

## **HOW PROMOTIONAL MESSAGES GO GREEN**

A quantitative research on how activating motives in promotional messages about wall insulation can influence households' intentions to implement this measure

Student Name: Katayoun Mehrpou

Student Number: 537362

Supervisor: Dr. Anne-Marie van Prooijen

Master Media Studies – Media & Business

Erasmus School of History, Culture and Communication

Erasmus University Rotterdam

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## ABSTRACT

Energy consumption is the main contributor to climate change and environmental issues. According to statistics, poorly insulated homes can significantly increase energy consumption in the residential sector. Therefore, households can substantially contribute to energy consumption by upgrading the insulation of homes. As this issue is rooted in human behaviors, it is essential to recognize the factors influencing households' attitudes and intention to contribute to pro-environmental behaviors. Studies have shown that people's behaviors are predicted by different motives. Extending previous studies, this research examines how various motives in the promotional messages about wall insulation can influence households' attitudes and intention to implement this measure.

By focusing on goal-framing theory, this research aims to analyze the effect of activating different motives in promotional messages on consumers' attitudes and intentions to implement efficiency behaviors like external wall insulation. Furthermore, the current study examines greater/lesser involvement with sustainable consumption and its effects on households' attitudes and intentions toward pro-environmental behaviors in response to different motives. To answer the research question, an online experiment was conducted with a unifactorial between-subject design with five activated motives: normative vs. hedonic vs. gain vs. mixed normative and gain vs. mixed normative and hedonic. The extent that the addition of these motives in promotional messages affects households' attitudes and intentions was analyzed. Data were collected from 219 households owning a house in the Netherlands between March and May 2021. The results show that the inclusion of different motives in the promotional messages about wall insulation has no direct effect on individuals' attitudes and intentions. Yet, the interaction effects of sustainable consumption involvement and different motives on attitude and implementation intention are recognized. In essence, households with greater involvement in sustainable consumption show a positive change in attitudes in response to a single normative motive compared to the other motives. Moreover, more involved households have less intention to implement external wall insulation in response to single gain motives. In general, the inclusion of single gain motives in the promotional messages adversely influences the attitude and implementation intention of more involved households in sustainable consumption.

The current findings have practical implications for energy efficiency suppliers and marketers. It can help companies optimize the communication strategies, mainly the promotional messages, and market their sustainable products effectively. In essence, tailored promotional messages can motivate particular consumers to adopt pro-environmental behaviors. Hence, it is essential to include certain motives in the promotional messages targeting a specified group of consumers to promote efficiency behaviors in a compatible way. This study also suggests companies do regular market research and target the customers based on factors influencing their attitudes and intention to efficiency behaviors.

**Keywords** Goal-framing theory; Sustainable consumption involvement; Energy efficiency measures; Intention to efficiency behaviors, Promotional messages

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## 1. Introduction

Global warming is increasing, greenhouse gas emissions are on the rise- these types of statements are likely familiar to most. We are facing severe environmental challenges. Climate change is the biggest challenge of the century. Energy consumption can increase carbon emissions that damage the environment (Gardner & Stern, 2008). According to the energy efficiency indicators 2020, space heating accounts for 68% of residential energy consumption in the Netherlands in 2018 (International Energy Agency, 2020). In addition, poorly insulated homes can increase energy consumption (Compendium Voor de Leefomgeving, 2020). As a result, wall insulation as one of the energy efficiency measures can significantly save energy compared to curtailment (Gardner & Stern, 2008). In essence, we can considerably reduce our energy consumption by insulating our homes. According to Compendium Voor de Leefomgeving (2020), the number of homes with insulation measures is steadily increasing since 1982 in the Netherlands. It seems people are willing to contribute to the environment.

By introducing a wide variety of sustainable products, companies intend to contribute to the environment as well. Yet, it is challenging to persuade the customers to purchase sustainable products (Edinger-Schons, Sipilä, Sen, Mende, & Wieseke, 2018). In essence, while companies offer various sustainable products and consumers intend to contribute to the environment, they eventually become reluctant to purchase these products. The question raised here is what factors influence consumers to buy sustainable products. In his study, Huang (2016) states that energy companies can influence people's pro-environmental behaviors through marketing tools like promotional messages about energy efficiency measures. Hence, it is relevant to know how companies can frame their promotional messages to persuade different customers to act pro-environmentally.

Many environmental problems like climate change are rooted in human behaviors (Gardner & Stern, 2008). As mentioned earlier, while many people are concerned about environmental issues, few take practical action (Gifford, 2011). It is thought-provoking why consumers are reluctant to contribute to such activities despite their concern about it. According to Bamberg and Möser (2007), consumers' behaviors are predicted by various motives. In other words, to persuade different customers, companies need to apply

different motives in their promotional messages. Hence, it is essential to recognize what motive/motives are effective to persuade various customers. This study focuses on a goal-framing theory to examine the pro-environmental behavior among different customers. This theory suggests that different motives including normative, gain and hedonic can affect individuals' pro-environmental behavior (Lindenberg & Steg, 2007). In their empirical study, Edinger-Schons et al. (2018) argue that promotional messages with intrinsic motives (environmental attributes) are more effective than those with extrinsic (financial or enjoyment-based motives) or joint motives to persuade individuals to implement pro-environmental behaviors. In addition, customers' reactions to different motives can vary based on their involvement with sustainable consumption (Edinger-Schons et al., 2018). To put it simply, individuals with greater involvement with sustainable consumption respond differently to either intrinsic or extrinsic motives or mixed motives compared to those with lesser involvement with sustainable consumption. It is thus relevant to examine how activating different motives in promotional messages about the external wall insulation can influence the intentions of various households to implement this measure. As a result, this study aims to understand *'To what extent do normative, hedonic and gain motives in the promotional messages for the external wall insulation influence consumers' intention to implement this measure?'*

To answer the research question, a quantitative experimental method is employed to investigate the effects of various motives on households' attitudes and intentions to implement wall insulation. In essence, by including five activated motives: normative vs. hedonic vs. gain vs. mixed normative and gain vs. mixed normative and hedonic to the promotional message about external wall insulation, the extent that the addition of these motives affects households' attitudes and intention is analyzed. Moreover, greater/lesser involvement with sustainable consumption, as the moderating factor influencing the relationship between motives and household's intention and attitude, is considered. The data are collected from households owning a house in the Netherlands through an online experiment via social media like Facebook and LinkedIn. The goal is to examine how activating various motives in the promotional messages about wall insulation influences Dutch households to implement this measure.

The current study can contribute to the existing literature on the influence of activating normative, hedonic, gain, and mixed motives in the promotional messages about

energy efficiency measures on individuals' behaviors. There are contradicting findings of how these motives can be activated in the promotional messages and influence individuals' attitudes and intentions. In essence, while some studies state that these motives can be compatible (e.g., Lindenberg & Steg, 2007), others show conflicts between them (e.g., Edinger-Schons et al., 2018). Furthermore, many studies focus on curtailment that is a behavioral change, and a few address efficiency that is the one-time action of purchasing efficient products (De Nardo et al., 2017). As the best way to contribute to the energy consumption in the residential sector is via efficiency (Gardner & Stern, 2008), it is thus relevant to conduct the current research to study the different factors leading to efficiency behavior, like wall insulation. In other words, by studying different motives in the promotional messages and their effects on individuals' intention, we can understand how activating these motives in the promotional messages can influence household's intentions to implement insulation that is relatively costly and demanding efficiency behavior. In addition, many studies have been conducted around the effect of consumer motivation on pro-environmental behaviors. Yet, quite a few empirical studies work on the effect of motives on pro-environmental behaviors based on individuals' involvement with sustainable consumption (Edinger-Schons et al., 2018). In essence, consumer reactions to different motives differ based on their involvement with sustainable consumption. It thus seems justifiable to conduct the current study to analyze the effect of various motives on pro-environmental behaviors based on the customers' involvement with sustainable consumption.

As mentioned earlier, the wall insulation of homes can significantly contribute to energy consumption in the residential sector (Gardner & Stern, 2008), since it can reduce the amount of heat that escapes from the walls. In essence, by upgrading the insulation of homes, heat loss can be avoided and living spaces can be made energy efficient. As a result, it can save energy. In general, upgrading insulation can significantly reduce the carbon footprint and contribute to the environment. Nowadays, households in the Netherlands are more inclined to insulate the house (Compendium Voor de Leefomgeving, 2020). Therefore, it has clear societal relevance to study how different motives in the promotional messages about insulation influence Dutch households' attitudes and intentions to implement this energy-efficiency measure. In other words, companies need to realize how these motives interact or conflict and whether other factors affect households' attitudes and intention to

implement the energy efficiency measures. In addition, households have a different level of involvement in sustainable consumption, and it can influence their attitudes and intentions toward upgrading insulation in response to different motives (Edinger-Schons et al., 2018). Hence, the current study can offer companies valuable insights into how to frame the promotional messages in a meaningful way to promote these efficiency products and encourage customers to purchase these products. Eventually, it can help companies optimize the communication strategies (Edinger-Schons et al., 2018), mainly the promotional messages, and effectively market their sustainable products.

In the following chapters, first, relevant literature to understand different predictors, mainly normative, gain, hedonic, and mixed motives and their interactions shaping pro-environmental behaviors is presented. Then, greater or lesser involvement with sustainable consumption, its interaction with different motives, and its effect on individuals' intentions are further elaborated. The third chapter explains the methodology of the current study. It includes research design, procedure, a description of the demographic profiles of participants, and measurement of concepts. In the fourth chapter, the results of the analyses, including manipulation checks and tests of hypotheses, are presented. In chapter five, the findings of the analyses are further elaborated, and the research question is answered. This chapter also contains implications, limitations of the current study, and directions for future research. The study ends with a conclusion.

## 2. Theoretical Framework

Climate change has today become a big challenge. Many are concerned about the planet and its people. Yet, few take practical action to respond to the challenge effectively (Gifford, 2011). Studies have shown that the behaviors of people have a significant impact on mitigating environmental problems. In essence, this problem is rooted in human behaviors (Gardner & Stern, 2008). People can thus contribute to the environment through purchasing green products or a change in their lifestyles. Different motives can affect consumers' behaviors (Bamberg & Möser, 2007). By recognizing the relevant motives for certain pro-environmental behaviors, companies can frame their promotional messages to influence customers. In essence, tailored promotional messages can motivate consumers to adopt pro-environmental behaviors. In this section, we first study pro-environmental behavior and its dimensions. Intention and attitudes as decisive predictors shaping pro-environmental behaviors are elaborated further. By introducing a goal-framing theory, we then analyze hedonic, gain, and normative motives. Next, the effects of these motives on pro-environmental behaviors are considered. Lastly, the involvement with sustainable consumption as a factor moderating consumers' behavior is explained.

### 2.1 Pro-Environmental Behaviour (PEB)

Pro-environmental behavior (PEB) is action individuals do to minimize damage to the environment and even benefit the environment (De Nardo et al., 2017). In general, households can significantly contribute to saving energy through pro-environmental behavior. There are various kinds of pro-environmental behaviors in the residential sector, including turning down heating, replacing high-energy appliances with more efficient versions, installing glazing windows, or insulating walls or attics.

Efficiency and curtailment are two dimensions of pro-environmental behavior (De Nardo et al., 2017). In their study, De Nardo et al. (2017) define efficiency as the one-time action of purchasing efficient products while curtailment as a behavioral change demanding time and effort. We could infer that both behaviors involve cost, either monetary or non-monetary. As Sharma and Foropon (2019) also state, while efficiency demands an economic cost, curtailment requires time and effort that are psychological costs. Additionally,

efficiency is associated with “high status” (De Nardo et al., 2017) because it is by choice and via intentionally purchasing a product. Yet, curtailment is due to financial need and associated with “low status” (De Nardo et al., 2017). In their report, Gardner and Stern (2008) also state that the best way to save energy is via efficiency rather than curtailment. For instance, in space heating, turning down the thermostat during the night can save energy about 2.8%, whereas installing or upgrading insulation can save energy up to 5% (Gardner & Stern, 2008). Wall insulation is, in general, categorized in the domain of “immediate high-cost action” (Gardner & Stern, 2008) or “weatherization” (Dietz et al., 2009) that is energy efficiency behaviors. There are still different views about efficiency and curtailment. Some people have a negative perception of curtailment because of the need to devote effort and time. While some associate efficiency with overconsumption, others believe that it can provide a financial return in the long term and compensate for the initial cost. As mentioned earlier, there is quite a bit of research available on curtailment, but not on efficiency behavior. It is thus relevant to study the different factors leading to efficiency behavior, like wall insulation.

