P-value
Familiarity with the brand	-0.5756	0.5665
Experimental group	-1.2551	0.213
Interaction	1.2653	0.2093

One-sided/Two-sided		
Dependent variable	**Evaluation of sustainability**	
Independent variable	One-sided/two-sided	
Moderator	Familiarity with the brand	
	Effect size	P-value
Familiarity with the brand	0.1523	0.8793
Experimental group	-0.0424	0.9663
Interaction	0.714	0.4773

Table 4-4 Mediation Effect Control Group vs Treatment Groups

Control/VR			
Dependent variable	**Brand attitude**		
		95% Confidence Interval	
Mediator:	Effect size	Lower level	Upper level
Attitude toward CSR	0.026	-0.054	0.182
CSR skepticism	-0.026	-0.163	0.018
Purchase intention	**0.414***	**0.197**	**0.716**
Evaluation of sustainability	**0.974***	**0.610**	**1.407**

Control/VR			
Dependent variable	**Purchase intention**		
		95% Confidence Interval	
Mediator:	Effect size	Lower level	Upper level
Attitude toward CSR	-0.006	-0.146	0.099
CSR skepticism	0.029	-0.021	0.198
Brand attitude	**0.491***	**0.160**	**0.976**
Evaluation of sustainability	0.381	-0.106	0.908

Table 4-4 Mediation Effect Control Group vs Treatment Groups

Control/VR			
Dependent variable	**Evaluation of sustainability**		
		95% Confidence Interval	
Mediator:	Effect size	Lower level	Upper level
Attitude toward CSR	0.058	-0.012	0.221
CSR skepticism	0.022	-0.020	0.175
Brand attitude	**0.392***	**0.144**	**0.768**
Purchase intention	0.129	-0.020	0.381

4.4   Other Findings

Given that we did not find support for any of the hypotheses H3-H8, other alternative
effects have been investigated.

Firstly, the analysis of indirect effect does show significant differences between the
treatment groups combined and control group with several mediating variables (Table 4-4).
The results of the mediation analysis shows that *brand attitude* is being predicted through
evaluation of sustainability (effect = .974; 95%CI = .61, 1.407), and *purchase intention* (effect
= .414; 95% CI = .197, .716). Furthermore, *purchase intention* and *evaluation of*
sustainability was predicted through *brand attitude* as mediator (effect = .491; 95% CI = .16,
.976) (effect = .392; 95% CI = .144, .768). This is an indication that sustainability
communication does have an impact on consumers, and that there are a sequential
relationship between dependent variables, which is expected.

Secondly, when we controlled for education level by using this variable as a moderator
between one-sided and two-sided messages and *brand attitude*, a significant relationship
was found on a 5% level (Table 4-5). This indicates that with higher education, bachelor and
master's degree respectively, respondents show less favorable attitude toward the brand

when exposed to the two-sided message. Only respondents with higher level of education showed significant impact on attitude toward the brand. This finding is of weak statistical power and does not show the contrary effect for lower levels of education.

Table 4-5 Moderation Effect Experimental Group (education level)

One-sided/Two-sided		
Dependent variable	**Brand attitude**	
Independent variable	One-sided/two-sided	
Moderator:	Education level	
	Effect size	P-value
Education level	1.163	0.220
Experimental group	0.655	0.296
Interaction	-1.170	**0.048**

Thirdly, we also observed some effects on an item-level. One of the items from the *evaluation of sustainability* variable, regarding mozzarella-cheese being a sustainable product, was tested. We tested this relationship controlling for respondents' lack of attention given to the content. This variable was a self-reported measure, and respondents were asked if they paid attention to the message. By using *didn't-pay-attention* as a moderator, a marginal effect was observed on a 10% level (Table 4-6). This means that when people reported paying attention they were more likely to think that mozzarella cheese is a sustainable product if exposed to a two-sided message. However, for people who reported that they didn't pay attention no effect was found between the two framings.

Table 4-6 Moderation Effect Experimental Group (Didn't-pay-attention)

One-sided/Two-sided		
Dependent variable	**Q6.1 - cheese is likely a sustainable product**	
Independent variable	One-sided/two-sided	
Moderator:	Didn't-pay-attention	
	Effect size	P-value
Didn't-pay-attention	0.538	0.199
Experimental group	3.033	0.084
Interaction effect	-0.412	**0.099**

4.5 Summary of Findings

No significant indirect effects on the dependent variables were found when investigating the two treatment groups. The predicted hypotheses H3-H8 and H2 were rejected. We did find a few marginal moderation effects when controlling for *education level* and the amount attention viewers paid to the message. The latter relationship was on an item level, using an expanded confidence interval of 10%. In addition some double mediation relationships have been explored, however, the results stayed the same.

We did find significant effects on all dependent variables when investigating the experimental group in comparison with control group. The direct effect was found significant on a 1% level, giving support to the hypothesis H1. We also uncovered some indirect effect on *brand attitude* when using *evaluation of sustainability* and *purchase intention* as mediators. Moreover, *purchase intention* and *evaluation of sustainability* was predicted through *brand attitude* as mediator.

5 Discussion

In this chapter the results of the study, as well as its limitations, will be analyzed. We will start by discussing our findings and since we were not able to confirm most of our initial hypotheses, we will focus on alternative explanations of the outcome. We will then go on investigating the limitations of our study, thus the potential reasons why more solid results were not found. Finally, we will discuss the contributions that our study has brought as well as the implications that arise from it, and we will link these considerations to the further research that we believe could be carried out on the topics we have addressed.

5.1 Discussion of Findings

The primary purpose of this study was to investigate whether two-sided message framing is more effective on consumers than one-sided messages when it comes to sustainability communication. In addition, the study aimed at testing if virtual reality enhances this communication by exploiting its immersive abilities, and is therefore an appropriate channel for sustainability advertising. We tested the effects of the communication on three dependent variables, being *brand attitude*, *purchase intention* and *evaluation of sustainability* practices of the company. We further investigated the indirect effects of several mediating variables relative to message framing and communication channel specifically.

The main positive finding of our study consists of significant effects between the two treatment groups combined and the control group. The results indicate considerable differences in means, observing a significant direct effect on a 1% level on all three dependent variables (Feil! Fant ikke referansekilden.), and confirm hypothesis H1 according to which we expect sustainability communication in general to have positive effects. This finding is in line with the existing literature on CSR communication (Morsing & Schultz,

2006; Schmeltz, 2012) and indicates that it is possible to shape consumers' perception about corporate responsibility and that doing so leads to higher *brand attitude*, *purchase intention* and *evaluation of sustainability*.

On the other hand, the results did not support the other main hypothesis (H2) regarding how two-sided messages would directly increase dependent variables. We tested both the direct effect of message framing on the dependent variables, and a series of indirect effects through mediating and moderating variables. These were *credibility*, *CSR skepticism*, *attitude toward CSR*, *informativeness* of the video, *telepresence*, and *familiarity with the brand*. The results did not find support for the direct effects tested in H2, nor for any of the hypotheses H3-H8 investigating indirect effects.

