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The Role of Social Marketing in Behavioural Change for a Circular Economy:

Exploring the value-action gap for routine
purchases in a competitive retail setting



Maeve McArdle, B. Comm., M.B.S.

Supervisor: Dr Christine Domegan,

Marketing Discipline,

J.E. Cairnes School of Business and Economics

National University of Ireland, Galway

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List of Acronyms

AVE	Average Variance Extracted
BRT	Behavioural reasoning theory
CFA	Confirmatory Factor Analysis
CR	Composite Reliability
Df	Degrees of freedom
EFA	Exploratory Factor Analysis
E-PVQ	Environmental Portrait Value Questionnaire
EPA	Environmental Protection Agency
EC	European Commission
EU	European Union
KMO	Kaiser-Meyer-Olkin Measure of sampling adequacy
QUAL	Qualitative research
QUANT	Quantitative research
RMSEA	Root Mean Square Error of Approximation (RMSEA)
TLI	Tucker-Lewis Index
SEM	Structural Equation Modelling

Declaration

I hereby certify that this material that I now submit for assessment on the programme of study leading to the award of Doctor of Philosophy, is entirely my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

Student ID Number: 88904849

Name of Candidate: Maeve McArdle

Signature of Candidate:

Date:

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Conference papers and presentations

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McArdle, Maeve (2017) The reasons reveal, Whitaker Institute Ideas Forum, NUI Galway.

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McArdle Maeve & Domegan, Christine (2019) Behavioural Change for a circular economy, poster competition (winner), Whitaker Institute NUIG research day.

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Abstract

This research extends the social marketing agenda into the area of pro-environmental behaviour addressing the ultimate behavioural change challenge of achieving a circular economy. The successful transition to a circular economy will be achieved only when society moves from the traditional linear model of 'take-make-dispose' to a circular model where individuals engage in pro-environmental behaviour. Although people profess a willingness to act in a pro-environmental way, they often fail to do so in practice which is known as the value-action gap (Blake, 1999). The research question chosen for this study set out to examine the value-action gap for recycled paper products and explore the role of values and reasons in understanding pro-environmental behaviour in a competitive shopping context.

The methodology applied in this research involved a sequential mixed methods approach, combining qualitative and quantitative research to gather data from household shoppers and key industry stakeholders. Westaby's (2005) behavioural reasoning theory model provided an insight into the value-action gap at the individual level and was used to specify contextual factors facilitating or preventing behaviour. Both 'reasons for' and 'reasons against' were identified. These reasons were then used to create measurement scales and to design interventions. The model was then tested using structural equation modelling and was found to be a good fit. To address other gaps beyond the individual, the meso and macro levels were examined using key stakeholder research and competitor analysis. The findings explain household shopping behaviour for recycled paper products and identify a range of interventions that could be effective in achieving a successful transition to a circular economy.

This research makes three main contributions. Firstly, it confirms the potential role of social marketing in addressing behavioural change for a circular economy. Secondly, it contributes to an understanding of the value-action gap for recycled paper products at the individual level and beyond. Finally, it offers a new multi-level framework for addressing behavioural change which can, in future, be applied to value action gap research in other social contexts.

Chapter One

The role of social marketing in behavioural change for a circular economy

1.0 Introduction

If, as suggested by Dibb (2014), social marketing is to continue on its current growth trajectory, it will have to embrace new challenges in new settings as it moves to a more holistic approach to behavioural change (Brennan, Previte and Fry, 2016; Gordon, Russell-Bennett and Lefebvre, 2016). With an impressive forty-eight-year history, the discipline of social marketing has matured to an all-encompassing field. While public health issues dominated the research agenda in the past (French *et al.*, 2010; Truong, 2014), the growing remit of the discipline now incorporates many diverse social issues (Wood, 2016) including those viewed as wicked problems (Peterson, 2013; Kennedy *et al.*, 2017). Falling into the category of wicked problems are environmental issues of climate change, global warming and resource depletion. The complicated and intractable nature of these wicked environmental problems provides a challenge to social marketers that extends well beyond its current boundaries.

Since broadening the marketing concept was first mentioned in 1969 (Kotler and Levy), social marketing has emerged as a viable alternative to behavioural change across many and varied contexts (Lee and Kotler, 2008; Peattie and Peattie, 2011). The idea of a broadened concept of marketing was viewed in a positive light by many

academics at the time, but, others, including Bartels (1974, p. 76) expressed concern with the notion of the changing role of marketing, believing this would create an identity crisis in marketing (Luck, 1974; Laczniak, Lusch and Murphy, 1979). Regardless, social marketing continued to grow and by the 1980's, had begun to mature (Hastings and Saren, 2003; Andreasen, 2006), as evident by the growth in its application to many different problems and populations (Dibb, 2014; Truong, 2014). While public health continues to be an important area of interest (French *et al.*, 2010; Wymer, 2015), the issues under investigation today are very different from those dominating research in the early days (Gordon *et al.*, 2006; Gordon, Russell-Bennett and Lefebvre, 2016).

The 'broadened' agenda for the discipline is clearly demonstrated by its breadth and depth of application across different contexts which include (Lee and Kotler, 2008) health interventions (Grier and Bryant, 2005; Fishbein and Cappella, 2006; French *et al.*, 2010), safety and injury prevention (Tapp *et al.*, 2013; Spotswood *et al.*, 2015), community involvement (Briggs, Peterson and Gregory, 2009) and environmental protection (Shrum *et al.*, 1995; Lowe, Lynch and Lowe, 2015). The agenda is also expressed in its definition (iSMA, ESMA and AASM, 2013) where, 'Social Marketing seeks to develop and integrate marketing concepts with other approaches to influence behaviours that benefit individuals and communities for the greater social good'. It is clear that the discipline which began with a broadening of the marketing concept (Kotler and Zaltman, 1971) continues to successfully broaden itself (Dibb, 2014).