## 2.2 Intention and Attitude

Many studies show that pro-environmental behaviors are directly predicted by intention (e.g., Bamberg & Möser, 2007; Klöckner, 2013; Li, Zhao, Ma, Shao, & Zhang, 2019). In the meta-analysis study among 56 data sets, Klöckner (2013) also states that intention is the strongest predictor affecting pro-environmental behavior. Based on the theory of planned behavior (TPB), intention is the main predictor of pro-environmental behaviors influenced by attitude, perceived behavioral control and subjective norms (Ajzen, 1991). By focusing on intention as the main factor leading to behaviors (Ajzen, 1991), the deliberate nature of pro-environmental behaviors is demonstrated. Intention can be defined as the eager state of readiness to involve in action (Ajzen, 1985). This concept can also bring rationality to our minds, since individuals purposefully intend to engage or not to engage in a behavior. Moreover, intention as one of the main predictors in pro-environmental behavior is highly relevant in the current study because wall insulation is an efficiency behavior, attributed to purchasing efficient products by intention (De Nardo et al., 2017). In essence, household’s strong intention for wall insulation in the near future can reveal the proximity of implementing such behavior.

Intention focuses on the proximal and rational aspects of behavior. Yet, attitude can explain the favorable or unfavorable degrees of behaviors performed by individuals (Li et al., 2019). According to Li et al. (2019), prior belief and a positive attitude toward sustainability can influence the relationship between intention and pro-environmental behaviors. In a similar finding, Van Prooijen and Sparks (2014) argue that prior attitude and initial belief toward sustainable consumption can affect intention to act pro-environmentally. In essence, people with more positive attitudes toward the environment are more likely to engage in pro-environmental behaviors. According to Klöckner (2013), attitude campaigns are essential to change individuals' behaviors. As attitude is one of the main determinants shaping intention to act environmentally, it is justifiable to consider this decisive predictor in the current study. In other words, household's attitudes toward wall insulation, including positive, favorable, or negative can influence their intention to embrace external wall insulation.

Attitude and subjective norms are replaced by values and personal norms in value-belief norm (VBN) theory (Stern, 2000). In essence, pro-environmental behaviors are directly shaped by personal norms. Additionally, awareness of consequences and responsibility are the main predictors of individuals' personal norms (Stern, 2000). Considering attitude in TPB and personal norms in VBN, Klöckner (2013) identifies that these variables can overlap. In other words, the personal norm can shape attitudes which can lead to implementation intention and pro-environmental behaviors. In general, Klöckner (2013) affirms that TPB theory is not exhaustive to cover the pro-environmental behaviors. Because although it covers the main predictors such as attitude and intention that can explicitly reveal the deliberate nature of pro-environmental behaviors, it overlooks the significant aspects of values and personal norms in the pro-environmental context (Klöckner, 2013). Bamberg and Möser (2007) also state that attitude, personal norms, and intention are derived from different theories and can mutually be applied in environmental behaviors. In other words, attitude can mediate the effect of values and moral norms on intention that can lead to pro-environmental behaviors (Klöckner, 2013). These findings can strengthen the notion that moral motives can significantly affect pro-environmental behavior. In general, moral norms are associated with individuals' values and beliefs (Stern, 2000). Hence, people are more inclined to accept it without further proof compared to other norms. Moreover, as Fornara et al. (2016) state, moral norms bring moral obligations. Therefore, it can direct individuals

to environmentally behavioral commitment. In the current study, the efficiency behavior is external wall insulation which is a costly and demanding pro-environmental behavior. It seems that moral norms can bind households to implement such efficiency behavior. Nevertheless, the importance of moral norms in this context can caution us that there are various variables between moral norms and pro-environmental behaviors, including attitude, intention, or social norms, that their interference might negatively influence pro-environmental behaviors (Klößner, 2013). For instance, in the wall insulation context, it is necessary to acknowledge that other variables exist in the link between individual's moral norms and wall insulation which can positively or negatively affect such pro-environmental behavior.

As stated in the previous paragraph, besides personal norms, attitudes, and intentions, there are other variables, including habits, social norms affecting pro-environmental behavior. Yet, they might not have clear relevance in this current study. For instance, habitualization of behaviors is considered from two dimensions; one is behaviors itself, and the other is individuals' characteristics (Klößner, 2013). In the current study, wall insulation is not based on habitual behaviors because it is an efficiency behavior with low frequency. Yet, another aspect of habits, based on individuals' characteristics, affecting household involvement in sustainable consumption seems relevant and will be discussed later.

### 2.3 Goal-Framing Theory

Goal-framing theory is one of the relevant theories in pro-environmental behavior (Lindenberg & Steg, 2007). Concerning this theory, different motives including, normative, gain, and hedonic affect individuals' pro-environmental behaviors (Lindenberg & Steg, 2007). In essence, these motives can frame the way individuals act pro-environmentally. To be more specific, these motives may interact or conflict, and the result is that one motive is placed in the focal and the other in the background. The focal goal can influence individuals' behaviors. As Lindenberg and Steg (2007) also state, there are goal frames and background goals that can promote certain pro-environmental behaviors. For instance, concerns about the environment can be a goal frame, and a desire to save money can be a background motive for households with moral norms. The dominant goal frame that is environmental concerns can promote pro-environmental behavior. According to Steg and Vlek (2009), goal

framing theory is the combination of the previous theories like the theory of planned behavior (TPB) or value-belief norm (VBN). As previous theories fail to cover different aspects of pro-environmental behaviors (Klößner, 2013), this theory seems exhaustive in pro-environmental behavior. In essence, environmental concerns are not the only motive individuals intend to act pro-environmentally. There are other motives like gain and hedonic that lead to pro-environmental behaviors. In other words, pro-environmental behaviors can be the result of one or multiple motives. In the following paragraphs, these motives and their interaction are elaborated in more detail.

### *2.3.1 Hedonic Motive*

As mentioned earlier, various motives can be a goal frame and the others can be placed in the background. The dominant goal frame can then lead individuals to certain behaviors. Hedonic motive can be a goal frame if individuals seek pleasure, improvement, and excitement (Lindenberg & Steg, 2007). According to Lindenberg and Steg (2007), this goal frame affects people's moods and brings short-term pleasure. Moreover, this motive is comparable to theories on affect, highlighting the role of emotions and moods in shaping pro-environmental behaviors (Lindenberg & Steg, 2007). As Lindenberg (2001) also states, a hedonic motive is called an enjoyment-based motive. In pro-environmental behaviors like installing wall insulation, companies need to convey a sense of pleasure and satisfaction in their promotional messages, such as staying warm. These messages place this motive in the focal for individuals who seek pleasure and can thus encourage them to implement wall insulation. In other words, companies need to frame the promotional messages in a way that activates hedonic motives. In general, hedonic motives can address factors that bring convenience and pleasure to households. Yet, the situation in which the motive is activated can significantly influence its effectiveness (Lindenberg & Steg, 2007). For instance, framing hedonic motives plays a significant role in implementing some pro-environmental behaviors such as public transport use (Lindenberg & Steg, 2007). To be more specific, individuals who are emotionally attached to car use because of its convenience or prestige are less likely to use public transport by financial motives. Because hedonic motive is activated, it is difficult for them to respond to the other motives like gain motive. Therefore, it is essential to consider to what extent this motive is influential in the current study. In essence, as hedonic

motives provide a sense of pleasure and less effort, the question raised here is how this motive can play a role in the wall insulation context that is a demanding task.

### 2.3.2 Gain Motive

Gain motive is a medium or long-term motive inspired by a sense of financial or non-financial achievements such as saving money or time (Lindenberg & Steg, 2007). This motive is also comparable to the theory of planned behavior (TPB; Ajzen, 1985), in which individuals are motivated by achieving personal resources (Lindenberg & Steg, 2007). In essence, according to this theory, individuals constantly evaluate their personal resources such as money, time, and status, and rationally choose those resources serving more self-interest (Lindenberg & Steg, 2007). This theory is thus similar to the gain motive. In the house insulation context, gain motives can raise if, for instance, external wall insulation has positive financial consequences for households, such as reducing the gas or electricity bills or saving time by one-time efficiency behavior and not the curtailment which demands time. In other words, individuals with gain motives consider if the advantage of insulation can compensate for the initial monetary or non-monetary costs. This consideration can affect their intention to implement this behavior. From the financial aspect of the gain motive, as people implement the pro-environmental behaviors based on cost reduction, the question raised here is whether demographics, mainly income, are correlated with this motive. In other words, are households with high and low income similarly affected by gain motives? In general, demographics as one of the individual variables can shape pro-environmental behaviors (Li et al., 2019). For instance, a married young woman with high education and good income living in the urban is more likely to act pro-environmentally (López-Mosquera, Lera-López, & Sánchez, 2015). It is thus relevant to examine whether there are any differences among various motives on individuals' attitudes and intention by including different demographics such as income.

Besides financial and time incentives, social approval is another alternative that individuals regard as a gain motive (Lindenberg & Steg, 2007). According to Li et al. (2019), social norms as external factors can affect household behaviors. Social norms are standard behaviors accepted by a society that can be reinforced by approval and discouraged by the disapproval of others (Li et al., 2019). In other words, the social pressure of society causes people to act pro-environmentally. It seems people are not willing to be labeled as selfish.

Thus, they are more likely to follow social norms. As external wall insulation is a costly pro-environmental behavior, the financial aspect of gain motive, such as cost reduction, is considered in the current study. To be more specific, by adding a gain motive such as 'saving money' in the promotional message about wall insulation, I intend to assess the financial aspect of gain motives and its effect on household's intention and attitude to implement such a costly pro-environmental behavior.

### 2.3.3 Normative Motive

According to Lindenberg (2001), hedonic and gain motives can contribute to individuals' interests called "selfish motives". Yet, the normative goal frame is associated with obligation-based motives (Lindenberg, 2001) and environmental attributes (Noppers et al., 2014) with ethical and altruistic concerns (Lindenberg & Steg, 2007). As Lindenberg and Steg (2007) state, the normative motive is also similar to Value-Belief-Norm (VBN). Concerning the VBN theory, moral norms are the main predictors of pro-environmental behaviors associated with individuals' values and beliefs (Stern, 2000). It seems that cost and convenience do not necessarily motivate individuals to act pro-environmentally. In the wall insulation setting, such motive can be activated when the promotional message frames the environmental outcomes of such behavior, such as protecting the environment. Hence, it is essential to examine whether environmental attributes of motives can lead to such pro-environmental behavior with the absence of gain and hedonic aspects of motives.

Furthermore, individuals' awareness of environmental issues is closely associated with the strength of this goal frame (Lindenberg & Steg, 2007). In other words, individuals who have more awareness of adverse consequences of non-environmental behaviors are more receptive to various environmental solutions. Additionally, Lindenberg and Steg (2007) state that personal norms are activated under such situations. In essence, awareness can cause the normative goal frame to be dominant. Therefore, we can conclude that individuals with more knowledge about adverse consequences of non-environmental behaviors have more moral obligations (Fornara et al., 2016) that can cause them to act appropriately.

Yet, such receptiveness toward environmental issues can vary in different situations. As Lindenberg and Steg (2007) state, the situation in which the motive is activated can significantly influence its effectiveness. For instance, VBN theory can well explain low-cost

pro-environmental behaviors (Lindenberg & Steg, 2007). In essence, curtailment behaviors like turning down the thermostat at night is a low-cost behavior compared to external wall insulation. While external wall insulation demands a high cost, constantly turning down the thermostat at night requires time and effort. Hence, we could infer that it requires high personal norms to oblige households to regularly perform such behavior. Concerning one-time but costly pro-environmental behaviors like external wall insulation, other factors may still influence such behavior. Hence, it is necessary to examine moral norms and their effect on an individual's intention and attitude in such high-cost situations.

