

PROMOTING PRO-ENVIRONMENTAL BEHAVIOURS: MESSAGE FRAMING AS AN INTERVENTION IN RECYCLING CAMPAIGN

Normalisa Md Isa*

*School of Business Management
Universiti Utara Malaysia
normalisa@uum.edu.my*

Shahrin Saad

*School of Business Management
Universiti Utara Malaysia
shahrinsaad@uum.edu.my*

Norkhazzaina Salahuddin

*School of Business Management
Universiti Utara Malaysia
norkhaizzaina@uum.edu.my*

*corresponding author: normalisa@uum.edu.my

ABSTRACT

Promoting recycling behaviour remains an important objective for social marketing initiatives around the world. For instance, the UN's global charter and millennium goals place environmental protection at the heart of its vision for a safer and more sustainable future. Social marketers have traditionally conceptualised the promotion of recycling as a "product offering" which needs to be marketed to the general public. However, despite good-willed global efforts, recycling remains an acute social challenge in most societies and this is evident in recent failed government initiatives. This paper suggests that an effective way of promoting pro-recycling behaviour through message framing intervention that could elicit consumer to recycle.

Keywords: social marketing, message framing, framing strategy, environmental behaviour, recycling behaviour

1.0 INTRODUCTION

“Climate change is one of the greatest challenges of our time.”
(United Nation FCCC, 2016)

Global warming or climate change has begun to be a concern from the beginning of the 20th century. Since then, the planet has undergone global warming, which causes an increase in global temperature and extreme weather changes (Jang & Hart, 2015; Shreck & Vedlitz, 2016). These weather changes will cause drastic problems for both human places and animal habitats. For example, rising temperature will lead to mass mortality, and animal species will die and may

become extinct (Walker & King, 2008). Not to mention, climate change could affect human health, infrastructure, transportation systems, energy, food, and water supplies (Park, Smith, Klein, & Martell, 2011). Human actions, such as open burning, uncontrolled deforestation, and the use of plastic materials and chemical substances for agriculture, have contributed to the damage of the Earth (Harris, 2006; Miller, 2005). Some effects can already be observed, and humans have less than 15 years to act to avoid dangerous impacts (Spence, Pidgeon, & Uzzell, 2009; Walker & King, 2008).

Faced with the threat of environmental degradation, people began to re-examine their consumption and waste disposal pattern. For over three decades, recycling has been encouraged as a desirable social behaviour and unfortunately people do not recycle as much as they can, or should. Thus far, recycling is not somewhat people favour to practice even though it has been proven that recycling is beneficial for the environment and the economy. Providentially, behavioural researchers have taken challenge to create pro-environmental behaviour as it may provide a broader understanding of the factors that relates to pro environmental behaviour; recycling is one of such behaviour.

2.0 LITERATURE REVIEW

2.1 The Socio-Psychology of Recycling Behaviour

According to Arnould, Price and Zikhan (2004, p. 801), “disposition encompasses all the behaviours that consuming units undertake to divest themselves of undesired goods and services including reducing consumption, recycling products in multiple ways, and separating themselves from unwanted goods.” Other than that, Gilpin (2000) specifically defines recycling as “the return of discarded or waste materials to the productive system for utilisation in the manufacture of goods, with a view to the conservation as far as practicable of non-renewable and scarce resources, contributing to sustainable development.” Research on recycling has been extensively studied by researchers from various disciplines. These are depending on their discipline’s orientation to describe why individuals recycle. For example, scholars tended to see recycling as a product that need to be sold and practitioners sees the role of incentives while social psychologist tended to study how motivational appeals affect this behaviour. Moreover, previous literatures had contributed greatly in understanding consumers recycling behaviour mainly on cognitive behavioural theory.

Various theoretical approaches have been applied to the effort to explain recycling behaviour. For example, Hornik, Cherian, Madansky and Narayana (1995) conducted a meta-analysis of previous research that emphasized a behaviourist viewpoint. As noted by these authors, external incentives, such as money, can be used to motivate people to recycle. However, this approach is limited because the motivational effects end when the monetary reward is discontinued. Other extrinsic incentives include social influence and laws. According to Hornik et al. (1995), intrinsic motivation is the best predictor of recycling behaviour. For instance, people are more inclined to recycle if they believe it is important to protect the environment. Hornik et al. (1995) also noted the importance of facilitators in getting people to recycle. Facilitators are the internal and external forces that make it easier for people to participate in recycling initiatives. For example, the behaviour can be encouraged by placing recycling bins in convenient locations.