The purpose of this research is to support social marketing as it moves through the next wave of broadening by exploring the potential role in addressing behavioural change for a circular economy. Behavioural change will be necessary to achieve the goal of transitioning from the traditional linear 'take-make-dispose' economic model to a circular closed loop one (Bourguignon, 2016). Although people profess a willingness to act in a pro-environmental way, they often fail to do so in practice and this is known as the value-action gap. Social marketing offers a means of voluntary behavioural change (Hastings, 2007) and a legitimate and vibrant alternative to deal

with the growing environmental crisis (Grönroos, 2007; Peattie and Peattie, 2009; Kotler, 2011; Dibb, 2014).

1.1 Social marketing for the environment

Since social marketing first emerged in the literature, it was acknowledged that environment issues would form part of its scope (Peattie and Peattie, 2011; Veríssimo, 2019). However, environmental issues did not progress to the same degree as public health. Reviewing the environmental research within the social marketing domain, Takahashi (2009) points to a slow but increasing trend over the years. The lack of traction in this field compared to the public health domain might be explained by the dominant paradigm legacy. Fortunately the prevalence of pro-environmental research has begun to grow in the past fifteen years and although it is still dominated by traditional topics such as recycling, energy conservation and transportation (Ibid., 2009), the subjects under investigation today are more numerous and diverse (Veríssimo *et al.*, 2018; Veríssimo, 2019).

One particularly significant approach to tackling environmental issues in the field of social marketing is based on the work by Doug McKenzie-Mohr (McKenzie-Mohr and Smith, 1999; McKenzie-Mohr, 2000; McKenzie-Mohr and Schultz, 2014) around the subject of community-based social marketing.

1.1.1 Community-based social marketing

Community-based social marketing is offered by McKenzie-Mohr (McKenzie-Mohr and Schultz, 2014; McKenzie-Mohr, 2000; McKenzie-Mohr and Smith, 1999) as a means fostering pro-environmental behaviour and as an alternative to the information intensive campaigns often favoured in the 1980's and 1990's (Costanzo *et al.*, 1986; McKenzie-Mohr *et al.*, 1995). Community-based social marketing suggests a framework to bridge the gap between psychology and sustainable behaviour. Recognising the potential but seemingly invisible contribution of psychology to fostering sustainable behaviour, 'community-based social marketing

merges knowledge from psychology with expertise from social marketing' (McKenzie-Mohr, 2000, p. 546). The combined knowledge of the two disciplines offers a new framework to foster sustainable behaviour. Social marketing places an emphasis on recognising the barriers to change and a strategic approach to targeting market segments, while psychology offers knowledge on values, attitudes and behaviour (McKenzie-Mohr *et al.*, 1995). With its foundations in environmental psychology, community-based social marketing (CBSM) builds on early theoretical models for explaining pro-environmental behaviour (Bamberg and Möser, 2007) and includes the norm-activation model (Schwartz, 1977) and the theory of planned behaviour (Ajzen, 1991).

The community-based social marketing conceptual framework while having its roots in environmental psychology, is designed with practitioners in mind (McKenzie-Mohr, 2000). The framework builds on the principles of Social Norm Theory and Diffusion of Innovation Theory in an effort to foster pro-environmental behaviour (McKenzie-Mohr, 2011). According to social norm theory, it is important for members of a society to fit in and conforming to a behaviour depends on descriptive and injunctive norms (Hopper and Nielsen, 1991; Thøgersen, 2008). While social diffusion, or diffusion of innovation theory (Rogers, 1962), is concerned with how a behaviour is adopted and how widespread it is, the rate of adoption being determined by how attractive the behaviour is compared to current behaviour and whether or not it is consistent with values. Central to the success of CBSM interventions are the premises of these theories.

Community-based social marketing offers a practical, applied approach to pro-environmental behavioural change with an emphasis on barrier removal thus resulting in behavioural benefits. McKenzie-Mohr and Schultz (2014) describe a five-step process in community-based social marketing. The process begins with the identification of the target behaviour. The authors (*Ibid.*, 2014, p. 36) emphasise the importance of drilling down into the behaviour to identify the 'indivisible' or 'end-state' behaviour which should be targeted. If the selected behaviour continues to be divisible then it will make the task of changing that behaviour very difficult.

When the target behaviour has been identified, the related barriers and benefits must be uncovered (Ibid., 2014). The barriers and benefits are always unique to the target behaviour and therefore must be researched in the setting in which the behaviour occurs (McKenzie-Mohr and Smith, 1999). The third step involves developing strategies based on the findings from the barriers and benefits research and adopting specific tools to change behaviour. Behavioural change strategies might involve the use of techniques such as; promoting social norms, looking for commitment or the use of prompts and incentives (Schultz, 2014). Step four involves pilot-testing the strategies before launch to test their efficacy (McKenzie-Mohr, 2000, p. 549) and then to the final step of a full-scale implementation and evaluation.