We did however, uncover an indirect effect when using education level as a moderator between the two different message framings and *brand attitude*. This relationship was observed on a 5% level and indicates that respondents with higher education level are less likely to show favorable *brand attitude* when exposed to a two-sided message. The finding underlines how sustainability communication in general is complex, and demographic characteristics may cause differences in effect (Robinson & Smith, 2002) which should further be investigated. In this particular case, respondents with higher education may think more critically about the information perceived, and this may affect the required amount of disclosed negative information that is needed in a message to create a higher level of trust and credibility toward the brand. This finding, however, is of weak statistical power and does not show the contrary effect for lower levels of education, making it hard to draw sound conclusions.

Furthermore, a second effect was observed when we controlled for the absence of attention given to the message. This effect was found on an item-level regarding how sustainable mozzarella-cheese is perceived to be. By using *didn't-pay-attention* as a moderator, we observed an indication that respondents are more likely to think that mozzarella-cheese is a sustainable product when they are exposed to the two-sided message if they pay attention to it. This could be an indication that only respondents who were particularly aware of the message, observed differences between the manipulations. In particular, since the sustainability challenges of cheese production were explicitly addressed in the two-sided message, but were then refuted by explaining Arla's initiatives

to address the problem, this finding could show the persuasiveness of two-sided messages - and more specifically of inoculation theory (McGuire, 1961; 1985) - on sustainability communication. We underline, however, the statistical weakness of this finding, which makes it solely an indication and not statistically generalizable.

Additionally, we could interpret this finding as a signal that manipulation was too weak since only those who self-reported to have paid attention were able to catch it. The strength of the manipulation and the effect that this may have had on our study will be further discussed in the limitations paragraph.

Finally, the fact that it took particular attention for consumers to appreciate the difference in the messages might enforce the idea presented below, according to which two-sided message framing is too complex and requires an excessively high level of attention to prove useful in the context of sustainability communication.

The main purpose of our study was to test whether two-sided advertising might be a compelling message framing for sustainability communication and whether virtual reality could represent an appropriate channel for the matter. Since results did not show support for any of the two causes, in the following sections we will investigate why, contrary to our initial beliefs, two-sided message framing and virtual reality might not be the answer to effective sustainability communication.

5.1.1 Message Framing

One of the main arguments behind the efficacy of two-sided message framing lies in the idea that because of attribution theory, the inclusion of negative information leads consumers to conclude that the advertiser is telling the truth (Eisend, 2006). We consider the perception of advertiser's credibility crucial when speaking about corporate responsibility since the topic is often subject to skepticism from stakeholders, who might otherwise believe the company is merely greenwashing (Du et al., 2010). However, the fact that the message is perceived as more credible does not necessarily mean that it is also more persuasive, since negative information about a brand may also have a direct adverse effect on attitude toward the brand (Crowley & Hoyer, (1994). In other words, there may be

a trade-off between gains in credibility and the overall persuasiveness of the message (Stayman et al., 1987; Settle & Golden, 1974).

Crowley & Hoyer (1994) argue that these effects depend on the variations in the proportion of negative information included in the two-sided message. They go on explaining that beneficial effects can be expected for low to moderate amounts of negative information. Their arguments find support in a recent meta-analysis which shows that up to 50% of negative information with low to moderate importance in the message does not diminish the positive credibility effects of two-sided advertising on *brand attitude*, while more negative information reduces *brand attitude* (Eisend, 2006). As a consequence, not only do marketers face the trade-off between disclosing negative information to evoke credibility while being careful not to harm brand reputation, but there is also the challenge of including enough negative information to make the manipulation effective while keeping the overall level low enough to still achieve persuasiveness. These challenges can prove to be particularly hard to overcome when it comes to sustainability communication, due to the high sensitivity of the topic and the great risk of reputational damage.

A second aspect that brings us to question the appropriateness of two-sided advertising when it comes to sustainability communication is the natural complexity that this particular message framing brings (Cornelis, Cauberghe, & Pelesmacker, 2014).

Indeed, by incorporating both positive and negative arguments into a message, this becomes more complex than conventional one-sided communication. Due to its complexity, a two-sided message generally requires more attention from individuals to process the message content (Crowley & Hoyer, 1994; Eisend, 2007, Eisend, 2006). This can partially find support in our finding on the higher likelihood of people who paid attention during the study, to classify mozzarella cheese as a sustainable product. Given that corporate responsibility is an incredibly complex concept per se, and that any misunderstanding or generalization can severely harm a company's reputation, two-sided message framing might not be an appropriate communication strategy for the matter.

Finally, another argument over which the effectiveness of two-sided message framing is typically based, is the degree of novelty that it brings (Crowley & Hoyer, 1994). However, much like in the case of negativity, theories of optimal arousal (Berlyne, 1971; McClelland et

al., 1953) argue that stimuli that are moderately novel, surprising, or complex will be preferred over stimuli that offer too much or too little novelty. Once more, we are in front of an uncertain choice over the amount of novelty that a message should bring. The extent of arousal is based on a discrepancy from the "adaptation level" (Berlyne, 1971), and while minor deviations from it can generate a positive effect, the contrary can be true for large discrepancies (Crowley & Hoyer, 1994). When it comes to corporate responsibility, we argue that sustainability communication already represents a source of novelty, given that it is not as widespread as any other type of advertisement for the reasons we have discussed (Bhattacharya et al., 2008; Du et al., 2007; Sen et al., 2006; Du et al., 2010). As a consequence, the use of a particularly innovative message framing can lead to an excessively higher discrepancy from the "adaptation level", which in turn results in negative effects.

5.1.2 Communication Channel

With regards to the effectiveness of virtual reality, we cannot attribute our findings to the communication channel specifically, because our design did not include a viable alternative to VR. We will explain this design constraint more in details in the limitation paragraph below. In the following paragraph we focus on discussing why, as opposed to our initial beliefs, virtual reality might not be an adequate mean for sustainability communication.

First of all, VR is an undoubtedly innovative technology and unique communication channel. Much like we just explained for two-sided message framing, this may introduce a degree of novelty that is excessive for the receiver and therefore harms the positive effects that the mean, as well as the message, were supposed to have on consumer behaviors. Overall, the combination of novel communication content - corporate responsibility - with a novel message framing - two-sided advertising - and a novel channel - virtual reality - might exceed the level of novelty deemed beneficial by optimal arousal theories (Berlyne, 1971; McClelland et al., 1953; Crowley & Hoyer, 1994).

