Framing Knowledge: Enhancing Communication Strategies in the Dutch Second-hand Clothing Industry

Mats Belgers,[1] Marja Exalto-Sijbrands,[1]
Michèlle Bal,[2] Pascal Ravesteijn[1]

[1] Utrecht University of Applied Sciences, Process Innovation and Information Systems, Utrecht, Netherand
mats.belgers@hu.nl, marja.exalto-sijbrands@hu.nl, pascal.ravesteijn@hu.nl
[2] University of Utrecht, Faculty of Social Sciences, Utrecht, Netherand
m.bal@uu.nl

The increasing growth of clothing consumption substantially impacts the environment. Although consumers may be aware of this impact, the 'green gap' between their environmental intentions and their actual purchase behaviour is notable. This study explores the effects of different types of environmental knowledge (land- and water-use and CO_2 emissions) and different types of framing (positive and negative) on Dutch second-hand clothing consumption behaviour. Through an experiment with six groups, anticipated shame and pride were measured in hypothetical situations. Results indicate that positive framing has more effect on second-hand clothing consumption behaviour than negative framing, while effects between different types of knowledge were minimal. Open questions showed that, positive, memorable, communication strategies, with sufficient background information, might help in bridging the green gap in clothing consumption. These insights may help policymakers and stakeholders to enhance the effectiveness of their communication strategies, thereby increasing second-hand clothing consumption.

DOI
https://doi.org/10.18690/um.fov.4.2025.4

ISBN
978-961-286-998-4

Note
This proceeding is based on master thesis Belgers, M. (2024). *Moving towards More Second-hand Clothing Consumption: Measuring Anticipated Shame and Pride on Different Types of Concrete Environmental Knowledge.* Utrecht University. Available at: https://studentheses.uu.nl/handle/20.500.12932/47121

Keywords:
second-hand clothing consumption, behaviour change, Value-Belief-Norm theory, environmental knowledge, framing

University of Maribor Press

1 Introduction

The amount of clothing consumption has nearly doubled over the past two decades, mainly due to the uprising of fast-fashion companies such as H&M and Zara (Ellen Mac Arthur Foundation, 2017; Koszewska, 2018). The consumption culture of buying much at low prices (that fast-fashion supports) impacts the environment with energy consumption, water and chemical consumption, the amount of solid waste, and the amount of CO_2 emissions (Koszewska, 2018). Most clothing items worldwide are being produced using non-renewable resources, being worn for a short time, and end up in landfills or being incinerated (Ellen Mac Arthur Foundation, 2017). Within the Netherlands, 5% of the total environmental damage by individuals is caused by the consumption, use, and disposal of clothing (Milieu Centraal, 2020). The average Dutch consumer buys around 46 clothing items per year and keeps around 173 items in their wardrobe. Of these 173 items, 50 have not been worn the past year, and only 16 of the 40 disposed clothing items are being reused or recycled (Maldini et al., 2017). For the industry to be more sustainable, it should adopt the idea of a circular economy, including the aspects of reducing and reusing (Koszewska, 2018; Rebel, 2023). Within the clothing industry, this implies more consumption of second-hand clothing and less new produced clothing.

Current literature shows that some consumer groups have biospheric values, which means that they care about the climate and, to some extent, are aware that buying less clothing is better (Khandual and Pradhan, 2019; Motivaction, 2023). In the Netherlands, 40% of consumers see the importance of buying fewer clothes, and 33% feel responsible for preventing pollution of the environment (Motivaction, 2023). However, only 7% state that they deliberately bought fewer clothes last year because of the impact on humans and the environment (Motivaction, 2023) and only 4% of the items in consumers' wardrobes are second-hand (Maldini et al., 2017). These statistics show a discrepancy between the consumer's intention and behaviour (Gleim and Lawson, 2014; Juvan and Dolnicar, 2014; National Geographic & GlobeScan, 2012; Young et al., 2010), which is commonly known as the 'green gap' within the sustainability context (ElHaffar et al., 2020). The green gap exists e.g. due to the lack of knowledge of consumers on the negative environmental consequences of clothing consumption (Bray et al., 2010; Connel, 2010; ElHaffar et al., 2020; Ronda, 2024). Although consumers have a certain level of awareness, the exact negative impacts of new clothing consumption misses.

