

COMMUNICATING RETURNABLE PACKAGING THROUGH PRODUCT LABELLING

by

Polina Ratnichkina

B.A., Economics, Trent University, Peterborough, ON, 2013

A thesis

presented to Ryerson University

in partial fulfilment of the

requirements for the degree of

Master of Applied Science

in the program of

Environmental Applied Science and Management

Toronto, Ontario, Canada, 2019

© Polina Ratnichkina, 2019

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I authorize Ryerson University to lend this thesis to other institutions or individuals for the purpose of scholarly research.

I further authorize Ryerson University to reproduce this thesis by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research.

I understand that my thesis may be made electronically available to the public.

Communicating Returnable Packaging through Product Labelling

Master of Applied Science, 2019

Polina Ratnichkina

Environmental Applied Science and Management, Ryerson University

Abstract

This research seeks to find effective ways to communicate returnable packaging campaigns to consumers through product labelling. This is an important line of inquiry as more and more countries are rolling out regulations that penalize companies for their wasteful practices.

Knowing how to encourage people to engage with returnable packaging campaigns will be of great interest to future marketers and sustainability practitioners. This research uses experimental approach with the use of online questionnaires showcasing different label messages. Results show that the conventional method of tapping into the altruistic side of human nature with guilt-inducing messages is ineffective for the population at large.

Embracing the self-enhancing, gain-seeking, pain-eliminating side of human nature results in a bigger pro-environmental behaviour change. Making the process of “doing the right thing” easier resulted in the higher willingness to return an empty milk bottle among participants when compared to financial rewards, social modelling, and justification.

Acknowledgements

I would like to take a moment to reflect on my experience of going through graduate school. Writing this thesis has been an exercise in a prolonged battle with procrastination, frustration, and existential questioning. It was a very challenging time, and I am glad it is coming to an end. There are a few people who helped me navigate this chapter of my life.

First and foremost, I would like to thank my husband, Yury Benyaminov. He was the one who kept encouraging me to apply for my master's degree. Unlike me, you never doubted the fact that I would get accepted and succeed in this journey. Your emotional and financial support made the adventure I embarked upon possible. Thank you for bathing me in so much love and encouragement over the past two years.

My parents made a very difficult decision to send a 17-year-old daughter to study in Canada all by herself back in 2009. As I get older, I realize how scary it must have been for them. I understand how much they miss me at times and perhaps at moments regret this decision. I want to assure them it's been a very selfless act of love—one, not every parent is capable of doing. I'm forever grateful for the opportunity to call Canada my new home.

I would like to thank my supervisor Dr. Seung Hwan (Mark) Lee. Having several years of work experience managing my own team, I came to the realization that systems are more important than goals. Dr. Lee is a master of setting up all the right systems for his graduate students. With such systems, his students have no option but to succeed. My thesis writing would be much more painful without Dr. Lee's supreme organizational skills. Even though he pushed me to perform at the highest level, his kind-hearted approach made it seem possible. Thank you for setting up higher standards and helping me achieve them.

My thanks go to Cal Newport, who introduced me to the concept of deep work and deliberate practice through his books. Implementing his advice allowed me to have a work-life balance

that has become a myth in this day and age. If I had to give just one book to every graduate student, his book *Deep Work* would be it.

Lastly, I would like to thank baristas at the local coffee shops, who tolerated many hours of me sitting there and working on my thesis. In particular, I would like to thank the staff of Odin Cafe, Fika, Cafe Pamenar, and James Coffee. Thank you for making my writing process a little more tolerable with good coffee and a nice atmosphere.

I would not be where I am without all of you being by my side.

Thank you,

Polina Ratnichkina

Table of Contents

Author's Declaration	ii
Abstract	iii
Acknowledgements	iv
List of Tables	viii
List of Figures	ix
List of Appendices	x
1 Introduction	1
1.1 Public Concerns on Environmental Issues	1
1.2 Business Incentives to Participate in Returnable Packaging Model	3
1.3 Purpose	5
1.4 Overview	6
2 Literature Review	7
2.1 Returnable Packaging	7
2.2 Message Framing	9
2.3 Justification	9
2.4 Financial Rewards	12
2.5 Social Modelling	14
2.6 Ease of Use	16
2.7 Self-transcendent vs. self-enhancing values	18
2.8 The Inclusion Model of Environmental Concern	21
3 Theoretical Framework	22
4 Methodology	23
4.1 Summary of Purpose and Research Objectives	23
4.2 Research Question	24
4.3 Research Paradigm	24
4.4 Quantitative vs Qualitative Approach	25
4.5 Experimental Methods	26
4.6 Data collection methods	27
4.7 Sampling Strategy	29
4.8 Data Collection Schedule	30
5 Study 1a: Environmental Benefits Message Framing	30
5.1 Study 1a Method	32
5.2 Study 1a Results	33
5.3 Study 1b Method	34
5.4 Study 1b Results	34

5.5	Study 1a and 1b Discussion	35
6	Study 2: Message Framing using Social Modelling, Justification, and Ease of Use	36
6.1	Hypothesis Development: Social Modelling	37
6.2	Hypothesis Development: Making Behaviour Easier	37
6.3	Hypothesis Development: Rewards	38
6.4	Study 2 Method	40
6.5	Study 2 Results	41
6.6	Study 2 Discussion	42
7	Study 3: Self-enhancing vs. self-transcending value priming's effect on intended bottle return	43
7.1	Study 3: Method	46
7.1.1	<i>Step 1: Priming</i>	47
7.1.2	<i>Step 2: Bottle Return Message</i>	48
7.1.3	<i>Step 3: Dependent Variables</i>	49
7.2	Study 3: Results	49
8	General Discussion	51
8.1	Practical Implications	53
8.2	Limitations	56
8.3	Future Research Ideas	57
	Appendices	59
	References	68

List of Tables

Table 1: Study 3 results (2x2 factorial analysis).....	50
Table 2: Conditional Effect of Message on Return the Bottle Rates.....	50

List of Figures

Figure 1: The Inclusion Model of Environmental Concern.....	21
Figure 2: Study 1a results (intended bottle return).....	33
Figure 3: Study 1b results (message-related thoughts).....	35
Figure 4: Study 2 Results.....	42
Figure 5: Study 3 results (means for intended bottle return).....	51

List of Appendices

Appendix 1: Ad-related and brand-related questions.....	59
Appendix 2: Pictures of milk bottles shown to participants (Study 1a&1b)	60
Appendix 3: Pictures of milk bottles shown to participants (Study 2).....	61
Appendix 4: Manipulation Checks Post-Hoc Study for Study 3.....	63
Appendix 5: Ethics Approval.....	65

1 Introduction

Sustainable business practices in agriculture and the food chain are becoming more popular due to increasing consumer demand for such products (Vermeir & Verbeke, 2006). Sustainable consumption, or otherwise referred to as green consumption, is a consumer's decision to buy products that have a minimum impact on the environment (Seyfang, 2005). However, the benefits of sustainable consumption are still poorly communicated to consumers. Shoppers are mainly left misinformed when making purchasing decisions (Vermeir & Verbeke, 2006).

Further, consumers often misinterpret official government eco-labels (Verbeke & Ward, 2006). Indeed, nearly half of the shoppers do not trust ecological claims (Fierman & Pak, 1991). Thus, when consumers decide to adopt a sustainable lifestyle, their consumption decision-making becomes more complex (Young, Hwang, McDonald, & Oates, 2010). The complexity of green shopping and consumer mistrust in eco-labelling explain the need for more research in the field of green marketing.

Some observers consider the movement of green consumption as “new” activism and they mean to make a difference (Bryant & Goodman, 2004). Arnould and Thompson (2005) have shown that the brands we buy are important as they shape our perception of who we are and our identity. Hence, buying ethical and environmental products is a way for people to act out their beliefs and hopes for the future (Shaw, Newholm, & Dickinson, 2006). If there is a demand for a consumer to “vote” for a better future, companies will be quick to respond with an appropriate supply for such options (Thompson & Arsel, 2004).

1.1 Public Concerns on Environmental Issues

Public concern about environmental issues was on the rise in the '60s and early '70s. In response, Murray issued Resource and Conservation Act in 1951. Rachel Carson published *Silent Spring* in 1962. The U.S. Environmental Protection Agency (EPA) was formed in 1970. As per Gallup surveys (2004), 26% of people reported that they worried about environmental degradation a

lot in 2004. By 2007, this number hit 41%. In 2010, the number dropped to 21%. Solid waste problem is growing faster than any other environmental pollutants including greenhouse gases (Hoornweg, Bhada-Tata & Kennedy, 2013)

There are many reasons why people develop varied opinions about the environment. Weber (2011) states that extreme weather events have contributed a great deal in increasing environmental concern among the public. Lack of understanding and exposure to scientific facts about global warming leads to a significant misunderstanding of the topic (Bord, O'connor, & Fisher, 2000; Bauer et al., 2007). Media coverage is another great influencer of public opinion; it affects what the public thinks about any given social issue (Mazur & Lee, 1993; Mazur 1998; McCombs, 2004; Mazur 2009; Dumitrescu & Mughan, 2010). Moreover, political and economic factors have played a significant role when it comes to public environmental concern. Kahn and Kotchen (2010) found that business cycles influence the intensity of environmental concerns. For instance, increased unemployment and declining GDP has been a challenge for engaging the public on environmental issues. Scruggs and Benegal (2012) attribute recent economic crises to a decrease in public attitudes towards environmental degradation. Bolsen and Cook (2008) found a relationship between energy prices and the public acceptance of alternative energy sources over conventional carbon-heavy ones.

Specific to Ontario, one tonne of waste per person per year is produced. The waste sector contributes to 6% of greenhouse emissions. Only 25% of overall waste is diverted from landfills (Government of Ontario, 2017a). The Ontario Government had officially announced its intentions to move towards a circular economy in the document called “Strategy for a Waste-Free Ontario: Building a Circular Economy” published in February 2017. Under a circular economy, no waste is sent to the landfill (Government of Ontario, 2017b). The Government has set the visionary goal to achieve a circular economy by 2050.

The Extended Producer Responsibility (ERP) program is an important goal of the Circular Economy Act of Ontario (Government of Ontario, 2017b). The Government of Ontario wants to

transfer the waste management responsibility from municipal governments and taxpayers to producers. It is a valuable economic tool for encouraging innovation towards a more sustainable product design (McKerlie, Knight, & Thorpe, 2006). When companies become interested in minimizing disposal cost, they would design products with a longer lifespan and with materials that can be easily recycled afterwards. Currently, the new Ontario Government has not made any claims of cancelling this program as of April 2019.

When it comes to waste prevention, it is not clear what results can be expected by implementing the Extended Producer Responsibility program. If the price of a product increases due to EPR, consumers have a lower purchasing power, and therefore will buy fewer products. However, the market will likely push companies to decrease the cost of their products by investing in product design. It is also questionable whether companies will ever go as far as removing the disposable packaging from their products altogether. Packaging is an essential marketing tool for companies and the main tool for differentiating among competitors. One way in which companies can focus on waste minimization, without sacrificing the marketing benefit of packaging, would be by adopting a returnable packaging program. Communicating returnable packaging programs to consumers is the primary topic of inquiry of this thesis.

1.2 Business Incentives to Participate in Returnable Packaging Model

When it comes to the environmental impact life cycle of a product, packaging is the most important stage (Abeliotis, Zachos, & Lasaridi, 2014). An estimated third of the total 10 million tons of solid waste that is generated globally is due to packaging waste (Abeliotis, Zachos, & Lasaridi, 2014). There has been an increasing interest among the public regarding excess packaging waste (Ackerman, 1997; Williams, 2005; Pasqualino, Meneses, & Castells, 2011; Cahill, Grimes, & Wilson, 2011). Consumers have also increasingly begun to use social networks such as “Facebook” as a means to research companies’ products and services (Vlachos, 2008). This ease of access to company information and their environmental awareness makes it more convenient for consumers to

choose a business based on how environmentally aware they are. In response, companies have begun to redesign packages due to tighter environmental legislation (Sonneveld, 2000). Some hospitality industry players have already done so to successfully differentiate themselves from competitors (Leeming, Hansen, Alavosius, & Reimer, 2013). For example, ESLT hotel has saved, on average, \$698,636 in electricity and \$78,000 in waste management fees over the first three years after implementing sustainable business practices. After accounting for the initial investment, the net gain of going green was \$1,076,205 (Leeming et al., 2013). Overall, research has shown companies that implement sustainable business practices might receive better consumer evaluations (Choi & Ng, 2011). Similarly, studies in European countries have demonstrated that returnable packaging has solid market support (Sonneveld, 2000).

Along those lines, a descriptive case study that was conducted on Toyota South Africa Motors (TSAM) found that the implementation of an integrated lean, green, and best practice business model was an effective method to reduce costs and sustainably enhance profitability and competitiveness (Wiese, Luke, Heyns, & Pisa, 2015). Another study pointed out that companies that incorporate environmental sustainability into their business model are also more resilient, meaning that they are much better at foreseeing maladaptive tendencies and cope positively with unexpected situations. These companies have been found to have lower financial volatility, higher sales growth, and higher chances of long-term survival (Ortiz-de-Mandojana & Bansal, 2015).

There are several industry players who already employ returnable packaging in the food and beverage retail settings. Companies such as Lush, Beer Store, Longos, and Whole Foods have successfully implemented business-to-consumer returnable packaging programs. Longos and Whole Foods allow bottle return for their own brands of milk and freshly squeezed juices. The Beer Store had been doing accepting empty bottles for reuse since 1927 (The Beer Store, 2019a). The national chain Bulk and Barn had introduced reusable container program in their stores. Customers can use their own containers for shopping. Zero-waste shops have been popping up around the world,

especially popular in Europe. One can see innovative businesses are being created based on the concept of returnable packaging. For example, a mobile zero-waste store *Au Poids Chiche* opened up in the South of France – the van packed with bulk products travels around rural communities in France and offers an opportunity to buy bulk food in reusable container (Zero Waste Home, 2018). One of the most promising initiatives in the realm of returnable packaging is Loop. Loop partnered up with major consumer packaged goods companies such as Haagen-Dazs, Pantene, Tide, Crest, Gillette, Cascade, Dove, etc. These companies designed returnable packaging solutions for their products and Loop will be in charge of delivering products to consumers and collecting empty containers. Loop is launching in several major cities around the world in 2019 and 2020 (Loop, 2019).

1.3 Purpose

This research seeks to find effective ways to communicate returnable packaging campaigns to consumers through product labelling. The objective is to test various messages printed on a label and evaluate their effectiveness. This is an important line of inquiry as more and more countries are rolling out regulations that penalize companies for their wasteful practices. Hence, knowing how to encourage people to engage with returnable packaging campaigns will be of great interest to future marketers and sustainability practitioners.

This research will contribute to a small but growing pool of academic knowledge that applies behavioural science and sustainability management. There have been studies addressing human behaviour and different pro-environmental behaviour such as recycling, energy and water conservations, and transit commute but not returnable packaging. There have been studies outlining the environmental impact and business incentives of returnable packaging as well as logistics of returnable packaging operations. The discussion on returnable packaging has been more technical and operational up till this point. The literature on these topics is discussed in the literature review section. There is a gap in literature that would address the topic of returnable packaging in terms of consumer behaviour. To the best of my knowledge, there have not been any studies that would look

on how businesses can encourage consumers to participate in returnable packaging campaigns. That is what makes this research novel.

1.4 Overview

This thesis follows a storyboard format. The reader will start off at the literature review section. This section discusses the major concepts that are going to be studied in this research. It begins with a quick overview of what returnable packaging is and its benefits. A large part of the literature review will be spent on describing different message framing techniques: *justification*, *financial rewards*, *social modelling* and *ease of use*. Next, the thesis will cover the topics of self-transcending and self-enhancing values as well as one of the fundamental theories used in this research – The Inclusion Model of Environmental Concerns (Schultz, 2002; Schultz et al., 2005)

After going through the literature review section, the reader is introduced to Study 1a, where the justification framing hypothesis is derived and tested. After discussing some of the counterintuitive results of Study 1a, the methodology and results for a follow-up qualitative Study 1b are discussed.

After the environmental benefits message framing is tested in Studies 1a and 1b, the reader is invited to explore other message framing techniques including *social modelling*, *ease of use* and *financial rewards* in Study 2.

In Study 3, the Model of Environmental Concerns (Schultz, 2002; Schultz et al., 2005) is applied to better interpret the findings of Studies 1a and 2 and understand how different values affect people's participation in returnable packaging campaigns. Self-enhancing and self-transcendent values are being tested against altruistic and self-serving messages to better understand which type of product labelling gets the most rates of intended bottle return.

At the very end, the general discussion is provided. One can learn about practical implications, limitations and future research ideas. Supporting material such as the questions and pictures used in Studies 1a, 1b, 2, and 3 as well as any post-hoc studies and the ethics approval letter.

2 Literature Review

2.1 Returnable Packaging

U.S. Environmental Protection Agency (2002) announced that source reduction is the best way to reduce the environmental impact of solid waste. Source reduction encompasses packaging minimization and/or reuse of packaging. Past literature has addressed business-to-business returnable packaging solution otherwise called as reverse logistics (Silva et al., 2013; Ravi and Shankar, 2005; Carter & Ellram, 1998). Marsh and Bugusu (2007) investigated the practice of returnable glass containers being reused in business-to-business settings. It has been found that returnable packaging business model consumes 18% less resources than disposable packaging model reducing the cost for participating parties (Silva et al., 2013). Returnable packaging is believed to be a better environmental choice when compared to recycling, particularly for glass and metal, due to the high energy demands of recycling and reusability of returnable packaging (Ghenai, 2012; Neill & Williams, 2015). Various benefits can be achieved from implementing reverse logistics, such as increasing customer retention and asset recovery, eliminating obsolete equipment disposition and recalls (Moore, 2005). In addition, when a glass bottle is recycled, new resources still need to be extracted from the ground to produce a replacement for a used bottle. However, this does not happen when a bottle is reused.

It is worth noting that returnable packaging is not always a better environmental choice compared to recycling. There are various variables that determine whether a returnable packaging has a lower environmental footprint: transport distance, number of refills, weight of packaging, the collection method, the energy and water efficient of bottle clean up (Detzel & Monckert, 2009; Cleary, 2013; Simon, Amor, & Foldenyi, 2014). It was found that returnable glass bottle becomes a better environmental choice than single-use recycled glass bottle after two refills mainly due to the eliminated energy consumption otherwise needed to produce a replacement for a single-use bottle

(Simon, Ben Amor, & Foldenyi, 2014). Another interesting finding from the same authors showed that the environmental benefits (GHG emission reduction) stagnate after 7-9 refills.

Today's environmental trend is moving toward an ultimate goal of a zero-waste society in which recycling is close-looped, meaning that any waste that comes from one product or activity becomes the starting material for another (Byers, 2017). Recycling is often considered a key component of pro-environmental behaviour. Recycling is valuable, but not as effective as reusing materials. For example, recycling plastic and paper shopping bags requires energy, and thus, reusing the same shopping bag is reported to be more effective (Kazdin, 2009). Recycling policies do not focus on waste prevention. Rather, the focus is on diverting waste from landfills. Unfortunately, recycling is insufficient to decrease the environmental impact of a growing population and increasing standards of living with the associated increase in consumption rates (Kolikkathara, Feng, & Stern, 2009). Indeed, recycling requires a lot of water and energy resources. Moreover, there are a finite number of times a plastic product can be recycled and some items remain unrecyclable (Fletcher & Mackay, 1996; Rigamonti, Grosso, & Giugliano, 2009; Babader, Ren, Jones, & Wang, 2016). Every time plastic is recovered, the quality of the recycled material gets downgraded. Eventually, a material can no longer be recycled and needs to be sent to the landfill. Recycling policies do not change consumers' behaviour when it comes to waste prevention. They also do not directly encourage design innovation to prolong product lifespan (Government of Ontario, 2017b).