The CBSM framework targets the community level, moving beyond the individual to a group or community of people. The community level is an important distinction of the technique, because it operates through an extended scope beyond that of the individual (McKenzie-Mohr and Smith, 1999; McKenzie-Mohr, 2000). By its nature community-based social marketing adopts a broadened approach to social marketing for pro-environmental behaviour as individuals tend to act within their context, or community, a higher level of integration is required.

However, given the scope and complexity of the problem presented by the circular economy and the elusive nature of the value-action gap, the challenge facing society and social marketing today suggests a sophisticated multi-faced, multi-level approach beyond that offered by community-based social marketing.

1.1.2 A 'wicked' environmental problem

Urgent, sustained and inclusive action on a global scale is required to address the environmental crisis facing the planet today. The United Nations Environmental Programme (UNEP) (2019) reporting in the sixth Global Environmental Report (Geo-6) presents an evaluation of the current state of the global environment. The extent and breadth of the problems facing the planet in terms of air, biodiversity, land and soil, oceans and coasts, and fresh water require immediate action (United Nations General Assembly, 2015). The source and drivers of environmental problems lie in

population dynamics (estimated to increase to 10 billion by 2050) and economic development that has resulted in increasing urbanisation, demand for resources and a 'grow now, clean up later' attitude (United Nations Environment Programme, 2019, p.6). Unfortunately, it has been the case that the successful environmental mitigation by some countries using targeted policies is often offset by the lack of engagement by others. As it stands, according to the latest data, society is not on track to meet the environmental dimension of the SDG's and Agenda 2030 (UNEP, 2019, p. 19). Transformational change will be necessary to change the path we are currently on and this will only be successful if it includes 'changes in lifestyle, consumption preferences and consumer behaviour' (ibid., p. 21).

The product choices made by millions of individuals can help or hinder the transition to a circular economy (European Commission, 2015a). The transition to a circular economy requires a corresponding transformational change at all levels within society (Kilbourne and Mittelstaedt, 2012). A resource-efficient or circular economy demands a systemic shift away from the traditional linear 'take-make-dispose' model to a circular or closed loop one (Ellen MacArthur Foundation, 2015). Every individual can assist the transition by choosing products that embrace the circularity concept (Ghisellini, Cialani and Ulgiati, 2015; Bourguignon, 2016). Achieving this behavioural change however is difficult because despite articulating a desire to act in a more pro-environmental way, individuals fail to do so in practice (United Nations Environment Programme, 2005; Nielsen Company, 2018b). The failure to act is known as the value-action gap and unless this gap is addressed, a circular economy will not be achieved.

1.1.3 Social marketing and the circular economy

Given the nature and scope of transitioning to a circular economy, it might best be described as a complex, 'wicked' problem. A 'wicked' problem according to Kennedy and Parsons (2012, p. 355) is a complex one involving many stakeholders with 'multiple levels of interconnecting factors involved', making it difficult to define and solve. A multi-level, multi-stakeholder approach will be required. There are clear benefits to achieving a circular economy within the EU, as it will have an enormous impact on economic development but contained within resource limitations (EEA,

2016). These include societal and environmental benefits from lower carbon emissions and new job opportunities (Ellen MacArthur Foundation, 2015; Wijkman and Skånberg, 2016). However, creating this change to achieve these benefits requires ‘fundamental changes throughout the value chain, from product design and production processes to new business models and consumption patterns’ (EEA, 2016, p. 5).

The circular economy operates at multiple levels simultaneously, the micro-level, meso-level and macro-levels (Kirchherr, Reike and Hekkert, 2017). At the macro-level, this involves engagement across industrial, infrastructure, the cultural framework and social system (Ibid). The meso-level is described as eco-industrial parks (a community of industrial businesses working together) of which there are potential economic and environmental benefits. The final level within the circular economy is the micro-level which includes companies, consumers and products. This is the level of individual engagement but as demonstrated, sits in a wider multi-layered context, involving multiple agencies and stakeholders.

Social marketing and a closed loop system

At the core of the circular economy is a closed loop system, where ‘products and the material they contain are highly valued’ and where individuals engage with and sustainable products choices (Bourguignon, 2016). The existence of the value-action gap threatens the objective of a closed loop system. This is where social marketing has a role to play, to explore behavioural change for products which close the loop, thereby addressing the value-action gap. Researching behavioural change for a circular economy and exploring the value-action gap for recycled paper products in particular, reveals an enormous challenge for social marketers.

It is not surprising, given the relatively recent emergence of the circular economy, that the literature has yet to extend beyond ecological economics and conservation (Geissdoerfer *et al.*, 2017; Korhonen, Honkasalo and Seppälä, 2018). Recent pro-environmental topics under investigation within social marketing include issues such as global conservation (Green *et al.*, 2019), littering reduction (Almosa, Parkinson and

Rundle-Thiele, 2017) and meat consumption (Bogueva, Marinova and Raphaely, 2017), they do not include the circular economy.

Interdisciplinary collaboration

The challenge of achieving a circular economy spans many fields (Murray, Skene and Haynes, 2017) and in doing so provides an opportunity for cross-disciplinary learning and cooperation. There are many calls for collaboration across academia from environmental and conservation science to psychology and social marketing (Murray, Skene and Haynes, 2017; Veríssimo *et al.*, 2018) and in addition calls for collaboration across civil society, the public and private sector (Ghisellini, Cialani and Ulgiati, 2015).