Since the influence of concrete consumer knowledge on second-hand clothing consumption has not been studied yet, this study will explore the relationship between different types of knowledge, both negatively framed and positively framed, and sustainable clothing consumption behaviour. The idea is that concrete knowledge will raise more awareness and therefore lead to more second-hand clothing consumption. This will be measured by assessing anticipated shame and anticipated pride in hypothetical situations, as these anticipated emotions mediate the relationship between personal norms and behaviour.

2 Theoretical framework

2.1 The NAM and VBN theory

The norm activation model (NAM) posits that pro-environmental behaviour depends on the personal norms (PN) of an individual (Schwartz 1977; Ünal et al. 2018). To activate PN, an individual will need awareness of the adverse consequences (AC), followed by the idea that changing its behaviour has an actual positive impact on the environment (ascription of responsibility to self, or AR). Stern's (1999) extension of the NAM, the Value-Belief-Norm (VBN) theory, states personal values affect someone's ecological worldview, which in turn affects someone's awareness. Values are described as "desirable goals, varying in importance, that serve as guiding principles in people's lives" (Schwartz 1992, 21). For understanding sustainable consumption, four types of values are relevant (Stern 1999): Hedonic values (pursuit of pleasure and avoidance of pain), Egoistic values (personal interests), Altruistic values (welfare and well-being of others), and Biospheric values (the well-being of the environment). Unsurprisingly, individuals who prioritize altruistic and biospheric values are more likely to engage in sustainable consumption. However, as values are relatively stable over one's lifetime (Schwartz, 1992), it is hard to change someone's values.

2.2 Environmental knowledge and Anticipated emotions

Research by Bolderdijk et al. (2013) reveals that, providing environmental knowledge to people of whom it is proven that they strongly endorse biospheric values, will lead to environmental action. When these people obtain information about the negative consequence of a certain product, they are confronted with their behaviour

not being in line with their prioritized values, which will cause them to change their behaviour (Steg, 2023). Steg therefore states that it is important to ensure people's awareness of their environmental impact of their actions, resulting in acting upon their biospheric values.

This confrontation of not aligning your behaviour with your values might lead to feelings of guilt and shame (Amatulli et al., 2019; Onwezen et al., 2013; Tian and Liu, 2022). Subsequently, when an individual's behaviour does align with their values, it might lead to feelings of pride. Onwezen et al. (2013) state that anticipated emotions of guilt and pride influence future decision-making, as people strive to accomplish positive emotions and avoid negative emotions. Using the NAM, Onwezen et al. conclude that "anticipated pride and guilt mediate the effects of personal norms on behaviour." Applied on consumers with strong biospheric values, the provision of both the negative consequences of newly produced clothing consumption and the positive consequences of second-hand clothing consumption could move them towards more second-hand clothing consumption.

2.3 Framing

The way messages are framed shapes consumer behaviour (Amatulli et al., 2019). Amatulli et al. describe message framing as "highlighting specific aspects and making them more salient in communication" (p. 1113). Various research has demonstrated that negative framing is more effective at promoting sustainable purchases than positive framing (Amatulli et al., 2019; Olsen et al. 2014). According to White et al. (2011), negative framing is processed in more detail by consumers and it makes them feel more empowered. Contradicting with Onwezen (et al. 2013), Amatulli et al. (2019) highlight the emotion of shame instead of guilt. They argue that shame is more effective in changing behaviour than guilt, as guilt is a negative judgment about an action, and shame is a negative judgment about the self.

On the other hand, arguments can be made for the application of positive framing. Some studies (Bouman & Steg, 2022; Schneider et al., 2021) see the potential for a ‘positive spiral’ through the emergence of positive emotions and productive engagement. Emotions such as optimism, hope, gratitude, anticipated pride, and a 'warm-glow', can contribute to this positive spiral (Schneider et al., 2021). Transmitting messages that evoke positive emotions about people's abilities to

contribute to an environmentally healthy planet could therefore lead to more sustainable purchase practices.