Other views on the issue have been provided by the theories associated with social psychology. As indicated by Rioux (2011), social psychologists have developed three kinds of models to explain pro-environmental behaviour: rationalist models, models concerning intentions to act, and pro-social models. The rationalist models are based on the idea that “increased environmental knowledge leads to the development of a pro-environmental attitude, which in turn fosters the development of environmentally friendly/pro-environmental behaviour” (Rioux, 2011, p. 355). Several researchers have expressed agreement with this argument. For example, Martinez & Scicchitano (1998) found that many people fail to participate in recycling programs simply because they do not know what they are supposed to do. Schultz (1999) discussed the importance of disseminating information in the development of effective recycling interventions while Barr (2003) carried out a study in which it was concluded that people are inclined to recycle and reduce waste if they are aware of the current policy debates on the subject.

It is widely agreed that having environmental knowledge leads to a change in behaviour. For instance, Tudor, Robinson, Riley, Guilbert, and Barr (2011) conducted a survey of 566 employees in Britain and learned that employees who practiced recycling at home were more likely to participate in similar activities at work. As concluded by the researchers, this shows that the behaviours were influenced by “the underlying pro-environmental attitudes, values and beliefs of the employees” (Tudor et al., p. 419). Not to mention, it has been argued that convenience is a vital factor in translating recycling attitudes into recycling behaviours. O'Connor, Lerman, Fritz, Hodde, and Wilder (2010) created an experimental condition involving the use of brightly-coloured recycling bins in three buildings on a Texas university campus. Students, teachers, staff, and visitors did not make much use of the bins when they were placed outside the classrooms. When the bins were moved inside, they were used with much greater frequency.

A similar result was obtained in a study by Largo-Wight, Bian, and Lange (2012). As in the study by O'Connor et al. (2010), Largo-Wight et al. (2012) found that recycling behaviours increased when the receptacles were located inside buildings rather than outside. According to Largo-Wight et al. (2012), “Simply adding convenient recycling receptacles, without education or promotional efforts, dramatically increased recycling behaviour and volume” (p. 29). In yet another study, Fisher and Ackerman (1998) found that attitudes could be changed through the use of advertising and that behaviours could be changed through the use of “highly visible recycling bins and containers” (p. 273).

Social psychologists have also utilized models that are designed to explain the intention to engage in recycling behaviours. For instance, the Theory of Reasoned Action suggests that intended behaviours arise from a combination of an individual's attitude and social pressure (Rioux, 2011). A related perspective, the Theory of Planned Behaviour, adds the view that intentions are determined in part by “perceived behavioural control.” As noted by Rioux (2011), “this refers to the person's perception of the ease or difficulty of performing the behaviour” (p. 356). Study by Largo-Wight et al. (2013) supports the Theory of Planned Behaviour. As shown in that study, recycling behaviours were greatly increased when the receptacles were made more easily accessible. The other approach is found in pro-social models. These models were used to understand recycling behaviours through the application of pro-social models.

As defined by Rioux (2011), pro-social models are concerned with “intentional behaviour that provides benefits to others” (p. 356). In order to understand this type of behaviour, psychologists have examined the role of social norms. Social norms are shared beliefs about how people should act (Thøgersen, 2008). As noted by Thøgersen (2008), social norms are reinforced by the use of rewards and punishment. Individuals who obey the norms benefit in various ways; those who disobey the norms might find themselves excluded from the rest of society. A specific pro-social model is found in the Norm Activation Theory. This theory holds that people are motivated by values when they participate in specific behaviours. Recycling and other environmentally-friendly actions are motivated by a concern for other people and a feeling of responsibility toward them (Rioux, 2011). Another pro-social model is referred to as the Value-Belief-Norm Theory. This perspective indicates that pro-environmental behaviour is associated with “the belief that our individual action has consequences on the objects of our attachment (ourselves, others and the environment)” (Rioux, 2011, p. 356). Additionally, Fisher & Ackerman (1998) used a social norm perspective to examine the ways that people might be motivated to engage in volunteerism and other altruistic behaviours. It was noted that motivation can be increased by making appeals to “group need.” When individuals identify with a group, they are expected to take part in activities that are good for the group as a whole rather than just for themselves (Fisher & Ackerman, 1998, p. 264). Nomura et al. (2011) used this view in their study of recycling practices in a small town in England. As demonstrated in the study, individuals were more likely to recycle when they saw the behaviour as a social norm within their neighborhoods (Nomura et al., 2011: p.638). Barr (2003) refers to the role of “social pressure” in this process (p. 230). However, Thøgersen (2008) argues that the best results occur when social norms are internalized rather than being imposed from outside the individual (pp. 348-349).