#### 2.3.4 Multiple Motives

Pro-environmental behaviors are not merely promoted by one of the above mentioned motives. According to Lindenberg and Steg (2007), these motives are not mutually exclusive. In other words, they can occur alone or together. Hence, pro-environmental behavior can be the result of either one or multiple motives. Referring to the heterogeneity of motivations, Lindenberg and Steg (2007) state that there are goal frames and background goals, and these goals may interact or conflict. As a result of these interactions or conflicts, one motive can be in the focal while the other is placed in the background. Background motives can also strengthen or weaken the focal goal (Lindenberg & Steg, 2007). To be more specific, in the current study, concerns about the environment can be considered a normative motive, and a desire to save money or a desire for comfort can be regarded as gain and hedonic motives respectively. Concerns about the environment can be a goal frame, and gain and hedonic motives can be placed background for households with the more personal norm. Yet, gain motives can be focal for individuals with a desire to save money. Moreover, these motives interact or conflict that can lead to encouraging or discouraging the pro-environmental behavior. The question raised here is whether the positions of these motives can vary in different pro-environmental behaviors. To be more specific, in the costly pro-environmental behaviors like wall insulation, which motive can be focal, and which one can be backgrounds? Are multiple motives compatible or in conflict? Wall insulation, for instance, which is an appropriate pro-environmental behavior can be the most expensive. Thus, it seems that environmental concerns as a goal frame and a desire to save money as a background motive are incompatible. In such a context, it is thus essential to realize whether the inclusion of multiple motives in the

promotional messages can promote pro-environmental behaviors. The result can help companies frame the promotional messages in a compatible way that leads to pro-environmental behaviors.

## 2.4 The Effect of Motives on Pro-Environmental Behavior

Different factors can shape pro-environmental behaviors (Li et al., 2019). Concerning the goal-framing theory, hedonic, gain, and normative motives influence pro-environmental behaviors. Furthermore, as discussed earlier, attitude and intention have a mediating role affecting PEB (Bamberg & Möser, 2007; Klöckner, 2013). In essence, hedonic, gain, and normative motives can influence attitudes and intentions, leading to pro-environmental behaviors.

Many findings confirm that pro-environmental behaviors are more predicted by psychological factors, mainly moral norms and positive attitudes toward the environment rather than other external factors (e.g., Li et al., 2019). In the empirical study conducted by Fornara et al. (2016), moral norms are considered one of the most significant factors leading to the usage of green energy devices among homeowners. As Fornara et al. (2016) argue, other external factors, like social norms, can also influence a household's intention to implement pro-environmental behaviors, but they are not as powerful as moral norms. On the whole, moral norms are so important to individuals because these norms are attached to their beliefs and values (Stern, 2000). Hence, people are more inclined to accept it without further proof compared to other norms. In addition, individuals may feel guilty if they do not conform to moral norms because they think their behavior may threaten others (Stern, 2000). Individuals with moral norms have more moral obligations to the environment, and such commitments make them get involved in pro-environmental behaviors (Fornara et al., 2016). In another study about plastic use behaviors, it reveals that prosocial incentives can increase individuals' intention to pro-environmental behaviors compared to monetary incentives (Lange, De Weerd, & Verlinden, 2021). In addition, according to Noppers et al. (2014), highlighting the environmental and symbolic attributes of products are more effective than instrumental. As the former can motivate consumers to adopt sustainable products, mainly in the first stages of adoption. We could thus infer that moral norms can bring moral obligations to individuals. Hence, obligations direct potential customers to environmentally behavioral commitment.

Furthermore, Benabou and Tirole (2003) emphasize the positive effects of empowerment and the adverse effects of rewards and punishments for individuals in response to the motivation. They argue that rewards and punishments have short-term effects on individuals' behaviors and decrease intrinsic motivation (Benabou & Tirole, 2003). As Edinger-Schons et al. (2018) state, intrinsic motives refer to an altruistic desire to do something good. It gives positive emotions (e.g., warm glow) to individuals driving them to pro-environmental behaviors. Yet, by suggesting extrinsic motives such as gain appeals, companies offer a kind of reward or punishment to their customers instead of internally empowering them. Since it is a short-term motive, it can crowd out households' intrinsic motives and demotivate them to behave environmentally (Edinger-Schons et al., 2018). To be more specific, a promotional message with financial motives can motivate households to perform pro-environmental behaviors as long as individuals gain monetary benefits. It seems gain motives are an extrinsically rewarding tool for those households to perform the behavior. Yet, Venhoeven, Bolderdijk, and Steg (2020) refer to competence as a fundamental factor, leading to individuals' empowerment and self-satisfaction. In essence, environmental action can create a positive image of capability and increase individual satisfaction. Compared to extrinsic motives, intrinsic motives have long-term effects on an individual's behavior. These findings are also aligned with the study by De Young (2000), stating that motivation for environmentally responsible behaviors can provide intrinsic satisfaction arising from the ability to do something efficiently.

Besides power given to individuals through satisfaction from implementing pro-environmental behaviors, meaning-making in such behaviors can motivate individuals to perform it properly (Venhoeven et al., 2020). To be more specific, in their article, Lindenberg and Steg (2007) suggest companies strengthen normative motives to promote costly pro-environmental behaviors, like wall insulation. Venhoeven et al. (2020) also argue that intrinsic motivation is formed not only from social desirability but from meaning-making by individuals about pro-environmental behavior. To put it simply, consumers should feel moral actions offer meaning. Such meaning-making in action can strengthen normative motives (Venhoeven et al., 2020). In essence, finding meaning in sustainable behaviors can cause positive emotions in consumers and motivate them to act pro-environmentally (Venhoeven et al., 2020). Compared to the extrinsic rewards of gain motives, positive emotions can bring intrinsic rewards to individuals to perform pro-

environmentally. For wall insulation, for instance, companies can disseminate information about how customers can contribute to the environment through insulating the wall of the house. As De Vries, Rietkerk, and Kooger (2020) state, disseminating concrete and unambiguous messages while implementing energy efficiency upgrades can also facilitate such meaning-making among households. It is thus essential for companies to frame the promotional messages conveying meaningful behaviors to their customers.

Unlike, gain and hedonic motives are less likely to result in pro-environmental behaviors (Steg, 2008). Targeting mere gain and hedonic goals can lead to “cheap moral” action instead of “sustained moral” action among consumers (Steg et al., 2014) since they depend on the external factors with pleasurable or profitable consequences to be activated. These motives do not establish a solid basis (Steg, 2008). In empirical research in a crowdfunding context, priming money-related motives can demotivate people to contribute to the projects (Chan et al., 2019). In essence, including extrinsic motivators like financial benefits to the intrinsic motivation context such as crowdfunding seems to decrease the intrinsic motivations of the participants to contribute to the projects. As the environment with monetary issues might convey uncertainty to participants. It is in line with the finding by Steg (2008), stating that gain motives bring an unstable setting to individuals’ minds. Besides, gain and hedonic motives are not institutionalized in individuals (Edinger-Schons et al., 2018) because they are short and medium-term motives. Therefore, individuals are less likely to act environmentally in the absence of external factors such as pleasure and profits. Yet, normative concerns give individuals a prevailing view toward the environment, so they do not suddenly change their minds due to unexpected reasons (Steg, 2008). We could thus infer that moral norms include solid elements in implementing pro-environmental behaviors.

Finally, messages with normative motives are more likely to develop trust toward companies and influence customers’ intention to act pro-environmentally (Edinger-Schons et al., 2018). According to Edinger-Schons et al. (2018), there are two motives, including altruistic versus company-serving motives, behind companies’ sustainability activities. In essence, companies engage in sustainability activities either to contribute substantially to society or to use a symbol to promote their positive images among their customers. As Marquis and Qian (2014) also state, companies’ sustainability activities can be used as window dressing to engage with the stakeholders. In addition, the inclusion of different

motives in the promotional messages can reveal the company's own motives for pro-environmental behaviors (Edinger-Schons et al., 2018). For instance, promotional messages with normative motives can show that companies have environmental concerns. It can bring trust (Van Prooijen, 2019) and influence customers to implement pro-environmental behaviors. In promoting wind power initiatives, findings also show that communicating normative motives can bring public trust to companies (Van Prooijen, 2019) and increase purchase intention (Miotto & Youn, 2020). It seems justifiable to consider that messages with normative motives are more likely to develop trust toward companies and influence customers' intention to act pro-environmentally. We thus hypothesize:

*H1: The inclusion of a single normative motive in promotional messages by a company promoting home energy efficiency upgrades will increase customers' intentions to implement it compared to adding a single hedonic or gain appeal to these messages.*

As mentioned earlier, including a normative motive in promotional messages seems to empower individuals and establish trust for companies. It can hence increase implementation intention. Yet, the question raised here is whether normative motives per se could affect customer's intentions or adding other motives such as gain or hedonic can strengthen or weaken the effectiveness of the normative appeals. In essence, it is plausible to recognize the interaction between these motives in the promotional messages.

Many studies have shown the conflict between these motives and their adverse effect on pro-environmental behaviors. In their research, Lindenberg and Steg (2007) state that strengthening hedonic and gain goals can weaken normative goals. Gain motive can also crowd out normative motive (Schwartz et al., 2015). In their empirical study about advertising energy-saving programs, Schwartz et al. (2015) state that including monetary motives can discourage the consumers from participating in the program. In a similar study for smart energy devices, Mingolla, Hudders, and Cauberghe (2020) also highlight the disadvantage of financial motives, which can crowd out the intrinsic motives of individuals because it can raise some doubts about the real motives of individuals. Edinger-Schons et al. (2018) demonstrate the negative effects of adding hedonic and gain motives (extrinsic appeal) to normative appeal (intrinsic appeal) that decrease customers' intention to implement pro-environmental behaviors. In essence, two strong motives like normative and

gain appeals in one promotional message may reduce the likelihood of implementing pro-environmental behaviors because consumers think there is a conflict between the normative goal of companies and their gain motives. It thus makes them question whether they are involved for the right reasons. Therefore, consumers become skeptical about the authenticity of the message.

The inclusion of different values can also set up psychological barriers and lead to conflict among individuals (Gifford, 2011). Psychological barriers are exemplified with the 'dragons of inaction' (Gifford, 2011) or 'hassle' (De Vries, Rietkerk, & Kooger, 2020), which hinder implementing pro-environmental behaviors. Referring to the conflict in values and goals, Gifford (2011) states that incompatible values can cause individuals to alter their behaviors. The constant change can bring disorder in their lives. As individuals' resources (time and effort) are limited, they would have less time and energy to pursue their goals. It can thus demotivate individuals to implement pro-environmental behaviors. Moreover, an unclear image of the energy efficiency process and its purpose can be a hassle for households (De Vries, Rietkerk, & Kooger, 2020). Apparently, following a clear set of values and behavior patterns can motivate individuals to act environmentally.

In addition, the positivity in framing normative appeal is more likely to influence individuals to act environmentally because positivity in normative motives provides the efficacy to individuals to perform effectively (Do, Wang, & Guchait, 2021). For instance, in the insulation context, framing normative motive as "protect the environment" is more effective than "not damage the environment" or the mixed ones. White and Simpson (2013) also state that consumers better respond to congruent appeals. In essence, when companies communicate messages with a single motive, consumers find motives compatible with each other. Whereas companies include mixed motives that are incompatible, customers perceive inconsistency in their communication. It seems consistency in communicating different appeals can increase their effectiveness.