The nature of the problem under investigation is one suggesting a collaborative approach. A systems driven approach actively engages actors within the system and beyond the individual (Brennan, Previte and Fry, 2016). The integration therefore of social marketing expertise with the wisdom gleaned from other disciplines offers a better chance of successfully addressing wicked environmental problems (Collins, Tapp and Pressley, 2010). Disciplines such as environmental economics, behavioural science, psychology and sociology offer theories and models which may prove useful in this regard to the social marketing domain (Brennan *et al.*, 2014; Dessart and Van Bavel, 2017). Greater collaboration and knowledge integration will facilitate a better understanding of the complex nature of the problem (Jackson, 2005; Darnton, 2008; Dibb, 2014).

1.2 Transitioning to a Circular Economy

A circular economy or a closed loop system is an economic system where the focus shifts from the traditional linear model to a circular one where emphasis is placed on extracting as much value from resources as possible (European Commission, 2015b). In a circular economy, as depicted in Figure 1.1, the emphasis is placed on reducing, reusing and recycling throughout the system where waste becomes an input into the system again. With the increased emphasis on resource efficiency, what was once seen as waste now becomes a valuable resource (Ellen MacArthur Foundation, 2015).

Reviewing 114 definitions Kirchherr *et al* (2017, p. 229) offer the following comprehensive definition for a circular economy:

A circular economy is ‘an economic system that replaces the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes. It operates at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, thus simultaneously creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations.’

Moving to a circular economy requires the participation of every organisation and individual in the system from policy makers to manufacturers, suppliers and retailers and citizens. In December 2015, the European Commission announced a new action plan for a circular economy. This action plan set out the EU’s response to the 2030 Agenda and the Sustainable Development Goals (SDG’s) (United Nations General Assembly, 2015; European Commission, 2016) and contains a range of measures and targets framing its transition to a circular economy.



Figure 1. 1 The Circular Economy

(Source: European Parliament, 2015)

The concept of a circular or closed-loop economy is thought to originate in the systems theory of Boulding (1966) and while the term itself is generally attributed to Pearce and Turner (1990), it is also associated with industrial ecology and general systems theory (Ghisellini, Cialani and Ulgiati, 2015; Murray, Skene and Haynes, 2017). Many countries across the world have adopted the concept and these include Australia, Canada, China, Finland, Japan, Sweden, UK and USA (Geissdoerfer *et al.*, 2017). Apart from China where a top-down political approach is taken, this concept facilitates bottom-up environmental measures (Ghisellini *et al.*, 2015).

The European Parliamentary Research Service briefing document (Bourguignon, 2016, p. 3-4) summarises the potential opportunities presented by achieving a circular, closed-loop economy. They include reduced pressure on the environment; an increase in security of raw materials; increased competitiveness; greater innovation, growth and new job creation. The changes required to achieve a circular economic system are not without their challenges (Kirchherr *et al.*, 2018; Korhonen, Honkasalo and Seppälä, 2018). At the fundamental level there are thermodynamic limitations (Korhonen, Honkasalo and Seppälä, 2018) but other limits exist too, such as financial resources; systems boundaries and market and technological barriers (Bourguignon, 2016; Kirchherr *et al.*, 2018). Yet another category of barriers is those relating to culture and individual behaviour. Not only is it necessary to get the system, market and technology in place to support a circular, closed-loop system, it is also essential to intervene to remove any barriers to behavioural change as each individual and organisation plays an important role in a closed-loop system when they purchase pro-environmental products (Uliano, 2008; Ellen Macarthur Foundation, 2013; European Commission, 2016).

1.2.1 Recycled products - circular by design

One category of pro-environmental products which epitomises a circular model in action are those made with recycled materials. In a circular closed-loop system, recycled materials become a valuable resource as they use waste in the system to create new products. On the positive side, statistics point to increased household engagement with waste management instead there appears to be a disconnect

between the action of recycling waste and other pro-environmental behaviours (Kelly, Tovey and Faughnan, 2007). According to *Gorgeously Green* author Sophie Uliano (2008, p. 163) 'it is as important to buy items made of recycled materials as it is to actually recycle'. A growing acceptance of the importance of what is often called closing the loop, is evident within the literature (Biswas *et al.*, 2000; Follows and Jobber, 2000; Pickett-Baker and Ozaki, 2008) as buying recycled products supports the transition to a circular economy. Current recycling trends indicate that the Irish public have bought into recycling and this is reflected in an increase of disposed municipal waste diverted to recycling, increasing to 45 percent in November 2017 (EPA Ireland, 2017) and on track to meet a target of 50 percent. However, while recycling rates continue to climb, the cycle breaks down when households fail to purchase products made with recycled materials (Biswas *et al.*, 2000; EPA, 2018).

Although the careful separation and disposal of household recyclables has become a habit in most Irish households, the activity of environmentally responsible purchasing is often overlooked, not only by individuals, but researchers too. 'By primarily focusing on recycling of waste created through consumption, the research has overlooked the other half of the recycling process: purchase of recycled or recyclable products' (Biswas *et al.*, 2000, p. 93). Micklethwaite (2004) describes the act of closing the loop as the last link in a circular production and consumption system.

According to Micklethwaite (2004, p. 77) 'closing the loop requires that the products made from recycled materials are then taken up by recycled consumers for whom recycled products are a desirable and preferable option'. Unfortunately not all individuals are what Micklethwaite (2004) calls recycled consumers. When it comes to buying recycled products, it would appear that while a high proportion of EU citizens regularly buy (24%) or sometimes buy (54%) environmentally-friendly products (EFP), according to research conducted by Eurobarometer for the European Commission (European Commission, 2012), there doesn't appear to be any specific information on the purchase behaviour for recycled products.