Past literature has addressed a business-to-business returnable packaging solution, otherwise called *reverse logistics* (Carter & Ellram, 1998; Ravi & Shankar, 2005; Silva et al., 2013; Radhakrishnan, 2015; Chung, Ma & Chan, 2018). It has been found that returnable packaging consumes 18% fewer resources than the disposable packaging model, reducing the cost for participating parties (Silva et al., 2013). Various benefits can be achieved by implementing reverse logistics, such as increasing customer retention and asset recovery, eliminating obsolete equipment disposition, and recalls (Moore, 2005). Due to the major benefits of packaging reuse, Carter and

Ellram (1998) recommend looking at waste disposal strategies as the last resort, only when the recovery of packaging is not possible. Furthermore, it ought to be highlighted that implementation of legislation, corporate imaging, environmental concern, economic benefits, and sustainable competitiveness are urging these as well as other companies not only to adopt reverse logistics practices but also to make them as efficient and effective as possible (Agrawal, Singh, & Murtaza, 2015).

2.2 Message Framing

Numerous studies have revealed the importance of message framing on engaging consumers regarding environmental issues (Morton, Rabinovich, Marshall, & Bretschneider, 2011). There are various ways in which one can frame a message. Corporations that engage in corporate social and environmental responsibility practices often change the way they communicate their message to the public (Bortree, Ahern, Smith, & Dou, 2013).

Davis (1995) found that a message framed in terms of losses is more effective in promoting pro-environmental behaviour than a message framed in terms of gains. Also, framing a message as a loss to the current generation, not future generations, was found to be particularly effective. Gifford and Comeau (2011) found that motivational message framing is more effective in promoting pro-environmental behaviour when compared to sacrifice message framing. Van de Velde, Verbeke, Popp, and Van Huylenbroeck (2010) identified that message framing plays particular importance among women, people younger than 35 or older than 55, the lesser educated and people who do not much care about the environment.

Since there is still no one bullet-proof way to promote sustainable products, environmental message framing remains a valuable topic to study. In my research, I will test several ways a beverage company can communicate a bottle return campaign to attain higher public participation.

2.3 Justification

Regarding message types, the information-based approach is a widely used method for

promoting pro-environmental behaviour (Abrahamse, Steg, Vlek, & Rothengatter, 2005); it educates the public about the environmental impacts of everyday actions and can inspire positive change.

Consumers become more engaged with a sustainable product when the consequences of their choice are communicated to them (Engel, Blackwell, & Miniard, 1995; Barr, Gilg, & Ford, 2001).

Thøgersen (1999) suggests that personal norms toward reducing packaging waste come from the person's awareness regarding packaging waste and one's perceived ability to find a solution. For example, when people are exposed to information about the environmental benefits of a product, people were found to be more involved with the product (Vermeir & Verbeke, 2006). Academics advise marketers to emphasize the "righteousness" of buying a sustainable product by describing all the good things a product does for the environment and the society in general (Vermeir & Verbeke, 2006). This concept of sustainable marketing is deeply rooted in the idea that if humans understood the fundamental relationship with nature, it would help them act in harmony with nature rather than against it as a means to enhance sustainable development (Loebler, 2017).

Awareness and knowledge about environmental issues are requirements for developing moral norms that would, in turn, lead to desired environmental behaviour (Bamberg & Möser, 2007). When people behave in contradiction to moral norms, they may feel guilty in response (Baumeister, 1998). Therefore, information is important in developing knowledge that shapes attitudes and behaviour associated with environmental stewardship. In other words, educating someone about the environmental benefits of sustainability may lead them to acquire those habits.

Frank (2019) has argued that the existence of moral technologies – or everyday sources of behaviour that models morally correct choices – leads to a reduction in moral struggle, as it results in individuals having an easier time to do the right, good, or virtuous thing. Frank (2019) also argues that a moral struggle is not needed for moral behaviour.

Furthermore, a study that was based on a quasi-experimental design tested a game-based sustainability intervention and found that playing a game increases adoption of pro-environmental

behaviours and attitudes (Ro et al., 2017). As part of the game, individuals were able to collect points by being environmentally aware. Contestants are also exposed to immediate outcomes of their environmentally beneficial behaviour. As such, these immediately observable justifications resulted in those who played the game markedly reduced their household electricity consumption. This effect, they found lasted for six months after the game (Ro et al., 2017).

Information and prompts are effective for increasing recycling behaviour in public spaces and apartment buildings (Jacobs & Bailey, 1982). When researchers gave out brochures with information regarding the benefits of recycling, they increased curbside recycling participation rate by 200-400% (Jacobs, Bailey, & Crews, 1984)

The justification method implies informing consumers about the reasons for performing a certain behaviour (Osbaldeston & Schott, 2012). While justification has been found to be more effective than a simple message (Ham, 1992; Gramann, Bonifield, & Kim, 1995; Widner & Roggenbruck, 2000; Duncan & Martin, 2002), prompts that contain both a justification and information about consequences have been shown to lead to the highest levels of compliance (Leoniak and Maj, 2016). Besides, justification helps balance out negative reactions that might be associated with imposed sanctions and penalties (Leoniak & Maj, 2016). For example, a message containing both an explanation of why it is important not to litter in a park and the penalty for littering is perceived to be better than a message that only states the penalty. In their study, the justification message alone was just as effective as the combination of justification and penalties (Leoniak & Maj, 2016). This parallels previous findings (e.g., Langer, Blank, & Chanowitz, 1978; Wogalter, Sojourner, & Brelsford, 1997) of the benefits presented by a justification message.

Information campaigns are important in promoting behavioural change – in particular, effectively informing an individual about the outcomes of their behaviour could potentially lead to an increase in prosocial behaviour. Prosocial behaviour is an umbrella term that refers to a wide range of actions that benefit others or the society one lives in, including comforting, helping, sharing,

cooperation, philanthropy, and community service (Penner, Dovidio, Piliavin, & Schroeder, 2015). Furthermore, prosocial behaviour is under the influence of several factors, including the awareness of the positive outcome. Schwartz (1977) predicted that people are more likely to engage in helping behaviour when they are aware of the consequences of their helping. When equipped with this knowledge, people feel more responsible (otherwise known as “ascription of responsibility”). Xiao et al. (2016) found that prosocial performance is largely enhanced if individuals were aware they their prosocial behaviour would not cause any loss. It has also been found that those who change their behaviour as a result of an information campaign tend to stick to the new behaviour (Geller, 1989).

Justification messages are useful because they change perceptions and norms without changing the external environment in which people make decisions (Steg & Vlek, 2009). This makes it a financially feasible approach to changing people’s behaviour.

2.4 Financial Rewards

Financial rewards or penalties can be used as an extrinsic motivation to change behaviour (Abrahamse et al., 2005; Giles et al., 2015). Financial incentives tend to be acceptable to the public when they are effective and cost-effective, and circumstances that are beneficial to recipients and wider society, are considered fair, and are delivered to individuals deemed appropriate are likely to be considered more acceptable (Giles et al., 2015).

Learning theory suggests that external rewards make a targeted behaviour more appealing and therefore likely to foster a behaviour change (Geller, 1989). For instance, various promotions (such as price discounts, store point rewards) have an immediate impact on brand sales and promote repeated purchase behaviour (Blattberg & Neslin, 1989). Hence, financial rewards may be more effective in promoting green behaviour than sanctions (Geller, 2002). For instance, Ariely, Bracha, & Meier (2009) discovered economic incentives help with pro-social behaviour when the decision is made privately.

Other scholars view financial incentives in a different light. They argue that financial

incentives can be counter-productive in achieving pro-environmental behaviour (Ölander & Thøgersen, 1995; Frey & Oberholzer-Gee, 1997; Gneezy & Rustichini 2000; Mellstroem & Johannesson, 2008; Handgraaf, de Jeude, & Appelt, 2013). When rewards are big, people engage in the desired pro-environmental behaviour solely because of financial incentives, not due to their moral norms. Some view financial rewards are only effective while they are in place and have no impact on long-term behaviour change (Steg & Vlek, 2009).

Taking into consideration psychology and behavioural economics to address, predict, and change consumer behaviour, several lines of thought can be drawn. Traditional economic theory suggests that human decision-making and behaviour are based on rational choice alone (Simon, 1955, 1957). However, more recent economical schools of thought are based on several basic assumptions that are aligned with rational choice theory and postulate that individuals have rational preferences among outcomes, always maximizing outcomes based on information (Weintraub, 1993; Henry, 2012).

Taking into consideration energy consumption, for example, the most powerful biases that affect consumers' patterns of energy usage are the status quo bias, loss and risk aversion, sunk-cost effects, temporal and spatial discounting, and the availability bias (Frederiks, Stenner & Hobman, 2015).

Economic theory suggests that a proper market price for the desired behaviour would motivate people to engage in it. However, controlled experiments do not support this idea (Ölander & Thøgersen, 1995). Some scholars have argued that providing financial rewards for pro-social behaviour can be detrimental. For instance, studies have found that financial incentives negatively affect pro-social behaviour (e.g., Ster & Kirkpatrick, 1977; Frey, 1993; Thøgersen, 1994; Frey & Oberholzer-Gee, 1997; Gneezy & Rustichini 2000; Mellstroem & Johannesson, 2008). However, there is no clear explanation on why this occurs (Ariely et al., 2009).

Katzev & Pardini (1987) found that providing financial rewards results in low recycling

participation rates. Some argue that an economic incentive may transform intrinsic motivation for recycling into an extrinsic motivation based on financial rewards (Deci, 1971, 1972, 1975; Ster & Kirkpatrick, 1977; Thøgersen, 1994; Frey, 1997). In other words, paying for doing “the right thing” can wipe away any moral or intrinsic motivation that people may have previously held (Frey, 1993; Ster & Kirkpatrick, 1977; Thøgersen, 1994). Financial rewards can potentially reclassify the environmental behaviour from “the domain of morality” (Schwartz, 1970) to “the domain of economy” (Thøgersen, 1995).

Lastly, even if rewards eventually result in behaviour change, it is often short-lived (Katzev & Johnson, 1987). Once the novelty wears off, the participants may find the effort the behaviour requires outweighs the desire for the reward (Schultz, Oskamp, & Mainieri, 1995).

Ultimately, the effect of financial incentives seems to be individual and varied. A study that assessed 1010 Italian households, aimed at understanding the weights of economic and non-economic motivations found that different groups of individuals are motivated differently and that appropriately chosen incentive schemes should be applied (Massarutto, Marangon, Troiano, & Favot, 2019).

2.5 Social Modelling

People are more likely to participate in curbside recycling if their friends and neighbours also recycle (Oskamp et al., 1991). Letting people know about what other people do has proven to be successful in promoting pro-environmental behaviour (Abrahamse et al., 2005; Lehman & Geller, 2004). This type of behaviour may be referred to as social modelling.

Social modelling is used to demonstrate the desired behaviour to the targeted population (Lehman & Geller, 2004). When people see other people doing the targeted behaviour, observational learning occurs (Bandura, 1977). The positive effect of social modelling on strengthening social norms and therefore changing behaviour was shown by Schultz et al. (2007). Social modelling is a particularly profound phenomenon in the context of eating, whereby a study found that modelling of

food intake is similar whether partners are eating the same and different foods (Kaisari & Higgs, 2016). Soh (2017) reported that social modelling is a powerful technique used in schools, whereby it is used as a tool to foster student creativity. Within this context, people are more likely to participate in curbside recycling if their friends and neighbours also recycle (Oskamp et al., 1991). Letting people know about what other people do has proven to be successful in promoting pro-environmental behaviour (Abrahamse et al., 2005; Lehman & Geller, 2004). This type of behaviour may be referred to as social modelling.

Bandura's learning theory (1977) encourages the use of social modelling. People supposedly follow the exemplified behaviour if the behaviour is easy to understand, relevant, meaningful and rewarding. For example, when energy conservation behaviour was shown on television, household energy used dropped by 10%. However, the follow-up study executed after one year did not find a difference between the television and the control groups (Abrahamse et al., 2005). This means that social modelling may be only effective in the short-term

Social modelling plays an important role in all aspects of our lives. Felsher, Derevensky, and Gupta (2003) found that young adults with severe gambling problems grew up with parents who bought lottery tickets more often. Children in such families were not afraid of getting caught despite legal prohibitions. Gambling was a socially accepted thing in their families. Parental modelling also promotes substance abuse (Thompson & Wilsnicki, 1987). Not only immediate family members impact what one does. Kjarheim et al. (1995) showed that having co-workers who drink at least once a week after work increases the odds for heavy drinking.

Social modelling has been studied in the context of resource conservation, whereby a random-effects meta-analysis with a sample of 29 studies has highlighted that social influence approaches were effective when it comes to encouraging resource conservation (Abrahamse & Steg, 2013).

2.6 Ease of Use

Performing sustainable behaviours requires effort. In the case of curbside recycling, one of the common barriers is the distance from the collection location (Schultz et al., 1995). People recycle more when the bin proximity is shortened (Reid et al., 1976; Humphrey, Bord, Hammond, & Mann, 1977; Luyben & Bailey, 1979). Geller (1976) found that the distance between a dorm room and the recycling centre affects the paper recycling rate; students living in rooms closest to the centre tended to recycle the most. Ludwig, Gray, and Rowell (1998) found that placing recycling bins in the classrooms close to the students can double the number of cans recycled. Therefore, making recycling as convenient as possible has been important in gaining participation. Studies outside university settings have shown similar results. When containers are placed closer to the office staff, the recycling rate increased from 28% to 88% (Brothers, Krantz, & McClannahan, 1994). It has been reported that homes that are equipped with technology that enabled residents to monitor their appliances' use wirelessly yield to much more energy efficient behaviour (Bhati, Hansen, & Chan, 2017).

Furthermore, an analysis of a door stepping program increased recycling by 12.5% (Dai et al., 2015). In a similar fashion, in their two randomized field experiments, DiGiacomo et al. (2018) demonstrated that convenience markedly boosts recycling and composting rates in multi-family homes and university residences. They found that when compost containers were placed on each floor instead of the ground floor, composting rates increased by 70% (DiGiacomo et al., 2018). In university residences, recycling increased by 147% (container) and 137% (paper) and recycling increased by 139% when recycling stations were placed in the proximity of suites rather than in the basements (DiGiacomo et al., 2018).

When Austin, Grindle, & Bailey (1993) studied the effect of sign prompts on recycling, they found a 54% improvement in the recycling rate when the signs were placed closer to the recycling bins. Proximity and accessibility of recycling facilities are the main factors affecting participation in

recycling programs (Reid et al., 1976; B.E., 2015; Schultz, 2014)

People tend to overvalue the effort needed to engage in pro-environmental behaviour. However, after they engage in this behaviour for some time, the perceived cost of such behaviour goes down. This is referred to as “the experience effect.” Once a person has done the action of waste separation, prejudice and scepticism evaporate and the attitude towards action changes (Ölander & Thøgersen, 1995). When looking back at the early efforts to encourage people to recycle, similar results are found. Recycling was viewed as messy and time-consuming and therefore avoided (Vining & Ebreo, 1990; McCarty & Shrum, 1994; Werner & Makela, 1998; Ebreo, Hershey, & Vining, 1999). In the eyes of non-recyclers, the inconveniences were more substantial than in the eyes of recyclers (Vining & Ebreo, 1990). Ertz, Karakas and Sarigollu (2016) found that people are much more likely to recycle when they feel that they are capable of doing so or that it is within their power to do so.

People prefer low-effort, immediate-reward behaviour. When the barrier of effort is removed, sustainable behaviour becomes more desirable. Thus, an effective approach in dealing with this human tendency is to reduce the amount of effort required to complete a sustainable action (Hirsh et al., 2015). As such, Vermeir and Verbeke (2006) recommend implementing communication strategies that lower perceived effort when promoting sustainable products.

When a desired behaviour becomes difficult to perform, changes in the external environment that aim at making behaviour easier are needed to increase the likelihood of public engagement (Ölander & Thøgersen, 1995; Thøgersen, 2005). For example, a study highlighted the importance of convenience and existence of infrastructure necessary for source-segregation of waste as important factors for household waste recycling. The study also highlighted the need of addressing these aspects where waste is generated, i.e. already inside the household (Bernstad, 2014).

Another concept that I would like to bring up under the *Ease of Use* section of the literature review is the concept from behavioural economics called *nudging*. It implies that often people’s behaviour can be changed without offering an economic incentive (Thaler & Sustein, 2008). Under

nudging, the set of choices is the same, however the framing is different. Thaler and Sustein (2008) used nudging in cafeteria. The options were left the same, however the healthier food was moved into the eye level of customers. This subtle change in the position of food increased the consumption of healthy foods. Proper positioning of fruits and vegetables made it easier for consumers to see and purchase them. Kallbekken and Sælen (2013) reduced the plate size in hotel cafeteria which resulted in 20% decrease of food waste. Another example of nudging would be choosing the desired option as a default. Madrian and Shea (2001) conducted an experiment with a default retirement saving plans. Retirement savings went up from 3.5% to 13.6% over 3.5 years. The simple action of making automatic saving deduction a default option upon hiring resulted in such dramatic improvement. Similar studies were done on organ donation, and investments (Johnson & Goldstein, 2003; Choi, Laibson, & Madrian, 2004). As for the environmental application, Pichert and Katsikopoulos (2008) discovered when green utility electricity source is a default option, it had higher enrolment numbers.

2.7 Self-transcendent vs. self-enhancing values

Personal values drive the individual decision-process, ranging from what products to buy to what brands to stay loyal to (Engel et al., 1995). Willingness to buy green products is highly influenced by personal values, and sometimes these values override other factors such as financial and other costs (Zaval & Cornwell, 2017).

It is important to point out a clear distinction between personal values and attitudes. Values are the ranking of abstract ideas (e.g., honesty, equality) as guiding principles in a person's life (Rokeach, 1973; Schwartz, 1992). An attitude is a person's feeling or opinion about a specific topic. Since values tend to be abstract, they can influence one's attitudes towards various topics (Maio & Olson, 1995).

Some Northern European countries were pioneers in pushing sustainability practices forward; therefore, they were among the first to have successful results. A lot of academic articles on the topic of green practices come from these countries. However, the cultural norms and values on environmental issues might differ between some Scandinavian countries and the US. Because US

residents were surveyed in all three studies, it is worth looking into the dominant American values in an attempt to explain some of the findings.

Behaviours driven by self-enhancing values are usually oriented towards achieving social power, authority, success and wealth. In contrast, behaviours driven by self-transcendent values aim towards being helpful, honest, loyal and broad-minded. People with self-transcendent values accept others and have a genuine concern for other people's well-being (Schwartz, 1994). Not only were people with self-transcendent values found to express care about other people, but they were also found to eat less meat compared to people with self-enhancing values (Dietz et al., 1995; Kalof, Dietz, Stern, & Guagnano, 1999; de Boer et al., 2007). That shows that people with dominant self-transcendent values care not only about other people but also about animals and the environment overall. People typically possess both sets of values. But enhancing one set of values makes the other one less salient. That is, on any given point, one set of values is dominant over the other (Pakizeh, Gebauer, & Maio, 2007).

People with self-transcendent values prefer environmental protection over economic growth (Schultz & Zelezny, 2003). Nations that score high on agreeableness and openness values, both being self-transcendent values, tend to have more policies geared towards environmental conservation. Denmark, Germany and Switzerland are nations higher on openness and agreeableness compared to the US and Canada (Hirsh, 2014). Nations that score high on openness, agreeableness, and conscientiousness are more willing to pay for environmental improvements (Boyce, Czajkowski, & Hanley, 2017). Other studies showed a direct effect of personal values on environmental attitudes (Stern & Dietz, 1994; Nordlund & Garvill, 2002, 2003; Oreg & Gerro, 2006). People with self-transcendent values not only tend to have pro-environmental attitudes, but they also report a higher willingness to engage in pro-environmental behaviour (Stern, 2000). In contrast, people with strong self-enhancing values are less willing to engage in pro-environmental behaviour (Crompton & Kasser, 2009). Thus, personal values are important because they guide individual decision-making (Schwartz,

1992). Aiming environmental information towards pre-existing values may improve climate change communication (Graham & Abrahamse, 2017).