Furthermore, normative motives can activate different motives, whereas hedonic or gain activate more selfish ones (Lindenberg & Steg, 2007). For instance, in the wall insulation context, individuals with a normative motive not only act environmentally (normative) but saving money (gain) and staying warm in winter (hedonic). It is in line with the finding by Gifford (2011), stating that companies should bring the intrinsic motives into sharp focus; the extrinsic ones eventually emerge with no supporting evidence. Hence, it is

relevant to recognize the interaction between normative, hedonic, and gain motives and their effect on the costly and demanding pro-environmental behaviors like wall insulation. Concerning the previous studies, the second hypothesis is proposed as:

*H2: Adding a hedonic or gain motive to a normative appeal by a company promoting home energy efficiency upgrades will decrease consumers' intentions to implement it compared to the inclusion of a single normative motive in promotional messages.*

## 2.5 Involvement with Sustainable Consumption

Concerning the effect of different motives on pro-environmental behaviors, previous studies have shown that not all consumers respond the same way to these motives. Consumers may have greater or lower involvement with sustainable consumption based on their demographics, attitude, or prior belief (Li et al., 2019). According to Webb, Mohr, and Harris (2008), individuals involved with sustainable consumption are more concerned about the environment. Kim and Choi (2005) also state that individuals with more concern about the environment are more likely to perform pro-environmental behaviors because they are aware of the adverse consequences of non-environmental behaviors. In their article, Kim and Choi (2005) argue that while some variables indirectly lead to pro-environmental behavior, environmental concerns directly lead to pro-environmental behavior. It seems that they need no further motives for individuals to act environmentally. Involvement with sustainable consumption is also attributed to the environmental awareness and feeling of guilt that can guide individuals toward moral norms (Bamberg & Möser, 2007). In essence, households with more awareness of environmental issues and their consequences have a moral obligation toward the environment (Fornara et al., 2016). Such commitment can direct them to act environmentally. Hence, consumers with greater involvement in sustainable consumption are more likely to act pro-environmentally because they have more awareness and concerns about the environment. Yet, in another study, Sharma and Foropon (2019) highlight the significant effect of product attributes on individuals' environmental concerns. In essence, while people with greater awareness and concerns about the environment are more likely to implement environmental behaviors, product attributes, such as price, quality, and brand can affect their decision-making. Hence, it is

essential to consider the implementation intention of individuals with greater involvement in sustainable consumption about wall insulation that is a costly efficiency behavior.

As mentioned earlier, habits as individuals' characteristics can be considered (Klößner, 2013) and can influence pro-environmental behaviors (Steg & Vlek, 2009). Klößner (2013) also emphasizes that habits are a decisive predictor in the behavioral process. In a similar study, White, Habib, and Hardisty (2019) state that habit formation is one of the psychological factors that can lead to pro-environmental behaviors. In other words, consumers' behaviors are not necessarily based on their reasoned choice but their habits. To put it simply, environmentally sustained habits can lead to prospective environmental behaviors. Concerning the spillover effect of pro-environmental behaviors, people with greater involvement with sustainable consumption are more likely to engage in the other pro-environmental behaviors (Maki et al., 2019). By introducing the self-consistency concept, White, Habib, and Hardisty (2019) also argue that individuals who previously experience pro-environmental behaviors are more likely to act pro-environmentally because they intend to be consistent in pro-environmental behaviors. Hence, the below hypothesis is proposed:

*H3: Greater involvement with sustainable consumption in consumers is associated with greater intentions to implement home energy efficiency upgrades.*

As already mentioned, awareness of environmental issues and concerns about their consequences can lead to pro-environmental behaviors (Fornara et al., 2016). According to Lindenberg and Steg (2007), such awareness and concerns can strengthen the normative goal frame, and bring moral obligation to households (Fornara et al., 2016). In essence, households with more awareness of environmental issues are more likely to behave pro-environmentally because they have more moral obligations. It seems that individuals with moral norms go beyond present challenges and feel concerned about the future generation. According to their findings, Maki et al. (2019) also argue that appeals to motivate consumers with greater involvement in pro-environmental behaviors should be based on intrinsic motives rather than extrinsic. In other words, these consumers respond negatively to mixed motives because they thoroughly consider various motives, and as they institutionalize normative motives (Edinger-Schons et al., 2018), they certainly recognize the incompatibility

of motives. Hence, they are not simply persuaded by mixed motives. Yet, consumers with lower involvement in sustainable consumption can be persuaded by mixed motives (Edinger-Schons et al., 2018). They do not seem to consider the actual content of motives due to a lack of information about environmental issues and think two appeals are better than one. Hence, mixed motives are appealing for consumers who are less involved in sustainable consumption.

In their study, Van den Broek, Bolderdijk, and Steg (2017) go beyond environmental awareness and argue that differences in individuals' values can determine the effectiveness of motives. To be more specific, individuals with moral values are more likely to be persuaded by environmental motives than mixed motives because this motive is prioritized over other values in their individuality and thus harmonious with their values. In essence, if the motives are aligned with their individual self, people are more inclined to implement the behavior (White, Habib, & Hardisty, 2019). In a similar study, Bolderdijk et al. (2013) state that people differently prioritize the values, and such priority affects their intention to implement the behaviors. In the experimental study, Bolderdijk et al. (2013) reveal that informational intervention like an environmental movie about the negative consequences of bottled water affects individuals with high pro-environmental values. In essence, people with weak environmental values are less motivated to act upon such intervention. We could infer that environmental values moderate the effect of motives on intentions. Van den Broek et al. (2017) also suggest that companies should tailor the promotional messages based on the distinctive characteristics of the target households to get the maximum effectiveness of motives. For external wall insulation, it is essential that promotional messages for individuals who are involved in sustainable consumption be framed in a way that provides information about environmental outcomes of pro-environmental behaviors instead of financial benefits. Yet, the question introduced is whether the inclusion of mere normative motives in the promotional messages can influence those with high involvement in sustainable consumption for costly environmental behavior like wall insulation.

Finally, greater/lesser involvement with sustainable consumption is also predicted by other variables, including cultural factors (individualism and collectivism) (Hubner, 2019) that can influence individuals' intention to implement pro-environmental behavior. In essence, various motives can be perceived differently by different cultures. In his study, Hubner (2019) examines different advertisement strategies with either ethical or self-

interest motives for green products among consumers in Japan and the Netherlands. The findings show that cultural values can influence individuals' attitude and behavior in response to different motives (Hubner, 2019). In addition, advertisements promoting ethical benefits are more appealing among the Japanese compared to the Dutch participants (Hubner, 2019).

Concerning the previous studies, it seems justifiable to conduct the current study to examine the moderating effect of involvement with sustainable consumption on implementation intention among households living in the Netherlands in response to different motives.

*H4: Involvement with sustainable consumption will moderate the effect of motives on intentions, such that implementation intentions of consumers with greater involvement in sustainable consumption are more likely to decrease than that of those with lesser involvement in response to the addition of hedonic or gain appeals to normative motives.*

## 2.6 Conceptual models

The overview of the current study is summarized in Figure 2.1 and 2.2

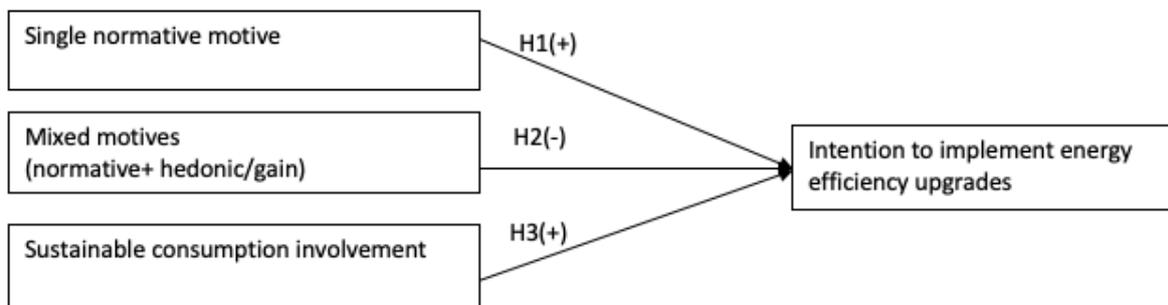
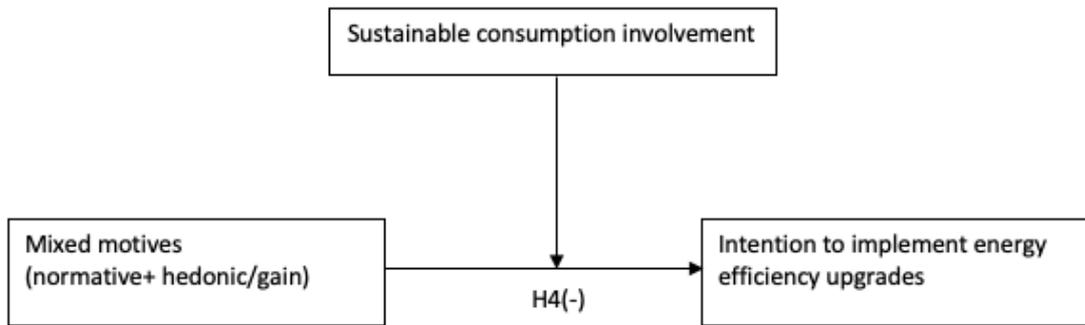


Figure 2.1 Conceptual model (H1, H2, H3)



*Figure 2.2 Conceptual model (H4)*

## 3. Method

### 3.1 Research Design

To test the hypotheses, a quantitative experimental method was employed. The study aims to analyze the effect of activating different motives in promotional messages on consumers' intentions. In general, an experiment is a powerful method to establish causal relationships between dependent and independent variables (Babbie, 2017) and explore the predictive effects of them (Neuman, 2014). In the current study, five activated motives as motives manipulation and involvement with sustainable consumption as a moderator (independent variables) were applied, and the effects they had on households' intention and attitude (dependent variables) were analyzed. Moreover, through quantitative method, a large population can be statistically described and the strengths of the relationships between independent and dependent variables are quantitatively determined (Babbie, 2017). As a result, this method was appropriate.

By conducting a unifactorial between-subject design with five activated motives: normative vs. hedonic vs. gain vs. mixed normative and gain vs. mixed normative and hedonic, the extent that the addition of these motives in promotional messages affects households' intention was analyzed. These messages were randomly assigned to participants. The effect of these motives on the household's attitude and intention was then analyzed. It can test *H1* and *H2*. Additionally, greater/lesser involvement with sustainable consumption as the moderating factor influencing the relationship between motives and household's intention and attitude was considered. It can also test *H3* and *H4*.

In designing the promotional messages for the current experiment, external wall insulation as an energy efficiency behavior was employed. According to the energy efficiency indicators 2020, space heating accounts for 68% of residential energy consumption in the Netherlands in 2018 (International Energy Agency, 2019). Therefore, it is highly relevant to consider how to reduce energy consumption in the residential sector. According to Gardner and Stern (2008), insulation can considerably save energy compared to curtailment behavior. Because of a clear societal relevance, external wall insulation was employed for the current study.

### 3.2 Participants

Households in the Netherlands were recruited for this study. To recruit participants, a non-probability snowball sampling method was used by sharing a link to the online questionnaire on various social media like Facebook within the own network and also outside of it. After removing incomplete responses, the final sample consists of 219 completed questionnaires. In the sample, the percentage of women was 59.4% and the male was 34.7%. The participants were aged between 21 and 66 years ( $M = 37.23$ ,  $SD = 9.74$ ). The most named highest education level was a master's degree (40.6 %), followed by a bachelor's degree (35.6 %). Concerning employment status, 51.6 % of participants were full-time employed. The highest frequency of income ranged between 4501 and 6000 € per month. Moreover, 63.5 % of households already had any form of insulation. Surprisingly, while 39.7 % of households insulated the wall of the house, 23.7 % did not know whether the house already had wall insulation.