1.2.2 Benefits of buying recycled

There are many benefits to purchasing recycled products, including creating a viable market within the European Union for recycled materials. Demand for products made with recycled content creates a need for good quality recycled materials (European Commission, 2015b). In turn, recycled materials become a more valuable resource and this reduces the need for landfill space. The more materials recycled, the smaller the landfill space required (Bourguignon, 2016). Finally, there are further financial and environmental savings to using recycled over virgin materials. The former requires less processing than virgin materials, less water and less energy. According to Uliano (2008) recycling a ton of paper, saves 17 trees, 6953 gallons of water, 380 gallons of oil, 587lbs of air pollution, 3.06 cubic yards of landfill space and 4,077 kilowatt hours of energy.

1.2.3 Closing the loop – recycled paper products

For the purposes of this research study, a decision was made to choose a product category which captured the closed-loop, circular economy definition and at the same time represented a product category accessible for household shoppers. Household shoppers close the loop when they purchase products made with recycled materials. While there are very few recycled products households buy on a regular basis, paper products are one category which fit this criterion. Recycled paper products are paper products made with reconstituted paper. A review of the literature on green or eco-friendly products suggests that this area is under-researched, with limited research undertaken two decades ago, and very little research engagement in recent times (Bei and Simpson, 1995; Mobley *et al.*, 1995; Guagnano, 2001). The research into recycled paper products focused on the willingness to pay and consumers' attitudes to same (Moser, 2016). Mobley *et al.*, (1995) were some of the few who examined consumer evaluation of recycled paper products (i.e. greeting cards and tissues) and found that while consumers are positively disposed to recycled products, they are more likely to support an established brand. Researching a wider range of recycled products which included paper, Bei and Simpson (1995) explored the determinants of consumer

purchase decisions and concluded that perception of utility was an important purchase decision and that poor quality and cost made consumers more reluctant to purchase.

A second approach to exploring this category of products was to measure the willingness to pay (WtP) (Guagnano, 2001; Anstine, 2010). At this time recycled products or eco-friendly products often carried a price premium and therefore the willingness to pay a premium price was examined.

Neither approach to examining recycled paper products explored the value action gap to pro-environmental behaviour. Therefore, it was decided given the nature, range and availability that recycled paper products would be the chosen category of products for this study. It is important however to note that while this research study looks at behavioural change for what is essentially a commercial product i.e. paper products made with recycled content, the aim here is not purchase substitution (Peattie and Peattie, 2009). It is a far more complex question than simply substituting one paper product for another, as clearly there are other issues at play in the value-action gap. Bearing this in mind, this research set out to examine the value-action gap through the lens of social marketing and behavioural change.

The research agenda is clear: moving to a circular economy by engaging with pro-environmental products such as recycled products is essential. Addressing the complex question of behavioural change for a circular economy exposed a number of issues which warranted further examination. A summary of the key issues is presented in the next section, from the elusive value-action gap through to the context in which it is framed.

1.3 The research narrative

Changing behaviour for a circular economy requires individuals to make pro-environmental choices when purchasing products and services and while levels of pro-environmental awareness and support are on the increase (Follows and Jobber, 2000; Gifford, 2011; Nielsen Company, 2018a, 2018b), this is not reflected in actual

behaviour (Barr, 2007; Kennedy *et al.*, 2009). As Leiserowitz, Kates and Parris (2006, p. 438) comment ‘values and attitudes despite their importance, often do not translate directly into actual behaviour’. The existence of this gap is widely acknowledged throughout the environmental and social psychology literature (Barr, 2006; Blake, 1999; Gifford, 2011; Kollmuss and Agyeman, 2002) and, while frequently researched, continues to remain unanswered (Howell, 2013). In 2005, the United Nations Environment Programme reported a 40/4 gap, i.e. a forty percent willingness to ‘buy green’ but only four percent actually buying green. The problem is, despite an expressed interest in consuming ‘green’ products, this has not translated into purchase behaviour thus leading to a gap. The gap as it applies to sustainable shopping behaviour remains unexplained. What causes the gap, what precisely is blocking households from engaging in the behaviour? As McDonagh and Prothero, (2014, p. 1196) ask ‘why is it after decades of creating awareness of the need for sustainable consumption, there is such a large sustainability attitude-behaviour gap’?

1.3.1 The value-action gap for recycled products

Failure to convert values and beliefs into actions is known as the value-action gap. James Blake (1999, p. 275) uses the phrase value-action gap to signify in general terms the differences between what people say and what people do. The expression value-action gap is often used interchangeably with the attitude action gap or the attitude behaviour gap, a situation that adds further to the uncertainty (Blake, 1999; Peattie, 2010). Notwithstanding the disagreement over the terminology, the gap persists and requires further investigation. Stewart Barr (2006, p. 44) concurs, as he states:

‘There is without a doubt a divergence between stated intentions to help the environment and actual (or reported) behaviour. Understanding what creates the dichotomy and what actually motivates environmental action as opposed to intention is a key priority.’

Engaging individuals in purchasing pro-environmental products remains a formidable task (Gupta and Ogden, 2009; Pickett-Baker and Ozaki, 2008). Also writing on pro-environmental purchase behaviour, Young *et al.* (2010) assert that while 30 percent

of consumers report that they are concerned about the environment, this has not been converted into pro-environmental purchase behaviour.