As indicated above, social psychologists have adopted three basic approaches in their effort to explain why or why not people participate in recycling behaviours. A study by Rioux (2011) drew on the views of Kollmuss and Agyeman (2002) to explore an approach that combines the three basic models (rationalist, intentional, and pro-social) into a single perspective. Rioux (2011) conducted research with 102 adolescent students regarding their attitudes about recycling used batteries. It was concluded that the attitudes could not be explained in simplistic terms. The students were motivated by a mixture of ethical, cognitive and affective factors when they chose to participate in the program to recycle batteries. The ethical factors included values about protecting the environment. The affective variables included a feeling of attachment to one’s neighbourhood. Cognitive factors included perceived behavioural control, or the extent to which the recycling behaviour was seen as convenient and easy to carry out.

Other elements that influence recycling behaviour have also been identified. For example, Hunter, Hatch and Johnson. (2004) found that gender plays a role in potentially encouraging or discouraging people to recycle. Hunter et al. (2004) examined survey data involving respondents in twenty-two different countries. In a variety of cultural settings, women were found to engage in recycling and other environmental behaviours at a more frequent rate than men. However, it was also learned that the women were more inclined to participate in environmental activities at the private level (recycling, driving less, buying organic food, etc.) than at the public level (supporting organizations, participating in protest demonstrations, etc.) (Hunter et al., 2004, p. 692). Kidwell, Farmer, and Hardesty (2013) considered the role of political orientation in recycling behaviours. As indicated by the researchers, conservatives “tend to adhere to the social norms of their in-group, strive for a high degree of self-control, and uphold a strong sense of

duty” (Kidwell et al., 2013, p. 351). By contrast, liberals are more concerned with their subjective feelings than with group conformity. They are more likely than conservatives to base their moral views on the ideals of “caring and fairness” (Kidwell et al., 2013, p. 351). As concluded by these researchers, appeals to encourage recycling behaviours should be tailored to match the views and beliefs of conservative as opposed to liberal audiences.

Despite of the goodness of recycling, influencing consumer to perform the target behaviour is the most challenging, even though the transformative change of the target behaviour could enhance greater environmental benefits (Lehman & Geller, 2004). Notably, Boldero (1995) believed recycling behaviour requires considerable effort on the part of the individual as household waste must be sorted, prepared and stored. The author added recycling decision is likely to be complex which might result consumer to make a consideration whether to recycle or not to recycle. After all, it seems like inducing pro-environmental behaviours in individuals are very tricky in the path to sustainability (Brewer & Stern, 2005).

2.2 Designing an Effective Recycling Communication Campaigns

Communicating and persuading individuals to act in an environmentally friendly manner is demanding, as people apparently view social behaviour and environmental behaviour from different points of view based on whether they perceive the message as directly applicable or rather view it as a general societal message (Kronrod et al., 2012). Environmental issues have become popular in the general public and communities as well as for corporate organisations. This attention and popularity is due to consumers’ short-sighted lifestyles (Crane, 2000) that lead to pollution, climate change, and the depletion of energy sources (Michael et al., 2009). As concerns arose, this awareness suddenly focused attention on the current system of production and marketing (Høgevoid & Svensson, 2012), leading to the encouragement to recycle (Michael et al., 2009).

Growing environmental concern has led recycling to become part of the marketing strategy for many products. In addition to production, marketers have also become aware of their social responsibilities towards consumers and the environment and begun to act on these issues in their corporate social responsibility events. Promoting recycling and establishing a distinct value profile for environmentally oriented consumers has proved to be difficult to study (Michael et al., 2009) due to cultural differences. As environmental marketing should encourage people to think globally and act locally (Gill, 2011), marketers must ensure that environmental practices and promotion are tailored to the local culture (Gill, 2011).