### 3.3 Procedure

As mentioned earlier, a non-probability snowball sampling method was applied to recruit households. To be more specific, the post which contained the sampling criteria and the link to the online questionnaire was spread via LinkedIn and Facebook to recruit individuals. On the whole, the post was placed three times on the researcher's LinkedIn and Facebook page and many times in a different group on Facebook and LinkedIn. As snowball sampling relies on social networking, it is essential to consider the variations in the population (Biernacki & Waldorf, 1981). In other words, it is necessary to see whether the sampling includes various networks or existing social networks. Concerning existing social networks, it can caution whether the findings can be generalized to the wider population (Biernacki & Waldorf, 1981). To avoid this pitfall of snowball sampling, the post was spread through various groups on Facebook and LinkedIn. Besides, it was asked to share the post with friends and acquaintances. It can provide the opportunity to reach households beyond the researcher's network.

Data were collected from 31 March 2021 to 4 May 2021. Participants were asked to participate in the experiment if they met the sampling criteria. The sampling criteria were that the participants are located in the Netherlands, own a house, and make decisions about

installing the wall insulation for the house. Once participants met the sampling criteria and clicked on the link, they were directed to the online questionnaire starting with the informed consent. In this section, after welcoming the participants, the aim of the study that is to assess the households' intention for the wall insulation was explained. Following this section, there were a set of questions to measure participants' involvement with sustainable consumption. In the next step, participants were asked to carefully read a promotional message about wall insulation. This promotional message contained the experimental manipulation. Participants were assigned at random to one of these conditions. Random assignment to these conditions can reduce sampling bias. To be more specific, participants were exposed to either a promotional message which emphasized a normative condition (44 participants), a hedonic condition (46 participants), a gain condition (47 participants), a normative and hedonic condition (37 participants), or a normative and gain condition (45 participants). Additionally, manipulation checks were used to see whether the manipulation worked in the current study. The manipulation checks included three simple questions that help researchers realize whether the manipulation had the intended effect (Neuman, 2014). After being exposed to one of these promotional messages as experimental manipulation, they were asked about their attitude and intention to install external wall insulation. At the end of the experiment, the participants were asked about their demographics like gender, age, educational level, employment status and income. Completing the questionnaire took approximately 5-10 minutes.

After the participants conducted the experiment, the data were collected and transferred to a database for analysis in SPSS. After cleaning data, factor analyses, reliability tests and manipulation checks were performed. A multivariate analysis (MANOVA) was then employed to test *H1* and *H2* to analyze whether the five groups of conditions were significantly different in terms of their scores on intention and attitude. Based on the results, *H1* and *H2* were accepted or rejected. Additionally, to test *H3* and *H4*, two series of hierarchical multiple regression were conducted to determine whether there were significant relationships between involvement with sustainable consumption and households' intention/attitude for insulation while including different conditions in the promotional messages. As a result, *H3* and *H4* were accepted or rejected.

### 3.4 Measurement of Concepts

To study the extent to which different motives in the promotional messages influence households' intention to implement efficiency measures, various variables were selected. To be more specific, the inclusion of five conditions on the promotional messages as independent variables, intention and attitude as dependent variables, involvement with sustainable consumption as a moderator, control variables and manipulation checks were selected and added to the survey to analyze the effect of different conditions on households' intention and attitude to pro-environmental behaviors. The variables are further elaborated on in the following paragraphs. For an overview of all items, see Appendix A.

#### 3.4.1 Involvement with sustainable consumption (SCI)

This variable was measured using the Socially Responsible Purchase and Disposal (SRPD) scale developed by Webb, Mohr, and Harris (2008). Involvement with sustainable consumption was conceptualized into four subscales, including CSR performance, recycling behavior, traditional purchase criteria and environmental impact purchase and use criteria (Webb, Mohr, & Harris, 2008). In the current study, the environmental impact purchase and use subscale with seven statements (e.g., I limit the use of energy such as electricity and gas to reduce my impact on the environment.) was selected. The energy efficiency upgrade in this research was external wall insulation that could reduce energy consumption. Hence, the involvement measure was limited to the domain of usage reduction and avoidance of products that harm the environment because this domain most closely matched the purpose of the current study. The five-point rating scale ranging from "strongly disagree" to "strongly agree" was used. In the study by Edinger-Schons et al. (2018), Cronbach's Alpha for items of this subscale was .89.

An exploratory factor analysis was performed to extract and interpret seven statements for involvement with sustainable consumption in the current dataset. The seven statements which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues ( $> 1.00$ ),  $KMO = .80$ ,  $\chi^2 (N = 219, 21) = 569.80$ ,  $p < .001$ . The resultant model explained 64.6 % of the variance in involvement with sustainable consumption. Factor loadings of individual items onto the two factors found are presented in Table 1. The factors found were:

*Concern about the environment.* This factor included five statements, all related to an individual’s concern about the environment such as avoiding using products that pollute the air and water or limiting the use of energy to reduce a negative impact on the environment ( $M = 3.89, SD = 0.66$ ).

*Concern about endangered animals or plants.* This factor included two statements related to individual’s concerns about endangered animals and plants ( $M = 4.16, SD = 0.70$ ).

*Table 3.1* Factor Loadings explained variance and reliability of the factors found for Sustainable consumption involvement (SCI)

Item	Concern about environment	Concern about animals and plants
I avoid using products that pollute the air.	.88	
I avoid buying products that pollute the water.	.87	
I make an effort to avoid products or services that cause environmental damage.	.74	
I limit my use of energy such as electricity or natural gas to reduce my impact on the environment	.71	
Whenever possible, I walk, ride a bike, carpool, or use public transportation to help reduce air pollution.	.56	
I avoid buying products that are made from endangered animals.		.92
I avoid buying from companies that harm endangered plants or animals.		.67
$R^2$	.49	.15
$Cronbach's \alpha$	.81	.61

After running reliability analysis with the full scale (with all seven items), Cronbach’s alpha was high (Cronbach’s  $\alpha = .81$ ). As Cronbach’s  $\alpha$  for the second factor ( $\alpha = .61$ ) was not acceptable, it was not possible to proceed with the second factor. Moreover, according to the item-total statistics table of the full scale, deleting item “avoid buying from companies that harm endangered plants” could decrease Cronbach’s  $\alpha$  to .79 and deleting item “avoid buying products that are made from endangered animals” could improve Cronbach’s  $\alpha$  by just .02. Furthermore, as Webb, Mohr, and Harris (2008) stated, environmental involvement includes both concern about environment and concern about plants and animals. On the whole, since Cronbach’s alpha was high for the whole scale and two factors explained 64.6 % of the variance in SCI, the full scale (all seven items) was considered and labeled as ‘SCI’ ( $M = 3.97, SD = 0.59$ ).

### 3.4.2 Motives manipulation

As explained earlier, five experimental conditions were applied in the promotional messages to highlight different motives for wall insulation and examine how individuals respond to different motives (see Appendix B). In general, all promotional messages briefly communicated what external wall insulation was and why it was important. The promotional messages differed by including five different conditions. In essence, these conditions were designed by adding normative, hedonic, gain, addition of hedonic to normative motive and addition of gain motive to normative in the promotional messages. To be more specific, the promotional message with a normative condition implied the appropriateness of insulation and the way households can contribute to the environment (Lindenberg & Steg, 2007). While a gain condition in the promotional message conveyed long-term financial benefits of the insulation (e.g., lower utility bills), a hedonic condition highlighted the pleasure of such action (e.g., stable, warm and comfortable temperature indoors) on households (Lindenberg & Steg, 2007). By adding a gain condition to normative in the promotional message, both environmental and long-term financial benefits of insulation were highlighted. Lastly, the addition of the hedonic condition to normative could convey the environmental and pleasure outcomes of external wall insulation on households.

### 3.4.3 Manipulation checks

Three questions were added at the end of the promotional messages to realize whether the manipulation had the intended effect (Neuman, 2014). The statements included whether the promotional messages stated that wall insulation would help to protect the environment, to stay warm or to save money. The five-point rating scale ranging from “strongly disagree” to “strongly agree” was used to measure the manipulation checks.

### 3.4.4 Attitude

This variable as one of the predictors of intention was introduced. Attitude can explain the favorable or unfavorable degree of behaviors performed by individuals (Li et al., 2019). According to Li et al. (2019), this variable is a predictor of intentions shaping pro-environmental behavior. It is thus justifiable to consider this variable in the current study. To measure attitude, seven statements (e.g., insulating the walls of my house is) with seven

adjectives scales (e.g., good, useful, beneficial, wise, attractive, happy and rewarding) developed by Ajzen and Madden (1986) were applied. The seven statements on 5-point Likert (e.g., ranging from “very bad” to “very good”) were used to measure attitude. In the study by Ajzen and Madden (1986), the Cronbach’s Alpha for items of this scale was .86.

The exploratory factor analysis was performed to extract and interpret seven statements for attitude. The seven statements which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues (> 1.00),  $KMO = .89$ ,  $\chi^2 (N = 219, 21) = 932.72$ ,  $p < .001$ . The resultant model explained 64.1 % of the variance in attitude. Factor loadings of individual items onto the one factor found are presented in Table 2. The factor found was: *Attitude*. This factor included seven statements all related to attitude which were linked to the individuals’ attitude toward energy efficiency activities such as insulating the walls of the house is good, beneficial or attractive. The seven statements for this factor were computed into one variable and labeled as ‘Attitude’ ( $M = 4.02$ ,  $SD = 0.60$ ).

*Table 3.2* Factor Loadings explained variance and reliability of the factor found for Attitude

Item	Attitude
Insulating the walls of my house is good.	.88
Insulating the walls of my house is useful.	.86
Insulating the walls of my house is beneficial.	.81
Insulating the walls of my house is wise.	.78
Insulating the walls of my house is attractive.	.78
Insulating the walls of my house would make me happy.	.76
Insulating the walls of my house is rewarding.	.74
$R^2$	.64
<i>Cronbach’s <math>\alpha</math></i>	.90

### 3.4.5 Intention

This variable is the strongest predictor affecting pro-environmental behavior (Klöckner, 2013). Implementation intention can be measured by the willingness of participants and the likelihood of implementing a certain behavior (Ajzen & Madden, 1986). To measure intention concerning installing external wall insulation, a format adopted from Ajzen and Madden (1986) was employed. The three statements (e.g., I intend to insulate the walls of my house within the next few years.) on 7-point Likert scales ranging from

“extremely unlikely” to “extremely likely” were used to measure intention. In the study by Ajzen and Madden (1986), the Cronbach’s Alpha for the items was above .78.

The last exploratory factor analysis was conducted to interpret three statements for intention. The three statements which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation based on Eigenvalues (> 1.00),  $KMO = .73$ ,  $\chi^2 (N = 219, 3) = 779.41$ ,  $p < .001$ . The resultant model explained 92.6% of the variance in intention. Factor loadings of individual items onto the one factor found are presented in Table 3. The factor found was: *Intention*. This factor included three statements all related to intention which were linked to individuals’ intention to insulate the walls of the house such as individuals aim at, intend or try their best to insulate the walls of their house within the next few years. The three statements for this factor were computed into one variable and labeled as ‘Intention’ ( $M = 4.60$ ,  $SD = 1.54$ ).

*Table 3.3* Factor Loadings explained variance and reliability of the factor found for Intention

Item	Intention
I am aiming at insulating the walls of my house in the next few years.	.98
I intend to insulate the walls of my house within the next few years.	.96
I will try my best to insulate the walls of my house within the next few years.	.95
$R^2$	.93
Cronbach’s $\alpha$	.96

### 3.4.6 Control variables

In addition to the involvement with sustainable consumption (SCI) variable, two questions, including whether the house already has any form of insulation and whether the house has wall insulation were added as control variables to the questionnaire to assess whether households have already insulated the house. The control variables were measured through options: Yes, no and I do not know.

### 3.4.7 Demographics

Lastly, participants were asked about their age, gender, level of education, employment status and income. The question concerning age was open-ended. Gender was measured through options: Male, female, other and prefer not to say. For the level of education, participants were asked the highest level of school they completed or the highest degree they received. The six ordinal measures were ranged from less than a high school

degree to a doctoral degree (PhD). The employment status of participants was measured through eight options, including employed (full-time), employed (part-time), self-employed, seeking work, student, housewife or man, retired and other. Lastly, income was assessed by eight options ranged from below 1500 € to above 12000 € per month.