In a circular, closed loop economy, a system of reduce, reuse, recycle and recover replaces the traditional linear 'end of cycle' concept (Kirchherr, Reike and Hekkert, 2017) where recycled waste is introduced into the production system (Barr, 2004b; Davies, Fahy and Taylor, 2005) and the resulting materials are then used to manufacture new products. While some of the levels in the waste management hierarchy have been explored in great detail; including recycling behaviours (Bagozzi and Dabholkar, 1994; Fahy and Davies, 2007; Pieters, 1991; Shrum, Lowrey and McCarty, 1995; Tonglet, Phillips and Bates, 2004) and waste management (Barr, 2006; Barr *et al.*, 2013; Barr, Gilg and Ford, 2001; Hultman and Corvellec, 2012), there is very little research into behaviour around products made with recycled content (Bei and Simpson, 1995; Mobley *et al.*, 1995; Essoussi and Linton, 2010). Existing research in this field relates primarily to willingness to pay for these products (Essoussi and Linton, 2010) and evaluation of same (Mobley *et al.*, 1995).

1.3.2 Social Marketing and the competitive context

Although one of the key benchmarks in effective social marketing programmes, competition is one area that has received much less attention than the others (Andreasen, 2010; Carins and Rundle-Thiele, 2013; Kubacki *et al.*, 2015). Competitors in a social marketing context include competing products or behaviours that individuals can choose over the behaviour under investigation. Sometimes the competition exists at a higher level of abstraction and is more difficult to identify (Andreasen, 2002). Good competitor information reveals the forces demanding attention in the environment. Traditional commercial competition exists in the form of alternative products available in the market i.e. non recycled paper products. However this is not the only competition, there also exists competition to the behaviour at many other levels including brand, product, enterprise and generic levels (Noble and Basil, 2011). Competitor analysis provides key information for planning, as identifying and understanding the competition is vital to support intervention development. This research will examine the role of competition in the value-action

gap for recycled paper products alongside the expanded agenda with an individual-level focus.

1.3.3 Structural versus individual behaviour

When it comes to understanding and changing behaviour, the trend within social marketing leans heavily towards a conventional individualistic agenda often described as a downstream approach (Collins, Tapp and Pressley, 2010; Truong, Saunders and Dong, 2019). This micro-level approach targets behaviour at the level of the individual and often relies on theories and models sourced from behavioural psychology (Ibid, p. 184). With a forty plus year history, social marketing's enduring focus remains concentrated to a large degree on changing behaviour at the individual level. The focus was on the individual in the target audience and designed interventions around them. Some of this micro-driven approach might be explained by dedicated agencies, such as the HSE, the Road Safety Authority or ASH, and their mission and objectives. In a sense, expanding their reach to embrace a wider system would fall outside their remit i.e. anti-smoking, immunisations and driver safety campaigns. It is clear who is the individual target audience. As Dibb (2014, p. 1162) remarked;

'Despite social marketing having an enduring interest in behaviour change at the individual level, the scope of interventions has since broadened, as the field moved upstream and its practitioners have become more strategic in their efforts to tackle population harms.'

Expanding to include the midstream and upstream levels acknowledges the role played by other individuals and organisations outside the target audience, such as policy makers and industry stakeholders. The premise of broadening the agenda is that although social marketing might 'fix' what is perceived as a problem at the individual level, a root cause of the problem might lie beyond the individual. The upstream/downstream metaphor first proposed by Wallace, Forman, Jerigan and Themba in 1993 (as cited by Newton *et al.*, 2016) was created to encourage social marketers not to focus their entire attention on the individual. The metaphor however was recently challenged by Newton *et al.*, (2016, p. 1117) who claimed that while it

had proven useful in explaining a complex concept, it has 'reached the end of its usefulness' and should be replaced with new frameworks.

An alternative framework which has crept into the social marketing literature was based on the work of Urie Bronfenbrenner (1979) (Collins, Tapp and Pressley, 2010; Brennan, Previte and M. L. Fry, 2016). This multi-tiered social ecology model, first developed within the field of child development, provide the terminology used today when describing the system i.e. micro-level, meso-level, exo-level and macro-level. Descriptions of a more inclusive system includes multiple levels with numerous stakeholders (Newton, Newton and Rep, 2016) moving away from the upstream/downstream metaphor. The systems social marketing addresses the conventional individual-level approach and encompasses the system in which the behaviour takes places (Domegan *et al.*, 2016). A system is defined as (Ibid, 2016, p. 1125) '... made up structures, actors, behaviours, motivations, values, activities and actions that have cultural, political and psychological characteristics.'

Systems literature within social marketing has grown exponentially as the debate on the broadening concept took hold within the discipline (Layton, 2013; Dibb, 2014; Truong, Saunders and Dong, 2019). The concept of a systems view is not new to the discipline but it is in recent years that the systems social marketing approach has been explored in greater depth (Truong, Saunders and Dong, 2019). Recently, systems social marketing has been suggested as an alternative means of addressing complex, 'wicked' problems (Kennedy, 2016; Brychkov and Domegan, 2017; Domegan *et al.*, 2017a).