Consumers contribute to environmental sustainability by acting with greater environmental responsibility, changing their patterns of acquisition, use and disposal of goods and products (Haron, Paim, & Yahaya, 2005). However, it is not easy to encourage consumers to behave in an environmentally friendly way. Marketers face problems in promoting and bridging the gap between environmental concern and action and in breaking down consumers’ barriers to action (Naidoo, 2010). To change behaviour, campaigns must be designed to consider why people behave the way they do (Fishbein et al., 2001), and they must be founded on a theoretical basis that both supports their development and serves as a basis for their implementation and evaluation (Valente, 2001). As such, media may shape and influence consumer behaviour by framing events and issues in particular ways. To enhance the effectiveness of persuasive communication, a message should be constructed based on the process by which people manage

and change their behaviour (Rothman et al., 2004; Rothman et al., 2006; Rothman & Salovey, 2007). Messages must be relevant to the specific target audience to optimise the likelihood of the desired impact on an individual's behaviour, and it is important to explain the concept behind the desired behavioural change (Pelletier & Sharp, 2008).

2.3 Social Marketing Perspective: Message Framing as an Intervention

The perspective on issues regarding social responsibility and the protection of the environment has changed as businesses, governments, consumers, and other members of society have perceived its importance and significance (Grinstein & Nisan, 2009; Kronrod, Grinstein, & Wathieu, 2012). Despite growing attention to the environment and sustainable behaviour, a conclusive consensus on attitude and behaviour change for pro environmental change remains lacking (Lehman & Geller, 2004; Pelletier & Sharp, 2008). The field that seemed so productive and full of promise for crucial social change is still far from being realised because there still exists the attitude-action gap within social marketing to influence recycling behaviours (Cheng, Woon, & Lynes, 2011; Prestin & Pearce, 2010). This gap has puzzled scholars for decades (Kollmuss & Agyeman, 2002).

Several studies (e.g. Bezzina & Dimech, 2011; Timlett & Williams, 2009; White, MacDonnell, & Dahl, 2011) suggested further investigation, reinforcing consumer beliefs and perceptions through green communication campaigns. To bridge the gap, it is crucial to determine how the information or the types of framed advertising messages are being communicated. The communicators should make messages more effective by tailoring them to a specific behaviour and must consider the special characteristics of the target audience when delivering the messages (Pelletier & Sharp, 2008; Tsai, 2007). To understand how individual attitudes and behaviours are shaped, it is essential to develop an understanding of communication and to elucidate media and its messages. One feature in communication that has concerned many researchers is message framing.

Earlier studies on message framing effectiveness have garnered strong interest among more recent scholars who have since comprehensively covered a wide range of mainly health communication topics. This research reveals the critical role that message framing can have in harnessing a variety of behaviours, such as smoking (Yeung-Jo, 2006), regular exercise and physical activity (Arora, Stoner, & Arora, 2006), the use of sunscreen (Block & Keller, 1995), breast self-examination (Meyerowitz & Chaiken, 1987), obtaining an HIV test (Salovey & Williams-Piehot, 2004) and oral hygiene (Tsai & Tsai, 2006). Despite its extensive use regarding health-related issues, persuasive communication is still insufficient in the ecological domain. Moreover, findings from previous studies regarding environmental behaviour have urged scholars to address issues pertaining to recycling. A strategic social marketing communication strategy is required to bridge the gap.

However, promoting individual behavioural change poses a challenge to scholars seeking to encourage consumers to embrace a greener lifestyle. As many social and environmental psychologists have explored numerous theories to explain the gap between attitudes and behaviour regarding the environment, scholars have deliberately urged extensive focus on communication strategy in future research. Several of these suggestions focus on not only designing recycling communication campaigns with specific strategies for future research

(Davis, Phillips, Read, & Iida, 2006; Timlett & Williams, 2008, 2009) but also formulating and coordinating a strong communication campaign with a specific target population to reinforce attitudes (Bezzina & Dimech, 2011; Hong & Narayanan, 2006; Vicente & Reis, 2007, 2008).