In addition, we argue that VR, due to a strong immersive experience with high level of telepresence, might be too novel for some respondents to accurately follow the message

delivered. Especially for respondents who are new to the technology, this might draw their attention to the features of the mean rather than on the content of the communication. The sensory-rich medium may compete for the viewer's attention, leaving elements unseen or unheard. In accordance with our results that indicate that many participants did not pay attention to the message, we argue that the immersive effects of VR might be a double-sided-sword. This might be particularly true when the message itself is complicated, as it communicated a complex concept such as corporate sustainability, conveyed in a complex way such as through two-sided message framing.

A second aspect of virtual reality that might make it inappropriate not just for sustainability communication, but for corporate communication in general, is its technical complexity, that we were able to appreciate during both the creation and the use of our content.

First of all, the quality of the equipment used plays an important role when a high level of immersion in virtual reality is aimed for (Ebbestad & Ahsan, 2017; Vekony & Korneliussen, 2016), since a lower quality can tremendously impact the results. As a consequence, using VR as a mass communication mean would prove to be way more expensive than alternative traditional methods, at least for the time being. Also, the complexity of the technology calls for higher efforts in content creation, since the procedure of filming and editing the footage is very demanding. The fact that the camera records the external environment at 360° calls for a more accurate recording setting and makes editing more time consuming and with more constraints than regular 2D video. Generally speaking, we conclude that creating effective (sustainability) communication through VR which can outperform conventional marketing channels is a challenge. Even if we can imagine a company that has more resources to invest in VR than we did for this study, we still think the channel's technical complexity is an aspect that might have affected the outcome of the experiment. Companies that intend to invest in VR communication should consider these constraints.

Finally, the complexity of VR as a channel is not limited to its technical characteristics, but also applies to its implementation. Throughout our study, we were able to experience the challenge of delivering messages through virtual reality to the general public. We argue that with high levels of expected telepresence of the content and little familiarity with the medium, it will require some time for participants to get used to the alternative reality.

Some form of preparation to the viewing would therefore, increase the efficiency of the message, but would also represent a further limitation in terms of the time required.

Overall, both because of the technical challenges of virtual reality as well as the implementation difficulties we have encountered, we speculate that it might be too early for companies to adopt VR as a mean for corporate communication of any kind. As years go by and the technology progresses, we expect virtual reality to become more affordable and more accessible to users, and people to become more familiar with it. At that point, it might become easier for companies to adopt VR as a mean of sustainability communication, but further research on this aspect would be needed.

5.2 Limitations

While we have investigated several reasons why our beliefs on the use of VR and two-sided message framing in sustainability communication might have been wrong, there are also several imperfect conditions in this study, which could have influenced the results.

First of all, there are some limitations to the experimental design. In particular, we used a between-subject-design on three groups, two of which were exposed to treatment conditions for one-sided and two-sided message framings, while one served as the control group. As we explained in the methodology, both treatments were carried out through immersive VR, and the control group did not get a realistic alternative to this mean. This makes it impossible to state with certainty whether the support of the hypothesis (H1) is specifically due to the message framing or to the mean of transmission and poses a threat to external validity. Ideally, another channel in addition to - or instead of - the control group could have been used. Using pictures from the videos in the form of a brochure, simulating a Facebook post or even having a regular 2D video ad, could have all been viable alternatives to immersive VR. Another possibility would have been to use a four-by-four experimental design, with two VR conditions and two alternative treatments separated by two-sided and one-sided message framing. However, because of the demandingness of this experiment, if a four-by-four experimental design was applied, this would have negatively affected the

sample size in each group, unless additional time for data collection had been available. The quality of the video content does also bring constraints to the study. First of all, the fact that the advert is an amatorial video rather than a professional, can represent a limitation. The same can be said for the quality of the equipment, which, as already explained, is not the best that can be found on the market. The quality of the camera, as well as the goggles, can limit the VR experience (Ebbestad & Ahsan, (2017); Vekony & Korneliussen, (2016)), since a grainy footage with low resolution sets boundaries for how real the material and the experience gets. Because both treatment groups got the same visual content, its limited quality will not represent an issue for the study design, but it might have certainly affected the overall perception of the communication. Furthermore, as already previously discussed in the methodology chapter, there is a tradeoff between creating strong and precise manipulations and facilitating for experimental control through similar argumentation. Even if this balance has been taken into account when developing the treatments, the results from the one-sided and two-sided groups suggest that this study might have failed to follow Hauser & Luca's (2015) argument according to which manipulations should "use a big hammer", meaning being strong enough to be clearly perceived by participants. There could be several reasons why sufficient strength of the manipulations was not accomplished. Firstly, comparing the messages in this study to other sustainability-oriented message framing research, the content in our study was of greater length. The length of the voice-overs might cause the viewer not to follow the whole message, only partly perceiving its purpose. In addition, both messages have a common middle section, which could draw the viewer's attention to focus too much on similar parts. The shared neutral part will by itself moderate the manipulation, and this could have played a more important role than expected.

Another important limitation is that when conducting a field experiment, experimental control is a challenge since keeping confounding effects out or controlling for them can be hard. Keeping the environment and all conditions equal for all groups is of importance for internal validity. In this study, limitations occur because of the experiment being carried out in two different locations, and respondents not being separated from each other during data collection.

Furthermore, there are limitations regarding the quality of the data, due to the failure to meet assumptions of the statistical tests. Even though the study shows some significant findings, the sample dataset is far from perfect. As stated in the assessment of assumptions (4.1 Test of Assumptions), we did observe some deviation from independent observations and the majority of variables failed the Kolmogorov-Smirnov's test, indicating lack of normality. Also, two variables form the control group did not meet the assumption of equal variance, failing the Levene's test. This affects the ability to generalize these findings. In addition, the sample size is a challenge. Due to characteristics of the experiment, there were some obstacles to get a sufficiently large pool of participants. The time needed with each participant, limited technical equipment and lack of efficient recruitment are examples of the obstacles encountered. With smaller observed variation in responses between the two treatment groups, a larger sample would make the tests more accurate and could reveal underlying patterns in the dataset. Sample size also affects the reliability of the variable scales.

Even if the questionnaire was relatively short, the experiment still required people to give up a relatively significant amount of their time to see the 2-minute-long VR video and answer a 5/6-minute-long questionnaire. For some respondents this was too much, resulting in questions being answered in a quick pace which could, in turn, lead to participants' correct attitudes, behaviors and intentions not being adequately captured. This effect might also be strengthened by a common method bias, in which respondents follow the same pattern when filling out the survey. To avoid this, we could have varied the scales used, and applied, for example, a 5-point Likert scale instead of the 11-point semantic scale on parts of the survey. Another limitation in responses could have been a participant bias. Because this was a field experiment in public places, the questionnaire was filled out within a short distance from the researchers and other respondents. This could have lead to respondents answering according to what they thought the researchers were looking for or other respondents answered. We tried to give some distance to participants and explain that there are no right or wrong answers. Finally, as in most field experiments, potential limitations may have been represented by the fact that respondents were stressed or in a hurry and by the psychological load caused to them during briefing or preparation.