When it comes to pro-environmental behaviour, agreeableness and openness are the value traits that predict such behaviour the most (Hirsh & Dolderman, 2007; Hirsh, 2010; Milfont & Sibley, 2012). Agreeable people are known for their empathy and care (Graziano & Eisenberg, 1997). Those who possess an openness trait have higher cognitive flexibility and better engagement with nature (McCrae, 1994).

This is not to say that American citizens do not care about environmental issues. They agree that something should be done about a degrading state of the environment. They care the most about the problems affecting them directly (pollution and water/soil contamination). In contrast, broad problems that do not affect their day-to-day life, such as acid rain or global warming, do not raise much public interest. These responses are consistent with behaviours driven by self-enhancing values (Schultz & Zelezny, 2003). People with dominant self-enhancing values are more hesitant to forgo comfort and convenience in addressing environmental problems (Schultz & Zelezny, 2003).

Some people do not participate in driving an electric car because others may perceive them as doing it for tax benefits, rather than for environmental reason; it may give others the sense that this is a “wrong” image for them (Ariely et al., 2009). This thinking can apply to self-transcendent people. People saving the environment for genuine reasons do not want others to believe they are doing so to save money.

Some may argue that environmentally favourable policies cause a nation to possess personal traits that make people care about sustainability. In other words, the causal direction goes from national policies to personal traits. However, Hirsh (2014) ruled out this possibility in his research, arguing that there is a lack of a known mechanism that would allow governments to control the personal traits of its citizens directly.

2.8 The Inclusion Model of Environmental Concern

The Inclusion Model of Environmental Concern (Schultz, 2002; Schultz et al., 2005) shows that there are two levels of environmental concern: the lower level (egoistic concerns) and the higher level (biospheric concerns). People on the lower, self-interest, level of concerns would respond better to self-enhancing framing of environmental messages. People on the higher level of environmental concern would respond well to both types of environmental messages: self-enhancing and self-transcendent (De Dominicis et al., 2017). This idea aligns with the notion of human behaviour depending on hierarchical evolution and functioning of the human brain moving from the very basic self-oriented behaviours (the reptilian brain) towards the socially shaped, self-transcendent behaviours (Edelman, 1987; MacLean, 1990). To put it another way, altruistic individuals are also self-centric. Altruism does not imply the absence of self-interest. The graphic representation of this model is provided in Figure 1.

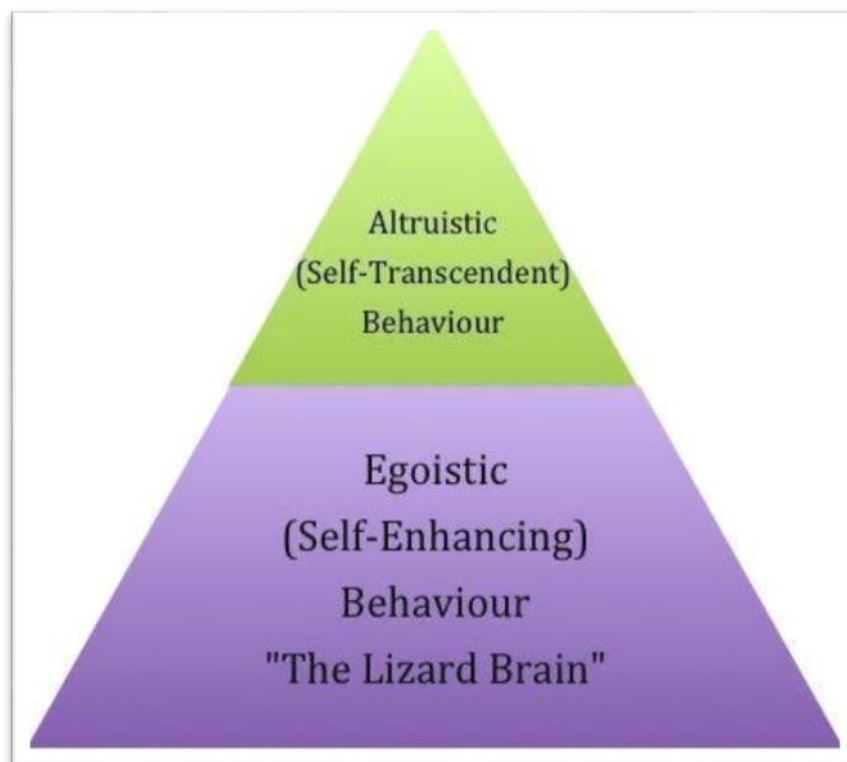


Figure 1: The Inclusion Model of Environmental Concern (Schultz, 2002; Schultz et al., 2005)

De Dominicis et al. (2017) argues that communicating environmental messages through self-enhancing framing is likely to increase participation in the desired behaviour due to a broader audience coverage. Self-enhancing framing would be appealing to both self-centred and self-transcendent audiences; while self-transcendent framing would only be appealing to the self-transcendent group of people. It also shows that environmental behaviour is not limited to a small percentage of truly altruistic people. There are pathways to engage an ordinary self-centric citizen into sustainable practices (Dietz, 2005). De Dominicis et al. (2017) reported that the altruistically primed responded better to the self-transcendent message framing. However, they also responded well to a self-enhancing message. Moreover, the authors showed that self-enhancing and self-transcending values could be primed and manipulated.

3 Theoretical Framework

Based on the provided introduction and literature review, this research looks at the returnable packaging as an environmentally better choice of packaging compared to a single-use alternative. Following the tightening policy regulations and increasing environmental concerns around waste will eventually make waste very expensive to businesses. Businesses will be incentivised to reduce waste. One of the methods they can implement is returnable packaging. Following this logic, at some points business will have a business incentive to implement returnable packaging and will face the question: *How do we successfully promote returnable packaging to consumers?* This is the main question of this research.

Based on the literature review I conducted, there was a gap in literature addressing business-to-consumer returnable packaging promotion. However, there was enough studies discussing different methods of promoting other pro-environmental behaviours such recycling, energy and water conservation, etc. First of all, pro-environmental behaviours similar to returnable packaging drop off were identified. Based on previous studies the most effective ways of promoting these behaviours were found and tested against returnable packaging. After eliminating the ones that did

not pass the quantitative test of statistical significance, the method that resulted in the highest statistically significant intended bottle return was identified.

Lastly, the Inclusion Model of Environmental Concern (Schultz, 2002; Schultz et al., 2005) was applied to better understand some of the findings. It helped to articulate the final, and most profound, finding of this research: *businesses looking for a greater consumer participation in returnable packaging program should display self-serving messages that tap into self-enhancing set of values rather than showing altruistic, guilt-inducing messages that are designed to provoke self-transcendent set of values*. Self-serving messages will get a response from people with activated self-transcendent mind set as well as from people with activated self-enhancing mind set. In contrast, the traditional pro-environmental messages we see that show struggling animals and horrifying statistics are only effective for people who are in self-transcendent state of mind, therefore these messages have a lower engagement rate.

4 Methodology

The purpose of this chapter is to outline the research approach and methodology employed in my thesis. In total, the thesis consists of four experimental quantitative studies.

4.1 Summary of Purpose and Research Objectives

This research seeks to find effective ways to communicate returnable packaging campaigns to consumers through product labelling. This research is built on previous knowledge of pro-environmental behaviour promotion and social psychology theories. The objective is to test various messages printed on a label and evaluate their effectiveness in increasing return rates for bottle return. In order to achieve this objective, the following steps will be taken:

1. Review the academic literature to find out the effective methods for promoting pro-environmental behaviour that is similar to returnable packaging concept.
2. Create bottle labels with messages that align the methods discovered in Step 1.

3. Create experimental stimuli and survey items to test the intended bottle return.
4. Run four online experiments and collect participant data from Amazon Mechanical Turk and Ted Rogers School of Management student pool.
5. Use the information gained from the conducted studies to recommend actionable steps that can be taken by industry players to implement returnable packaging concept within their line of business.

4.2 Research Question

The main question of this research is *How does product label messaging influence returnable packaging participation rates?* The importance of this question is further discussed in sections *Purpose* and *Theoretical Framework*.

4.3 Research Paradigm

A research study seeks to achieve one of the three potential research goals: to explore, to describe, or to explain a certain topic or phenomenon (Neuman & Robson, 2018). This research employs experimental methodology which is explanatory.

Blaikie (2009) states that the objective of the *deductive approach* is “to test theories, eliminate false ones and corroborate the survivor” (p. 84). Deductive approach begins with abstract ideas and then employs “concrete, empirical evidence to test the ideas” (Neuman & Robson, 2018, p. 31). Quantitative researchers usually take a deductive route. Qualitative researchers usually take an inductive route (Neuman & Robson, 2018). The deductive approach is suitable for this research because it starts off with the hypothesis that justification message positively affects the intended bottle return. This hypothesis is tested and later rejected in Study 1a. Extending this initial finding, this research develops additional hypotheses to test. Hypotheses in Study 2 state that social modelling (1), financial rewards (2), and ease of use (3) result in better intended bottle return than a simple (control) message. The hypotheses in Study 3 states that people primed with self-transcendent values will respond the same to self-serving and altruistic message, while people primed with self-

enhancing values will respond better to self-serving message; therefore, self-serving message will result in higher intended bottle return among general population. Here, I take the approach of gaining knowledge through hypotheses-testing approach.

I adopt the *functionalist paradigm*. Burrell and Morgan (1988) state that such approach is designed to provide solution to practical problems. My research is designed to be used by practitioners (retailers) who decide to implement returnable packaging concept into their business practice.

I adhere to the theoretical assumption of *positivism* in this research. It means that I agree with the notion that there is an objective truth and follow the scientific approach with theory testing to find it (Neuman & Robson, 2018). In terms of time dimension of this research, all studies were **cross-sectional**. This means that the population samples were studied in a single point in time. The benefits if this approach include cost-effectiveness, room to test different variables at the same time, and the ability to use larger samples.

4.4 Quantitative vs Qualitative Approach

Scientists use data to test theories. Data can be either quantitative or qualitative (Neuman & Robson, 2018). I use quantitative approach for this research. “Quantitative research is associated with data collection techniques that include experiments, surveys, and the analysis of existing statistics, while qualitative data collection techniques include qualitative interviews, focus groups, field research, and historical research” (Neuman & Robson, 2018, p. 15). Quantitative approach is used in testing abstract theories set by researchers and eliminating the ones that do not get proved by the scientific approach. Quantitative researchers study and reflect on the main concepts before running the studies. They construct measurement techniques based on this reflection. They don’t change these techniques while studies are run (Neuman & Robson, 2018).

One of the main critiques towards quantitative data collection method come from the critiques of the positivism research approach. Topics of social science do not always follow purely

scientific nature. Human beings are complex in the way they interact and make decisions; therefore, some argue, they are very different from the simpler units of purely scientific research. To truly understand people's actions, one needs to know the meanings and attitudes they bring into their interactions and surroundings (Neuman & Robson, 2018). I acknowledge that qualitative approach would potentially add a deeper insight into some of the findings; it would help to answer the questions such as *Why do we have such results? Why do people choose this option instead of the other?* Due to the time constraints and the adopted functionalist paradigm, I chose to focus solely on the objectivist perspective.

Quantitative research requires a development of measuring techniques that result in quantitative data (numbers) (Neuman & Robson, 2018). To satisfy this requirement, survey questions were answered using the Likert scale. Likert scale was designed "to provide an ordinal-level measure of a person's attitude." (Neuman & Robson, 2018, p. 124). For example, for the intended bottle return variable, the question was phrased as "*If you purchase this product, how likely are you to return an empty bottle?*". The 7-point Likert scale was provided to answer the questions with 1 being *extremely unlikely* and 7 being *extremely likely*. More detailed information on priming and other steps involved are presented in each study.

4.5 Experimental Methods

This research attempts to draw a causal relationship between a specific product label and intended bottle return rates. The philosophical background of experimental design comes from the positivist research approach discussed earlier (Neuman & Robson, 2018). The experimental design establishes cause-and-effect relationship and relies on the use of *control* and *treatment* groups. These groups are designed to be identical except for the causal factor studied (independent variable). After the experiment is run, a researcher looks at the dependent variable in two groups (Rovai, Baker, & Ponton, 2013). If (1) control and treatments groups are identical, (2) there is a statistically significant association between dependent and independent variables, and (3) other potential explanations for

the results are ruled out, one can conclude there is a cause-and-effect relationship between dependent and independent variables (Mills, 1874). The studies of this research employed an experimental design, meaning that each study had a control group and treatment groups. The groups were identical except for the message they saw printed on a milk bottle (treatment).

Properly designed experiments should balance out two types of validity - external and internal. There is often a trade-off between internal and external validity, but one should aim to optimize both. *Internal validity* proves a cause and effect relationship, meaning that change in dependent variable happened due to change in the independent variable and not the other factors. In order to achieve internal validity, control and treatment groups should be identical in all other respects. This was achieved through *random assignment* in both Amazon Mechanical Turk and student pool. This means that each participant had an equal probability of being assigned to either control or treatment group. *External validity* is achieved when the results of the experiment can be generalized and applied to other group of people and settings (Bracht & Glass, 1968; Jimenez-Buedo, & Miller, 2010; Drost, 2011). In the case of Studies 1a, 1b, and 2, the external validity was higher due the Amazon Mechanical Turk *sampling selection*. There were participants from all over the US, consisting of different age groups and education levels. Since the student pool was used in Study 3, the external validity of that study is lower. Participants consisted of mainly young adults, pursuing their undergraduate degree and living in an urban area. Another threat to external validity in all three studies was *the measurement of dependent variable*. The intended bottle return was a chosen dependent variable. It is unclear if intended bottle return will be similar to the actual bottle return.

4.6 Data collection methods

This research will employ surveys as a data collection technique. Survey is quantitative social research technique in which a researcher asks many people the same questions and then analyzes the results. It is usually used in descriptive and explanatory research (Neuman & Robson, 2018). The survey is the most common data-gathering technique in social science (Neuman & Robson, 2018).

Online surveys have some known limitations. One of the concerns that would be applicable to this research comes from sampling - not everyone has an access to internet, therefore it skews the sample towards people who have enough income and/or can use the internet (Neuman & Robson, 2018).

Amazon Mechanical Turk was used to collect data for Studies 1a, 1b, and 2. Ted Rogers School of Management student pool was used to collect data for Study 3. Amazon Mechanical Turk is a popular crowdsourcing marketplace. Researchers use this platform to inexpensively run online surveys. One can post an online survey and enter the criteria for a sample group; then Amazon Mechanical Turk “employs” proper candidates to participate in the survey. No names are recorded, which guarantees anonymity (Buhrmester, Kwang, & Gosling, 2011; Hauser & Schwarz, 2016). Ted Rogers School of Management student pool consisted of undergraduate students pursuing business degree with various specializations at Ryerson University. They were given an option to participate in 30-minutes research study in exchange for a partial final grade increase in a selected course they were taking at the moment. Participants registered online to receive an ID number which guaranteed anonymity. When they came to the lab, only their numerical ID was collected. Students were given instructions and supervised by a lab associate to guarantee the same external conditions for all participants.

Amazon Mechanical Turk was chosen for the first two studies because it allows to get a more diverse sample group (Buhrmester, Kwang, & Gosling, 2011; Paolacci & Chandler, 2014; Antoun, Zhang, Conrad, & Schober, 2016). Returnable packaging will affect a diverse group (age, gender, geographic location) of population and therefore it is important to have a similar sample representation. The participants pool consisted of 52.3% male participants from all over the US with age range of 20-72 years old. However, TRSM student pool was used for Study 3. This is due to the priming step I had to conduct. It was important to administer the setting of the experiment to make sure the environmental is quiet to allow a participant to focus on the activity that was supposed to put

a person in a specific state of mind (self-transcendent vs. self-enhancing). It was also done to avoid any pauses or task-switching after the priming stage to make sure the priming effect is not lost. Study 3 sample group consisted of 38% males, living in Greater Toronto Area with age range of 18-53 years old. Unlike Amazon Mechanical Turk, student pool resulted in a more homogeneous sample group with the results low in external validity, which is a common downside of using student pools for social research (Kees, Berry, Burton, & Sheehan, 2017).

4.7 Sampling Strategy

Quantitative researchers base their decisions about sampling on the mathematical theories of probabilities, and, as a result, favour random sampling (Neuman & Robson, 2018). *Random sampling* was a chosen approach for this research. The target population for all the studies discussed in this research are adults residing in North America who regularly buy milk. The North American population was chosen due to narrow the scope of the research to understand the behaviour of North American consumers, which in turn will result in practical implications for North American retailers. The factor of regularly buying milk was included because milk was the product of choice for all four studies in this research. Intended bottle return variable would have been compromised if people who did not buy milk were surveyed. The age group of 18 years old and older was chosen to better represent the those who were more likely to grocery shop.

The minimum target sample for each of the conditions of a study was on the *Central Limit Theorem*. The definition of Central Limit Theorem is as follows: “*given random and independent samples of N observations each, the distribution of sample means approaches normality as the size of N increases, regardless of the shape of the population distribution*” (Mordkoff, 2011, p.1). In other words, as long as each sample contains a sufficient number of participants, the sampling distribution of the mean will be, in fact, normal. Central limit theorem as well as other parametric analyses (t-tests, ANOVA, simple regression, etc.) are based on the *Assumption of Normality* - the sampling distribution of the mean is normal. This assumption holds true with the sample size of 30

and higher. In short, as long as each sample contains a sufficient number of participants, we can infer a normal distribution within the dataset (Hoeffding, 1951; Šapoka & Filipavičiūtė, 2006; Mordkoff, 2011).

4.8 Data Collection Schedule

The ethics application for Study 1 (REB 2017-378) was approved for a period of one year on December 18, 2017. It was extended for an additional year until December 2019. An amendment to use Amazon Mechanical Turk platform was approved on February 2, 2018. An amendment for Study 3 was approved on September 17, 2018.

Data collection schedule for the four studies was as follows:

- Study 1a: January 11-18, 2018 [Amazon Mechanical Turk]
- Study 1b: February 15-22, 2018 [Amazon Mechanical Turk]
- Study 2: April 12, 2018 [Amazon Mechanical Turk]
- Study 3: October 22 - November 26, 2018 [Ted Rogers School of Management Student Pool]

5 Study 1a: Environmental Benefits Message Framing

As mentioned in the literature review, the information-based (justification) approach is a widely used method for promoting pro-environmental behaviour across different industries (Abrahamse et al., 2005). Pro-social behaviour theory infers that information and education are important key aspects in promoting rule adherence in public recreation areas (Stoep & Gramann, 1987). It is especially important when the damaging behaviour is done due to ignorance rather than a purposeful violation of rules (Namba & Dustin, 1992).

Engel et al. (1995) and Vermeir and Verbeke (2006) argue that as the public becomes educated about the consequences of their unsustainable purchase decisions, people are more likely to buy a sustainable alternative. Baumeister (1998) attempts to explain this through a psychological

lens: once people are aware of the bad consequences of their [negative] actions, they feel guilty performing them, and therefore, seek behavioural change to avoid the sense of guilt. However, justification works in the opposite [positive] direction as well. Schwartz (1977) found that people are more likely to engage in positive behaviour (e.g., helping other people) once they are aware of the positive consequences their action will bring.