Several research suggestions regarded how to enhance campaign effectiveness, such as using multiple messages within one campaign (Beltramini & Evans, 1985), but there was still less effort in experimenting and designing other framing effects. Whilst previous studies have reported the interaction among positive-negative framed messages, little work has been done in investigating the effects of multiple frame conditions, i.e. on the conjoint effects of message frames (Shah, Kwak, Schmierbach, & Zubric, 2004). Indeed, according to Chang (2007) “the role of multiple competing frames has gone largely unexplored” (ibid. p.101). The few studies exploring mixed frames demonstrate a need for research regarding the subject (Borah, 2011). Despite the growth in social marketing framing studies, there is a lack of consensus concerning the role that positive and negative messages may have (Cesario, Corker, & Jelinek, 2013). It is no surprise that the attitude-action gap in environmental behaviours is still present. Within social marketing, there remains an infancy in our understanding concerning the role that message frames have in developing a strategy to influence recycling behaviours (Cheng et al., 2011; Prestin & Pearce, 2010). Previous research has focused on determining individual differences linked to responses towards message frames (e.g. Cho & Boster, 2008; Updegraff, Sherman, Luyster, & Mann, 2007; Uskul, Sherman, & Fitzgibbon, 2009) but none of these studies explore the role of subculture as a unique individual characteristic. The sub-cultural factor, such as religion-framed messages, could be the key in promoting pro-environmental behaviour. In addition, there are limited studies on moral identity in framing strategy, although frames are a component of making moral judgements and could inspire moral and cultural values within the individual (Cappella & Jamieson, 1997). Frames have been referred to as a set of “interpretative packages” (Gamson, 1989) and have important consequences given receivers of frames may conceptualised reality differently based on specific framing patterns (Borah, 2011).

The integrated effect of positive or negative framed messages with religious identity framed messages and moral identity framing could affect consumer responses to advertising messages, such as recycling. This study sees religion (Islamic identity) as a component of framing and an individual uniqueness. New alternatives are needed for future research that require more thorough evaluations to understand how competing frames reinforce and motivate existing values or push individuals in conflicting directions (Chong & Druckman, 2007).

Social marketing campaigns have been widely useful in promoting behavioural change programmes (Altman & Petkus, 1994; Carrigan, Moraes, & Leek, 2011; Raftopoulou & Hogg, 2010; Walsh, Hassan, Shiu, Craig Andrews, & Hastings, 2010). However, considering the attitude-action gap, further investigation is necessary regarding how a message-framing strategy can be effectively tailored to encourage recycling behaviour. Furthermore, previous research suggests that appropriate and effective use of combination message framing in recycling campaigns would lead to desired environmentally sustainable behaviour changes. A study by Randolph and Viswanath (2004) found that the creation and positioning of messages for successful campaigns received limited efforts. A growing body of research proposes the need to analyse recycling campaigns in future studies (Afroz, Hanaki, Tuddin, & Ayup, 2010; Bezzina & Dimech, 2011; Davis et al., 2006; Timlett & Williams, 2009), particularly to consider the use of

framing and message design (Cheng et al., 2011; Kim & Kim, 2014) for a specific segmentation and population.

3.0 CONCLUSION

Communicating and persuading individuals to act in an environmentally friendly manner is demanding, as people apparently view social behaviour and environmental behaviour from different points of view based on whether they perceive the message as directly applicable or rather view it as a general societal message (Kronrod et al., 2012). However, it is not easy to encourage consumers to behave in an environmentally friendly way. Marketers face problems in promoting and bridging the gap between environmental concern and action and in breaking down consumers' barriers to action. To change behaviour, campaigns must be designed to consider why people behave the way they do, and they must be founded on a theoretical basis that both supports their development and serves as a basis for their implementation and evaluation (Valente, 2001). As such, media may shape and influence consumer behaviour by framing events and issues in particular ways. Messages must be relevant to the specific target audience to optimise the likelihood of the desired impact on an individual's behaviour, and it is important to explain the concept behind the desired behavioural change (Pelletier & Sharp, 2008). After all, promoting people to recycle would lead to the greatest benefits when we are focusing on the end of the waste stream instead of reducing consumption as it will be beneficial to the environment as well. Without a doubt, recycling offers the best option for sustaining the environment.