5.3 Implications, Contributions and Further Research

In the following paragraph, we will address the contributions that the study brings, the implications of its results and the directions that further research could take to reinforce some of our thoughts on the discussed matters.

One of the main contributions this study brings to the literature on sustainability communication is the support of hypothesis H1 that shows how a group of customers is subject to some sort of corporate responsibility advertisement, increases their *purchase intention*, *brand attitude* and *evaluation of sustainability* of the company's initiatives. This represents an added voice to the choir of research (Morsing & Schultz, 2006; Schmeltz, 2012) according to which it is worth it for companies to invest in sustainability communication to better grasp the economic benefits of their responsibility efforts, as opposed to the views in which companies should keep their CSR strategies silent or communicate them in a discrete, subtle, way to avoid consumers' skepticism (Morsing et al., 2008; Elving, 2010; Morsing & Schultz, 2006). Even though this finding was highly statistically significant, there is limited ability to generalize the finding due to the failure to meet assumptions as well as other limitations addressed above.

The other primary purpose of this study was to analyze the role that message framing and channel of communication play in making corporate responsibility advertising credible and compelling. Even if our results have not supported our initial hypotheses on the matter, we believe this study contributed to the literature in several ways and can be used as inspiration for further research on these topics.

First of all, while several studies have researched different kinds of message framings for sustainability communication, we highlighted a lack of research that connects two-sided message framing with sustainability communication. We believe there is potential for further research of this practice, due to the strong theoretical support for the effect of two-sided messages in marketing. Particular attention in future studies could be given to the issues that we pointed out as limitations to two-sided message framing in the context of corporate responsibility (5.1 Discussion of Findings), namely the degree and the amount of negative information included in the message, its complexity and its degree of novelty.

On a more general note, since the current literature implies that different people perceive sustainability communication differently, further research could investigate which kind of message framing is the most effective on consumers with different personal characteristics. Current research investigates different ways of communicating corporate responsibility to different groups of stakeholders, but within the consumer segment, there is uncertainty regarding to whom different sustainability advertising is effective. This information would be useful for companies since it would allow them to develop communication based on personal characteristics of the segments they serve.

The second main contribution that our study has brought to sustainability communication literature is the exploration of VR both as a potential communication channel for this topic and as a mean for research. To our knowledge, this is the first study that connects corporate responsibility advertising to immersive virtual reality, but also the first study that uses VR purely as a research mean rather than as the object of the research itself.

Because of the design limitations already explained, we were unable to draw conclusions specifically on the role of VR within sustainability communication, but we believe there is potential for further research in this field. In particular, given the constraints of VR for corporate use that we have highlighted in the discussion paragraph, we think the channel effects of VR should be further tested to establish whether it is worth for companies to invest in it or not. Both Vekony & Korneliussen's (2016); and Ebbestad & Ahsan's (2017) researches, for example, tested VR compared to 2D videos and found little direct effects. We suggest for future studies to analyze VR as opposed to other kinds of alternative marketing material, to build stronger results on the potential of it as a corporate communication channel. In addition, the effects of sustainability communication in particular should be explored through different marketing means that allow companies to reach their customers easily and efficiently.

With regards to the use of VR as a research mean, we would like to point out that the challenges encountered with VR which we addressed in the discussion paragraph above, are not only to be intended for companies using it, but for future researchers as well. VR is a demanding mean of communication, which can be a powerful tool for research purposes, but requires a higher level of preparation than more conventional research means.

In addition, because of the richness of VR in terms of its effects on users, using it as a research mean can certainly strengthen the outcome of a study, but it can also decrease its validity by bringing confusion as to whether particular results are a direct consequence of the study or are purely caused by VR. To adjust for this limitation, we suggest to any researcher using VR as a mean, to test for indirect effects caused by typical characteristics of VR such as telepresence, enjoyment and mental imagery. When possible, an even stronger test would be to carry out the same study through an alternative mean and compare the results with the one carried out through VR.

Finally, given that building the marketing content has been a big part of this study, we believe that we can contribute to future research through the experience acquired while developing the video advertisement and the message to deliver with it.

In particular, we believe we have provided a good example on how to draft marketing content which is supported by existing theory in all parts of it, from the planning to the voice-over, and we have thoroughly explained the process in our methodology chapter. This can be used as a benchmark for future researchers conducting similar studies.

6 Conclusion

The main purpose of this study was to investigate whether two-sided message framing could represent a viable and effective solution for sustainability communication.

The effects we wanted to investigate were both the direct effects of message framing on consumers' *brand attitude*, *purchase intention* and *evaluation of sustainability* of the company's practices, and the underlying indirect effects related to both message framing and the communication channel we chose - virtual reality.

Our findings did not show support to our thesis that two-sided communication is more effective on consumers than one-sided one, nor showed significant results on any of the

mediating variables. However, our findings confirmed the theory according to which sustainability communication in general does have a positive effect on consumer behavior and is, therefore, something that companies should pursue.

Given that our initial speculation was not confirmed by the findings, we devoted a part of the analysis to investigate why, contrary to our initial beliefs, two-sided message framing and virtual reality might not be appropriate for effective sustainability communication. We argued that in order for two-sided communication to evoke credibility in consumers, the amount of negative information should be big enough to be perceived, yet not big enough to harm the persuasiveness of the message. We also argued that this kind of framing adds complexity to the message, which can in turn lead to a loss of attention from the receiver. Finally, the two-sided message framing typically brings a degree of novelty to the communication, which should also be kept balanced in order for it not to backlash. The same argument can be used for VR, since its innovativeness can bring an excessive level of excitement, and distract the respondents from the core of the message. The several challenges that VR implementation implies, make the technology overall harder to be used in corporate communication targeted toward consumers.

This does not mean, however, that neither two-sided messages nor VR as a mean do not work for sustainability communication. In fact, we suggested that further research is carried out, which takes into account the challenges we have faced and addresses the limitations of our study.

The need for companies to clearly communicate their responsibility efforts, is indisputable in order for them to be able to benefit economically from their sustainability strategy. However, the paradox of CSR communication toward consumers is holding them back from doing so.

In addition, the limited research on this topic and the little common academic knowledge generated on the matter make it harder for companies to address the issue.

With this thesis, we hope to have provided future researchers with a starting point to develop new theory on both sustainability communication, and the use of virtual reality as a research mean.