### 3.5 Validity and reliability

To ensure the validity and reliability of the current study, various factors have been considered. First, participants were assigned at random to one of the five groups of conditions to prevent selection bias. It was done via applying a randomizer in Qualtrics. It can increase internal validity because all participants are selected randomly (Neuman, 2014). In essence, it decreases the risk of assigning the participants selectively by the researcher. Next, validated items were used for most of the scales, adopting from previous research to minimize measurement bias. The reliability tests for scales also showed a high Cronbach's Alpha. To be more specific, the Cronbach's Alpha for all scales were above .80, indicating the high reliability of the scales (Pallant, 2016). Finally, manipulation checks were employed at the end of the promotional messages to realize whether the manipulation had the intended effect (Neuman, 2014).

## 4. Results

This chapter provides the results obtained by analyzing the data which were collected and transferred to a database for analysis in SPSS. First, tests of manipulation checks were performed to examine whether manipulation worked. To test *H1* and *H2*, a multivariate analysis (MANOVA) was employed to analyze whether the five groups of conditions were significantly different in terms of their scores on intention and attitude. Moreover, two series of hierarchical multiple regression were conducted to test *H3* and *H4* to realize whether there were significant relationships between involvement with sustainable consumption and households' intention/attitude for wall insulation in response to the inclusion of different conditions in the promotional messages. In the following paragraphs, the results will be elaborated in more detail.

### 4.1 Tests of manipulation checks

As mentioned earlier, three statements with five-point rating scale as manipulation checks were added after manipulation conditions to test whether the manipulation had the intended effect. The outcome measures were analyzed using three series of one-way ANOVA's. In essence, it is expected that conditions differ significantly per manipulation check item. The first manipulation statement containing whether the promotional message states that wall insulation would help to protect the environment revealed a significant effect of motives manipulation,  $F(4, 214) = 16.61, p < .001$ . The Tukey post-hoc comparisons among five conditions revealed that participants assigned to 'normative condition' ( $M = 4.09, SD = 0.13$ ) had a significant higher score than the ones to 'hedonic condition' ( $M = 3.20, SD = 0.13$ ),  $p < .001$ . Moreover, participants in 'normative condition' ( $M = 4.09, SD = 0.13$ ) had a significant higher score than the ones in 'gain condition' ( $M = 3.21, SD = 0.13$ ),  $p < .001$ . Yet, there were no significant differences between responses in 'normative condition' and 'normative and hedonic mixed condition' ( $M = 4.35, SD = 0.15$ ),  $p = .680$  as well as 'normative condition' and 'normative and gain mixed condition' ( $M = 4.11, SD = 0.13$ ),  $p = 1$ . The reason for the insignificant differences was that these conditions ('normative and hedonic condition', and 'normative and gain condition') contain mixed motives. In other words, the term 'protect the environment' which is a normative motive is included in both conditions.

The second manipulation statement containing whether the promotional message states that wall insulation would help to stay warm revealed a significant effect of motives manipulation,  $F(4, 214) = 7.34, p < .001$ . The Tukey post-hoc comparisons among five conditions revealed participants assigned to 'hedonic condition' ( $M = 4.33, SD = 0.63$ ) had a significant higher score than the ones in 'normative condition' ( $M = 3.84, SD = 0.86$ ),  $p = .041$ . Moreover, participants in 'hedonic condition' had a significant higher score than the ones in 'gain condition' ( $M = 3.62, SD = 0.99$ ),  $p < .001$  and the ones in 'normative and gain condition' ( $M = 3.82, SD = 0.94$ ),  $p = .029$ . Yet, there were no significant differences between responses in 'hedonic condition' and 'normative and hedonic mixed condition' ( $M = 4.38, SD = 0.49$ )  $p = .998$ . The reason for the insignificant difference between these conditions was that both conditions contain the term 'stay warm' which is a hedonic motive.

The third manipulation statement containing whether the promotional message states that wall insulation would help to save money revealed a significant effect of motives manipulation,  $F(4, 214) = 16.23, p < .001$ . The Tukey post-hoc comparisons among five conditions revealed that participants assigned to 'gain condition' ( $M = 4.47, SD = 0.65$ ) had a significant higher score than the ones to 'normative condition' ( $M = 3.23, SD = 1.14$ ),  $p < .001$ . Moreover, participants in 'gain condition' had a significant higher score than the ones in 'hedonic condition' ( $M = 3.54, SD = 0.98$ ),  $p < .001$  and the ones in 'normative and hedonic condition' ( $M = 3.65, SD = 0.98$ ),  $p < .001$ . Yet, there were no significant differences between responses in 'gain condition' and 'normative and gain mixed condition' ( $M = 4.33, SD = 0.60$ ),  $p = .950$ . The reason for the insignificant difference between them was that both conditions contain the term 'save money' which is a gain motive.

In general, the results of three series of ANOVA's showed that the conditions differed significantly per manipulation check item. Hence, it revealed that the manipulations worked and had the intended effect. It can support the findings of the current research.

#### 4.2. Tests of $H1$ and $H2$

A preliminary assumption test for MANOVA was conducted to test normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity. To test for multivariate normality, Mahalanobis distance was applied. According to the residuals statistics table, the maximum value for Mahalanobis distance (10.33) was less than the critical value (13.82) for two dependent variables (intention and

attitude), meaning there were no multivariate outliers in the current dataset. Tests of normality revealed that both attitude and intention were significant, meaning they were not normally distributed which is not uncommon in social science research. A correlations test between intention and attitude was conducted to check multicollinearity. The result showed the absence of multicollinearity, but also revealed that there was a moderate, positive correlation between these variables,  $r = +.34$ ,  $n = 219$ ,  $p < .001$ , that justified using MANOVA. Moreover, in Box's test of equality of covariance metrics, the insignificant value (.673) showed that the MANOVA assumption was not violated.

After conducting preliminary assumption tests, a multivariate analysis (MANOVA) was performed to investigate the effect of different conditions on the implementation intention to pro-environmental behaviors. In essence, multivariate test results indicate whether there are statistically significant differences among different conditions on a linear combination of intention and attitude. Two dependent variables were used: attitude and intention. The independent variable was the motives manipulation. The results showed that there was not a statistically significant difference between the five different conditions in the promotional messages on the combined dependent variables,  $F(8, 426) = .63$ ,  $p = .756$ ; Wilks' Lambda = .98; partial eta squared = .01.

Another multivariate analysis (MANOVA) was conducted to investigate the effect of different conditions on attitude and intention to pro-environmental behaviors while statistically controlling for additional variables. The independent variable was motives manipulation and the dependent variables consisted of scores on attitude and intention. Participants' scores on different control variables including age, educational level, income and gender were used as the covariates in the analysis. The results showed that there was no significant difference among different conditions on attitude and intention,  $F(8, 314) = .84$ ,  $p = .564$ ; Wilks' Lambda = .96; partial eta squared = .02.

Regarding another control variable that controls whether households have already insulated the walls of the house, MANOVA was conducted to test whether this control variable affects intention and attitude. The results showed that there was no significant difference among different conditions on attitude and intention,  $F(8, 412) = .53$ ,  $p = .836$ ; Wilks' Lambda = .98; partial eta squared = .01. Moreover, by excluding the group already have wall insulation, there was still no significant difference among different conditions on

attitude and intention,  $F(8, 238) = .47, p = .878$ ; Wilks' Lambda = .97; partial eta squared = .02. Based on the above-mentioned results, *H1* and *H2* were rejected.

### 4.3 Tests of *H3* and *H4*

To test *H3* and *H4*, two series of hierarchical multiple regression were conducted to assess the effect of SCI, conditions and their interactions on attitude and intention. To be more specific, the interaction effect between SCI and five conditions and whether such an effect was significant in predicting attitude and intention toward wall insulation were analysed. At first, an hierarchical regression analysis was conducted with intention as a dependent variable. For this purpose, four dummy variables (hedonic, gain, mixed normative and hedonic, and mixed normative and gain) were created, in which the normative motives condition functioned as the reference group. The SCI variable was standardized. Then, intention as a dependent variable, and dummy variables and standardized SCI as independent variables were included in the first block. Next, to test the moderation effect of SCI, the interaction between these four dummy variables and standardized SCI were entered in the second block to compare their significance to the normative condition as a reference group. Even though SCI was significant ( $\beta = .18, p = .010$ ) in the first block, together with four dummy variables as predictors, the model reached insignificance  $R^2 = .04, F(5, 213) = 1.77, p = .119$ . As SCI had a positive significant effect on intention, *H3* was accepted. However, adding the interaction between four conditions and SCI ( $\beta = .18, p = .302$ ) in the second block significantly improved the predictive value of the model,  $\Delta R^2 = .05, F(9, 209) = 2.28, p = .019$ . Yet, the effect of interactions between conditions and SCI on intention remained insignificant for all four conditions.

As mentioned earlier, near 40 % of households already insulated the wall of the house. Hence, it was possible that the result was influenced by this group of participants, as they could not express their intentions to engage in wall insulation. Therefore, another analysis was conducted without these participants. The result showed while the effect of conditions and SCI on intention was insignificant  $R^2 = .08, F(5, 120) = 2, p = .086$  in the first block, adding the interaction between conditions and SCI ( $\beta = .86, p = .024$ ) in the second block significantly improved the predictive value of the model,  $\Delta R^2 = .09, F(9, 116) = 2.57, p = .010$ . Moreover, the interaction between SCI and gain condition ( $\beta = -1.12, p = .012$ ) had a negative significant effect on intention scores. In essence, the more involved households

are, the less intentions are reported in the gain condition. Yet, the effect of interactions between the other conditions and SCI on intention remained insignificant. Hence, *H4* was rejected.

Next, another hierarchical regression analysis was conducted with attitude as a dependent variable. Attitude as a dependent variable and four dummy variables and standardized SCI as independent variables were included in the first block. Next, to test the moderation effect of SCI, the interaction between these dummy variables and standardized SCI were entered in the second block. Even though SCI was significant ( $\beta = .17, p = .015$ ) in the first block, together with other dummy variables as predictors, the model reached insignificance  $R^2 = .04, F(5, 213) = 1.86, p = .103$ . However, adding the interactions between conditions and SCI ( $\beta = .17, p = .015$ ) in the second block significantly improved the predictive value of the model,  $\Delta R^2 = .04, F(9, 209) = 1.95, p = .047$ . Moreover, the interactions between SCI and hedonic condition ( $\beta = -.50, p = .035$ ), gain condition ( $\beta = -.46, p = .047$ ) and mixed normative and hedonic condition ( $\beta = -.65, p = .008$ ) had a negative significant effect on attitude scores. Yet, there was no significant effect of interaction between SCI and mixed normative and gain condition ( $\beta = -.35, p = .109$ ) on attitude. Interestingly, compared to a normative condition as a reference group, interactions of all four conditions with SCI decreased the scores of attitudes. Yet, for mixed normative and gain condition, this decrease was not significant. In essence, the more involved households are, the negative attitude is reported in response to gain, hedonic, and mixed normative and hedonic conditions.

Furthermore, to test the effect of various control variables on intention, the variables including age, gender, wall insulation, education, employment status and income were selected. The selected control variables were added in the first block, following by entry of four dummy variables and SCI in the second block, and the interactions between these dummy variables and SCI in the third block. The results showed that there were no significant effects of interactions between SCI and conditions on intention for all four conditions while statistically controlling for the control variables.

## 5. Discussion

As mentioned earlier, we are facing severe environmental challenges like global warming. Energy consumption can increase global warming, leading to major environmental damage (Gardner & Stern, 2008). It is thus essential to do more research about factors influencing energy consumption in the residential sector. As Gardner and Stern (2008) state, environmental problems are rooted in human behaviors. Hence, individuals can significantly contribute to environmental issues. In addition, individuals' behaviors are predicted by various motives (Bamberg & Möser, 2007). Therefore, it is essential to recognize what motive/motives can persuade different customers. The current research aimed to examine how activating different motives in promotional messages about external wall insulation can influence households' attitudes and intentions to implement this measure. In addition, the effect of these motives on pro-environmental behaviors can be determined by individuals' involvement with sustainable consumption. In essence, households' involvement with sustainable consumption can influence their attitudes and implementation intentions in response to different motives. As a result, the current experimental study was conducted to answer the following research question: 'To what extent do normative, hedonic, and gain motives in the promotional messages for the external wall insulation influence consumers' intention to implement this measure?'