4.0 REFERENCES

- Afroz, R., Hanaki, K., Tuddin, R., & Ayup, K. (2010). A survey of recycling behaviour in households in Dhaka, Bangladesh. *Waste Management & Research*, 28(6), 552-560.
- Altman, J. A., & Petkus, E. (1994). Toward a stakeholder-based policy process: an application of the social marketing perspective to environmental policy development. *Policy Sciences*, 27, 37-51.
- Arnould, E., Price, L., & Zikhan, G. (2004). *Consumers* (2 ed.): McGraw-Hill, New York.
- Arora, R., Stoner, C., & Arora, A. (2006). Using framing and credibility to incorporate exercise and fitness in individuals' lifestyle. *Consumer Marketing*, 23(4), 199-207.
- Barr, S. (2003). Strategies for sustainability: citizens and responsible environmental behaviour. *Area*, 35(3), 227-240.
- Beltramini, R. F., & Evans, K. R. (1985). Perceived believability of research results information in advertising. *Journal of Advertising*, 14(3), 18-31.
- Bezzina, F. H., & Dimech, D. (2011). Investigating the determinants of recycling behaviour in Malta. *Management of Environmental Quality: An International Journal*, 22(4), 463-485.
- Block, L., & Keller, P. A. (1995). When to accentuate the negative: The effects of perceived efficacy and message framing on intentions to perform a health-related behaviour. *Marketing Research*, 32, 192-203.
- Boldero, J. (1995). The prediction of household recycling of newspapers: The role of attitudes, intentions, and situational factors. *Journal of Applied Social Psychology*, 25(5), 440-462.
- Borah, P. (2011). Conceptual issues in framing theory: A systematic examination of a decade's literature. *Journal of Communication*, 61(2), 246-263.

- Brewer, G. D., & Stern, P. C. (2005). *Decision Making for the Environment: Social and Behavioral Science Research Priorities*: The National Academies Press.
- Cappella, J. N., & Jamieson, K. H. (1997). *Spiral of cynicism. The press and the public good.* (New York: Oxford University Press.).
- Carrigan, M., Moraes, C., & Leek, S. (2011). Fostering responsible communities: A community social marketing approach to sustainable living. *Journal of Business Ethics, 100*(3), 515-534.
- Cesario, J., Corker, K. S., & Jelinek, S. (2013). A self-regulatory framework for message framing. *Journal of Experimental Social Psychology, 49*(2), 238-249.
- Cheng, T., Woon, D. K., & Lynes, J. K. (2011). The use of message framing in the promotion of environmentally sustainable behaviors. *Social Marketing Quarterly, 17*(2), 48-62.
- Cho, H., & Boster, F. J. (2008). Effects of gain versus loss frame antidrug ads on adolescents. *Journal of Communication, 58*, 428-446.
- Chong, D., & Druckman, J. (2007). Framing theory. *Annual Review of Political Science, 10*, 103-126.
- Crane, A. (2000). Facing the backlash: Green marketing and strategic reorientation in the 1990s. *Strategic Management, 8*, 277-296.
- Davis, G., Phillips, P. S., Read, A. D., & Iida, Y. (2006). Demonstrating the need for the development of internal research capacity: Understanding recycling participation using the Theory of Planned Behaviour in West Oxfordshire, UK. *Resources, Conservation and Recycling, 46*(2), 115-127.
- Fishbein, M., Triandis, H. C., Kanfer, F. H., Becker, M., Middlestadt, S. E., Eichler, A., Revenson, T. A. (2001). Factors influencing behavior and behavior change *Handbook of Health Psychology* (pp. 3-16): Mahway, NJ: Lawrence Erlbaum.
- Fisher, R. J., & Ackerman, D. (1998). The effects of recognition and group need on volunteerism: A social norm perspective. *Consumer Research, 25*(3), 262-275.
- Gamson, W. A., & Modigliani, A. (1989). . (1989). Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology, 95*, 1-37.
- Gill, F. (2011). Practicing environmental responsibility: local and global dimensions. *Social Responsibility, 8*(1).
- Gilpin, A. (2000). *Dictionary of Environmental Law*: Edward Elgar Publishing, Incorporated.
- Grinstein, A., & Nisan, U. (2009). Demarketing, Minorities and Marketing Attachment. *Marketing, 73*, 105-122.
- Haron, S. A., Paim, L., & Yahaya, N. (2005). Towards sustainable consumption: an examination of environmental knowledge among Malaysians. *International Journal of Consumer Studies, 29*(5), 426-436.
- Harris, P. G. (2006). Environmental perspectives and behavior in China. *Environment and Behavior, 38*(1), 5-21.
- Hong, M.-C., & Narayanan, S. (2006). Restoring the shine to a pearl: Recycling behaviour in Penang, Malaysia. *Development & Change, 37*(5), 1117-1136.
- Hornik, J., Cherian, J., Madansky, M., & Narayana, C. (1995). Determinants of recycling behavior: A synthesis of research results. *Journal of Socio-Economics, 24*(1), 105-127.
- Høgevold, N. M., & Svensson, G. (2012). A business sustainability model: a European case study. *Journal of Business & Industrial Marketing, 27*(2), 142-151.
- Hunter, L. M., Hatch, A., & Johnson, A. (2004). Cross-national gender variation in environmental behaviors. *Social Science Quarterly, 85*, 677-694.