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8 Appendices

Content

Appendix 1 - Factor analysis and Cronbach's alpha

Table 8-1 Factor Analysis and Cronbach's Experimental Group

Treatment groups					
Items	**Factor1 Brand attitude**	**Factor2 Purchase intention**	**Factor3 Evaluate Sustainability**	**Factor4 Familiarity with the brand**	**Cronbach's Alpha**
Brand Attitude 1	0,82				
Brand Attitude 2	0,79				0,96
Brand Attitude 3	0,86				
Credibility	0,66				
Purchase Intention 1		-0,56			
Purchase Intention 2		-0,59			0,74
Evaluation of Sustainability 1			0,86		
Evaluation of Sustainability 2			0,90		
Evaluation of Sustainability 3			0,78		
Evaluation of Sustainability 4			0,59		0,90
Informative video 1		-0,51			
Informative video 2		0,56			0,84
Familiarity With the Brand 1				0,89	
Familiarity With the Brand 2				0,94	0,90

Items	**Factor5 Telepresence**	**Factor6 Feelings during VR**	**Factor7 Attitude toward CSR**	**Factor8 CSR Skepticism**	**Chronbachs Alpha**
Telepresence 1	0,70				0,69
Telepresence 2	0,85				
Feeiling During VR 1		0,92			
Feeiling During VR 2		0,83			0,90
Feeiling During VR 3		0,93			
Attitude Toward CSR 1			0,82		
Attitude Toward CSR 2			0,91		0,84
Attitude Toward CSR 3			0,90		
CSR Skepticism 1				0,89	0,82
CSR Skepticism 2				0,86	

Table 8-2 Factor Analysis and Cronbach's Alpha Control Group

Control group Items	Factor1 Brand attitude	Factor2 Purchase intention	Factor3 Evaluate Sustainability	Factor4 Attitude toward CSR	Factor5 CSR Skepticism	Cronbach's Alpha
Brand Attitude 1	0,64					
Brand Attitude 2	0,67					0,84
Brand Attitude 3	0,56					
Familiarity With the Brand 1	0,89					0,89
Familiarity With the Brand 2	0,91					
Purchase Intention 1		-0,76				0,73
Purchase Intention 2		-0,82				
Familiarity With Products		-0,82				
Evaluation of Sustainability 1			0,75			
Evaluation of Sustainability 2			0,74			0,70
Evaluation of Sustainability 3			-0,54			
Evaluation of Sustainability 4			0,76			
Attitude Toward CSR 1				0,92		
Attitude Toward CSR 2				0,90		0,88
Attitude Toward CSR 3				0,79		
CSR Skepticism 1					0,81	0,72
CSR Skepticism 2					0,85	

Appendix 2 - Descriptive Statistics

Table 8-3 Descriptive Statistics

Descriptive Statistics experimental group respondents						
	n	Mean	Std. deviation	Skewness	Kurtosis	Kolmogorov-Smirnov (sig.)
Brand attitudes	87	8.70	1.79	-0.85	0.35	**.001**
Purchase intention	87	8.16	1.99	-0.31	-0.58	.123
Evaluation of sustainability	87	8.11	1.79	-0.44	0.47	.200
Attitude toward CSR	87	9.60	1.44	**-1.27**	**1.86**	**.000**
CSR skepticism	87	8.32	1.95	-0.71	0.46	.004
Familiarity with the brand	87	5.77	3.19	0.09	**-1.21**	**.008**
Credibility	87	8.81	1.72	-0.92	-0.6	**.000**
Movie informative	87	8.90	1.69	-0.44	-0.64	**.001**
Telepresence	87	8.87	1.89	-0.72	-0.33	**.000**
Descriptive Statistics control-group-respondents						
	n	Mean	Std. deviation	Skewness	Kurtosis	Kolmogorov-Smirnov (sig.)
Brand attitudes	52	7.90	1.74	0.39	**-1.09**	**.000**
Purchase intention	52	6.85	2.29	-0.11	-.234	.190
Evaluation of sustainability	52	6.06	1.11	0.54	**2.31**	**.000**
Attitude toward CSR	52	9.08	1.97	-0.92	-0.01	**.000**
CSR skepticism	52	7.92	2.01	-0.03	**-1.17**	.041
Familiarity with the brand	52	4.25	3.41	0.69	-0.92	**.000**

Appendix 3 - Homogeneity of Variance

Table 8-4 Homgeneity of Variance

One-sided vs two-sided		
Variable	**F**	**p**
Brand attitudes	0.01	0.93
Purchase intention	0.11	0.74
Evaluation of sustainability	2.05	0.16
Attitude toward CSR	0.00	0.98
CSR skepticism	0.16	0.69
Familiarity with the brand	0.94	0.34
Credibility	0.19	0.66
Telepresence	0.67	0.42
Movie informative	0.05	0.82
VR vsControl group		
Variable	**F**	**p**
Brand attitudes	0.06	0.81
Purchase intention	0.39	0.53
Evaluation of sustainability	14.89	**0.00**
Attitude toward CSR	8.32	**0.00**
CSR skepticism	0.69	0.41
Familiarity with the brand	0.42	0.52

Appendix 4 - Manuscript Voice-over

Norwegian:

Two-sided message

"Har du noen gang tenkt over hvordan osten du legger på pizzaen også påvirker miljøet? Fra en ku er nyfødt til den er en voksen melkeku, kreves det litt omsorg og store mengder ressurser. Produksjon av meieriprodukter har et stort avtrykk på miljøet - for å lage bare én pakke mozzarella, bruker vårt anlegg like mye energi som mobiltelefonen din bruker på én hel måned.

Hos Arla i Danmark kommer fortsatt over 60% av denne energien fra IKKE-fornybare energikilder. Denne negative påvirkningen er noe vi anerkjenner, og er en utfordring vi må overkomme. Så, hvordan jobber vi for å bli bedre? Vi bruker kumøkk til å produsere miljøvennlig biogass som driver vår produksjon av ost.

Kumøkk blandes sammen med en liten andel korn og matavfall, og gjøres om til energirik biogass. Det som blir igjen I tankene brukes som gjødsel, mens biogassen transporteres i rør til Arlas produksjonsanlegg. På denne måten får vi mer ut resursene våre.

Her blir biogassen gjort om til elektrisitet til å drive anlegget, I tillegg til å varme opp over 600 husholdninger I området. *Av gassen i bruker i Danmark idag, kommer ca én tredjedel fra biogass, men dette tallet øker kontinuerlig.*

Om bare 3 år er vårt mål at 50% av den energien vi bruker skal være fornybar. *Dette vil være krevende å gjennomføre, men* vi tror bruk av biogass vil være riktig steg for å nå dette målet, fordi dette tillater oss å levere et produkt som bruker mindre ressurser, er mer skånsomt mot miljøet, og skaper mindre avfall i prosessen. Vi håper du ønsker å være en del av denne utviklingen!"

One-sided Message

"Har du noen gang tenkt over hvor osten du putter på pizzaen kommer fra? Fra kua er nyfødt til den er en voksen melkeku, tar vi godt vare på den. Det er kua som gir oss de gode meieriproduktene. Her hos Arla gjør vi alt vi kan for at våre produkter blir produsert på en ansvarlig måte, som er skånsom mot miljøet.

En stor del av dette handler for oss om å bruke energi som kommer fra fornybare kilder i vår produksjon, og dette ønsker vi å bruke mer av.

Så, hvordan jobber vi for å bli enda bedre? Vi bruker kumøkk til å produsere miljøvennlig biogass som driver vår produksjon av ost.