More research has been done in the field of household recycling than has been done for returnable packaging; however, there are some parallels between the two initiatives. Past research has shown that information printouts distributed to tenants increase recycling behaviour (Jacobs & Bailey, 1982). To be more specific, in some case information brochures resulted in a 200-400% increase in recycling as a result of the information brochures (Jacobs et al., 1984).

People who recycle have a few things in common: (1) they know better which materials are recycled; (2) they are more aware of the environmental benefits of the recycling (Vining & Ebreo, 1990). Drawing parallels from recycling campaigns to returnable packaging programs, I believe that people who choose to return packages (e.g., bottles) back to the store have at least one factor in common: they are more aware of the positive environmental impact of returnable packaging. Therefore, in Study 1, I tried to (1) contribute to the person's awareness of the problem, and (2) show how actions can contribute to solving the problem. This awareness can be achieved through different mediums. I argue that one of these mediums is through the information displayed on product packaging. It would be more cost-effective, not to mention more environmentally friendly, for the company to place the message on the packaging, rather than to make separate information brochures and distribute them to customers.

Study 1A Hypothesis: A message outlining the environmental benefits of returning the bottle for future reuse will result in a higher public willingness to participate in a returnable packaging program compared to a message without such benefits.

5.1 Study 1a Method

In the experiment study 1a, I compared two different types of messages displayed on a glass milk bottle. Milk was chosen because it is one of the most frequently bought organic product on the market that often comes in glass packaging (Cera-foundation, 2001). Not only it is made out of a material that is environmentally better for reuse (glass), milk is also a commonly bought product in a grocery store and therefore is familiar to a large audience. A milk bottle is a common choice of product used to conduct returnable-packaging studies (Kooijman, 1993). Participants (n=279) were recruited via an online panel on the Amazon Mechanical Turk platform. This platform was chosen to get a more diverse sample group. Returnable packaging will affect a diverse group (age, gender, geographic location) of population and therefore it is important to have a similar sample representation. Amazon Turk data collection ran for two working days. The results were then analyzed using the SPSS software. Some of the outliers were deleted due to incomplete responses or the evidence of not paying enough attention to the study. In total, seven responses were eliminated, leaving 272 eligible participants (52.3% male; mean age =36, range 20-72).

Participants were randomly assigned to one of two conditions. In one group, the participants were shown the control message, “Return the bottle. Help the environment” printed on a milk bottle. This message included no additional information on the benefits of returning a bottle. The second group was shown a more detailed message, “Return the bottle. Help the environment by saving 9 litres of water.” The first message represents a control message while the second message provided justification as part of the message. The information about 9 litres of water gives a concrete fact about how one’s actions are beneficial to the environment.

After viewing one of two messages, participants were asked how likely they were to return an empty milk bottle to the store, their willingness to pay, and other brand-related and ad-related questions. The central hypothesis was that a detailed message would result in a higher intended bottle return rate. The list of brand-related and ad-related questions can be found in Appendix 1.

5.2 Study 1a Results

The results of Study 1a showed that people who were exposed to a simpler message resulted in a higher intended bottle return rate. Independent *t*-test results showed a significant difference between the two messages with respect to a reported likelihood of returning the bottle:

Mean(RTB_{simple}) = 5.68 (SD=1.76) vs. Mean(RTB_{detailed}) = 5.23 (SD=2.05), $t = 1.957$, $p < 0.05$,

Cohen's $d = 0.24$. Results for ad-related and brand-related metrics were not statistically significant and thus omitted from this thesis. The graphic representation of these results is displayed by Figure 2.

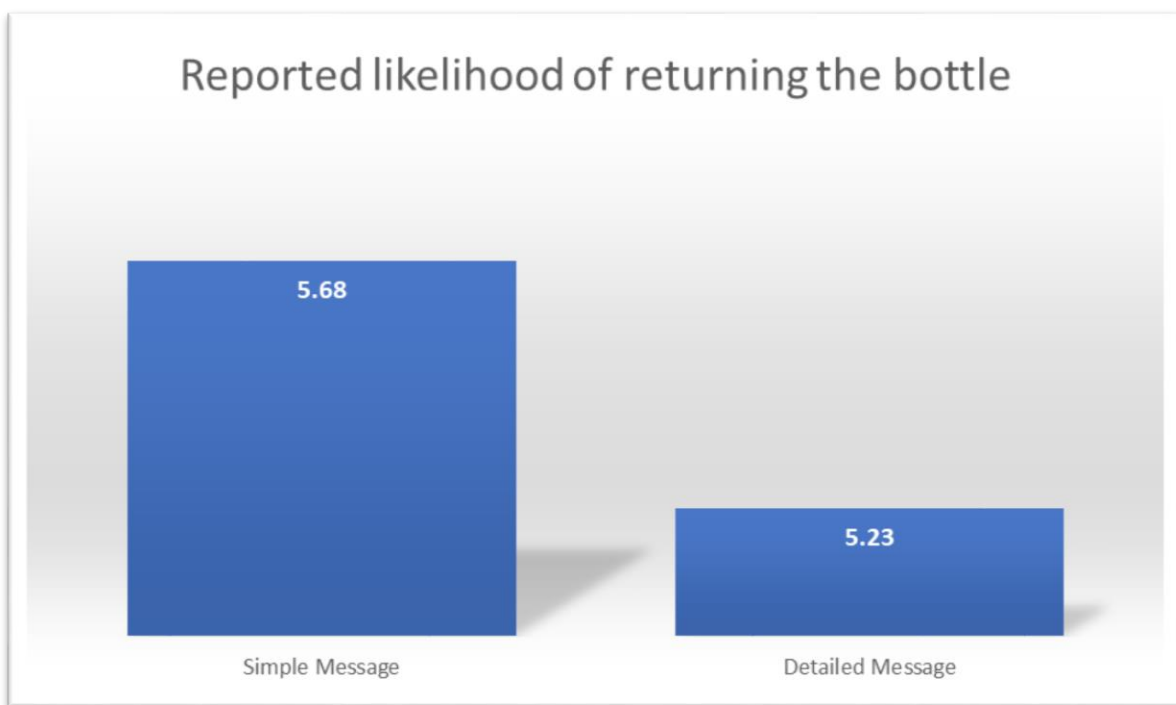


Figure 2: Study 1a results (intended bottle return) [1 being extremely unlikely to return and 7 being extremely like to return]

The Study 1a results did not support my hypothesis. The results were the opposite of what was expected. It also contrasts with what the literature suggested (e.g., Jacobs & Bailey, 1982; Jacobs et al., 1984; Ham, 1992; Engel et al., 1995; Gramann et al., 1995; Baumeister, 1998; Thøgersen, 1999; Widner & Roggenbruck, 2000; Duncan & Martin, 2002; Vermeir & Verbeke, 2006; Bamberg & Möser, 2007). People who were exposed to the justification message were

supposed to engage in pro-environmental behaviour on a higher level than those who were not. But what this study found is that justification had a negative impact on the likelihood of participating in returnable packaging program. These results were counter-intuitive; thus a follow-up qualitative study was conducted to investigate the reasoning. Hence, study 1b was conducted to examine why people preferred the simple, non-detailed message over the message that outlined positive environmental consequences of bottle return.

5.3 Study 1b Method

Study 1b examined the feedback people reported about two messages presented in study 1a. Fifty-six participants were recruited via an online panel on the Amazon Mechanical Turk platform. They were exposed to one of the two milk bottle designs (simpler message vs. detailed message). For each of the milk bottles, survey participants were asked to list up to four thoughts they may have had about the two milk bottles. The participants were free to write down any thought including thoughts about a message, bottle design, or milk quality. The preliminary look at the data showed that two major themes stood out among all the responses. Some people wrote about the message, while others wrote mostly about other characteristics of a product (taste, packaging design, etc.) Therefore, the thoughts were coded such that if a participant's thought was related to the message on the bottle, it was coded as 1. For all other thoughts (e.g., design, taste, quality), a response was coded as 0. A paired t-test analysis was performed to identify any differences in the thoughts' nature between the two groups. The main goal of this follow-up study was to examine the thoughts people had while reading the messages.

5.4 Study 1b Results

The results of the t-test revealed the following numbers: $\text{Mean}(\text{THOUGHTS}_{\text{simple}}) = 1.66$ ($\text{SD}=1.13$) vs. $\text{Mean}(\text{THOUGHTS}_{\text{detailed}}) = 2.51$ ($\text{SD}=1.20$), $t = -5.02$, $p < .01$, Cohen's $d = .73$. The results of Study 1b showed that a group exposed to a detailed environmental message had more thoughts related to the message compared to the group exposed to a simple message. The simple

message geared people to think more about other qualities of a product and less on the displayed message. The visual representation of Study 1b is provided in Figure 3.

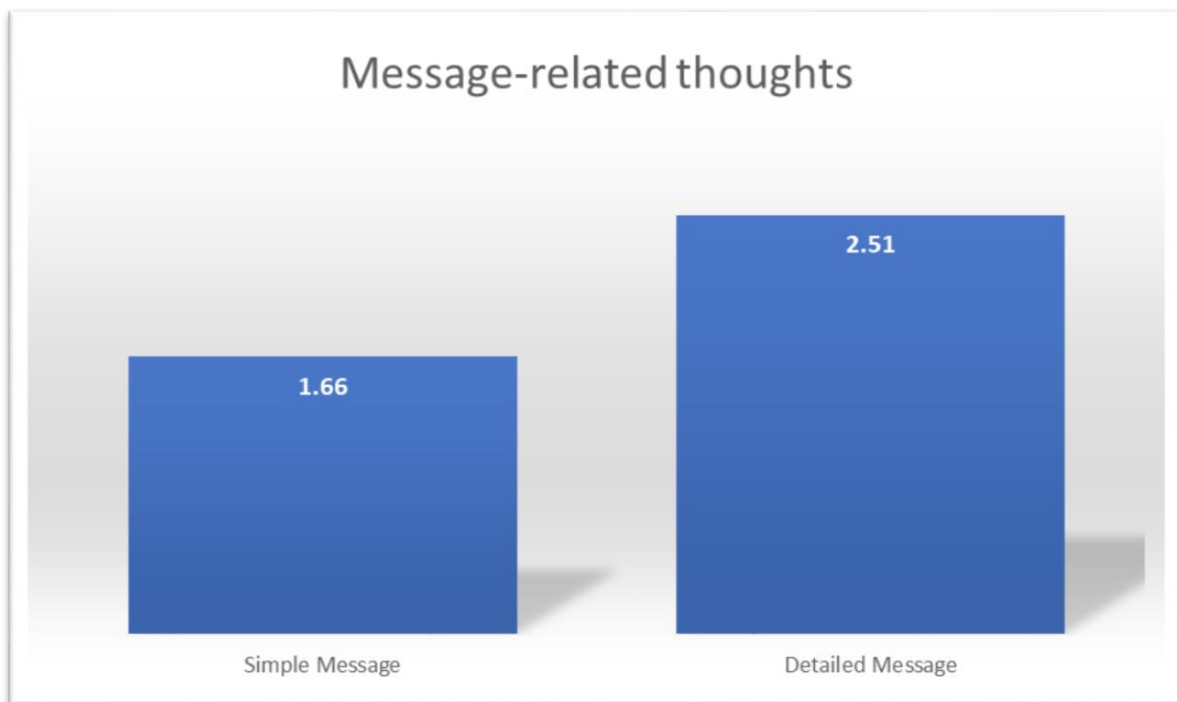


Figure 3: Study 1b results (message-related thoughts) [0 representing no thoughts about the message and 4 being all four thoughts being about the message]

5.5 Study 1a and 1b Discussion

When combining the results of the two studies, it appears that consumers express a higher likelihood to return an empty milk bottle to the store when they are exposed to a simple, non-detailed message. Shoppers pay less attention to the simple environmental message and perhaps focus on other aspects of a product (e.g., design, taste).

Interestingly, while a more detailed message generated more thoughts about the message, it resulted in a lower intended bottle return rate. Two potential explanations are provided below. This showed that there was nothing wrong with the detailed message itself. It worked well for bringing the awareness of environmental issues to the consumer.

Study 1a and 1b findings can be discussed using the theoretical foundation of the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986). The simple message made participants generate

more thoughts about other characteristics of the product which were not related to the message. That is, according to the ELM model, the participants processed a milk bottle through a peripheral route of processing (Petty & Cacioppo, 1986). On the other hand, participants might have utilized central processing when exposed at a more detailed message. ELM states that central route information processing results in a long-term attitude change, while the peripheral route can lead to better short-term compliance (Petty & Cacioppo, 1986). Thus, it is possible that a more detailed message does not result in an immediate impact on the overall bottle return, but people who do choose to return the bottle might potentially adopt this behaviour change for a longer time.

Another potential explanation for such results can be gain vs. loss message framing. People generally are more sensitive to the loss message than the gain message (Frederiks, Stenner, & Hobman, 2015). Since I framed the environmental message as a gain (“Save 9 litres of water”), respondents may not have been as sensitive.

To conclude, Studies 1a and 1b showed that including a message outlining facts about the environmental footprint of non-returned packaging did not result in more sustainable intended consumer behaviour. A simple call for action without additional factual justification worked better.

6 Study 2: Message Framing using Social Modelling, Justification, and Ease of Use

Osbaldiston and Shott (2012) conducted a comprehensive review of different strategies that can be used for promoting environmental behaviour. They concluded that the justification method is the least efficient at promoting curbside recycling. This is in line with what I found in Study 1a. The message mentioning 9 litres of water was justifying the need for bottle return. The justification message turned out to be less efficient when compared to a non-detailed call for action. Osbaldiston and Schott (2012) suggest that the following strategies are among the most effective for promoting curbside recycling: making the behaviour easier, providing rewards, and engaging a person in social modelling. Study 2 focuses on testing the impact of these strategies on intended bottle return rates.

More thorough analyses of these three methods are outlined below.

6.1 Hypothesis Development: Social Modelling

Bandura's learning theory (1977) encourages the use of social modelling. People supposedly follow the exemplified behaviour if the behaviour is easy to understand, relevant, meaningful and rewarding. Observational learning occurs when people watch other people. Social modelling has a positive effect on strengthening social norms and, as a result, changing people's behaviour (Shultz et al., 2017).

As for the practical implementation of this knowledge, Oskalmp et al. (1991) looked at curbside recycling and found that people were more likely to recycle if their friends and neighbours recycled. Abrahamse et al. (2005) and Lehman & Geller (2004) studied other pro-environmental behaviours and came to the same conclusion. I believe the same logic should apply for the returnable packaging concept because it requires similar effort on the participant's side as curbside recycling. When participating in curbside recycling, a person needs to sort waste, clean it, store it, remember to put it on the curbside on a specified day, and carry the bins back to the house. When participating in returnable packaging, the person needs to clean the packaging, store it somewhere for a week, and then remember to bring it to the store next time the person goes there. If people see their friends and neighbours returning empty bottles to the store, they become more likely to do it themselves.

Hypothesis 2.1: Social modelling increases people's willingness to return an empty bottle to the store compared to the participants exposed to the simple call for action message.

6.2 Hypothesis Development: Making Behaviour Easier

The Literature Review *Ease of Use* section provided a detailed overview of numerous studies which suggested the inverse relationship between the recycling rates and the proximity of a recycling bin. The closer a bin was to a person, the more likely he/she is to recycle. People usually choose the low-effort, immediate-reward behaviour; therefore, it is in the interest of companies that want to implement returnable packaging to make returning packaging as easy as possible.

According to the exchange theory (Houston & Gassenheimer, 1987), the perceived benefits of an exchange should outweigh the perceived costs for the transaction to occur. If exchange theory is applied to social marketing, one can say if social campaigners “can demonstrate that the perceived benefits of the innovation outweigh the perceived costs of its 'purchase' (i.e., its adoption), voluntarily adoption by the consumer is more likely.” (Maibach, 1993, p. 211).

People tend to overvalue the effort needed to engage in pro-environmental behaviour. The best approach in dealing with this human tendency is to reduce the amount of effort required to complete a sustainable action (Hirsh et al., 2015). Vermeir and Verbeke (2006) recommend implementing communication strategies that lower the perceived effort when promoting sustainable products.

Bottle return is similar to a drop-off recycling program. We can expect that the longer the distance to the grocery store, the fewer people are willing to participate in a bottle return program. To increase participation in a bottle return program, we need to reduce the distance and perceived effort needed to return a bottle. Offering a pick up is similar to offering curbside recycling instead of asking people to drop their waste in a recycling facility.

Hypothesis 2.2: When participants need to exert less effort in returning a bottle, they are more willing to return an empty bottle to the store compared to the participants exposed to the simple call for action message.

6.3 Hypothesis Development: Rewards

Learning theory suggests that external rewards make a targeted behaviour more appealing and therefore foster a behavioural change (Geller, 1989). Various promotions (price discounts, store point rewards) have an immediate impact on brand sales and can potentially promote repeated purchase behaviour (Blattberg & Neslin, 1989).

Hayes and Cone (1977) found that financial rewards positively affected energy conservation behaviour. Researches, such as Geller (1987, 1992), Geller et al. (1982), Cone and Hayes (1980),

looked at other pro-environmental behaviours and found a direct relationship between sustainable behaviour and financial rewards. Geller (1989) suggests that financial rewards make the behaviour more appealing and therefore foster a behavioural change. Ariely et al. (2009) concluded that economic incentives help with pro-social behaviour when the decision is made privately. Since returning an empty bottle to the store is a decision made in private, these findings should apply to returnable packaging. I believe that a financial reward offered for returning an empty bottle to the store would make the behaviour more appealing to the customers.

The industry prefers the financial rewards as a motivating factor. For example, companies such as Beer Store and Longos charge a bottle deposit upon check out and then reimburse it once an empty bottle is returned to the store. The recovery rate of Beer Store containers is 87% as of 2018 (The Beer Store, 2019b). This means that 87% of beer containers purchased at the Beer Store get returned back to the Beer Store. Other companies (e.g., Greenhouse Juice Co. based in Toronto) choose to give rewards points upon bottle return that can later be used to get a free product.

Even though the financial rewards are a widely accepted method in the industry, the dollar amount of a reward varies dramatically between the vendors. Longos charges \$2 deposit for a single milk bottle. The Beer Store charges 10-20 cents per container depending on the volume (The Beer Store, 2019a). There is no agreed upon consensus of what a refundable deposit should be. Therefore, for the sake of this study we decided to use the loyalty points instead.

Loyalty points were chosen as a preferred type of a financial reward because 60% of American consumers had a grocery store loyalty card in 2005, and since then the participation grew by 11% per year (ACNielsen, 2005). Reward programs are considered a useful tool in both increasing sales and promoting brand loyalty (Kopalle & Neslin, 2003). Also including the message about rewards points allowed me to avoid using an exact dollar amount. If the reward were put in dollar values, it would have potentially confused people, and the “willingness to pay” variable might have been affected by this confusion. Study 2 assumes everything about the product and the pictures

is the same except for the message. If a refundable deposit is introduced, the perceived price of a product is increased when compared to the *ease of use* and *social modelling* messages and therefore it can affect the overall willingness to buy the product because it would seem more expensive. In this case the lower intended bottle return rate would not necessarily imply the message ineffectiveness, but rather that less people are willing to buy a more expensive product. Plus, it is a common practice among stores to promote their product through loyalty points rather than financial discounts. Loyalty programs provide short-term behavioural reinforcement (Rothschild & Gaidis, 1981). From here on, the loyalty points message used in Study 2 will be referred as a “financial reward message.”

Hypothesis 2.3: People exposed to the financial reward are more willing to participate in a bottle return compared to a simple call for action.

6.4 Study 2 Method

Participants (n=485) were recruited via an online panel on the Amazon Mechanical Turk platform. Due to some incomplete responses, 24 responses were eliminated, leaving 461 eligible participants (51.2% male; mean age =37; range 18-81).