- Jang, S. M., & Hart, P. S. (2015). Polarized frames on “climate change” and “global warming” across countries and states: Evidence from twitter big data. *Global Environmental Change*, 32, 11-17.
- Kidwell, B., Farmer, A., & Hardesty, D. M. (2013). Getting liberals and conservatives to go green: Political ideology and congruent appeals. *Consumer Research*, 40, 1-19.
- Kim, S.-B., & Kim, D.-Y. (2014). The effects of message framing and source credibility on green messages in Hotels. *Cornell Hospitality Quarterly*, 55(1), 64-75.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239-260.
- Kronrod, A., Grinstein, A., & Wathieu, L. (2012). Go green! Should environmental messages be so assertive? *Marketing*, 76, 95-102.
- Largo-Wight, E., Bian, H., & Lange, L. (2012). An empirical test of an expanded version of the Theory of Planned Behavior in predicting recycling behavior on campus. *American Journal of Health Education*, 43, 66-73.
- Largo-Wight, E., Johnston, D. D., & Wight, J. (2013). The efficacy of a theory-based, participatory recycling intervention on a college campus. *Journal of Environmental Health*, 76(4), 26-31.
- Lehman, P. K., & Geller, E. S. (2004). Behaviour analysis and environmental protection: Accomplishments and potential for more. *Behaviour and Social Issues*, 13, 13-32.
- Martinez, M. D., & Scicchitano, M. J. (1998). Who listens to trash talk?: Education and public media effects on recycling behavior. *Social Science Quarterly*, 72(2), 287-300.
- Meyerowitz, B., & Chaiken, S. (1987). The effect of message framing on breast self-examination attitudes, intentions and behavior. *Personality and Social Psychology Bulletin*, 52(3), 500-510.
- Michael, S., Gary, B., Søren, A., & Hogg, M. K. (2009). *Consumer behaviour : a European perspective*. (4 ed.): Prentice Hall.
- Miller, G. T. (2005). *Living in the Environment* (14 ed.): Thomson, Brookes and Cole Publication.
- Naidoo, D. K. (2010). *Exploring the impact of message framing on sustainable consumption choices*. (MBA dissertation), University of Pretoria, Pretoria. Retrieved from <http://upetd.up.ac.za/thesis/available/etd-06092011-134705/>.
- Nomura, H., John, P., & Cotterill, S. (2011). The Use of Feedback to Enhance Environmental Outcomes: A Randomized Controlled Trial of a Food Waste Scheme. *The International Journal of Justice and Sustainability*, 16(7), 637-653.
- O'Connor, R. T., Lerman, D. C., Fritz, J. N., Hodde, H. B., & Wilder, D. (2010). Effects of number and location of bins on plastic recycling at a University. *Applied Behavior Analysis*, 43(4), 711-715.
- Park, H. S., Smith, S. W., Klein, K. A., & Martell, D. (2011). College Students' Estimation and Accuracy of Other Students' Drinking and Believability of Advertisements Featured in a Social Norms Campaign. *Journal of Health Communication*, 16(5), 504-518.
- Pelletier, L. G., & Sharp, E. (2008). Persuasive communication and proenvironmental behaviours: How message tailoring and message framing can improve the integration of behaviours through self-determined motivation. *Canadian Psychology*, 49, 210-217.