### 5.1 Key findings

First, this study examined the relationship between the inclusion of different motives in the promotional messages about the efficiency measures and individuals' attitudes and intention to implement these measures. For *H1* and *H2*, it was expected that the inclusion of different motives in the promotional messages about wall insulation influences households' attitudes and intention to implement this measure. Previous studies (e.g., Edinger-Schons et al., 2018) state that the inclusion of extrinsic motives or mixed motives in the promotional messages demotivates individuals to behave pro-environmentally. Yet, current results showed no significant difference in attitudes and intentions of households by including different types of motives in the promotional messages about wall insulation. In essence, the inclusion of a single normative motive in promotional messages by a company promoting wall insulation did not increase households' attitudes or intentions to implement

insulation compared to adding a single hedonic or gain appeal to these messages. In addition, adding a hedonic or gain motive to a normative in the promotional message did not decrease households' attitudes or intentions to implement wall insulation compared to the inclusion of a single normative motive. Hence, *H1* and *H2* were not accepted.

Demographic factors like age, education, income, and gender were then included as control variables. Although there was a relationship between these factors and intention/attitude scores, there were no significant differences among the five types of motives on attitude and intention to wall insulation by including these control variables. For instance, age has a negative effect on households' attitudes and intentions. In other words, younger individuals have more positive attitudes toward wall insulation and are more inclined to implement it. Yet, there were no significant differences among the five types of conditions on attitude and intention while controlling for age.

As mentioned earlier, the situation in which the motive is activated can significantly influence its effectiveness (Lindenberg & Steg, 2007). In other words, individuals' attitudes and intentions to implement pro-environmental behaviors depend on the situations in which the motive occurs. Furthermore, according to De Nardo et al. (2017), two dimensions of pro-environmental behaviors, including curtailment and efficiency, can influence motives' effectiveness. To be more specific, wall insulation is categorized as "weatherization" (Dietz et al., 2009) and "immediate high-cost action" (Gardner & Stern, 2008) that is energy efficiency behaviors. Hence, it is a costly and demanding activity. As Sharma and Foropon (2019) state, efficiency demands a monetary cost, whereas curtailment requires time and effort that are psychological costs. The question raised here is whether the inclusion of a single normative motive can increase a household's intention to implement such a costly and demanding behavior, or other factors can influence the implementation intention of such behavior. The current findings reveal the lack of direct effects of the inclusion of different motives in promotional messages on individuals' attitudes and intentions.

Furthermore, providing information about pro-environmental behaviors, mainly in ambiguous situations, can motivate individuals to act such behaviors (Fornara et al., 2016). Referring to one of the control variables in the survey asking households whether the house already had wall insulation, approximately 24 % of households did not know if the house has already been insulated. It appears that households have poor knowledge or uncertainty about wall insulation. In their study, Fornara et al. (2016) emphasize the importance of

informational social influence as a direct predictor of intention to pro-environmental behaviors. To be more specific, informational social influence occurs when individuals rely on others' opinions or responses to make a decision (Fornara et al., 2016). In other words, individuals with poor knowledge of a subject are more likely to seek information from others, mainly neighbors or relatives, for decision making. In addition, the combination of moral obligations and informational social influence like trust in neighbors can positively shape individuals' attitudes toward pro-environmental behaviors (Fornara et al., 2016). For instance, households with little information about wall insulation seek further information to encounter ambiguous situations and their neighbors can function as a source of information, motivating them to embrace wall insulation. As earlier mentioned, meaning-making in pro-environmental behaviors can motivate individuals to act pro-environmentally (Venhoeven et al., 2020). In their study, Venhoeven et al. (2020) argue that finding meaning in sustainable behaviors can cause positive emotions in consumers and motivate them to act pro-environmentally. As De Vries, Rietkerk, and Kooger (2020) state, disseminating concrete and unambiguous messages while implementing energy efficiency upgrades can also facilitate such meaning-making among households. I would say by providing more concrete and unambiguous information, wall insulation companies can offer meaning to pro-environmental behavior that in turn can encourage individuals to involve in it.

On the whole, the efficiency behaviors like wall insulation involve a certain degree of cost and inconvenience. Moreover, the current study reveals a lack of direct effects of activating motives in promotional messages on individuals' attitudes and intentions. It thus appears that activating motives does not suffice to promote such a costly and demanding pro-environmental behavior, and other factors can influence individuals' attitudes and intentions to implement it.

Second, the current study examined whether a higher level of sustainable consumption involvement promotes positive attitudes and strong intentions to behave pro-environmentally. Hence, the third hypothesis stated that greater involvement with sustainable consumption in consumers is associated with stronger intentions to implement home energy efficiency upgrades. According to the results, the third hypothesis was accepted. It supports the findings from prior studies (e.g., Bamberg & Möser, 2007; Kim and Choi, 2005), stating that individuals with a higher level of sustainable consumption involvement are more likely to perform pro-environmental behaviors. Furthermore, while

some variables indirectly lead to pro-environmental behavior, environmental concerns directly lead to pro-environmental behavior (Kim & Choi, 2005). Moreover, according to Bamberg and Möser (2007), sustainable consumption involvement is associated with environmental awareness and feelings of guilt. It can cause individuals to act environmentally because they are aware of the adverse consequences of non-environmental behaviors. Based on the current findings, greater involvement with sustainable consumption also has a positive effect on households' attitudes. In essence, households with greater sustainable consumption involvement have favorable attitudes toward wall insulation. Therefore, we can conclude that more involved households in sustainable consumption show positive attitudes and strong intentions to implement wall insulation.

The last focus of the current study was to examine whether involvement with sustainable consumption moderates the effect of various motives on intentions. Hence, the fourth hypothesis was proposed as follows: involvement with sustainable consumption will moderate the effect of motives on intentions, such that implementation intentions of consumers with greater involvement in sustainable consumption are more likely to decrease than that of those with lesser involvement in response to the addition of hedonic or gain appeals to normative motives. The analysis among all households revealed no significant effect of interactions between various motives and sustainable consumption involvement on households' intentions. In other words, the intentions of more involved households are not likely to decrease in response to the addition of hedonic or gain appeals to normative motives. Furthermore, another analysis was conducted, excluding households that already insulated the wall of the house because the result might have been influenced by this group. The result showed a significant interaction between sustainable consumption involvement and gain motives and its effect on households' intention. In essence, the intentions of more involved households are more likely to decrease than that of those with lesser involvement in response to gain motives. Although the finding showed a significant interaction between sustainable consumption involvement and gain motives on intentions, the fourth hypothesis was not accepted, since the hypothesis focused on mixed motives rather than a single gain motive. It, nevertheless, provides meaningful insights that promotional messages with gain motives can decrease the intention of more involved households to implement wall insulation. Moreover, the results of another analysis showed there were significant

interactions between various motives and involvement with sustainable consumption on households' attitudes. In essence, individuals with greater involvement in sustainable consumption are more likely to show a negative attitude toward wall insulation than those with lesser involvement in response to hedonic, gain and mixed normative and hedonic motives in comparison to a normative gain motive.

In general, wall insulation as an efficiency behavior is categorized in the domain of "immediate high-cost action" (Gardner & Stern, 2008) and demands economic cost (Sharma & Foropon, 2019). Hence, it seems that the inclusion of gain motives may be an appealing tool to persuade households to implement it. Yet, the current findings show that the inclusion of single gain motives in the promotional messages adversely influences the attitude and intention of more involved households. This group initially intends to be moral because moral norms are attached to their beliefs and values (Stern, 2000). Hence, the inclusion of single gain motives in the promotional messages can lead to "cheap moral" action instead of "sustained moral" action (Steg et al., 2014). To be more specific, more involved individuals cannot find meaning between their habitual moral actions and cheap moral action in the promotional messages. Finding meaning in sustainable behaviors can cause positive emotions in consumers and motivate them to act pro-environmentally (Venhoeven et al., 2020). It can thus infer that more involved individuals do not experience positive emotions in response to the inclusion of single gain motives in the promotional messages. According to Lindenberg and Steg (2007), goal frames can promote pro-environmental behaviors. In the wall insulation context, concerns about the environment can be a goal frame for more involved households in sustainable consumption. Hence, moral motive as the dominant goal frame can promote wall insulation among them. As Lindenberg and Steg (2007) also suggest, companies should strengthen normative motives to promote costly pro-environmental behaviors. It appears that it is, indeed, essential among individuals with greater involvement in sustainable consumption.

As stated earlier, in the wall insulation context, it is necessary to acknowledge that other variables exist in the link between individuals' moral norms and wall insulation which can positively or negatively affect such pro-environmental behavior. For instance, as Sharma and Foropon (2019) state, the attributes of products such as price, quality, and brand can influence individuals' environmental concerns and their decision toward pro-environmental behaviors. In addition, the significant interaction between sustainable consumption

involvement and different motives on attitudes and intention can indicate that other factors exist in the link between individuals' attitude and intention which can cause households to practically engage in efficiency behaviors. To be more specific, while the inclusion of hedonic, gain, and mixed normative and hedonic motives in the promotional messages has a negative effect on the attitude of more involved households, single gain motives negatively influence the implementation intention of this group. It can infer that intention as the most proximal predictor to pro-environmental behavior can be influenced by other predictors besides sustainable consumption involvement and activating motives in the promotional messages to be predicted. This finding is in line with the study conducted by Klöckner (2013), stating that the interference of some factors can influence individuals' pro-environmental behavior. As the intention is the main predictor of pro-environmental behavior (Ajzen, 1991), companies need to recognize factors influencing this predictor to maximize the effectiveness of promotional messages on individuals' implementation intention.

To answer the research question, the current study revealed no significant difference in attitudes and intentions of households by merely including different types of motives in the promotional messages about wall insulation. Yet, not all individuals respond the same way to the inclusion of various appeals. In essence, households' reactions to different motives depend on their involvement with sustainable consumption. To be more specific, promotional messages with normative motives were more effective for more involved households in sustainable consumption. Moreover, the inclusion of gain motives has a negative effect on the attitude and intention of this group. Yet, less involved households are less likely to react adversely to the gain motives than those who are more involved. Hence, it can caution companies against including such a motive in the promotional messages addressing more involved households in sustainable consumption.

## 5.2 Implications

The findings of the current study can contribute to the existing literature and can help wall insulation suppliers and marketers optimize their communications strategies. Many studies have been conducted around the effect of various motives on pro-environmental behavior mainly curtailment. In addition, there are contradicting findings of how these motives in the promotional messages influence people's attitudes and intentions.

To be more specific, some studies show that these motives are compatible and can be used in a promotional message (Lindenberg & Steg, 2007), whereas others reveal that the combination of motives negatively influences people's intention to implement pro-environmental behavior (Edinger-Schons et al., 2018). Moreover, as mentioned earlier, not all consumers respond the same way to these motives. According to Li et al. (2019), consumers may have greater or lower involvement in sustainable consumption. Environmental concerns of individuals can directly influence their intention to perform pro-environmentally (Kim & Choi, 2005). As Edinger-Schons et al. (2018) also state, few empirical studies work on the effect of motives on pro-environmental behaviors based on individual characteristics such as sustainable consumption involvement. Hence, it is essential to study how involvement with sustainable consumption affects individuals' attitudes and intentions in response to the inclusion of various motives in the promotional messages. The current study can contribute to the literature on how different motives in the promotional messages influence individuals' intention based on the level of their involvement with sustainable consumption. The findings show that while more involved individuals have positive attitudes toward wall insulation in response to a single normative motive, gain motives negatively influence their attitudes and intentions toward wall insulation. In essence, as prior research has shown that a single normative motive can motivate sustainable consumption (Edinger-Schons et al., 2018), the current study also reveals that a single normative motive is the best among more involved households.