Kumøkk blandes sammen med en liten andel korn og matavfall, og gjøres om til energi-rik biogass. Det som blir igjen I tankene brukes som gjødsel, mens biogassen transporteres i rør til Arlas produksjonsanlegg. På denne måten får vi mer ut resursene våre.

Her blir biogassen gjort om til elektrisitet til å drive anlegget, I tillegg til å varme opp over 600 husholdninger i området. *Per i dag, er allerede flere av anleggene drevet av biogass, og tallet øker kontinuerlig.*

Om bare 3 år er vårt mål at 50% av den energien vi bruker skal være fornybar. Vi tror bruk av biogass vil være riktig steg for å nå dette målet, fordi dette tillater oss å levere et produkt som bruker mindre ressurser, er mer skånsomt mot miljøet, og skaper mindre avfall i prosessen.

Vi håper du ønsker å være en del av denne utviklingen!"

English translation:

Two-sided message	One-sided Message
"...Of the gas used in Denmark today, about one third comes from biogas, but this figure is increasing continuously.	*"Have you ever thought about where the cheese you put on your pizza comes from? From when a cow is born until it becomes an adult milking cow, we take good care of it. It is the cow that gives us the good dairy products. Here at Arla we do everything we can to make our products in a sustainable manner, which is responsible towards the environment.*
In just 3 years, our goal is that 50% of the energy we use should be renewable. This will be demanding to implement, but we believe the use of biogas will be the right step in achieving this goal because this allows us to deliver a product that uses less resources, is more responsible towards the environment, and creates less waste in the process. We hope you want to be part of this journey! "	*A big part of this is about using energy that comes from renewable sources in our production, and we want to use more of this. ..."*
"...Of the gas used in Denmark today, about one third comes from biogas, but this figure is increasing continuously.	*"... As of today, already several of the plants are powered by biogas, and the number is increasing continuously.*
In just 3 years, our goal is that 50% of the energy we use should be renewable. This will be demanding to implement, but we believe the use of biogas will be the right step in achieving this goal because this allows us to deliver a product that uses less resources, is more responsible towards the environment, and creates less waste in the process. We hope you want to be part of this journey! "	*In just 3 years, our goal is that 50% of the energy we use should be renewable. We believe the use of biogas will be the right step in achieving this goal because this allows us to deliver a product that uses less resources, is more responsible towards the environment, and creates less waste in the process. We hope you want to be part of this journey!"*

Appendix 5 - Experiment Manuscript

Manuscript Experimental Group - Norwegian:

Intro:

- Velkommen til denne undersøkelsen og tusen takk for at du ønsker å delta! Den utføres i samarbeid med Center for Service Innovation ved NHH.
- Denne undersøkelsen vil først starte med en VR-film, og deretter svarer du på noen spørsmål til slutt. Hele undersøkelsen vil ta ca 7 minutter totalt.
- Spørsmålene du blir bedt om å svare på vil det ikke ha noen riktige eller gale svar. Du skal huke av for det alternativet som best representerer hva du mener og føler.
- Undersøkelsen er helt konfidensiell.
- Etter du har fullført undersøkelse kan du være med i trekningen av to universalgavekort på 3000,- kr.
- Når du blir ferdig, eller dersom du har noen spørsmål, kan du henvende deg til meg.

VR-movie:

- Du skal nå få se en 360 graders VR-film fra en gård og et meieri i Danmark. Filmen vil ha fokus på et nytt biogass anlegg.
- Da tar vi på VR-brillene for å se filmen. For å få mest ut av opplevelsen ber vi deg se deg godt rundt når du er inne I VR-omgivelsene, du kan se i alle retninger, og snu hodet fritt. Det kan skje ting rett bak deg, så det kan være ønskelig å snu seg rundt. Hold deg gjerne fast I bordet.
- Hvis bildet ikke er fokusert kan du selv endre fokus med dette hjulet på toppen. Still gjerne inn fokus på det så skarpt som du få det før du begynner, men bruk venstre hånd. Hvis du bruker briller med mye styrke kan det være lurt å ha disse på under.
- Når du er klar så starter jeg filmen og setter på VR-brillene på hodet ditt.
- Hver så god!

Debrief:

- For å være med i trekningen av to universalgavekort, kan du nå skrive mailadressen din i dette skjemaet.
- Det er svært viktig at du ikke snakker med noen om noe av det som har skjedd på denne undersøkelsen. Det gjelder både hva du ble spurt om og hva du har blitt vist. Dette er for å unngå at resultatene blir endre på noen som helst måte. Neste uke kan du fritt diskutere alt om undersøkelsen.
- Tusen takk for din tid, og ha en fin dag!

Manuscript Control-Group - Norwegian:

- Velkommen til denne undersøkelsen og tusen takk for at du ønsker å delta! Den
  utføres i samarbeid med Center for Service Innovation ved NHH.

- Hele undersøkelsen vil ta ca 3 minutter totalt.
- Spørsmålene du blir bedt om å svare på vil det ikke ha noen riktige eller gale svar. Du
  skal huke av for det alternativet som best representerer hva du mener og føler.
- Undersøkelsen er helt konfidensiell.
- Etter du har fullført undersøkelse kan du være med i trekningen av to
  universalgavekort på 3000,- kr.
- Når du blir ferdig, eller dersom du har noen spørsmål, kan du henvende deg til meg.

Debrief:

- Det er svært viktig at du ikke snakker med noen om noe av det som har skjedd på
  denne undersøkelsen. Dette er for å unngå at resultatene blir endre på noen som
  helst måte. Neste uke kan du fritt diskutere alt om undersøkelsen.
- Tusen takk for din tid, og ha en fin dag!

Manuscript Experimental Group - English:

Intro:

- Welcome to this study, and thank you for wanting to participate! This study is done in collaboration with Center for Service Innovation at NHH.
- This study will begin with watching a VR-video, and then you answer some questions afterwards. The study as a whole will take about 7 minutes total.
- This study is completely confidential. After the study you can be in the draw of two universal giftcards of 3000,-.
- There will not be any right or wrong answers to the questions your being asked. Just give the answer you feel represent you opinions and feelings.
- When you are done, or have any questions, you can contact me.

VR-movie:

- You will now look at a 360 degree VR-movie, from a farm and a dairy in Denmark. The video will focus on a newly built biogas facility.
- You can now take the VR-goggles on to watch the movie. Remember to move around because this is a 360 video and things might be happening right behind you.
- If you use glasses you may use these underneath.
- When you are ready I will start the movie and place the VR-goggles over you head.

Debrief:

- To be in the draw of two universal giftcard, you can enter you email on this page.
- It's very important that you don't talk about anything from this study. That includes what have been asked, and shown. This is to avoid the results being affected in any way. After this week you are free to discuss the study as much as you want.
- Thanks a lot for your time, and have a nice day!