Design and procedures were similar to that of study 1a/1b. In this study, participants were randomly assigned to one of four conditions:

1. Control: “Help the environment. Return an empty bottle back to the store for reuse.”
2. Social Modelling: “Help the environment. Return an empty bottle back to the store for reuse. 1,080 bottles returned to this store last month.”
3. Making behaviour easier (Ease): “Help the environment. Return an empty bottle for reuse. We’ll pick it up.”
4. Rewards: “Help the environment. Return an empty bottle back to the store for reuse. Earn Rewards Points.”

After seeing one of four messages printed on a milk bottle, participants were exposed to the manipulation check questions. This was done to check if participants actually perceived these

messages differently. Once the manipulation check was completed, they were asked the same dependent variable questions as earlier studies.

6.5 Study 2 Results

The ne-way between-subject ANOVA analysis was performed on the final data set to compare the effect of four different messages (*control*, *ease of use*, *social modelling*, and *financial rewards*) on the intended bottle return. There was a significant effect of a message type on intended bottle return at $p < 0.001$ level ($F(3,446) = 5.41$, $p < 0.001$). Post hoc comparison using the Tukey HSD Test showed that the Ease message ($M = 6.17$, $SD = 1.01$) was significantly different than the other three messages. The other three messages did not show a significant difference in resulted intended bottle returns. Results of Study 2 showed that people who were exposed to the *ease of use* message resulted in a higher likelihood of returning the bottle when compared to the *control*, *social modelling*, and *rewards messages*. The visual representation of Study 2 results is provided in Figure 4. The “willingness to pay” variable did not show any statistically significant results between the four conditions. Once again, there was no difference between the four messages for willingness to pay, brand-related, and ad-related variables.

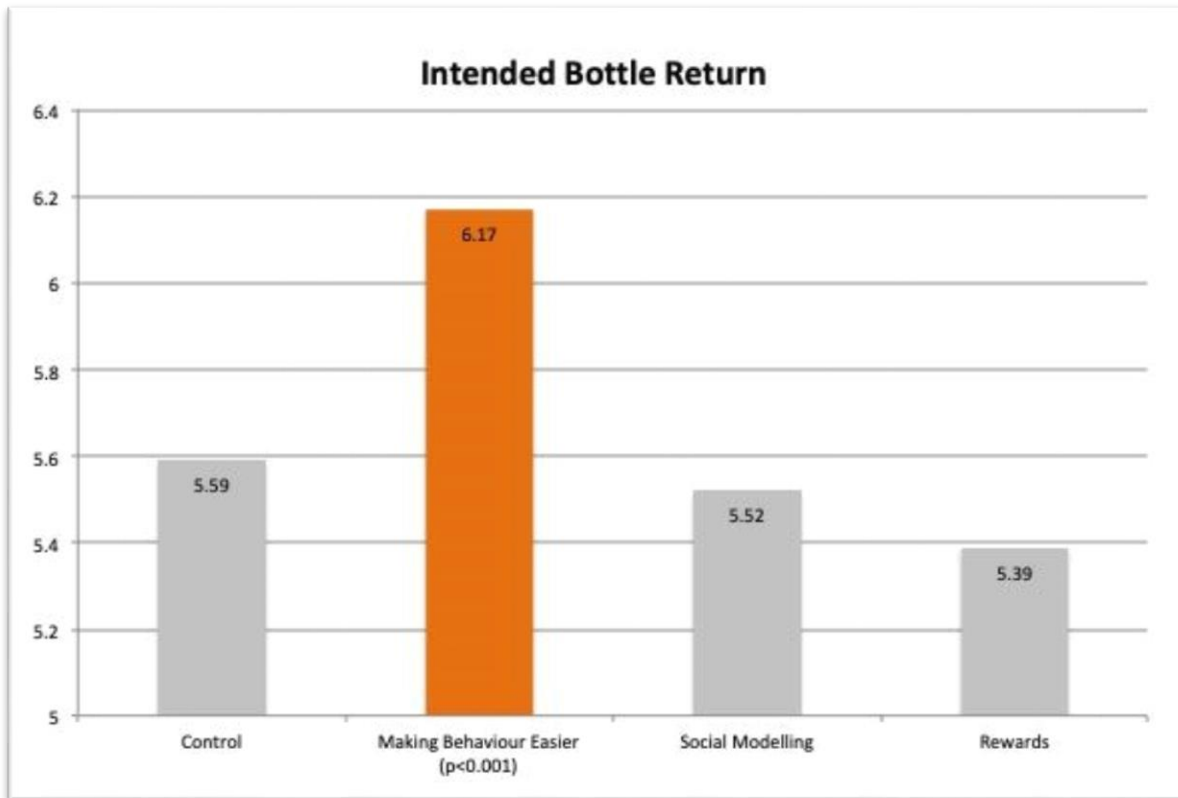


Figure 4: Study 2 Results

6.6 Study 2 Discussion

Study 2 showed that making the behaviour easier may result in higher intentions for bottle return. Other methods such as social modelling and providing financial rewards were not different from the control message. Thus, hypothesis 2.2 is the only one that held true under this experiment. It is hard to change a behaviour long-term without changing the attitude towards the issue. Financial rewards fail at changing the attitude towards sustainability (Dobson, 2007). Self-perception theory (Bem, 1972) informs us that self-identity is crucial in behaviour change. Once a person identifies with a new, “caring-for-the-environment self” but continues to engage in harmful to the environment behaviour, cognitive dissonance occurs (Thøgersen & Crompton, 2009). People quickly change their behaviour to eliminate cognitive dissonance (Festinger, 1957). Participating in pro-environmental behaviour solely because of financial rewards does not create a new identity, and therefore people do not change their behaviour (Aronson, 1992). No matter what the purpose of the campaign is, when money is the main focus of a campaign,

people often behave selfishly (Vohs, Mead, & Goode, 2006). However, there are cases when a person acts pro-environmentally without having an environmental self-identity. People participate in such activities for health reasons (Gifford, 2011, 2013) or to gain social status (Griskevicius, Tybur, & Van den Bergh, 2010). These self-identities are based on self-enhancing values that will be further discussed in Study 3.

Frederiks et al. (2015) found that people focus more on what they will lose (cost, time, effort) vs. what they will gain. These findings can be applied in explaining Study 2 findings: the disutility of making a trip to the grocery store outweighs the utility of obtaining a financial reward or receiving a sense of social connection. Moreover, even though social norms are important for creating personal values, sustainable behaviour is determined more by habits (Thøgersen, 2001). Perhaps it is difficult to impose social norms on a person under the experimental settings that were used. *Telling* people that their neighbours participate in a bottle return program is not the same as them *seeing* their neighbours doing it regularly. To conclude, making environmental behaviour easy appears to be the best method for a bottle return campaign. *Social modelling* and *financial rewards* were found to be not as effective as an *ease of use* approach under our experiment.

7 Study 3: Self-enhancing vs. self-transcending value priming's effect on intended bottle return

Pro-environmental or pro-social campaigns usually use terms such as “saving,” “protecting,” “sacrificing,” or “doing with less” when calling for altruistic behaviour. Large organizations such as Greenpeace made messages showing disappearing polar bears, birds covered in oil and other guilt-inducing aspects of climate change a common standard in environmental movements (Climate Change Communication Advisory Group, 2010). Even though framing messages this way is correct factually, it only taps into one group of social values, altruism, while completely ignoring other fundamental values such as hedonism (Corner, Markowitz, & Pidgeon, 2014). A clear division in targeted value groups is evident in the polarization of views on climate change: people with self-transcendent values view climate change as a severe problem requiring immediate actions, while the other, self-enhancing

group view the climate change movement as an invasion of their values (Nilsson, von Borgstede, & Biel, 2004; Gastil et al., 2009).

It is worth reminding that behaviours driven by self-enhancing values are usually oriented towards achieving social power, authority, success and wealth. In contrast, behaviours driven by self-transcendent values aim towards being helpful, honest, loyal and broad-minded. People with self-transcendent values accept others and have a genuine concern for other people's well-being (Schwartz, 1994). People possess both sets of values. Enhancing one set of values makes the other one less salient. It means at any given point, one set of values is dominant over the other (Pakizeh et al., 2007). From here on, people with dominant self-transcendent values will be called the "self-transcendent group" while people with dominant self-enhancing values will be called the "self-enhancing group."

The Literature Review section showed that people with dominant self-transcendent values care not only about other people but also about animals and the environment overall (Dietz et al., 1995; Kalof et al., 1999; de Boer et al., 2007). People with self-transcendent values chose environmental protection over economic growth (Schultz & Zelezny, 2003). When it comes to pro-environmental behaviour, agreeableness and openness are the value traits that predict such behaviour the most (Hirsh & Dolderman, 2007; Hirsh, 2010; Milfont & Sibley, 2012). Agreeable people are known for their empathy and care (Graziano & Eisenberg, 1997). It can be concluded that self-transcendent people would be among the first to participate in the bottle return program.

The Inclusion Model of Environmental Concern (Schultz, 2002; Schultz et al., 2005) shows that there are two levels of environmental concern: the lower level (egoistic concerns) and the higher level (biospheric concerns). People on the higher level of environmental concern would respond well to both types of environmental messages: the one serving the "higher good" (altruistic) and the one serving the individual (self-serving) (De Dominicis et al., 2017). This implies that people on the higher level of environmental concern would act pro-environmentally no matter whether one taps into their egoistic or biospheric concerns.

Hypothesis 3.1: Altruistic and self-serving messages will result in the same level of intended bottle return when shown to respondents primed with self-transcendent values.

People with self-enhancing values do not find altruistic “save the planet” messages meaningful to them and therefore do not engage in a desired pro-environmental action (Schultz & Zelezny, 2003). Perhaps outlining societal and economic benefits of environmental behaviour may appeal more to people with self-enhancing values because they can enhance their status by engaging in such practice (Griskevicius et al., 2010). People involved in philanthropy can get a sense of power, success, and control, which are self-enhancing values (Urien & Kilbourne, 2011).

Kaplan (2000) suggests that the current altruism-centred approach to environmental issues results in the feeling of helplessness and demands sacrifices. It ignores the aspects of personal gain and self-interest.

Previously researchers believed that only people with self-transcendent values behave pro-environmentally and therefore the information should be presented in a specific way to unleash those values (Boyce et al., 2017). What Dominicis et al. (2017) found contradicts this traditional understanding of environmental behaviour. They not only argue that self-centric people can participate in pro-environmental behaviour, but that self-transcendent people respond to self-serving messages comparable to their responses to the traditional guilt-inducing “save the planet” messages.

Even Vermeir and Verbeke (2006), who advocated the justification approach in green marketing (similar to what I used in Study 1), stated that not all people could be moved by the “righteousness” of buying sustainable products. Perhaps tapping into individualistic needs is a more powerful way of communicating with such consumers. They recommended telling a different story when promoting green products to people with self-enhancing values. Putting the following factors in a spotlight might be helpful: health consequences, hedonistic needs, and economic incentives.

To sum up, the problem with low pro-environmental behaviour involvement can be due to the poor environmental campaign framing. It is usually misaligned with the self-centric, gain-seeking

side of human nature (Kaplan, 2000; Schultz & Zelezny, 2003).

De Dominicis et al. (2017) argue that communicating environmental messages through self-serving framing is likely to increase participation in the desired behaviour due to a broader audience coverage. Self-serving framing would be appealing to both self-enhancing and self-transcendent audiences; while altruistic framing would only be appealing to the self-transcendent group of people. It also shows that environmental behaviour is not limited to a small percentage of genuinely self-transcendent people. There are pathways to engage an ordinary citizen with dominant self-enhancing values in sustainable practices (Dietz, 2005).

Hypothesis 3.2: The self-serving message leads to a higher willingness of bottle return among participants primed with self-enhancing values compared to the altruistic message.

7.1 Study 3: Method

According to Swartz (1992), both self-enhancing and self-transcendent values are present in each individual. However, one set of values is usually dominating over the other at a given moment. Verplanken and Holland (2002) state that values need to be activated to affect the behaviour. Priming is a widely used experimental tool for activating specific values. Different priming methods have been used to enable one set of values (Roccas, 2003). Here, I used the priming method introduced by Verplanken and Holland (2002) to activate only one set of values. This method is further discussed in the next section *Step 1: Priming*.

Ted Rogers School of Management student pool was used for Study 3. This is due to the priming step conducted in this study. It was important to administer the setting of the experiment to make sure the environment is quiet to allow a participant to focus on the activity that was supposed to put a person in a specific state of mind (self-transcendent vs. self-enhancing). It was also done to avoid any pauses or task-switching after the priming stage to make sure the priming effect is not lost.

Participants in Study 3 were randomly assigned into two groups: self-transcendent or self-

enhancing priming. They were asked to write a short paragraph about their impression of a person with a particular set of values.

After participants are primed with either self-transcendent or self-enhancing statements, they were shown the picture of a milk bottle with one of the two messages:

1. Ease of use: “Return an empty bottle for reuse. We’ll pick it up.”

2. Justification: “Return an empty bottle for reuse. Conserve natural resources, stop deforestation, and reduce air pollution.”

The goal of this study is to see whether people who are primed towards their self-transcendent values favour a different pro-environmental message when compared to people in the self-enhancing group. The hypothesis is that the self-transcendent group will respond well to both messages while the self-enhanced group will positively respond to only *ease of use* message. A 2x2 factorial analysis between subjects was performed for the “Return the Bottle” variable. Subject factorial design consisted of two variables: message (altruistic (ease of use) vs self-serving (justification)) and priming (self-transcendent vs self-enhancing).

7.1.1 Step 1: Priming

Participants were primed into two different groups: self-transcendent and self-enhancing. I followed the same approach as Verplanken and Holland (2002) and presented each group with a fictional person Jordan who adheres to a list of values. The name Jordan was chosen to eliminate any gender biases since Jordan is a unisex name. Participants were asked to form an impression of Jordan and write a short paragraph about it. The self-transcendent group was presented with the following Jordan values: preserving nature, caring for future generations, protecting animal diversity, avoiding air pollution, promoting sustainable shopping practices, minimizing waste generation, and increasing public awareness of environmental degradation. The self-enhancing group was presented with these set of values: perfectionism, travel, enjoying the good things in life, having a successful career,

authority, self-confidence, and spending time with family and friends. Respondents were asked to write for three minutes.

According to Verplanken and Holland (2002), during this exercise people “adopt” some of the values they write about for a short period of time. If a person writes about a person who cares about the environment and future generations, she activates this “caring” side of her; she taps into the self-transcendent part of her value system.

A manipulation check was the next part of a survey. Respondents answered questions from the environmental concern scale (Schultz et al., 2005). Questions from the original Schwartz (1994) value scale were also added. Overall, respondents were checked on the basis of three scales: individualistic concern, social concern, and environmental concern. The questions can be found in Appendix 4. If the priming is successful, social and environmental concern results should be higher for the self-transcendent group while individualistic concern should be higher for the self-enhancing group.

7.1.2 *Step 2: Bottle Return Message*

After completing the manipulation check, participants were exposed to a bottle return message. One of the two messages was randomly assigned to each person: easy (self-serving) and justification (altruistic). The justification message provided factual information about the global waste problem and how returnable packaging is an effective way to address the issue. The easy-to-use message outlined the effort-minimizing bottle pick up options. I did not include the regular “Help the environment” sentence I had used in previous studies to eliminate any altruistic parts of the message framing. The pictures used in the survey can be found in Appendix 4.

Participants were asked to look at the ad for one minute during which they are asked to write a small paragraph about the message printed on the bottle. This step was included to make sure participants read the message and not just look at the design of the bottle. The writing part was included so that they can actually comprehend the message they had just read. After the time was up,

they answered manipulation check questions. The goal of the manipulation check was to see whether I had been successful at framing a message in an altruistic or self-serving way. Respondents were asked to rate statements such as “I think returning the bottle will be easy,” “I think returning the bottle will benefit the environment,” “I think returning the bottle will benefit me.”

7.1.3 Step 3: Dependent Variables

The dependent variables remained the same as earlier studies.

7.2 Study 3: Results

There were 111 participants in this study. Participants were recruited through the Ted Rogers School of Management student pool at Ryerson University. The study ran for a period of two weeks. Prior to the data analysis, 11 responses were eliminated for one of the following reasons: incomplete answers, major outliers in main variables (priming and picture manipulation check, return the bottle). The final dataset consisted of 100 eligible participants¹ (38% male; mean age =21, range 18-53).

Unfortunately, the manipulation check for priming was not statistically significant. However, a post-hoc analysis of both manipulation checks showed statistically significant results. Details of the post-hoc study can be found in Appendix 4.

A 2x2 (priming X message) factorial analysis was performed for the “Return the Bottle” variable. Results showed a significant between-subject effect of priming and message on the willingness to return the bottle ($F(1, 96)=5.78, p<0.05$), indicating that there was an interaction effect between priming and message. Results of 2x2 factorial analysis are presented in Table 1.

¹ Additional data was attempted to be collected. However, due to resource constraints, I could not run additional studies.

Table 1: Study 3 results (2x2 factorial analysis)

	Priming		
Message	Self-Transcendent M (SD)	Self-Enhancing M (SD)	Total M (SD)
Self-serving	5.88 (1.20)	5.78 (.90)	5.83 (1.06)
Altruistic	5.71 (.75)	4.43 (1.71)	5.02 (1.49)

Process Model 1 was used to distil down the results. Process Model 1 showed that only under self-enhancing priming did the message have a different impact on “return the bottle” rates ($F(3,96)=8.38$, $p<0.01$). Results are presented in Table 2 and Figure 5. Since condition effect is insignificant for self-transcendent priming, one may conclude that there is no impact of message framing for participants primed with self-transcendent values. In sum, the results confirm my two hypotheses: (3.1) Altruistic and self-serving messages result in the same level of intended bottle return when shown to respondents primed with self-transcendent values; and (3.2) The self-serving message leads to a higher willingness of bottle return among participants primed with self-enhancing values compared to the altruistic message.