Adopting a systems social marketing approach to behavioural change offers many benefits for social marketers. A clear benefit lies in the fact that the systems approach meets the challenge of the complex, 'wicked' or messy problems that society face today (Kennedy, 2016; Truong, Saunders and Dong, 2019). Taking a systems approach to these problems, abandons the traditional linear approach (Domegan *et al.*, 2017a, p. 308) and instead reflects the dynamic nature of the problem under investigation. A second benefit of the systems approach removes the stigma or 'victim blaming' culture often evident in the traditional approach (Collins, Tapp and Pressley, 2010). A

second benefit of this approach is the scope addressed. Individual behaviour does not happen in a vacuum, but is embedded in a wider system and therefore a systems-based approach is more inclusive of other influences on behaviour outside the individual. Finally, the systems social marketing approach avoids the trap of linear thinking, acknowledging the dynamics and complexity of complex problems (Domegan *et al.*, 2017b).

There are of course limitations to this approach, not least around the level of complexity, which is also proposed as a benefit. The level of complexity of some problems is beyond comprehension so that to pick apart the system and identify the factors influencing behaviour would be almost impossible. The enormous challenge of a systems approach can be seen by viewing the Obesity Map from the Foresight Obesity Report (Buntland *et al.*, 2007), which is so complex in its illustrated interrelationships as to make behavioural change appear almost impossible. Another limitation to adopting the systems approach is the question around scale and level of behavioural change. Which level of intervention is required, does the problem require interventions at two or three levels, such as a micro and meso level approach or perhaps what is required is a holistic approach? This begs the question as to where the social marketer should begin, what requires changing and in what order (Kennedy, 2016; Domegan *et al.*, 2017a).

On the other hand, the advantage of the conventional individual-level approach is the focus on specific individual behaviours requiring change. The traditional approach targets a particular audience thus making scale and level easier to identify. There is a long-established history of successfully changing behaviour at the individual-level (Domegan *et al.*, 2017a). However, it must be acknowledged that there are some difficulties around the individual-led approach, many of which are addressed by a systems social marketing. According to Truong *et al.* (2019) the individual approach can lead to victim blaming or attribution error as a consequence of 'viewing the individual as the main driver of change' (*ibid*, p. 181). This is evident from the prevalence of campaigns targeting individual behavioural change. Collins *et al.* (2010) point to a preoccupation with the individual level theories to the exclusion of the wider system.

In conclusion, the pendulum has begun to swing away from the conventional individual approach towards a broadened agenda (Dibb, 2014), and as a result there is a risk of social marketers throwing the baby out with the bath water. There is much evidence from practitioners to demonstrate that the individualistic approach has achieved much success in the past including, not least, interventions around health-based interventions (Brennan, Previte and Fry, 2016). While many of the problems facing social marketers today are complex and 'messy' and require a more holistic systems-based approach, the question is whether the micro-level loses out to the system. There is a risk of emphasising the system over the individual. Ultimately, the objective is to achieve individual and, in some cases, societal behavioural change. A compromise, one which addresses the individual level but also widens the scope to include multiple stakeholders is a meso-marketing approach (Ibid, 2016, p. 234). The meso-marketing approach embeds the experience of micro-level into a multi-layer approach, expanding the traditional narrative. This approach avoids the narrow, myopic approach to social marketing but at the same time reflects the importance of the individual in the mix. The model adopted in this research, the behavioural reasoning theory, examines the individual within the context, thereby addressing the micro-level and an expanded narrative and provides a multi-layer approach reflecting multiple stakeholders.

1.3.4 Expanding the traditional 'individual-level' narrative

Research into the value-action gap and pro-environmental behaviour points to a traditional narrative with a micro, individual-led focus (Kilbourne and Mittelstaedt, 2012; McDonagh and Prothero, 2014). The tendency to employ 'internalist' behavioural intention models such as the theory of reasoned action and the theory of planned behaviour (Fishbein and Ajzen, 1975; Ajzen, 1991) has helped to better understand the individual, however some would suggest that a broader perspective would address the deficits (Peattie, 2010). This broadened perspective has yet to be examined in the context of a circular economy (Barr, 2007; Bhate and Lawler, 1997; Joshi and Rahman, 2015). As Prothero *et al.* (2011) observe, while the individual level will always be important, an expanded agenda is also recommended. Responding to

the call to broaden social marketing's emphasis away from the individual, Brennan, Previte and Fry (2016) suggest adopting a multiple stakeholder approach, a view more recently reflected throughout the social marketing literature (Domegan *et al.*, 2016; McHugh, Domegan and Duane, 2018).

Closer examination of the paper products industry indicates the apparent existence of other gaps in the system, essentially value-action gaps within the competitive context and at the meso and macro levels. Therefore, it appears that even if an individual intends to purchase recycled paper products, they face gaps at other levels in the system. Moving to the competitive, meso and macro levels to examine these gaps will better support social marketers to create more holistic interventions (Brennan *et al.*, 2016). The meso-marketing approach suggested by (Ibid, 2016, 220) provide a framework to engage beyond the micro-level and instead 'focuses on research and marketing processes that simultaneously study at least two layers of the social change market'.

The topics discussed in the section above have guided the research narrative from the research question to its supporting objectives.

1.4 Research question and objectives

Informed by the research narrative discussed in the previous section, the purpose of this study is to examine behavioural change for a circular economy by exploring the value-action gap for recycled paper products in a competitive retail setting.

Addressing this purpose, the primary question informing this research is as follows:

What is the value-action gap for recycled products and how does an understanding of values and reasons contribute to realising pro-environmental shopping behaviour in a competitive retail setting?

The primary question will explore the value-action gap for recycled products and examine the role of values and reasons in understanding and changing this behaviour.