Manuscript Control Group - English:

- Welcome to this study, and thank you for wanting to participate! This study is done in collaboration with Center for Service Innovation at NHH.
- The study as a whole will take about 3 minutes total.
- This study is completely confidential. After the study you can be in the draw of two universal giftcards of 3000,-
- There will not be any right or wrong answers to the questions your being asked. Just give the answer you feel represent you opinions and feelings.
- When you are done, or have any questions, you can contact me.

Debrief:

- To be in the draw of two universal giftcard worth, you can enter you email on this page.
- It's very important that you don't talk about anything from this study. This is to avoid the results being affected in any way. After this week you are free to discuss the study as much as you want.
- Thanks a lot for your time, and have a nice day!

Appendix 6 - Manipulation Check

Table 8-5 Manipulation Check

Manipulation check	Onesided	Twosided
Negaive information M	1,65	3,43
Positive information M	6,06	5,90
Negative std. Dev.	0,97	1,73
Postive std. Dev	0,94	0,81
n=36		

The questions asked:

1. «Budskapet inneholdt <u>negativ</u> informasjon om selskapet»

2. «Budskapet inneholdt <u>positive</u> informasjon om selskapet»

Appendix 7 - Pictures from VR Movie
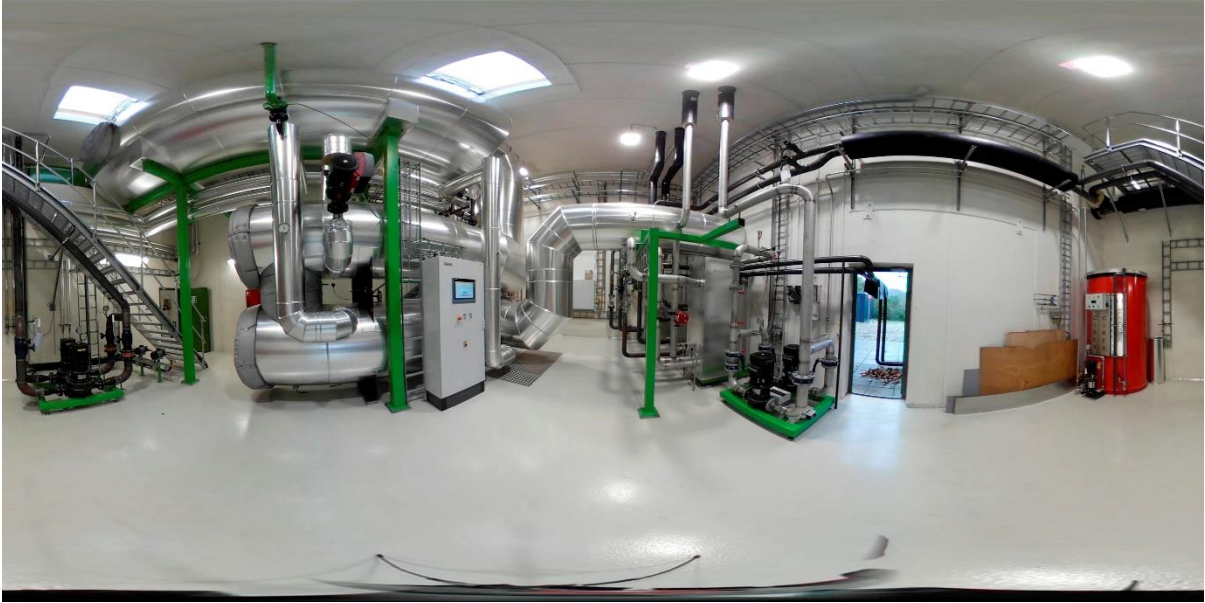
Appendix 8 - Questionnaire Experimental Group

Previous

Which video did the repondant view?

○ Onesided

○ Twosided

Hvor kjent virker Arlas logo for deg?

	0	1	2	3	4	5	6	7	8	9	10	
Svært lite kjent	○	○	○	○	○	○	○	○	○	○	○	Svært godt kjent

Hvor godt kjenner du til Arla?

	0	1	2	3	4	5	6	7	8	9	10	
Svært lite	○	○	○	○	○	○	○	○	○	○	○	Svært godt

1/6

Hvor enig eller uenig er du i følgende påstand

	Helt uenig 0	1	2	3	4	5	6	7	8	9	Helt enig 10
Jeg er kjent med Arlas produkter	○	○	○	○	○	○	○	○	○	○	○
Jeg synes Arlas produkter er av høy kvalitet	○	○	○	○	○	○	○	○	○	○	○

Mitt helhetlig inntrykk av bedriften Arla er:

	0	1	2	3	4	5	6	7	8	9	10	
Dårlig	○	○	○	○	○	○	○	○	○	○	○	Godt
Negativt	○	○	○	○	○	○	○	○	○	○	○	Positivt
Liker ikke	○	○	○	○	○	○	○	○	○	○	○	Liker

Hvor sannsynlig er det at du vil vurdere et av Arlas produkter i fremtiden?

	Svært lite sannsynlig 0	1	2	3	4	5	6	7	8	9	Svært sannsynlig 10
Hvis du skal kjøpe revet ost – hvor sannsynlig er det at du kommer til å vurdere Arla?	○	○	○	○	○	○	○	○	○	○	○

3/6

	Svært lite sannsynlig 0	1	2	3	4	5	6	7	8	9	Svært sannsynlig 10
Hvor sannsynlig er det at du vil kjøpe et av Arlas produkter om du tilfeldigvis ser de i butikken?	○	○	○	○	○	○	○	○	○	○	○

Fortsettelse

	Mindre sannsynlig 0	1	2	3	4	5	6	7	8	9	Mer sannsynlig 10
Vil det være mer eller mindre sannsynlig at du kjøper et produkt fra Arla, etter at du så denne filmen?	○	○	○	○	○	○	○	○	○	○	○

Hvor uenig eller enig er du i følgende påstander?

	0 - Helt uenig	1	2	3	4	5	6	7	8	9	10 - Helt enig
Arlas mozzerella ost er sannsynligvis et miljøvennlig produkt	○	○	○	○	○	○	○	○	○	○	○
Arlas mozzerella ost er mindre skadelig mot miljøet enn ost fra andre merker	○	○	○	○	○	○	○	○	○	○	○
Jeg synes Arla har en god strategi for å bli mer bærekraftige	○	○	○	○	○	○	○	○	○	○	○
Jeg kan lett å se for meg hvordan Arla jobber med å produsere bærekraftige produkter	○	○	○	○	○	○	○	○	○	○	○
Jeg tror Arla er en bedrift man kan stole på	○	○	○	○	○	○	○	○	○	○	○

Hvordan oppfatter du informasjonen eller påstandene i filmen?

	0	1	2	3	4	5	6	7	8	9	10	
Ikke troverdig	○	○	○	○	○	○	○	○	○	○	○	Troverdig
Uærlig	○	○	○	○	○	○	○	○	○	○	○	Ærlig

Hvor uenig eller enig er du i følgende påstander?