Table 2: Conditional Effect of Message on Return the Bottle Rates

Priming	Effect	t	p
Altruistic Priming	0.1717	0.4898	0.8673
Selfish Priming	1.3540	3.9236	0.0002

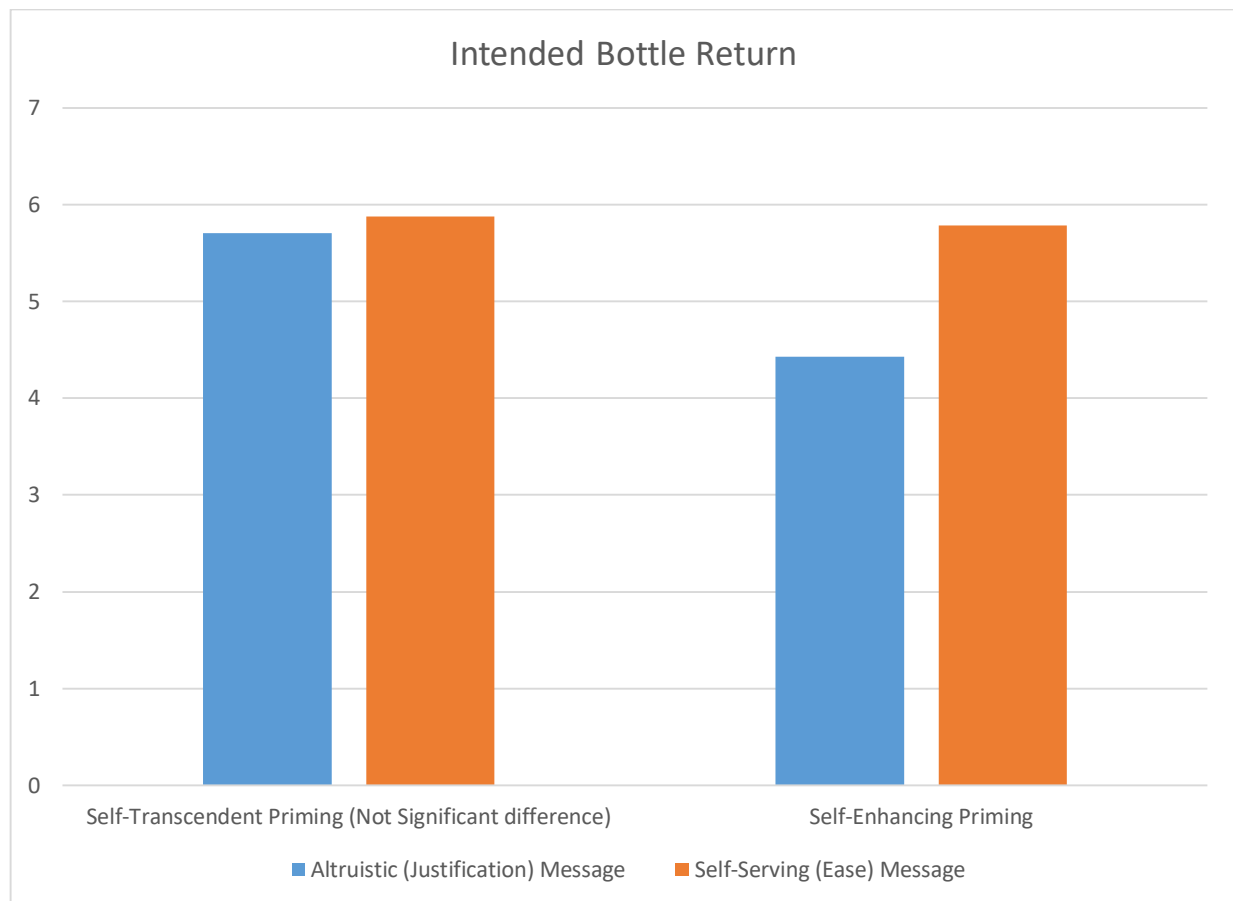


Figure 5: Study 3 results (means for intended bottle return)

8 General Discussion

The main goal for this research was to see whether product messaging affects customers' willingness to participate in a returnable packaging campaign. The current literature supports the idea of returnable packaging. A lot of research has been conducted over the last years that outline the environmental benefits of returnable packaging over recycling (e.g., Carter & Ellram, 1998; Ghenai, 2012; Kazdin, 2009; Kolikkathara et al., 2009; Moore, 2005; Neill & Williams, 2015; Ravi & Shankar, 2005; Silva et al., 2013). However, there is a gap in the literature that addresses the practical side of business-to-consumer returnable packaging in the retail food industry. There are very few academic articles outlining successful business practices for convincing consumers to participate in such a concept. I attempted to fill the gap with this research. In order to do so, some directions needed to be drawn from other environmental and behavioural literature. The examples from research on recycling and energy conservation were used. While conducting the literature

review, the common patterns arose. The most successful environmental campaigns used one, or the combination, of the following methods: justification, financial rewards, social modelling, and ease of use. These four methods were tested in the studies.

Study 1a demonstrated that the simple non-detailed message “Return the bottle. Help the environment” printed on a bottle resulted in a higher likelihood of returning an empty bottle back to the store than the justification message “Return the bottle. Help the environment by saving 9 litres of water.” These results contradicted the literature. Study 1b was conducted to gain more insight into these counter-intuitive results. Study 1b showed that people exposed to the justification message thought more about the message, while people exposed to the simple message paid more attention to other attributes of a product (taste, bottle design, etc.). Using the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986) provided for the suggestion that people exposed to the justification method might potentially form a long-term commitment to returnable packaging after “processing of the information” is completed. In contrast, people who were exposed to the simple message might show higher intentions to participate in bottle return in the short-term, but there is no guarantee they will stick with this behaviour in the long run.

The second study tested the other three popular methods outlined in the Literature Review: ease of use, social modelling, and financial rewards. Only the *ease of use* message produced statistically significant improvement in return rates from the simple control message “Return the bottle. Help the environment.” The message was “Help the environment. Return an empty bottle for reuse. We’ll pick it up.”

Study 3 tested the *ease of use* message even further. Academic literature on self-transcendent (altruistic) and self-enhancing (selfish) values showed that most environmental campaigns target the altruistic group of people. Therefore, the environmental messages usually have a guilt-inducing aspect to them, which is highly effective when combined with self-transcendent values. However, the large group of people with dominant self-enhanced values are left untouched when they see

messages designed for the self-transcendent set of values. This was one of the potential explanations for Study 2 results. In Study 3, people were primed to be either in an altruistic (self-transcendent) state or selfish (self-enhancing) state. In next step, each group saw either a justification method (the conventional approach in environmental campaigns) or an *ease of use* message (the message that only focuses on selfish interests while saying nothing about the environment). Results showed that altruistically-primed people are indifferent between the two messages. One might say this group of people is willing to participate in sustainable behaviour no matter how it is presented. However, the selfishly-primed people responded better to the *ease of use* message than to the *justification* one.

Studies 1a, 1b, 2, and 3 present interesting findings. Justification seems to be an ineffective approach in promoting returnable packaging in the short-term. A simple, non-detailed call for action might be a better approach. The common practice of offering bottle deposits might be ineffective according to this research. When the financial reward was offered, participants did not show a higher willingness to engage in a pro-environmental activity. The only method that worked for the North American population sample surveyed for this research was making the behaviour easier. This might be the case because the *ease of use* message is more appealing to the self-enhancing side of human nature; there is less individualistic effort involved in doing the “right” thing. Since the *ease of use* message was effective for both types of people, altruistically-primed and selfishly-primed, it gathered the highest bottle return rate. Messages tapping into the selfish side of human nature appeal to a greater audience and therefore result in better public participation. This is very different from the common practice of guilt-inducing messages which we see in environmental campaigns.

8.1 Practical Implications

This research shows that engaging with the self-enhancing side of human nature gains better results when advocating a returnable packaging concept. In particular, making the behaviour easier gained the highest self-reported bottle return rates. Nowadays, the common practice among the few companies that accommodate returnable packaging is to do it through bottle deposit. When a

customer buys a product, she pays a bottle deposit, and when she returns an empty bottle, she gets the deposit back. Some companies offer a discount on the next purchase if a customer returns a bottle. Both of these practices lay under the financial reward umbrella. The findings of this research suggest that financial rewards are not as effective as making behaviour easier. What companies can do instead is to invest in developing the infrastructure that makes returning the bottle easier for the customers. They can invest in building convenient neighbourhood drop-off locations. They can schedule monthly pickups. Any activity directed at removing the traction on the consumer side would result in greater willingness to participate in returnable packaging behaviour.

A great example of implementing the *ease of use* method is a newly established company called Loop. It is based in the US but will be expanding to Canada in 2020. The company partnered up with major retail brands such as Haagen-Dazc, Pantene, Tide, Crest, Gillette, Cascade, Dove, Seventh Generation and many more. These companies designed a refillable packaging for their packaging and Loop is responsible for delivering the products to consumers while picking up an empty packaging from a used-up product for future clean up and refill (Loop, 2019). The fact that Loop was supported by major retail brands is very promising. It is designed to make reusable packaging easy to the consumers, so much so that they don't even need to leave their house. This makes it a perfect example of implementing the *ease of use* approach.

Nudging techniques can be used to make the behaviour easier. Without altering the set of choices a retailer can change the layout of a store. Right now if customers want to return an empty bottle, they need to go to a special customer service specialist. It takes more time and the booth is usually hidden somewhere in a corner of a store. A store manager can change that and put a bottle drop off specialist close to the entrance of a store. This serves multiple purposes. First of all, a customer doesn't need to be carrying empty bottles while shopping. A customer can easily drop it off when walking to work because she can quickly step in the store and drop it off without needing to walk through the entire store. Second of all, it serves as a constant reminder that there is such option

as returnable packaging. It serves as a silent advertising for returnable packaging to every person that walks in into the store.

Another option is to make products packaged in returnable packaging a default option. If a customer wants to grab the same product but packaged in plastic, he would need to ask a sales associate to bring it from the storage room. Right now stores have customer specialists that work behind the deli, meat and fish counters. Customers have an option to grab something from the shelves (default option) or talk to an employee and ask for a specific cut of meat. Talking to an employee takes more time and effort. The same can be done to products served in returnable vs single-use packaging.

These days almost every major retailer uses loyalty cards as a way to gather customer data. Companies have an access to advanced data analytics. They can get some insights into consumer behaviour and view recent purchases. If a consumer bought an item in returnable packaging, an algorithm can provide some insights on how often the consumer shops in the store and on what day he is more likely to go shopping. A text message or an email can be sent a day in advance reminding to bring an empty bottle back to the store.

It is a good idea to understand the target market of a particular store. If the target group processes primarily a self-transcendent set of values, not much investment is needed on improving the drop-off infrastructure. This group of people is willing to help the environment with very little nudging. However, if the target group consists mainly of people with a self-enhancing set of values, more improvements are needed to make the drop-off process as smooth as possible.

If a company is not ready to invest in improving the drop-off infrastructure, Study 1 findings showed that the simple call for action printed on a package is more effective than a detailed justification on why one needs to return the packaging to the store. Therefore, it is recommended to avoid an extensive explanation of the environmental impact of returnable packaging.

Providing financial rewards can still be a good approach in promoting returnable packaging.

Financial rewards would be appealing to people with activated self-enhancing values because financial incentive matches the self-enhancing desire for wealth. As Study 3 showed, people with activated self-transcendent values would also respond to such self-serving messages. However, according to Study 2, making behaviour easier is a more effective approach.

It is important to remember that consumers punish companies that do not keep proclaimed social and environmental practices (Sen & Bhattacharya, 2001; Simmons & Becker-Olsen, 2004). Even though green claims benefit companies, it is important to make sure the company is actually doing what they claim to be doing to avoid public scrutiny. Therefore, it is highly recommended to avoid announcing a company's intention of going green without having a sound and working plan on how to implement the changes. Moreover, corporate social and environmental responsibility practices can't replace strong brand management and high-quality products (Becker-Olsen, Cudmore, & Hill, 2006). Therefore, the companies that will benefit the most from embarking on the environmental conservation path are the ones that already have good quality products.

8.2 Limitations

I want to disclose some of the limitations regarding this research project. The main limitation lies with the generalizability of the findings discussed above. Even though two different pools of participants were used: student pool and Amazon Mechanical Turk to diversify the age group of the participants, these groups are still homogeneous in other respects. Only North American participants were studied. The American population tends to possess strong self-enhancing values (Schultz & Zelezny, 2003). One might expect potentially different results in other countries. In addition, Study 3 used a student pool only, therefore limiting the age of the participants to a very narrow range. It is not clear that the results found in Study 3 would apply for a broader age range population.

The studies were conducted using the picture of a milk bottle as a product shown to participants. This limits the applicability of the findings to the food retail industry. Since only milk bottle was studied, it is not clear whether the same findings will apply for other food items or

studying returnable packaging for non-food items.

Participants were asked how likely they were to return an empty bottle to the store. No actual behaviour was studied. Self-reported behaviour and actual behaviour often differ. Also, Study 3 had a limited sample size. Ideally, one would want to gather more data to make the results more robust.

8.3 Future Research Ideas

Self-reported willingness to participate in pro-environmental behaviour often does not align with the actual behaviour (Hirsh et al., 2015). People often report how they would like to behave or how they would like to be seen behaving by other people (Thøgersen, 1999). Experimental studies in a real grocery store are needed to confirm the findings of our research.

Milk bottle was a chosen product in all three studies. It is worth studying other packaged items sold in the store. Laundry detergent would be a great product to study because it is currently sold in a heavy-duty plastic container that requires a lot of plastic to produce, therefore the environmental benefit of changing the packaging for returnable option is going to be substantial. It is also a regularly bought item, so it can guarantee a constant stream of container drop off. According to Statistics Canada (2017), dairy products and non-alcoholic beverages are two other frequently bought categories among Canadian households. These products come in packaging that can be turned in returnable containers. Yogurts, creams, and juices can be sold in glass containers that can later be sanitized and refilled, similar to the milk bottle example used in this research. The more products are studied; the more robust practical implementation recommendations will become.

Only a North American population was surveyed in this research, which arguably has a different general emotional profile from other nations. Studying how other nationalities react to justification, social modelling, ease of use, and financial rewards environmental messages can be another good follow-up research topic.

Rewards points were used in Study 2 as a proxy for a financial reward. Even though the literature reviewed in Hypothesis Development for Study 2 suggests that loyalty points are a good

alternative to the straightforward financial rewards, the most common practice in the industry is to use a refundable bottle deposit. The deposit amount varies from 10 cents to few dollars, there doesn't seem to be a clear consensus on the price elasticity of returnable packaging. It is worth researching the refundable deposit amount that would maximize both the willingness to buy a product and willingness to return an empty bottle.

Since this study showed that making the pro-environmental behaviour easier gathers the best response, it is worth studying various methods for making returnable packaging easier to adopt. Different methods for customer returns should be studied. Some will be more cost-effective than others, and they will result in different return rates. It will be useful for companies to know what options are available and which ones are the most effective.

People with primary self-transcendent values respond the same to both *justification* and *ease of use* messages. Since justification messages do not require as much investment in drop-off infrastructure as *ease of use* messages, it is worth studying different methods for priming self-transcendent values among shoppers at the store, so they are more willing to buy products with returnable packaging and therefore returning it later on.

To conclude, encouraging customers to engage in a returnable packaging campaign is possible, yet, it is not easy. First and foremost, the conventional method of tapping into the altruistic side of human nature with guilt-inducing messages is ineffective for the population at large. What this research showed is that embracing the self-enhancing, gain-seeking, pain-eliminating side of human nature results in a bigger pro-environmental behaviour change. Making the process of "doing the right thing" easier (eliminating the pain) is more efficient than giving all the right reasons for why one need to preserve the environment. To be a productive and result-oriented environmental advocate, one should stop shaming the instant-gratification-seeking side of human nature but use it to create a sustainable future.

Appendices

Appendix 1: Ad-related and brand-related questions

The list of ad-related and brand-related questions asked in the Studies 1-3.

1. Please rate the following statements (1 being strongly disagree and 7 strongly agree):
 - a. I would like to try this product.
 - b. I would buy this product if I happened to see it in a store.
 - c. I would actively seek out this product in a store in order to purchase it.
 - d. I would patronize this brand.
2. Please rate the following statements (1 being strongly disagree and 7 strongly agree):
 - a. To what degree did you pay attention to the message displayed on the bottle?
 - b. How deeply did you think about the information contained in this message?
 - c. How much effort did you put into reading the message?
 - d. How personally involved did you feel with the issue you read about?
3. Please rate these statements regarding *the "return the bottle" message* printed on the milk bottle (1 being strongly disagree and 7 strongly agree):
 - a. This brand fits your lifestyle well.
 - b. You could really relate to this message.
 - c. It's hard to put into words, but this message leaves you with a good feeling about using this brand.
4. Please rate these statements regarding *the "return the bottle" message* printed on the milk bottle (1 being strongly disagree and 7 strongly agree):
 - a. The ad appears to be a truthful advertisement.
 - b. The information contained in the advertisement is credible
 - c. I think the information contained in the ad is believable.
 - d. Some of the claims made in the ad are exaggerated.
5. Please rate these statements regarding *the "return the bottle" message* printed on the milk bottle (1 being strongly disagree and 7 strongly agree):
 - a. Would reduce its profits to ensure a clean environment.
 - b. Seems to be environmentally responsible
 - c. Appears to support good causes.
6. Please rate the following statements (1 being stonily disagree and 7 strongly agree):
 - a. This brand reflects who I am.
 - b. I can identify with this brand.
 - c. I feel a personal connection to this brand.
 - d. I use this brand to communicate who I am to other people.
 - e. I think this brand help me become the type of person I want to be.
 - f. I consider this brand to be "me" (it reflects who I consider myself to be or the way that I want to present myself to others).
 - g. This brand suits me well.
7. In my opinion, this company... (1 being strongly disagree and 7 strongly agree):
 - a. is a socially responsible company.
 - b. is concerned to improve the well-being of society.
 - c. follows high ethical standards
8. "Return the Bottle" message is... (1 being strongly disagree and 7 strongly agree):
 - a. interesting
 - b. involving

- c. personally relevant

Appendix 2: Pictures of milk bottles shown to participants (Study 1a&1b)



Simple Message ("Return the Bottle. Help the Environment.")



Detailed Message ("Return the Bottle. Help the Environment by saving 9 litres of water.")

Appendix 3: Pictures of milk bottles shown to participants (Study 2)



Rewards Message: "Help The Environment. Return an empty bottle back to the store for reuse. Earn Rewards Points."



Ease Message: "Help The Environment. Return an empty bottle for reuse. We'll pick it up."



Social Modelling Message: “Help The Environment. Return an empty bottle back to the store for reuse. 1,080 bottles returned to this store last month.”



Control Message: “Help The Environment. Return an empty bottle back to the store for reuse.”

Appendix 4: Manipulation Checks Post-Hoc Study for Study 3

Priming manipulation check and message manipulation check did not result in statistically significant results during Study 3. To verify, a post-hoc study was generated to make sure the manipulation method I chose for study 3 was a successful one as well as to check the participant got the milk bottle message the way they were designed to.

Method

Participants in the post-hoc study were presented with two fictional individuals Jordan and Parker at the same time. They saw two lists of values Jordan and Parker adhere to. The names Jordan and Parker were chosen to eliminate any gender biases since they are unisex names. Jordan possessed the following set of values: perfectionism, travel, enjoying the good things in life, having a successful career, authority, self-confidence, and spending time with family and friends. Parker had the following values listed under his name: preserving nature, caring for future generations, protecting animal diversity, avoiding air pollution, promoting sustainable shopping practices, minimizing waste generation, and increasing public awareness of environmental degradation

Respondents were asked to each rate Jordan and Parker on the environmental concern scale (Schultz et al., 2005). I also added questions from the original Schwartz (1994) value scale. For example, participants were asked to rate the following statements on a 7-point Likert scale (Strongly Disagree to Strongly Agree): “Jordan is concerned about trees,” “Parker is concerned about trees.”

The next question was a manipulation check for the bottle return message. Participants were shown two bottles at the same time: Milk A with the easy message and Milk B with justification message. The pictures of milk bottles were the same as in Study 3. They were asked to answer manipulation check questions. I asked them to rate statements such as “I think returning Milk A will be easy,” “I think returning Milk B will be easy.”

Post-hoc Study Results

A total of 71 participants took part in this study through Amazon Mechanical Turk platform. Data collection took one day in January 2019. During data analysis, 3 responses were eliminated for one of the following reasons: no consent given for using the data for this research and prove of fast taking the survey. The final dataset consisted of 68 eligible participants (76% male; mean age = 34, range 21-68)

Paired t-test analysis was performed. Results for all manipulation checks turned out to be statistically significant.

Priming Manipulation Check Results

	Means	SD	p
Individualistic Concern	M (altruistic) = 5.49 P (self-centred) = 4.31	1.71	p<0.01
Social Concern	M (altruistic) = 3.72 P (self-centred) = 5.68	2.17	p<0.01
Environmental Concern	M (altruistic) = 3.46 P (self-centred) = 5.78	2.27	p<0.01

Bottle Message Manipulation Check Results

	Means	SD	p
Easy to Return (ease of use)	M (Ease) = 5.44 P (Justification) = 5.06	2.27	p<0.01
Benefit the environment (justification)	M (Ease) = 5.10 P (Justification) = 5.65	2.27	p<0.01

These results show that the priming method I used in Study 3 works as intended. Messages displayed on milk bottles in Study 3 communicate the idea of ease of use and justification clearly.