2.4 This study

The abovementioned concepts are assembled into the conceptual model in Figure 1. Which type of environmental knowledge has the most effect on consumer's behaviour has not been studied yet. It is also unknown which type of framing (positive or negative) works best in the context of second-hand clothing consumption. Therefore this study explores the effects of different types of knowledge (land use, water use, and CO2 emissions) and different types of framing (positive and negative) on consumer behaviour with the research question: *Which types of knowledge about the environmental impact of clothing consumption, negatively framed or positively framed, encourages second-hand clothing consumption the most?*

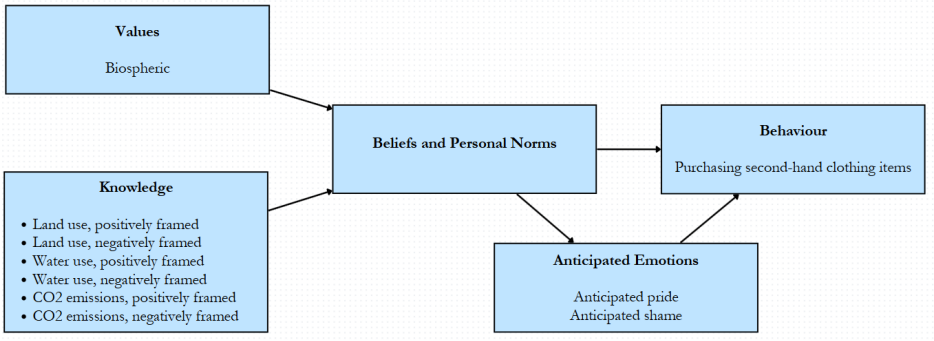

Figure 1: Conceptual model of integration of knowledge, framing and anticipated emotions in the Value-Belief-Norm theory
Source: Own

3 Methods

Through a quantitative approach including open-ended questions, both high generalizability and deeper insights were ensured. The research was conducted among students and employees of HU University of Applied Sciences and Utrecht University (UU) via an online survey reaching 234 respondents. The sample taken into analyses was 169 participants, (40 male, 123 female, 5 non-binary/third gender and 1 respondent preferred not to say). Their ages ranged between 17 and 69 (M =

23.28, SD = 6.01). The survey consisted partly of an experiment with six conditions to compare the differences between the effects of providing different types of knowledge (about land, water and CO2), and different types of framing (negative and positive) on anticipated emotions and purchase intentions. For example, knowledge about land could be negatively framed: "For each EU citizen, it currently takes 400 square meters of land yearly to provide clothes and shoes" or positively framed: "For each EU citizen who only consumes second-hand clothing, it saves 200 square meters of land yearly." Between 25 and 31 participants took part in each of these six conditions. Additionally, respondents were asked questions which were unrelated to the experiment.

3.1 Survey procedure and Materials

Participants were recruited using online and offline methods. They were randomly put in one of the six conditions. The survey started with demographic questions, followed by an adjusted version of Schultz' (2001) Environmental Concerns scale (7-point Likert), which evaluates the degree of concern individuals have about environmental issues, divided into three primary values: Egoistic values, Biospheric values, and Altruistic values. Next, the participants took part in the experiment, in which they were brought in a hypothetical situation, to imagine that they wanted to purchase a clothing item: in one situation a newly produced clothing item and in the other situation a second-hand clothing item. Answering with only the knowledge from one of the six conditions, they needed to anticipate in how far they would experience a feeling of shame and pride when purchasing the newly produced clothing item and the second-hand clothing item (7-point Likert). Consequently, respondents were asked whether they would purchase the newly produced clothing item and whether they would purchase the second-hand clothing item (5-point Likert), and were asked to explain their choice. Finally, to explore their opinions, respondents were given all three types of knowledge, both negatively framed and positively framed, followed by the question of which knowledge would persuade them the most to purchase second-hand clothing items over new clothing items and why this knowledge would persuade them the most.