	Helt uenig 0	1	2	3	4	5	6	7	8	9	Helt enig 10
Jeg synes filmen var interessant	○	○	○	○	○	○	○	○	○	○	○
Jeg synes filmen var informativ	○	○	○	○	○	○	○	○	○	○	○
Jeg synes filmen var meningsfull	○	○	○	○	○	○	○	○	○	○	○

Hvor uenig eller enig er du i følgende påstander?

	Helt uenig 0	1	2	3	4	5	6	7	8	9	Helt enig 10
Da jeg så på filmen, følte jeg at jeg var tilstede	○	○	○	○	○	○	○	○	○	○	○
Da jeg så på filmen glemte jeg litt hvor jeg egentlig var	○	○	○	○	○	○	○	○	○	○	○
Jeg var for opptatt med å se på filmen, jeg hørte ikke etter hva som ble sagt	○	○	○	○	○	○	○	○	○	○	○

I hvilken grad opplevde du følelsene nedenfor under filmen?

	Ikke i det hele tatt - 0	1	2	3	4	5	6	7	8	9	I svært stor grad 10
Kvalm	○	○	○	○	○	○	○	○	○	○	○
Svimmel	○	○	○	○	○	○	○	○	○	○	○
Ukomfortabel	○	○	○	○	○	○	○	○	○	○	○

Hvor enig eller uening er du I følgende påstander

	Helt uenig 0	1	2	3	4	5	6	7	8	9	Helt enig 10
Jeg mener bedrifter har ansvar for å ta vare på planeten vår	○	○	○	○	○	○	○	○	○	○	○
Å støtte bedrifter som utfører bærekrafts-initiativ er viktig for meg	○	○	○	○	○	○	○	○	○	○	○
For meg er miljøproblemer svært viktig	○	○	○	○	○	○	○	○	○	○	○
De fleste bedrifter overdriver hvor miljøvennlige deres produkter er	○	○	○	○	○	○	○	○	○	○	○
De fleste bedrifter skjuler viktig informasjon om fotavtrykket til deres produkter	○	○	○	○	○	○	○	○	○	○	○

Kjønn

○ Kvinne

○ Mann

Hva er din alder?

Høyeste påbegynte utdanning

○ Videregående skole

○ Høyere utdanning bachelorgrad

○ Høyere utdanning mastergrad

Hvis du ønsker å være med i trekningen av universal-gavekort, skriv inn epostadressen din her:

Du er nå ferdig med undersøkelsen. Vennligst henvend deg til forsøksleder.

5/6

Did technical issues/problems occur?

○ No issue

○ Small issue

○ Significant issue

Yes, which issue

[   ]

The the respondant use glasses?

○ No

○ Yes, and used them during movie

○ Yes, but did NOT use them during movie

Is there any other reason why the respondant is not valid?

○ No

○ Yes

Yes, not valid because?

[   ]

Appendix 9 - Questionnaire Control Group

Hvor kjent virker Arlas logo for deg?

	0	1	2	3	4	5	6	7	8	9	10	
Svært lite kjent	○	○	○	○	○	○	○	○	○	○	○	Svært godt kjent

Hvor godt kjenner du til Arla?

	0	1	2	3	4	5	6	7	8	9	10	
Svært lite	○	○	○	○	○	○	○	○	○	○	○	Svært godt

Appendices

Hvor enig eller uenig er du i følgende påstand

	Helt uenig 0	1	2	3	4	5	6	7	8	9	Helt enig 10
Jeg er kjent med Arlas produkter	○	○	○	○	○	○	○	○	○	○	○
Jeg liker Arlas produkter	○	○	○	○	○	○	○	○	○	○	○

Mitt helhetlig inntrykk av bedriften Arla er:

	0	1	2	3	4	5	6	7	8	9	10	
Dårlig	○	○	○	○	○	○	○	○	○	○	○	Godt
Negativt	○	○	○	○	○	○	○	○	○	○	○	Positivt
Liker ikke	○	○	○	○	○	○	○	○	○	○	○	Liker

Hvor sannsynlig er det at du vil vurdere et av Arlas produkter i fremtiden?

	Svært lite sannsynlig 0	1	2	3	4	5	6	7	8	9	Svært sannsynlig 10
Hvis du skal kjøpe revet ost – hvor sannsynlig er det at du kommer til å vurdere Arla?	○	○	○	○	○	○	○	○	○	○	○

3/5

	Svært lite sannsynlig 0	1	2	3	4	5	6	7	8	9	Svært sannsynlig 10
Hvor sannsynlig er det at du vil kjøpe et av Arlas produkter om du tilfeldigvis ser de i butikken?	○	○	○	○	○	○	○	○	○	○	○

Hvor uenig eller enig er du i følgende påstander?

	0 - Helt uenig	1	2	3	4	5	6	7	8	9	10 - Helt enig
Arlas mozzerella ost er sannsynligvis et miljøvennlig produkt	○	○	○	○	○	○	○	○	○	○	○
Arlas mozzerella ost er mindre skadelig mot miljøet enn ost fra andre merker	○	○	○	○	○	○	○	○	○	○	○
Jeg synes Arla har en god strategi for å bli mer bærekraftige	○	○	○	○	○	○	○	○	○	○	○
Jeg kan lett å se for meg hvordan Arla jobber med å produsere bærekraftige produkter	○	○	○	○	○	○	○	○	○	○	○
Jeg tror Arla er en bedrift man kan stole på	○	○	○	○	○	○	○	○	○	○	○

Hvor enig eller uening er du I følgende påstander

	Helt uenig 1	1	2	3	4	5	6	7	8	9	Helt enig 10
Jeg mener bedrifter har ansvar for å ta vare på planeten vår	○	○	○	○	○	○	○	○	○	○	○
Å støtte bedrifter som utfører bærekrafts-initiativ er viktig for meg	○	○	○	○	○	○	○	○	○	○	○
For meg er miljøproblemer svært viktig	○	○	○	○	○	○	○	○	○	○	○
De fleste bedrifter overdriver hvor miljøvennlige deres produkter er	○	○	○	○	○	○	○	○	○	○	○
De fleste bedrifter skjuler viktig informasjon om fotavtrykket til deres produkter	○	○	○	○	○	○	○	○	○	○	○

Kjønn

○ Kvinne

○ Mann

Hva er din alder?

[   ]

Høyeste påbegynte utdanning

○ Videregående skole

○ Høyere utdanning bachelorgrad

○ Høyere utdanning mastergrad

4/5

Hvis du ønsker å være med i trekningen av universal-gavekort, skriv inn epostadressen din her:

Du er nå ferdig med undersøkelsen. Vennligst henvend deg til forsøksleder.

Block 5

Is there any other reason why the respondant is not valid?

○ No

○ Yes

Yes, not valid because?

5/5