Appendix 5: Ethics Approval

The ethics application for Study 1 (REB 2017-378) was approved for a period of one year on December 18, 2017. It was extended for an additional year until December 2019. An amendment to use Amazon Mechanical Turk platform was approved on February 2, 2018. An amendment for Study 3 was approved on September 17, 2018.

To: Polina Ratnichkina
Environmental Applied Science and Management
Re: REB 2017-378: The effect of green marketing messaging on consumer's likelihood to return packaging.
Date: December 18, 2017

Dear Polina Ratnichkina,

The review of your protocol REB File REB 2017-378 is now complete. The project has been approved for a one year period. Please note that before proceeding with your project, compliance with other required University approvals/certifications, institutional requirements, or governmental authorizations may be required.

This approval may be extended after one year upon request. Please be advised that if the project is not renewed, approval will expire and no more research involving humans may take place. If this is a funded project, access to research funds may also be affected.

Please note that REB approval policies require that you adhere strictly to the protocol as last reviewed by the REB and that any modifications must be approved by the Board before they can be implemented. Adverse or unexpected events must be reported to the REB as soon as possible with an indication from the Principal Investigator as to how, in the view of the Principal Investigator, these events affect the continuation of the protocol.

Finally, if research subjects are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research.

Please quote your REB file number (REB 2017-378) on future correspondence.

Congratulations and best of luck in conducting your research.



Dr. Patrizia Albanese, PhD
Chair, Ryerson University Research Ethics Board

The Following protocol attachments have been reviewed and approved.

- SONA Message Polina Ratnichkina.docx (submitted on: 15 Nov 2017)
- consent form Polina Ratnichkina.doc (submitted on: 15 Nov 2017)
- qualtrics survey Polina Ratnichkina.doc (submitted on: 15 Nov 2017)
- consent form Polina Ratnichkina v2.doc (submitted on: 26 Nov 2017)
- Response to REB Reviews Polina Ratnichkina.docx (submitted on: 26 Nov 2017)
- consent form Polina Ratnichkina V3 2017-12-15.doc (submitted on: 15 Dec 2017)
- SONA Message Polina Ratnichkina V2 2017-12-15.docx (submitted on: 15 Dec 2017)
- Response to REB Reviews Polina Ratnichkina V2 2017-12-15.docx (submitted on: 15 Dec 2017)
- Qualtrics Returnable_Packaging V2 2017-12-15.docx (submitted on: 15 Dec 2017)

If any changes are made to the attached document throughout the course of the research, an amendment **MUST** be submitted to, and subsequently approved by the REB.

References

- Abeliotis, K., Zachos, F., & Lasaridi, K. (2014). A Database Tool for Raising Awareness on the Life Cycle Environmental Impacts of Household Packaging Waste. *Journal of Computational Environmental Sciences*, 2014.
- Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A review of intervention studies aimed at household energy conservation. *Journal of Environmental Psychology*, 25(3), 273-291.
- Abrahamse, W., & Steg, L. (2013). Social influence approaches to encourage resource conservation: A meta-analysis. *Global environmental change*, 23(6), 1773-1785.
- Ackerman, F. (1997). *Why do We Recycle? Markets, values, and public policy*. Washington, DC: Island Press.
- ACNielsen (2005). The power of private label 2005: A review of growth trends around the World: Executive report. *AC Nielsen Global Services*.
- Agrawal, S., Singh, R. K., & Murtaza, Q. (2015). A literature review and perspectives in reverse logistics. *Resources, Conservation and Recycling*, 97, 76-92.
- Antoun, C., Zhang, C., Conrad, F. G., & Schober, M. F. (2016). Comparisons of online recruitment strategies for convenience samples: Craigslist, Google AdWords, Facebook, and Amazon Mechanical Turk. *Field Methods*, 28(3), 231-246.
- Ariely, D., Bracha, A., & Meier, S. (2009). Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *American Economic Review*, 99(1), 544-55.
- Arnould, E. J., & Thompson, C. J. (2005). Consumer culture theory (CCT): Twenty years of research. *Journal of Consumer Research*, 31(4), 868-882.
- Aronson, E. (1992). The return of the repressed: Dissonance theory makes a comeback. *Psychological Inquiry*, 3(4), 303-311.
- Austin, J., Hatfield, D. B., Grindle, A. C., & Bailey, J. S. (1993). Increasing recycling in office environments: The effects of specific, informative cues. *Journal of Applied Behavior Analysis*, 26(2), 247-253.
- B.E. (2015, April). Recycling in America. In the bin. *The Economist*. Retrieved from <https://www.economist.com/democracy-in-america/2015/04/22/in-the-bin>. Babader, A., Ren,

- J., Jones, K. O., & Wang, J. (2016). A system dynamics approach for enhancing social behaviours regarding the reuse of packaging. *Expert Systems with Applications*, 46, 417-425.
- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology*, 27(1), 14-25.
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioural change. *Psychological Review*, 84(2), 191-215.
- Barr, S., Gilg, A. W., & Ford, N. J. (2001). Differences between household waste reduction, reuse and recycling behaviour: a study of reported behaviours, intentions and explanatory variables. *Environmental & Waste Management*, 4(2), 69-82.
- Baumeister, R. F. (1998). The self. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.). *The Handbook of Social Psychology*, 4(1), 680-740. New York, NY: McGraw-Hill.
- Bech-Larsen, T. (1996). Danish consumers' attitudes to the functional and environmental characteristics of food packaging. *Journal of Consumer Policy*, 19(3), 339-363.
- Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of political economy*, 70(5, Part 2), 9-49.
- Becker-Olsen, K. L., Cudmore, B. A., & Hill, R. P. (2006). The impact of perceived corporate social responsibility on consumer behavior. *Journal of business research*, 59(1), 46-53.
- Bem, D. J. (1972). Self-perception theory. *Advances in Experimental Social Psychology*, 6, 1-62.
- Bernstad, A. (2014). Household food waste separation behavior and the importance of convenience. *Waste management*, 34(7), 1317-1323.
- Bhati, A., Hansen, M., & Chan, C. M. (2017). Energy conservation through smart homes in a smart city: A lesson for Singapore households. *Energy Policy*, 104, 230-239.
- Blaikie, N. (2009). *Designing social research*. Polity.
- Blattberg, R. C., & Neslin, S. A. (1989). Sales promotion: The long and the short of it. *Marketing Letters*, 1(1), 81-97.
- Bolsen, T., & Cook, F. L. (2008). The polls—trends: public opinion on energy policy: 1974–2006. *Public Opinion Quarterly*, 72(2), 364-388.

- Bord, R. J., O'connor, R. E., & Fisher, A. (2000). In what sense does the public need to understand global climate change?. *Public understanding of science*, 9(3), 205-218.
- Bortree, D. S., Ahern, L., Smith, A. N., & Dou, X. (2013). Framing environmental responsibility: 30 years of CSR messages in National Geographic Magazine. *Public Relations Review*, 39(5), 491-496.
- Boyce, C., Czajkowski, M., & Hanley, N. (2017). *Personality and Economic Choices*. University of St. Andrews, School of Geography and Sustainable Development.
- Bracht, G. H., & Glass, G. V. (1968). The external validity of experiments. *American educational research journal*, 5(4), 437-474.
- Brechin, S. R. (2010). Public opinion: a cross-national view. In: Lever-Tracy C, ed. *The Routledge Handbook of Climate Change and Society*. London: Routledge.
- Brothers, K. J., Krantz, P. J., & McClannahan, L. E. (1994). Office paper recycling: A function of container proximity. *Journal of Applied Behavior Analysis*, 27, 153-160.(E)
- Bryant, R. L., & Goodman, M. K. (2004). Consuming narratives: The political ecology of 'alternative' consumption. *Transactions of the Institute of British Geographers*, 29(3), 344-366.
- Bryman, A. & Bell, E. (2016). *Social Research Methods. 4th Canadian Edition*. Oxford University Press.
- Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on psychological science*, 6(1), 3-5.
- Burrell, G., & Morgan, G. (1988). Sociological paradigms and organizational analysis. *Aldershot, Gower*.
- Byers, A. (2017). *Reuse It: The History of Modern Recycling*. Cavendish Square Publishing, LLC.
- Cahill, R., Grimes, S. M., & Wilson, D. C. (2011). Extended producer responsibility for packaging wastes and WEEE-a comparison of implementation and the role of local authorities across Europe. *Waste Management & Research*, 29(5), 455-479.
- Carter, C. R., & Ellram, L. M. (1998). Reverse logistics: A review of the literature and framework for future investigation. *Journal of Business Logistics*, 19(1), 85–102.
- Choi, J. J., Laibson, D., & Madrian, B. C. (2004). *Plan design and 401 (k) savings outcomes* (No.

w10486). National Bureau of Economic Research.

Choi, S., & Ng, A. (2011). Environmental and economic dimensions of sustainability and price effects on consumer responses. *Journal of Business Ethics*, 104(2), 269-282.

Cera-Foundation (2001), Biologische landen tuinbouw: de Stille doorbraak Voorbij!? Leuven: Horizon

Chung, S. H., Ma, H. L., & Chan, H. K. (2018). Maximizing recyclability and reuse of tertiary packaging in production and distribution network. *Resources, Conservation and Recycling*, 128, 259-266.

Cleary, J. (2013). Life cycle assessments of wine and spirit packaging at the product and the municipal scale: a Toronto, Canada case study. *Journal of Cleaner Production*, 44, 143-151.

Climate Change Communication Advisory Group (2010). Communicating climate change to mass public audiences. *Public Interest Research Centre*.

Cone, J. D., & Hayes, S. C. (1980). *Environmental problems/behavioral solutions*. Cambridge University Press.

Corner, A., Markowitz, E., & Pidgeon, N. (2014). Public engagement with climate change: the role of human values. *Wiley Interdisciplinary Reviews: Climate Change*, 5(3), 411-422.

Crompton, T., & Kasser, T. (2009). *Meeting environmental challenges: The role of human identity*, 1-93. Godalming, UK: WWF-UK.

Dai, Y. C., Gordon, M. P. R., Ye, J. Y., Xu, D. Y., Lin, Z. Y., Robinson, N. K. L., ... & Harder, M. K. (2015). Why doorstep recycling can increase household waste recycling. *Resources, Conservation and Recycling*, 102, 9-19.

Davis, J. J. (1995). The effects of message framing on response to environmental communications. *Journalism & Mass Communication Quarterly*, 72(2), 285-299.

de Boer, J., Hoogland, C. T., & Boersema, J. J. (2007). Towards more sustainable food choices: Value priorities and motivational orientations. *Food Quality and Preference*, 18(7), 985-996.

De Dominicis, S., Schultz, P., & Bonaiuto, M. (2017). Protecting the environment for self-interested reasons: Altruism is not the only pathway to sustainability. *Frontiers in Psychology*, 8(1065).

Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology*, 18, 105-115.

- Deci, E. L. (1972). Intrinsic motivation, extrinsic reinforcement, and inequity. *Journal of Personality and Social Psychology*, 22, 113–120.
- Deci, E. L. (1975). *Intrinsic motivation*. New York: Plenum Press.
- Detzel, A., & Mönckert, J. (2009). Environmental evaluation of aluminium cans for beverages in the German context. *The International Journal of Life Cycle Assessment*, 14(1), 70-79.
- Dietz, T., Frisch, A. S., Kalof, L., Stern, P. C., & Guagnano, G. A. (1995). Values and vegetarianism: An exploratory analysis. *Rural Sociology*, 60(3), 533.
- Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental values. *Annual Review of Environment and Resources*, 30(1), 335-372.
- DiGiacomo, A., Wu, D. W. L., Lenkic, P., Fraser, B., Zhao, J., & Kingstone, A. (2018). Convenience improves composting and recycling rates in high-density residential buildings. *Journal of environmental planning and management*, 61(2), 309-331.
- Dobson, A. (2007). Environmental citizenship: Towards sustainable development. *Sustainable Development*, 15(5), 276-285.
- Drost, E. A. (2011). Validity and reliability in social science research. *Education Research and perspectives*, 38(1), 105.
- Dumitrescu, D., & Mughan, A. (2010). Mass media and democratic politics. In *Handbook of politics* (pp. 477-491). Springer, New York, NY.
- Duncan, G. S., & Martin, S. R. (2002). Comparing the effectiveness of interpretive and sanction messages for influencing wilderness visitors' intended behavior. *International Journal of Wilderness*, 8(2), 20-25.
- Ebreo, A., Hershey, J., & Vining, J. (1999). Reducing solid waste: Linking recycling to environmentally responsible consumerism. *Environment and Behavior*, 31(1), 107-135.
- Edelman, G. M. (1987). *Neural Darwinism: The theory of neuronal group selection*. New York, NY: Basic books.
- Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1995). *Consumer behaviour* (8th ed.). Fort Worth, TX: Dryden Press.
- Environmental Protection Agency (EPA) (2002). Solid waste management: A local challenge with global impacts (EPA530-F-02-026).

- Ertz, M., Karakas, F., & Sarigöllü, E. (2016). Exploring pro-environmental behaviors of consumers: An analysis of contextual factors, attitude, and behaviors. *Journal of Business Research*, 69(10), 3971-3980.
- Felsher, J. R., Derevensky, J. L., & Gupta, R. (2003). Parental influences and social modelling of youth lottery participation. *Journal of Community & Applied Social Psychology*, 13(5), 361-377.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row, Peterson.
- Fierman, J., & Pak, J. A. (1991). The big muddle in green marketing. *Fortune*, 123(11), 91-95.
- Fletcher, B. L., & Mackay, M. E. (1996). A model of plastics recycling: does recycling reduce the amount of waste?. *Resources, Conservation and Recycling*, 17(2), 141-151.
- Frank, L. E. (2019). What Do We Have to Lose? Offloading Through Moral Technologies: Moral Struggle and Progress. *Science and engineering ethics*, 1-17.
- Frederiks, E. R., Stenner, K., & Hobman, E. V. (2015). Household energy use: Applying behavioural economics to understand consumer decision-making and behaviour. *Renewable and Sustainable Energy Reviews*, 41, 1385-1394.
- Frey, B. S. (1993). Motivation as a limit to pricing. *Journal of Economic Psychology*, 14(4), 635-664.
- Frey, B. S. (1997). *Not just for the money* (vol. 748). Cheltenham, UK: Edward Elgar.
- Frey, B. S., & Oberholzer-Gee, F. (1997). The cost of price incentives: An empirical analysis of motivation crowding-out. *The American Economic Review*, 87(4), 746-755.
- Gastil, J., Kahan, D. M., Slovic, P., Cohen, G., & Braman, D. (2009). Cultural cognition of the risks and benefits of nanotechnology. *Nature Nanotechnology*, 4(2), 87-90.
- Geller, E. S. (1976). Behavioral approaches to environmental problem solving: Littering and recycling. *Association for the Advancement of Behavior Therapy*.
- Geller, E. S. (1987). Applied behavior analysis and environmental psychology: From strange bedfellows to a productive marriage. In D. Stokols & I. Altman (Eds.), *Handbook of environmental psychology*, 361–388) New York, NY: Wiley.^{[1][SEP]}
- Geller, E. S. (1989). Applied behavior analysis and social marketing: An integration for environmental preservation. *Journal of Social Issues*, 45, 17–36.^{[1][SEP]}

- Geller, E. S. (1992). Solving environmental problems: A behavior change perspective. In S. Staub & P. Green (Eds.), *Psychology and social responsibility: Facing global challenges* (pp. 248–268). New York: New York University Press.^{[1][SEP]}
- Geller, E. S. (2002). The challenge of increasing proenvironmental behavior. In R. B. Bechtel, & A. Churchman (Eds.), *Handbook of environmental psychology* (pp. 525–540). New York: Wiley.
- Geller, E. S., Winett, R. A., & Everett, P. B. (1982). *Preserving the environment: New strategies for behavioral change*. New York: Pergamon Press.^{[1][SEP]}
- Ghenai, C. (2012). Life cycle assessment of packaging materials for milk and dairy products. *International Journal of Thermal & Environmental Engineering*, 4(2), 117-28.
- Gifford, R., & Comeau, L. A. (2011). Message framing influences perceived climate change competence, engagement, and behavioral intentions. *Global Environmental Change*, 21(4), 1301-1307.
- Giles, E. L., Robalino, S., Sniehotta, F. F., Adams, J., & McColl, E. (2015). Acceptability of financial incentives for encouraging uptake of healthy behaviours: A critical review using systematic methods. *Preventive medicine*, 73, 145-158.
- Gneezy, U., & Rustichini, A. (2000). A fine is a price. *The Journal of Legal Studies*, 29(1), 1-17.
- Government of Ontario (2017a). Proposed food and organic waste framework. Retrieved from the Government of Ontario website: http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2017/013-1814_Framework.pdf. Retrieved on October 27th, 2017.
- Government of Ontario (2017b). Strategy for a waste-free Ontario: Building the circular economy. Retrieved from the Government of Ontario website: <https://www.ontario.ca/page/strategy-waste-free-ontario-building-circular-economy>. Retrieved on October 27th, 2017.
- Graham, T., & Abrahamse, W. (2017). Communicating the climate impacts of meat consumption: The effect of values and message framing. *Global Environmental Change*, 44, 98-108.
- Gramann, J. H., Bonifield, R. L., & Kim, Y. G. (1995). Effect of personality and situational factors on intentions to obey rules in outdoor recreation areas. *Journal of Leisure Research*, 27(4), 326-343.

- Graziano, W. G., & Eisenberg, N. (1997). Agreeableness: A dimension of personality. *Handbook of personality psychology* (pp. 795-824).
- Griskevicius, V., Tybur, J. M., & Van den Bergh, B. (2010). Going green to be seen: status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology*, 98(3), 392-404.
- Ham, S. H. (1992). *Environmental interpretation: A practical guide for people with big ideas and small budgets*. Philadelphia, PA: North American Press.
- Handgraaf, M. J., de Jeude, M. A. V. L., & Appelt, K. C. (2013). Public praise vs. private pay: Effects of rewards on energy conservation in the workplace. *Ecological Economics*, 86, 86-92.
- Hauser, D. J., & Schwarz, N. (2016). Attentive Turkers: MTurk participants perform better on online attention checks than do subject pool participants. *Behavior research methods*, 48(1), 400-407.
- Hayes, S. C., & Cone, J. D. (1977). Reducing residential electrical energy use: Payments, information, and feedback. *Journal of Applied Behavior Analysis*, 10(3), 425-435.
- Henry, J. F. (2012). *The making of neoclassical economics*. Routledge.
- Hirsh, J. B. (2010). Personality and environmental concern. *Journal of Environmental Psychology*, 30(2), 245-248.
- Hirsh, J. B. (2014). Environmental sustainability and national personality. *Journal of Environmental Psychology*, 38, 233-240.
- Hirsh, J. L., Costello, M. S., & Fuqua, R. W. (2015). Analysis of Delay Discounting as a Psychological Measure of Sustainable Behavior. *Behavior and Social Issues*, 24, 187-202.
- Hirsh, J. B., & Dolderman, D. (2007). Personality predictors of consumerism and environmentalism: A preliminary study. *Personality and Individual Differences*, 43(6), 1583-1593.
- Hoeffding, W. (1951). A combinatorial central limit theorem. *The Annals of Mathematical Statistics*, 22(4), 558-566.
- Hoornweg, D., Bhada-Tata, P., & Kennedy, C. (2013). Environment: Waste production must peak this century. *Nature*, 502, 615-617.
- Houston, F. S., & Gassenheimer, J. B. (1987). Marketing and exchange. *The Journal of Marketing*, 3-18.
- Humphrey, C., Bord, R., Hammond, M. & Mann, S. (1977). Attitudes and conditions for cooperation

- in a paper recycling program. *Environment and Behavior*, 9, 107-124.
- Jacobs, H. E., & Bailey, J. S. (1982). Evaluating participation in a residential recycling program. *Journal of Environmental Systems*, 12(2), 141-152.
- Jacobs, H. E., Bailey, J. S., & Crews, J. I. (1984). Development and analysis of a community-based resource recovery program. *Journal of Applied Behavior Analysis*, 17(2), 127-145.
- Jimenez-Buedo, M., & Miller, L. M. (2010). Why a trade-off? The relationship between the external and internal validity of experiments. *Theoria. Revista de Teoría, Historia y Fundamentos de la Ciencia*, 25(3), 301-321.
- Johnson, E. J., & Goldstein, D. (2003). Do defaults save lives? *Science*, 302(5649), 1338-1339.
- Kahn, M. E., & Kotchen, M. J. (2010). *Environmental concern and the business cycle: The chilling effect of recession* (No. w16241). National Bureau of Economic Research.
- Kaisari, P., & Higgs, S. (2015). Social modelling of food intake. The role of familiarity of the dining partners and food type. *Appetite*, 86, 19-24.
- Kallbekken, S., & Sælen, H. (2013). 'Nudging' hotel guests to reduce food waste as a win-win environmental measure. *Economics Letters*, 119(3), 325-327.
- Kalof, L., Dietz, T., Stern, P. C., & Guagnano, G. A. (1999). Social psychological and structural influences on vegetarian beliefs. *Rural Sociology*, 64(3), 500-511.
- Kaplan, S. (2000). Human nature and environmentally responsible behavior. *Journal of Social Issues*, 56(3), 491.
- Kasiulevičius, V., Šapoka, V., & Filipavičiūtė, R. (2006). Sample size calculation in epidemiological studies. *Gerontologija*, 7(4), 225-231.
- Katzev, R. D., & Johnson, T. R. (1987). Promoting energy conservation: An analysis of behavioral techniques. *Boulder, CO: Westview*.
- Katzev, R. D., & Pardini, A. U. (1987). The comparative effectiveness of reward and commitment approaches in motivating community recycling. *Journal of Environmental Systems*, 17(2).
- Kazdin, A. E. (2009). Psychological science's contributions to a sustainable environment: Extending our reach to a grand challenge of society. *American Psychologist*, 64(5), 339-356.