3.3 Data analysis

Data were first examined for accuracy, missing values, and outliers. Descriptive statistics were computed for all variables, including means and standard deviations for continuous variables (e.g. age) and frequencies for categorical variables (e.g. gender). Due to group comparison, one-way ANOVA's (analysis of variance) were performed to examine causal effects between the six conditions and the anticipated emotions and purchase intentions (Tabachnick and Fidell, 2007). The independent variables were the types of knowledge, either negatively framed or positively framed. The dependent variables were the anticipated emotion and the purchase intentions. Post-hoc tests with Bonferroni correction identified specific group differences.

Concerning the open-ended questions, all responses were gathered into a single document for analysis and reviewed for completeness. Codes were created across the dataset to capture key concepts and ideas. Behind all codes numbers were put to assess the frequency of the codes.

4 Results

This section involves the results of this study's population's values on Schultz' Environmental Concerns scale, this study's population's anticipated emotions and purchase intentions given their different conditions, and this study's population's most persuasive types of knowledge and the reasons behind this.

4.1 Values on Schultz' Environmental Concerns scale

Results in Table 1 show that this study's population scores the highest (7-point Likert) on biospheric values, followed by altruistic values. This study's population scores the lowest on egoistic values.

Table 1: values on Schultz' Environmental Concerns scale

	Biospheric values	Altruistic values	Egoistic values
Study's population	6.06	5.98	5.43

4.2 Conditions and anticipated emotions/purchase intentions

Table 2 shows which comparisons between the conditions show

significant results on anticipated emotions and purchase intentions. Results show that positive framing (PF) makes participants in our study less proud of their newly produced clothing item than negative framing (NF). Additionally, some combinations show that positive framing, CO2 knowledge, and water knowledge, are more persuasive towards purchasing second-hand clothing items for participants in our study. Lastly, a negative framing of land makes that participants in our study rather purchase a second-hand clothing item than a positive framing of land.

Table 2: significant results for Anticipated emotions / Purchase intentions with conditions

Dependent variable		Significant result for	F-value	Df	P-value	Effect size	Mean (SD)
Newly produced clothing item	**Anticipated pride**	PF vs. NF	6.153	2, 163	0.014	0.036	Positive: 3.3 (0.14), Negative: 3.8 (0.15)
Second-hand clothing item	**Anticipated pride**	Water PF vs. Water NF Interaction	6.151	1, 162	0.014	0.037	Water Positive: 6.00 (0.24), Water Negative: 5.15 (0.24)
	Purchase intentions	CO2 PF vs. Land PF Interaction	3.595	2, 163	0.008	0.042	CO2 Positive: 4.16 (0.16), Land Positive: 3.55 (0.16)
		Water PF vs. Land PF Interaction	3.595	2, 163	0.027	0.042	Water Positive: 4.07 (0.17), Land Positive: 3.55 (0.16)
		Land NF vs. Land PF Interaction	3.595	2, 163	0.029	0.042	Land Negative: 4.08 (0.18), Land Positive: 3.55 (0.16)

4.4 The most persuasive type of knowledge

Table 3 shows which type of knowledge, either positively framed or negatively framed, respondents thought would be most persuasive to them. The open-ended questions revealed that the most prevalent reason to choose CO2 is that respondents find this the most urgent climate issue, partly because they are most familiar with the CO2 issue, as one respondent answered: "Carbon emissions is used more frequently when talking about climate change so I feel like I can imagine that effect better." They often hear it on the news or read about it. Some respondents are not familiar at all with the necessity to save water and land and believe CO2 emissions are the only real climate issue. Additionally, because the knowledge on CO2 was put in percentages instead of in numbers of square metres or litres of water, this knowledge was more convincing to them. They were able to put this knowledge in perspective and many respondents stated that it was hard to imagine how much land and water it was. One respondent answered for example: "I think percentage of total carbon emissions is something that people can grasp easier than a number that they cannot compare to anything. 400 sqm great. But how much space is that really? I don't know."