- Prestin, A., & Pearce, K. E. (2010). We care a lot: Formative research for a social marketing campaign to promote school-based recycling. *Resources, Conservation and Recycling*, 54(11), 1017-1026.
- Raftopoulou, E., & Hogg, M. K. (2010). The political role of government-sponsored social marketing campaigns. *European Journal of Marketing*, 44(7), 1206-1227.
- Randolph, W., & Viswanath, K. (2004). Lessons learned from public health mass media campaigns: Marketing health in a crowded media world. *Annual Review of Public Health*, 25, 419-437.
- Rioux, L. (2011). Promoting pro-environmental behaviour: Collection of used batteries by secondary school pupils. *Environmental Education Research*, 17(3), 353-373.
- Rothman, A. J., Baldwin, A., & Hertel, A. (2004). *Self-regulation and behaviour change: Disentangling behavioural initiation and behavioural maintenance*. In K. Vohs, & R. F. Baumeister (Eds.), *The handbook of self-regulation*.: New York: Guilford Press.
- Rothman, A. J., & Salovey, P. (2007). *The reciprocal relation between principles and practice*. In A. Kruglanski, & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principle*. (2 ed.): New York: Guilford Press.
- Rothman, A. J., Stark, E., & Salovey, P. (2006). *Using message framing to promote healthy behaviour: A guide to best practices*. In J. Trafton (Ed.), *Best practices in the behavioural management chronic diseases* (Vol. 3): Los Altos, CA: Institute for Disease Management.
- Salovey, P., & Williams-Piehot, P. (2004). Field experiments in social psychology: Message framing and the promotion of health protective behaviors. *The American Behavioral Scientist*, 47(5), 488-505.
- Schultz, P. W. (1999). Changing behavior with normative feedback interventions: A field experiment on curbside recycling. *Basic and Applied Social Psychology*, 21(1), 25-36.
- Shah, D. V., Kwak, N., Schmierbach, M., & Zubric, J. (2004). The interplay of news frames on cognitive complexity. *Human Communication Research*, 30(1), 102-120.
- Shreck, B., & Vedlitz, A. (2016). The public and its climate: Exploring the relationship between public discourse and opinion on global warming. *Society & Natural Resources*, 29(5), 509-524.
- Spence, A., Pidgeon, N., & Uzzell, D. (2009). Climate change-psychology's contribution. *The Psychologist*, 22(2), 108-111.
- Thøgersen, J. (2008). Social norms and cooperation in real-life social dilemmas. *Journal of Economic Psychology*, 29(4), 458-472.
- Timlett, R. E., & Williams, I. D. (2008). Public participation and recycling performance in England: A comparison of tools for behaviour change. *Resources, Conservation and Recycling*, 52(4), 622-634.
- Timlett, R. E., & Williams, I. D. (2009). The impact of transient populations on recycling behaviour in a densely populated urban environment. *Resources, Conservation and Recycling*, 53(9), 498-506.
- Tsai, C.-C., & Tsai, M.-H. (2006). The impact of message framing and involvement on advertising effectiveness - the topic of oral hygiene as an example. *Journal of American Academy of Business Cambridge*, 8(2), 222-226.
- Tsai, S. (2007). Message framing Strategy for brand communication. *Advertising Research*, 364-377.

- Tudor, T., Robinson, G. M., Riley, M., Guilbert, S., & Barr, S. W. (2011). Challenges facing the sustainable consumption and waste management agendas: perspectives on UK households. *Local Environment, 16*(1), 51-66.
- Updegraff, J. A., Sherman, D. K., Luyster, F. S., & Mann, T. L. (2007). The effects of message quality and congruency on perceptions of tailored health communications. *Journal of Experimental Social Psychology, 43*, 249-257.
- Uskul, A. K., Sherman, D. K., & Fitzgibbon, J. (2009). The cultural congruency effect: Culture, regulatory focus, and the effectiveness of gain- vs. loss-framed health messages. *Journal of Experimental Social Psychology, 45*(3), 535-541.
- Valente, T. (2001). *Evaluating communications campaigns*. Thousand Oaks, CA: Sage.
- Vicente, P., & Reis, E. (2007). Segmenting households according to recycling attitudes in a Portuguese urban area. *Resources, Conservation and Recycling, 52*(1), 1-12.
- Vicente, P., & Reis, E. (2008). Factors influencing households' participation in recycling. *Waste Management & Research, 26*(2), 140-146.
- Walker, G., & King, D. (2008). *The hot topic*. London: Bloomsbury.
- Walsh, G., Hassan, L. M., Shiu, E., Craig Andrews, J., & Hastings, G. (2010). Segmentation in social marketing. *European Journal of Marketing, 44*(7), 1140-1164.
- White, K., MacDonnell, R., & Dahl, D. W. (2011). It's the mind-set that matters: The role of construal level and message framing in influencing consumer efficacy and conservation behaviors. *Journal of Marketing Research, 48*(3), 472-485.
- Yeung-Jo, K. (2006). The role of regulatory focus in message framing in antismoking advertisements for adolescents. *Journal of Advertising, 35*(1), 143-151.