- Kees, J., Berry, C., Burton, S., & Sheehan, K. (2017). An analysis of data quality: Professional panels, student subject pools, and Amazon's Mechanical Turk. *Journal of Advertising*, 46(1), 141-155.
- Kolikkathara, N., Feng, H., & Stern, E. (2009). A purview of waste management evolution: Special emphasis on USA. *Waste Management*, 29(2), 974-985.
- Kopalle, P. K., & Neslin, S. A. (2003). The economic viability of frequency reward programs in a strategic competitive environment. *Review of Marketing Science*, 1(1).
- Langer, E. J., Blank, A., & Chanowitz, B. (1978). The mindlessness of ostensibly thoughtful action: The role of "placebic" information in interpersonal interaction. *Journal of Personality and Social Psychology*, 36(6), 635.
- Leeming, E. M., Hansen, D., Alavosius, M., & Reimer, D. (2013). Sustainability in the Field: Lake Tahoe Hospitality and Environmental Protection. *Behavior and Social Issues*, 22.
- Lehman, P. K., & Geller, E. S. (2004). Behaviour analysis and environmental protection: Accomplishments and potential for more. *Behavior and Social Issues*, 13, 13-32.
- Leoniak, K. J., & Maj, K. (2016). A slice of hygiene: justification and consequence in the persuasiveness of prescriptive and proscriptive signs. *Social Influence*, 11(4), 271-283.
- Loebler, H. (2017). Humans' relationship to nature—framing sustainable marketing. *Journal of Services Marketing*, 31(1), 73-82.
- Loop (2019). Launching 2019. Retrieved April 27, 2019 from <https://loopstore.com/>
- Ludwig, T. D., Gray, T. W., & Rowell, A. (1998). Increasing recycling in academic buildings: A systematic replication. *Journal of Applied Behavior Analysis*, 31(4), 683-686.
- Luyben, P. D., & Bailey, J. S. (1979). Newspaper recycling: The effects of rewards and proximity of containers. *Environment and Behavior*, 11(4), 539-557.
- MacLean, P. D. (1990). *The Triune Brain in Evolution: Role in Paleocerebral Functions*. Berlin: Springer Science & Business Media.
- Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401 (k) participation and savings behavior. *The Quarterly journal of economics*, 116(4), 1149-1187.
- Maibach, E. (1993). Social marketing for the environment: Using information campaigns to promote environmental awareness and behavior change. *Health promotion international*, 8(3), 209-

- Maio, G. R., & Olson, J. M. (1995). Relations between values, attitudes, and behavioral intentions: The moderating role of attitude function. *Journal of experimental social psychology*, 31(3), 266-285.
- Marsh, K., & Bugusu, B. (2007). Food packaging—roles, materials, and environmental issues. *Journal of food science*, 72(3), R39-R55.
- Massarutto, A., Marangon, F., Troiano, S., & Favot, M. (2019). Moral duty, warm glow or self-interest? A choice experiment study on motivations for domestic garbage sorting in Italy. *Journal of Cleaner Production*, 208, 916-923.
- Mazur, A. (1998). Global environmental change in the news: 1987-90 vs 1992-6. *International Sociology*, 13(4), 457-472.
- Mazur, A. (2009). American generation of environmental warnings: Avian influenza and global warming. *Human Ecology Review*, 17-26.
- Mazur, A., & Lee, J. (1993). Sounding the global alarm: Environmental issues in the US national news. *Social Studies of Science*, 23(4), 681-720.
- McCarty, J. A., & Shrum, L. J. (1994). The recycling of solid wastes: Personal values, value orientations, and attitudes about recycling as antecedents of recycling behavior. *Journal of Business Research*, 30(1), 53-62.
- McCombs, M. (2004). Setting the Agenda: The mass media and public opinion. *Cambridge, Polity Press*.
- McCrae, R. R. (1994). Openness to experience: Expanding the boundaries of factor V. *European Journal of Personality*, 8(4), 251-272.
- McKerlie, K., Knight, N., & Thorpe, B. (2006). Advancing Extended Producer Responsibility in Canada. *Journal of Cleaner Production*, 14(6-7), 616-628.
- Mellström, C., & Johannesson, M. (2008). Crowding out in blood donation: was Titmuss right?. *Journal of the European Economic Association*, 6(4), 845-863.
- Milfont, T. L., & Sibley, C. G. (2012). The big five personality traits and environmental engagement: Associations at the individual and societal level. *Journal of Environmental Psychology*, 32(2), 187-195.
- Mill, J.S. (1874). *A System of Logic*, 8th ed. New York: Harper.
- Moore, R. (2005). Reverse Logistics—the least used differentiator. *A UPS Supply Chain Solutions*

White Paper, Alpharetta.

- Mordkoff, J. T. (2011). *The assumption (s) of normality*. The University of Iowa. Retrieved May 6, 2019 from <http://www2.psychology.uiowa.edu/faculty/mordkoff/GradStats/part%20I.07%20normal.pdf>
- Morton, T. A., Rabinovich, A., Marshall, D., & Bretschneider, P. (2011). The future that may (or may not) come: How framing changes responses to uncertainty in climate change communications. *Global Environmental Change*, 21(1), 103-109.
- Namba, R., & Dustin, D. (1992). Towards New Definitions of Depreciative Behavior and. *Vandalism: Research, Prevention and Social Policy*, 61.
- Neill, C. L., & Williams, R. B. (2015). An Economic Valuation on the External Cost of Alternative Milk Packaging. *Journal of Food Distribution Research*, 46(3), 68-80.
- Neuman, W. L., & Robson, K. (2018). *Basics of social research*. Toronto: Pearson Canada.
- Nilsson, A., von Borgstede, C., & Biel, A. (2004). Willingness to accept climate change strategies: The effect of values and norms. *Journal of Environmental Psychology*, 24(3), 267-277.
- Nordlund, A. M., & Garvill, J. (2002). Value structures behind proenvironmental behavior. *Environment and Behavior*, 34(6), 740-756.
- Ölander, F., & Thøgersen, J. (1995). Understanding of consumer behaviour as a prerequisite for environmental protection. *Journal of Consumer Policy*, 18(4), 345-385.
- Ortiz-de-Mandojana, N., & Bansal, P. (2016). The long-term benefits of organizational resilience through sustainable business practices. *Strategic Management Journal*, 37(8), 1615-1631.
- Osbaliston, R., & Schott, J. P. (2012). Environmental Sustainability and Behavioral Science: Meta-Analysis of Proenvironmental Behavior Experiments. *Environment and Behavior*, 44(2), 257-299.
- Oskamp, S., Harrington, M. J., Edwards, T. C., Sherwood, D. L., Okuda, S. M., & Swanson, D. C. (1991). Factors influencing household recycling behavior. *Environment and Behavior*, 23(4), 494-519.
- Pakizeh, A., Gebauer, J. E., & Maio, G. R. (2007). Basic human values: Inter-value structure in memory. *Journal of Experimental Social Psychology*, 43(3), 458-465.

- Paolacci, G., & Chandler, J. (2014). Inside the Turk: Understanding Mechanical Turk as a participant pool. *Current Directions in Psychological Science*, 23(3), 184-188.
- Pasqualino, J., Meneses, M., & Castells, F. (2011). The carbon footprint and energy consumption of beverage packaging selection and disposal. *Journal of food Engineering*, 103(4), 357-365.
- Penner, L. A., Dovidio, J. F., Piliavin, J. A., & Schroeder, D. A. (2005). Prosocial behavior: Multilevel perspectives. *Annual Review Psychology*, 56, 365-392.
- Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In *Communication and persuasion* (pp. 1-24). Springer New York.
- Pichert, D., & Katsikopoulos, K. V. (2008). Green defaults: Information presentation and pro-environmental behaviour. *Journal of Environmental Psychology*, 28(1), 63-73.
- Radhakrishnan, S. (2016). Environmental implications of reuse and recycling of packaging. In *Environmental Footprints of Packaging* (pp. 165-192). Springer, Singapore.
- Ravi, V., & Shankar, R. (2005). Analysis of interactions among the barriers of reverse logistics. *Technological Forecasting and Social Change*, 72(8), 1011-1029.
- Rigamonti, L., Grosso, M., & Giugliano, M. (2009). Life cycle assessment for optimising the level of separated collection in integrated MSW management systems. *Waste management*, 29(2), 934-944.
- Ro, M., Brauer, M., Kuntz, K., Shukla, R., & Bensch, I. (2017). Making Cool Choices for sustainability: Testing the effectiveness of a game-based approach to promoting pro-environmental behaviors. *Journal of Environmental Psychology*, 53, 20-30.
- Roccas, S. (2003). Identification and status revisited: The moderating role of self-enhancement and self-transcendence values. *Personality and Social Psychology Bulletin*, 29(6), 726-736.
- Rokeach, M. (1973). *The nature of human values*. Free press.
- Rovai, A. P., Baker, J. D., & Ponton, M. K. (2013). *Social science research design and statistics: A practitioner's guide to research methods and IBM SPSS*. Watertree Press LLC.
- Rothschild, M. L., & Gaidis, W. C. (1981). Behavioral learning theory: Its relevance to marketing and promotions. *The Journal of Marketing*, 70-78.
- Schultz, P. W. (2002). "Inclusion with nature: the psychology of human-nature relations," in *Psychology of Sustainable Development*, eds P. Schmuck and W. P. Schultz (New York,

NY: Springer), 61–78.

Schultz, P. W. (2014). Strategies for promoting proenvironmental behavior. *European Psychologist*.

Schultz, P. W., & Zelezny, L. (2003). Reframing environmental messages to be congruent with American values. *Human Ecology Review*, 126-136.

Schultz, P. W., Gouveia, V. V., Cameron, L. D., Tankha, G., Schmuck, P., and Franik, M. (2005). Values and their relationship to environmental concern and conservation behavior. *Journal of Cross Cultural Psychology*, 36, 457–475.

Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological Science*, 18(5), 429-434.

Schultz, P. W., Oskamp, S., & Mainieri, T. (1995). Who recycles and when? A review of personal and situational factors. *Journal of Environmental Psychology*, 15(2), 105–121.

Schwartz, S. H. (1970). Elicitation of moral obligation and self-sacrificing behavior: An experimental study of volunteering to be a bone marrow donor. *Journal of Personality and Social Psychology*, 15(4), 283-293.

Schwartz, S. H. (1977). Normative influence on altruism. *Advances in Experimental Social Psychology*, 10, 221–279.

Schwartz, S. H. (1992). Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries. In *Advances in Experimental Social Psychology* (Vol. 25, pp. 1–65). Elsevier.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values?. *Journal of Social Issues*, 50(4), 19-45.

Scruggs, L., & Benegal, S. (2012). Declining public concern about climate change: Can we blame the great recession?. *Global Environmental Change*, 22(2), 505-515.

Sen, S., & Bhattacharya, C. B. (2001). Does doing good always lead to doing better? Consumer reactions to corporate social responsibility. *Journal of marketing Research*, 38(2), 225-243.

Seyfang, G. (2005). Shopping for sustainability: can sustainable consumption promote ecological citizenship?. *Environmental politics*, 14(2), 290-306.

Shaw, D., Newholm, T., & Dickinson, R. (2006). Consumption as voting: an exploration of

- consumer empowerment. *European Journal of Marketing*, 40(9/10), 1049-1067.
- Silva, D. A. L., Renó, G. W. S., Sevegnani, G., Sevegnani, T. B., & Truzzi, O. M. S. (2013). Comparison of disposable and returnable packaging: a case study of reverse logistics in Brazil. *Journal of Cleaner Production*, 47, 377-387.
- Simon, H. A. (1955). A behavioral model of rational choice. *The quarterly journal of economics*, 69(1), 99-118.
- Simon, H. A. (1957). Models of man; social and rational.
- Simon, B., Amor, M. B., & Földényi, R. (2016). Life cycle impact assessment of beverage packaging systems: focus on the collection of post-consumer bottles. *Journal of Cleaner Production*, 112, 238-248.
- Simmons, C., & Becker-Olsen, K. (2004). When do social sponsorship enhance or dilute equity: Fit, message source and the persistence of effect. *Advances in Consumer Research*, 29(1), 287-289.
- Soh, K. (2017). Fostering student creativity through teacher behaviors. *Thinking skills and creativity*, 23, 58-66.
- Statistics Canada (2017). *Detailed food spending, Canada, regions and provinces*. Statistics Canada Table no. 11-10-0125-01. Ottawa. Version updated April 2019.
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110012501> (Accessed on April 29, 2019).
- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309-317.
- Stern, P. C. (2000). New environmental theories: toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 407-424.
- Ster, P. C., & Kirkpatrick, E. M. (1977). Energy behavior. *Environment: Science and Policy for Sustainable Development*, 19(9), 10-15.
- Stern, P. C., & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social Issues*, 50(3), 65-84.
- Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness*. Penguin.

- The Beer Store (2019a). Bag it back. Retrieved April 26, 2019 from <http://www.thebeerstore.ca/about-us/environmental-leadership/bag-it-back-odrp>.
- The Beer Store (2019b). Reuse and recycle to build cleaner Ontario: The Beer Store responsible stewardship 2018. Retrieved April 26, 2019 from <http://www.thebeerstore.ca/sites/default/files/StewardshipReport2018.pdf>
- Thøgersen, J., & Crompton, T. (2009). Simple and painless? The limitations of spillover in environmental campaigning. *Journal of Consumer Policy*, 32(2), 141-163.
- Thøgersen, J. (1994). Monetary incentives and environmental concern. Effects of a differentiated garbage fee. *Journal of Consumer Policy*, 17(4), 407-442.
- Thøgersen, J. (1995). Understanding of consumer behaviour as a prerequisite for environmental protection. *Journal of Consumer Policy*, 18(4), 345-385.
- Thøgersen, J. (1996). The demand for environmentally friendly packaging in Germany.
- Thøgersen, J. (1999). Spillover processes in the development of a sustainable consumption pattern. *Journal of Economic Psychology*, 20(1), 53-81.
- Thøgersen, J. (2001). Consumer values, behavior and sustainable development. In *Asia Pacific ACR 2000 Conference*.
- Thøgersen, J. (2005). How may consumer policy empower consumers for sustainable lifestyles?. *Journal of Consumer Policy*, 28(2), 143-177.
- Thompson, C. J., & Arsel, Z. (2004). The Starbucks brandscape and consumers'(anticorporate) experiences of glocalization. *Journal of Consumer Research*, 31(3), 631-642.
- Urien, B., & Kilbourne, W. (2011). Generativity and self-enhancement values in eco-friendly behavioral intentions and environmentally responsible consumption behavior. *Psychology and Marketing*, 28(1), 69-90.
- Stoep, G. A. V., & Gramann, J. H. (1987). The effect of verbal appeals and incentives on depreciative behavior among youthful park visitors. *Journal of Leisure Research*, 19(2), 69-83.
- Van de Velde, L., Verbeke, W., Popp, M., & Van Huylenbroeck, G. (2010). The importance of message framing for providing information about sustainability and environmental aspects of energy. *Energy Policy*, 38(10), 5541-5549.

- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer “attitude–behavioral intention” gap. *Journal of Agricultural and Environmental ethics*, 19(2), 169-194.
- Verbeke, W., & Ward, R. W. (2006). Consumer interest in information cues denoting quality, traceability and origin: An application of ordered probit models to beef labels. *Food Quality and Preference*, 17(6), 453-467.
- Verplanken, B., & Holland, R. W. (2002). Motivated decision making: Effects of activation and self-centrality of values on choices and behavior. *Journal of Personality and Social Psychology*, 82(3), 434-447.
- Vining, J., & Ebreo, A. (1990). What makes a recycler? A comparison of recyclers and nonrecyclers. *Environment and Behavior*, 22(1), 55-73.
- Vlachos, I. P., & Malindretos, G. (Eds.). (2015). *Markets, business and sustainability*. Bentham Science Publishers.
- Vohs, K. D., Mead, N. L., & Goode, M. R. (2006). The psychological consequences of money. *Science*, 314(5802), 1154-1156.
- Weber, E. U. (2011). Psychology: climate change hits home. *Nature Climate Change*, 1(1), 25-26.
- Weintraub, R. E. (1993). *Neoclassic economics. The concise encyclopedia of economics*. Originally published as The Fortune Encyclopedia of Economics, Warner Books.
- Werner, C. M., & Makela, E. (1998). Motivations and behaviors that support recycling. *Journal of Environmental Psychology*, 18(4), 373-386.
- Widner, C. J., & Roggenbuck, J. (2000). Reducing theft of petrified wood at Petrified Forest National Park. *Journal of Interpretation Research*, 5(1), 1-18.
- Williams, P. T. (2005). *Waste treatment and disposal*. John Wiley & Sons.
- Wiese, A., Luke, R., Heyns, G. J., & Pisa, N. M. (2015). The integration of lean, green and best practice business principles. *Journal of Transport and Supply Chain Management*, 9(1), 1-10.
- Wogalter, M. S., Sojourner, R. J., & Brelsford, J. W. (1997). Comprehension and retention of safety pictorials. *Ergonomics*, 40(5), 531-542.
- Xiao, F., Zheng, Z., Zhang, H., Xin, Z., Chen, Y., & Li, Y. (2016). Who Are You More Likely to

Help? The Effects of Expected Outcomes and Regulatory Focus on Prosocial Performance.
PloS one, 11(11), e0165717.

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

Zaval, L., & Cornwell, J. F. (2017). Effective education and communication strategies to promote environmental engagement. *European Journal of Education*, 52(4), 477-486.

Zero Waste Home (2018). A tour of Au Poids Chiche, a mobile bulk shop. Retrieved April 21, 2019 from <https://zerowastehome.com/2018/02/27/a-tour-of-au-poids-chiche-a-mobile-bulk-shop/>