Table 3: Choices for type of knowledge

	Land	Water	CO2	Cumulative
Negative	8	15	43	66
Positive	6	29	54	89
Cumulative	14	44	97	

Reasons for respondents to opt for water are that they are familiar with water issues, such as clean water scarcity, and water scarcity for agriculture, and they found water could be used for better things than clothing production. One respondent argued: "Carbon footprint is so commonly used I don't think it triggers people anymore. Water is now being reported as becoming a scarcity." Another prevalent reason to choose water was that it had the biggest number (9000 litres) of all three types of knowledge and respondents were therefore most impressed by this number.

Land was not chosen much because respondents found it hard to imagine how much land a number in square metres actually represents and some questioned the importance of saving land for the environment, as one respondent expressed:

"Square meters of land does not seem so relevant, as in the countries of production (e.g. Central Asia) 400 square meters is comparatively little." Additional information was necessary according to a respondent.

Concerning the framing, most respondents chose positive framing because it shows the positive effects of our actions and behaviour and it provides solutions and alternatives. It consequently gives a good feeling and some respondents stated that this made them to want to come in action, as one respondent expressed: "It's an encouraging message which drives me to purchase second hand clothes." Arguments to opt for negative framing were that this made a bigger impact and therefore gives more urgency to come in action: "It's about doing something to prevent the bad consequences of the clothing industry. And 10% sounds more than decreasing it to 5%", one respondent argued. Furthermore, some argued that the positive framing falls short, because it only says how much you are saving, while you have no idea how much it costs the environment.

5 Discussion and conclusion

5.1 Types of values and knowledge

To assess whether the target group scores high on biospheric values, the mean scores of the three types of values were compared with the mean scores of the study of Dornhoff et al. (2019), who also used Schultz' Environmental Concerns scale. The current target group has mean scores of 6.06 (biospheric), 5.98 (altruistic), and 5.43 (egoistic), while students of Dornhoff et al.'s study have mean scores of 4.5 (biospheric), 4.29 (altruistic), and 4.44 (egoistic) in Ecuador; 4.01 (biospheric), 4.12 (altruistic), and 3.87 (egoistic) in Germany. Comparing these results demonstrates that the current target group has relatively high biospheric values as well as altruistic values, and relatively low egoistic values. This could indicate that, for a lot of the respondents, the provision of environmental knowledge about the negative impact did have an effect on their anticipated emotions and purchase intentions.

Although the experiment does not provide evident findings throughout all the questions, some significant results indicate that knowledge on the impact of water use and CO2 emissions is more effective than knowledge on land use, which might indicate that consumers are less concerned about saving land than about saving

water or reducing CO2 emissions. It may also indicate that understanding the impact of land use is beyond the current imagination of world's climate impact on land use.

Moreover, a clear preference for knowledge on CO2 emissions was found, with 63% of the respondents opting for CO2, as many respondents are most familiar with the issue of CO2 emissions, and less familiar with the importance of saving land and water for the environment. This means that providing numbers of issues consumers know nothing about, such as land loss, will miss its impact on consumers and therefore cannot lead to emotions as shame and pride. Consumers should first be better informed about what those number mean. Therefore, future research should focus on whether providing background knowledge makes a difference in the decision-making process of consumers and if providing such knowledge is feasible to convey.

Another interesting finding is that respondents state that 'percentages' as unit make a bigger impact than absolute numbers, as percentages can be better placed in perspective. Comparing these three different knowledge types of impacts was thus never a fair comparison. However, the followed method now provides this insight in the chosen knowledge types. Translating knowledge about land and water into percentages would therefore be better equipped for research, which corresponds with the study of Brase (2002) that shows small-scale (simple frequency) and percentage (relative frequency) formats should be used to create fast and easy understanding of numbers at respondents. Brase (2000) argues that, in situations where percentages are very small and thus not able to make an impact, absolute numbers can be more effective. Alternatively, respondents in the current study argue that knowledge is also easier to imagine when it is translated into comprehensible images, such as amount of shower sessions for water or soccer fields for land use. Future research should therefore focus on making the knowledge better conceivable, either through percentages, simple frequencies, or visual representations.