Space heating accounts for 68% of residential energy consumption in the Netherlands in 2018 (International Energy Agency, 2020), and poorly insulated homes can significantly increase energy consumption (Compendium Voor de Leefomgeving, 2020). There is thus an urgent need to promote wall insulation among households. To that aim, companies need to learn how different motives in the promotional messages can influence households' attitudes and intentions toward implementing wall insulation.

The practical implications of the current findings can contribute to the communication strategies of wall insulation suppliers and marketers to optimize their communications, mainly promotional messages, to get households to adopt their products. For instance, while some prior research state that joint appeals negatively influence individuals' intention for pro-environmental behavior (e.g., Edinger-Schons et al., 2018), the current study reveals the inclusion of single gain motives in the promotional messages can adversely influence

attitudes and intentions of more involved households in the costly efficiency behaviors like wall insulation. Yet, households who feel less involved with sustainable consumption are more likely to be persuaded by gain motives. As a result, companies need to consider how to frame promotional messages based on individual characteristics of households to promote pro-environmental behaviors. In general, the findings highlight the need for a more targeted communication approach (Edinger-Schons et al., 2018). Van den Broek et al. (2017) also suggest that companies should tailor the promotional messages based on the distinctive characteristics of the target households to get the maximum effectiveness of motives. In essence, tailored promotional messages with certain motive types aimed at a specified group of households are suggested. To be more specific, wall insulation suppliers can frame the promotional messages with a single normative motive for households with higher involvement in sustainable consumption. In general, households with greater involvement in sustainable consumption are shown to have more positive attitudes by communicating a single normative motive. It can infer that this motive is more persuasive among them. Moreover, direct targeting through sending newsletters to households' emails or indirect targeting through product labels based on the majority of the target consumers are recommended (Edinger-Schons et al., 2018).

Furthermore, it is essential to acknowledge that other factors can affect individuals' attitudes and intentions in costly and demanding pro-environmental behaviors (Klößner, 2013) like wall insulation. Additional support for targeting audiences, Edinger-Schons et al. (2018) suggest regular market research that can help companies recognize their target audiences and their distinctive characteristics. In essence, companies need to frame the promotional messages conveying meaningful behaviors to their customers. Framing the promotional messages in a meaningful way is an effective communication strategy (Venhoeven et al., 2020) that companies need to consider while promoting their sustainable products. In addition, various interventions developed by companies can affect individuals' attitudes and intentions to implement pro-environmental behavior (Namazkhan, Albers, & Steg, 2020). To be more specific, interventions should be developed and targeted based on the characteristics of households. According to Namazkhan et al. (2020), in designing interventions, companies should consider different factors, including socio-demographic variables, social norms and environmental concerns of households to communicate in a meaningful way and promote efficiency behaviors among households. Hence, regular

market research can help companies recognize the target audiences and communicate with them in a meaningful way.

Finally, as stated earlier, disseminating accurate information and reducing ambiguity and uncertainty can promote efficiency behaviors (Fornara et al., 2016). According to De Nardo et al. (2017), ambiguity about different motives can influence households' perception of the efficiency behaviors like wall insulation. Hence, companies need to provide more concrete and unambiguous information in the promotional messages. It can offer meaning to pro-environmental behavior (De Vries, Rietkerk, & Kooger, 2020). In essence, finding meaning in sustainable behaviors can cause positive emotions (Venhoeven et al., 2020) that can motivate individuals to involve in it.

### 5.3 Limitations and future directions

This study has some clear limitations that need to be addressed for future research. First, concerning methodology, the number of respondents for each condition was approximately 40, which was relatively low. Therefore, we should be cautious about generalizing the relationships between different motives and households' attitudes or intentions to act pro-environmentally. In future research, the study could be conducted with a large number of participants per condition to get meaningful insights into the interactions of different motives and their effects on individuals' attitudes and intentions.

Second, the sample of this study merely included Dutch households recruited through the snowball sampling method. As I mainly relied on Facebook as a sampling tool to reach the participants, the sampling procedure implied self-selection bias (Babbie, 2017). In essence, participants were those around my acquaintances and there is a risk of recruiting participants with a similar trait of interest. Hence, it can caution whether the findings can be generalized to the wider population (Biernacki & Waldorf, 1981). Future research could use other sampling methods to recruit general population samples. It can enhance the generalizability of the findings. Besides, the language of the survey was English. There was a risk of a language barrier for some Dutch households to understand the promotional message or the questions. For future study, it could be more precise to prepare the survey in English and Dutch and ask individuals to choose the language.

Third, the current study focuses on the psychological factors, mainly normative, hedonic, and gain motives predicting pro-environmental behavior. Yet, other factors exist,

including social norms affecting households' attitudes and intention to implement pro-environmental behavior (Fornara et al., 2016; Li et al., 2019). Further research could study to what extent other factors would be related to households' intention to implement wall insulation. Moreover, the current study did not consider the longevity of various motives and their effects on attitudes and intentions. In essence, this study focuses on the psychological aspects as predictors of pro-environmental behavior. Hence, prolonged exposure to these motives may influence individuals' intention to pro-environmental behavior. Future research could examine the longitudinal assessment of different motives and their influence on people's intentions.

Lastly, although the current study examines the level of individuals' involvement with sustainable consumption, it did not assess the prior individual attitudes toward external wall insulation. As mentioned earlier, prior attitude and initial belief toward sustainable consumption can affect intention to act pro-environmentally (Van Prooijen & Sparks, 2014). Moreover, a positive attitude toward sustainability can influence individuals' intention to act pro-environmentally (Li et al., 2019). In essence, the prior attitudes toward wall insulation might moderate the effect of various motives on individuals' attitudes and intentions. Hence, future research could examine prior attitudes of individuals toward external wall insulation to assess its moderation effects on their intentions in response to various motives.

## 6. Conclusion

Energy consumption can significantly contribute to the environment (Gardner & Stern, 2008). Households occupy a crucial role in energy consumption, and their attitudes and intentions toward pro-environmental behaviors like upgrading insulation have been proved worth studying (Li et al., 2019). Hence, it is essential to do more research about factors influencing households' attitudes and intentions to insulate the wall of the house. As individuals' behaviors are predicted by various motives (Bamberg & Möser, 2007), the current study focuses on a goal-framing theory to examine the pro-environmental behavior among individuals with greater/lesser involvement with sustainable consumption. According to this theory, different motives including, normative, gain, and hedonic can influence individuals' pro-environmental behavior (Lindenberg & Steg, 2007).

In sum, the inclusion of different motives in the promotional messages about wall insulation has no direct effect on individuals' attitudes and intentions. Yet, the interactions between sustainable consumption involvement and different motives and their effects on attitude and intention are recognized. In essence, framing promotional messages based on hedonic, gain, or mixed motives is not compatible for households with greater involvement in sustainable consumption. Hence, these motives bring negative attitudes for those households. Moreover, individuals with greater involvement in sustainable consumption have less intention to implement external wall insulation in response to single gain motives. In general, the inclusion of single gain motives in the promotional messages adversely influences the attitude and intention of more involved households in sustainable consumption to implement wall insulation.

The current study can provide insights into communications strategies for suppliers and marketers. In essence, it can help companies frame the promotional messages in a way that motivates households to implement efficiency behaviors. The current study shows that companies need to caution against including single gain motives in the promotional messages for individuals with greater involvement in sustainable consumption. On the whole, for adopting efficiency behaviors like wall insulation, companies should do market research to recognize the target audiences and the distinctive characteristics and frame the promotional messages accordingly to get the maximum effectiveness. In general, tailored promotional messages with certain motive types aimed at a specified group of households are suggested.

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## Appendix A

Table 1: Items for various variables and the sources they are adopted from.

Variables	Items	Source
Involvement with sustainable consumption (SCI)	<p>I avoid buying from companies that harm endangered plants or animals.</p> <p>Whenever possible, I walk, ride a bike, carpool, or use public transportation to help reduce air pollution.</p> <p>I avoid using products that pollute the air.</p> <p>I avoid buying products that pollute the water.</p> <p>I make an effort to avoid products or services that cause environmental damage.</p> <p>I avoid buying products that are made from endangered animals.</p> <p>I limit my use of energy such as electricity or natural gas to reduce my impact on the environment.</p>	Edinger-Schons et al. (2018)
Manipulation checks	<p>The promotional message stated that wall insulation would help you to protect the environment.</p> <p>The promotional message stated that wall insulation would help you to stay warm.</p> <p>The promotional message stated that wall insulation would help you to save money.</p>	No source
Attitude	<p>Insulating the walls of my house is very bad/ very good.</p> <p>Insulating the walls of my house is very useless/ very useful.</p> <p>Insulating the walls of my house is very harmful/ very beneficial</p> <p>Insulating the walls of my house is very foolish/very wise.</p> <p>Insulating the walls of my house is very unattractive/ very attractive.</p> <p>Insulating the walls of my house makes very sad/ very happy.</p> <p>Insulating the walls of my house is very punishing/ very rewarding.</p>	Ajzen and Madden (1986)

Intention	<p>I intend to insulate the walls of my house within the next few years.</p> <p>I am aiming at insulating the walls of my house in the next few years.</p> <p>I will try my best to insulate the walls of my house within the next few years.</p>	Ajzen and Madden (1986)
Control variables	<p>Does your house already have any form of insulation?</p> <p>Does your house already have wall insulation?</p>	No source
Demographics	<p>Age</p> <p>Gender</p> <p>Educational level</p> <p>Employment status</p> <p>Income</p>	No source

## Appendix B

### Motives Manipulation

#### Normative motive manipulation

**Instruction: Please read the promotional message below of a company that specializes in installing external wall insulation.**



#### **Why is home insulation important?**

**We are an external wall insulation contractor. Wall insulation is the process of inserting insulating materials between layers of brick that make up a wall. By insulating your walls, you can reduce the amount of heat that escapes from the walls. As a result, it can significantly reduce your carbon footprint.**

**Living spaces can be made energy-efficient with external wall insulation so that you help to protect the environment!**

OR

#### Hedonic motive manipulation

**Instruction: Please read the promotional message below of a company that specializes in installing external wall insulation.**



#### **Why is home insulation important?**

**We are an external wall insulation contractor. Wall insulation is the process of inserting insulating materials between layers of brick that make up a wall. By insulating your walls, you can reduce the amount of heat that escapes from the walls. As a result, it can significantly improve the thermal comfort of your home.**

**Living spaces can be made comfortable with external wall insulation so that you stay warm!**

OR

### Gain motive manipulation

**Instruction: Please read the promotional message below of a company that specializes in installing external wall insulation.**



#### **Why is home insulation important?**

**We are an external wall insulation contractor. Wall insulation is the process of inserting insulating materials between layers of brick that make up a wall. By insulating your walls, you can reduce the amount of heat that escapes from the walls. As a result, it can significantly reduce your heating bills.**

**Heat loss can be avoided with external wall insulation so that you can save money!**

OR

### Normative and hedonic motives manipulation

**Instruction: Please read the promotional message below of a company that specializes in installing external wall insulation.**



#### **Why is home insulation important?**

**We are an external wall insulation contractor. Wall insulation is the process of inserting insulating materials between layers of brick that make up a wall. By insulating your walls, you can reduce the amount of heat that escapes from the walls. As a result, it can significantly reduce your carbon footprint and improve the thermal comfort of your home.**

**Living spaces can be made energy-efficient and comfortable with external wall insulation so that you not only help to protect the environment but also stay warm!**

OR

### Normative and gain motives manipulation

**Instruction: Please read the promotional message below of a company that specializes in installing external wall insulation.**



#### **Why is home insulation important?**

**We are an external wall insulation contractor. Wall insulation is the process of inserting insulating materials between layers of brick that make up a wall. By insulating your walls, you can reduce the amount of heat that escapes from the walls. As a result, it can significantly reduce your carbon footprint and your heating bills.**

**Living spaces can be made energy-efficient and heat loss can be avoided with external wall insulation so that you not only help to protect the environment but also save money!**