5.2 Framing

We can conclude that, for respondents in the current study, positive framing works slightly better to promote second-hand clothing consumption. However, these findings contradict to most literature, which state that negative framing is more effective, as this is processed in more detail by consumers and it makes them feel

more empowered (Amatulli et al. 2017; White et al. 2011). The respondents who preferred positive framing reaffirm the arguments of Schneider et al. (2021) that positive framing can make consumers experience positive emotions such as hope, optimism, and pride. However, one named disadvantage of the positive framing in this study is that respondents were not able to put this in perspective, as they did not know the actual costs. It is therefore recommended to add some sort of comparison or percentage to the positive framing.

5.3 Conclusion

The outcomes of this study contain implications for the Dutch society on two different levels: for (governmental) policymakers and practitioners within the clothing industry. First, implications for (governmental) policymakers correspond with earlier recommendations of Motivaction (2023) which emphasize increasing moral consciousness and the sense of responsibility, and offer perspective for action. This could be in the form of awareness campaigns, education classes, and collaborations with influencers. Support seems to be present in society, as Motivaction (2023) states that 54% of Dutch citizens are positive towards awareness campaigns about the environmental consequences of clothing consumption. Secondly, practitioners working for second-hand clothing stores could improve second-hand clothing consumption by communicating the environmental impact of clothing consumption via messages in the store, advertisements, and social media.

In the communication to consumers, consumers should be informed about the negative consequences of clothing consumption, but emphasis should be placed on creating a positive spiral within society, in which consumers can be proud of their second-hand clothing purchases and in which they have reason to be hopeful for the future. According to Bouman and Steg (2022), the actions of governments and businesses are crucial in creating a positive spiral of climate action. Furthermore, the knowledge should be conveyed in a conceivable and memorable way in order to have a lasting impact. This could be in the form of percentages or visualizations. Finally, the knowledge should come with enough background information about the topic, so that consumers can comprehend the whole picture and are able to make a well-considered purchase decision.

5.4 Limitations

In conducting research, it is crucial to reflect on how the researcher positionality may have influenced the study. In recruiting participants, most participants were either the social circle or were asked in person, running the chance that the respondents have similar personalities, values, and interests in sustainability as the researcher. Furthermore, interest in sustainability might have shaped the interpretations, the data and drawn conclusions. All these aspects might have caused a non-representative sample of students and employees of the HU and UU, which in itself may be argued as lack of a representative population. Additionally, females were most present in the target group. Therefore future research should have respondents from all layers of society and a more equal distribution of genders.

References

Amatulli, C., De Angelis, M., Peluso, A. M., Soscia, I., & Guido, G. (2019). The effect of negative message framing on green consumption: An investigation of the role of shame. *Journal of Business Ethics, 157*, 1111-1132.

Bolderdijk, J. W., Gorsira, M., Keizer, K., & Steg, L. (2013). Values determine the (in) effectiveness of informational interventions in promoting pro-environmental behavior. *PloS one*, *8*(12), e83911.

Bouman, T., & Steg, L. (2022). A spiral of (in) action: Empowering people to translate their values in climate action. *One Earth*, *5*(9), 975-978.

Brase, G. L. (2002). Which statistical formats facilitate what decisions? The perception and influence of different statistical information formats. *Journal of Behavioral Decision Making*, *15*(5), 381-401.

Bray, J., Johns, N., & Kilburn, D. (2011). An exploratory study into the factors impeding ethical consumption. *Journal of business ethics*, *98*, 597-608.

Connell, K. Y. H. (2010). Internal and external barriers to eco-conscious apparel acquisition. *International Journal of Consumer Studies*, *34*(3), 279-286.

Dornhoff, M., Sothmann, J. N., Fiebelkorn, F., & Menzel, S. (2019). Nature relatedness and environmental concern of young people in Ecuador and Germany. *Frontiers in Psychology, 10*, 422312.

ElHaffar, G., Durif, F., & Dubé, L. (2020). Towards closing the attitude-intention-behavior gap in green consumption: A narrative review of the literature and an overview of future research directions. *Journal of cleaner production*, *275*, 122556.

Ellen MacArthur Foundation. (2017). *A new textiles economy: Redesigning fashion's future.* Ellen MacArthur Foundation. https://www.ellenmacarthurfoundation.org/assets/downloads/publications/A-New-Textiles-Economy_Full-Report.pdf

Gleim, M., & Lawson, S. J. (2014). Spanning the gap: An examination of the factors leading to the green gap. *Journal of Consumer Marketing, 31*(6/7), 503-514.

Juvan, E., & Dolnicar, S. (2014). The attitude–behaviour gap in sustainable tourism. *Annals of tourism research*, *48*, 76-95.

Khandual, A., & Pradhan, S. (2019). Fashion brands and consumers approach towards sustainable fashion. In S. Muthu (Ed.), *Fast fashion, fashion brands and sustainable consumption* (pp. 37-54). Springer.

Koszewska, M. (2018). Circular economy—Challenges for the textile and clothing industry. *Autex Research Journal, 18*(4), 337-347.

Maldini, I., Duncker, L., Bregman, L., Piltz, G., Duscha, L., Cunningham, G., & Balgooi, F. (2017). Measuring the Dutch clothing mountain.

Milieu Centraal. (2020). *Consumer insights: Tweedehands kleding kopen – Mei 2020*.

Motivaction. (2023, October 9). *Input circulair textielbeleid. Wat stimuleert tot minder kleding kopen?* Ministerie van Infrastructuur en Waterstaat. https://www.motivaction.nl/

National Geographic, & GlobeScan. (2012). *Greendex 2012: Consumer choice and the environment – A worldwide tracking survey*. National Geographic Society. https://globescan.com/wp-content/uploads/2012/07/Greendex_2012_Full_Report_NationalGeographic_GlobeScan.pdf

Olsen, M. C., Slotegraaf, R. J., & Chandukala, S. R. (2014). Green claims and message frames: How green new products change brand attitude. *Journal of Marketing*, *78*(5), 119-137.

Onwezen, M. C., Antonides, G., & Bartels, J. (2013). The norm activation model: An exploration of the functions of anticipated pride and guilt in pro-environmental behaviour. *Journal of Economic Psychology, 39*, 141-153.

Rebel. (2023). *Minder textiel: Literatuuronderzoek naar de preventie van consumptie en productie van textiel in Nederland*.

Ronda, L. (2024). Overcoming barriers for sustainable fashion: bridging attitude-behaviour gap in retail. *International Journal of Retail & Distribution Management*, *52*(1), 44-61.

Schneider, C. R., Zaval, L., & Markowitz, E. M. (2021). Positive emotions and climate change. *Current Opinion in Behavioral Sciences*, *42*, 114-120.

Schultz, P. W. (2001). The structure of environmental concern: Concern for self, other people, and the biosphere. *Journal of environmental psychology*, *21*(4), 327-339.

Schwartz, S. H. (1977). Normative influences on altruism. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10, pp. 221-279). Academic Press.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1–65). Academic Press.

Steg, L. (2023). Psychology of climate change. *Annual Review of Psychology, 74*, 391-421.

Stern, P. C. (1999). Information, incentives, and proenvironmental consumer behavior. *Journal of Consumer Policy, 22*(4), 461-478.

Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental designs using ANOVA* (Vol. 724). Belmont, CA: Thomson/Brooks/Cole.

Tian, H., & Liu, X. (2022). Pro-environmental behavior research: Theoretical progress and future directions. *International Journal of Environmental Research and Public Health, 19*(11), 6721.

Ünal, A. B., Steg, L., & Gorsira, M. (2018). Values versus environmental knowledge as triggers of a process of activation of personal norms for eco-driving. *Environment and behavior*, *50*(10), 1092-1118.

White, K., MacDonnell, R., & Dahl, D. W. (2011). It's the mind-set that matters: The role of construal level and message framing in influencing consumer efficacy and conservation behaviors. *Journal of Marketing Research*, *48*(3), 472-485.

Young, W., Hwang, K., McDonald, S., & Oates, C. J. (2010). Sustainable consumption: green consumer behaviour when purchasing products. *Sustainable development*, *18*(1), 20-31.