In order to answer the primary question and to respond to the topics raised above, the following secondary objectives, summarised in Table 1.1, were chosen;

Research objective 1 - To identify the context specific reasons in the value-action gap for recycled paper products

Central to a better understanding of behaviour is an exploration of the reasons specific to a particular behaviour. Reasons are context specific cognitions unique to a particular action (Claudy, Peterson and O'Driscoll, 2013; Westaby, 2005). The reason why some people choose to recycle and purchase recycled products and others do not is determined by a number of factors including context specific reasons. Identifying the context specific 'reasons for' closing the loop recycling behaviours will provide an insight into the context specific barriers to behaviour.

Research objective 2 - To examine the extent to which the behavioural reasoning theory (BRT) model explains the linkages between values, reasons, intention and shopping behaviour for recycled paper products.

Westaby's (2005) behavioural reasoning theory posits that 'reasons for' and 'reasons against' explain the linkages between motives and behaviours. Westaby (2005, p. 100) defines reasons as 'the specific subjective factors people use to explain their anticipated behaviour'. By using this framework, this research will seek to provide a better understanding of individual behaviour when it comes to buying recycled products.

Research objective 3 - To determine the role of competition in realising pro-environmental shopping behaviours for recycled paper products.

The context of the behaviour under investigation points to substantial commercial competition. However, the traditional interpretation in this context ignores the role of competition in behavioural change. The purpose therefore, of this objective is to explore competing behaviours and other forms of competition in the context of pro-environment shopping behaviour and determine the role played by competition in social marketing in this complex shopping environment.

Research objective 4 – to explore industry-wide systems gaps influencing the value-action gap for recycled paper products.

Finally, this research addresses the gap in understanding the industry in question by expanding the agenda and further researching the context and systems gaps that may interfere with pro-environmental behaviour.

1.5 Overview of methodology

A sequential mixed methods approach combining qualitative and quantitative research, depicted in Figure 1.2, was deemed suitable to address the chosen primary research question:

What is the value-action gap for recycled products and how does an understanding of values and reasons contribute to realising pro-environmental shopping behaviour change?

Phase one of the research was qualitative in nature. The purpose was to explore reasons and competition with two populations of interest; individuals with responsibility for household shopping and key industry stakeholders. This qualitative phase sought to identify the 'reasons for' and 'reasons against' the behaviour and to capture views on what qualifies as competition in the context of pro-environmental shopping behaviour.

Traditionally, an elicitation study involves in-depth interviews as the essential first step in an application of the behavioural reasoning theory model. However, the approach taken in this research included an addition to this method. An exploratory focus group (n=7) was conducted before embarking on in-depth interviews with household shoppers, the purpose of which was to start the process of building a bank of 'reasons for' and 'reasons against' buying recycled paper products. The focus group was then followed by nineteen in-depth interviews with householder shoppers. The data collected during the first phase was then used to inform the development of a survey instrument for the quantitative phase (Creswell and Plano Clark, 2007).

The second population of interest is key industry stakeholders. Stakeholders are key individuals who operate within the system and have the ability to hinder or facilitate individuals in their efforts to be more pro-environmental. The next stage in the qualitative phase was a series of ten key informant interviews. As Peterson (2013, p. 3) emphasises, in exploring the issue of sustainability, 'there is a mix of stakeholder perspectives, values and frames of reference and ultimately, these stakeholders have a seat at the decision-making table'.

The next phase sought to test the chosen framework of Westaby's (2005) behavioural reasoning theory (BRT) in explaining the value-action gap and contextualising it for recycled paper products (Westaby, Probst and Lee, 2010) using quantitative research. An online survey of a nationally representative sample of Irish household shoppers gathered data on shopping habits, pro-environmental behaviour and the BRT (n=1,010). To conclude, findings from both phases informed recommendations for interventions and further research.

Table 1. 1: Research gaps, objectives and methods of analysis

Research gaps	Research Question and Objectives	Method	Analysis
Lack of understanding of the value-action gap for recycled paper products and the role of values and reasons for pro-environmental shopping behaviour in a competitive retail setting	<i>RQ: What is the value-action gap for recycled products and how does an understanding of values and reasons contribute to realising pro-environmental shopping behaviours in a competitive retail setting?</i>	<i>Literature review Focus group and in-depth interviews Key informant interviews Survey</i>	<i>Thematic analysis Structural Equation Modelling (SEM)</i>
(Gap 1) Lack of identification of the context specific reasons explaining the value-action gap for recycled paper products	<i>RO 1: To identify the context specific reasons in the value-action gap for recycled paper products.</i>	<i>Critical literature review Focus group and in-depth interviews</i>	<i>Thematic analysis</i>
(Gap 2) Lack of understanding about the linkages between values, reasons, intention and sustainable shopping behaviour.	<i>RO 2: To examine the extent to which the BRT model explains the linkages between values, reasons, intention and shopping behaviour for recycled paper products.</i>	<i>National survey</i>	<i>Thematic analysis Structural equation modelling</i>
(Gap 3) Lack of identification and understanding of the competitive context framing shopping behaviours.	<i>RO 3: To determine competing behaviours to pro-environmental shopping behaviour and the role of competition in realising sustainable shopping behaviours for recycled paper products.</i>	<i>Critical literature review Focus group and in-depth interviews Survey</i>	<i>Thematic analysis EFA CFA</i>
(Gap 4) Lack of understanding of the industry-wide influences on the individuals' value-action gap	<i>RO 4: To explore industry-wide systems gaps influencing the value-action gap of individuals</i>	<i>Market research/Literature review Key informant interviews</i>	<i>Industry analysis Thematic analysis</i>

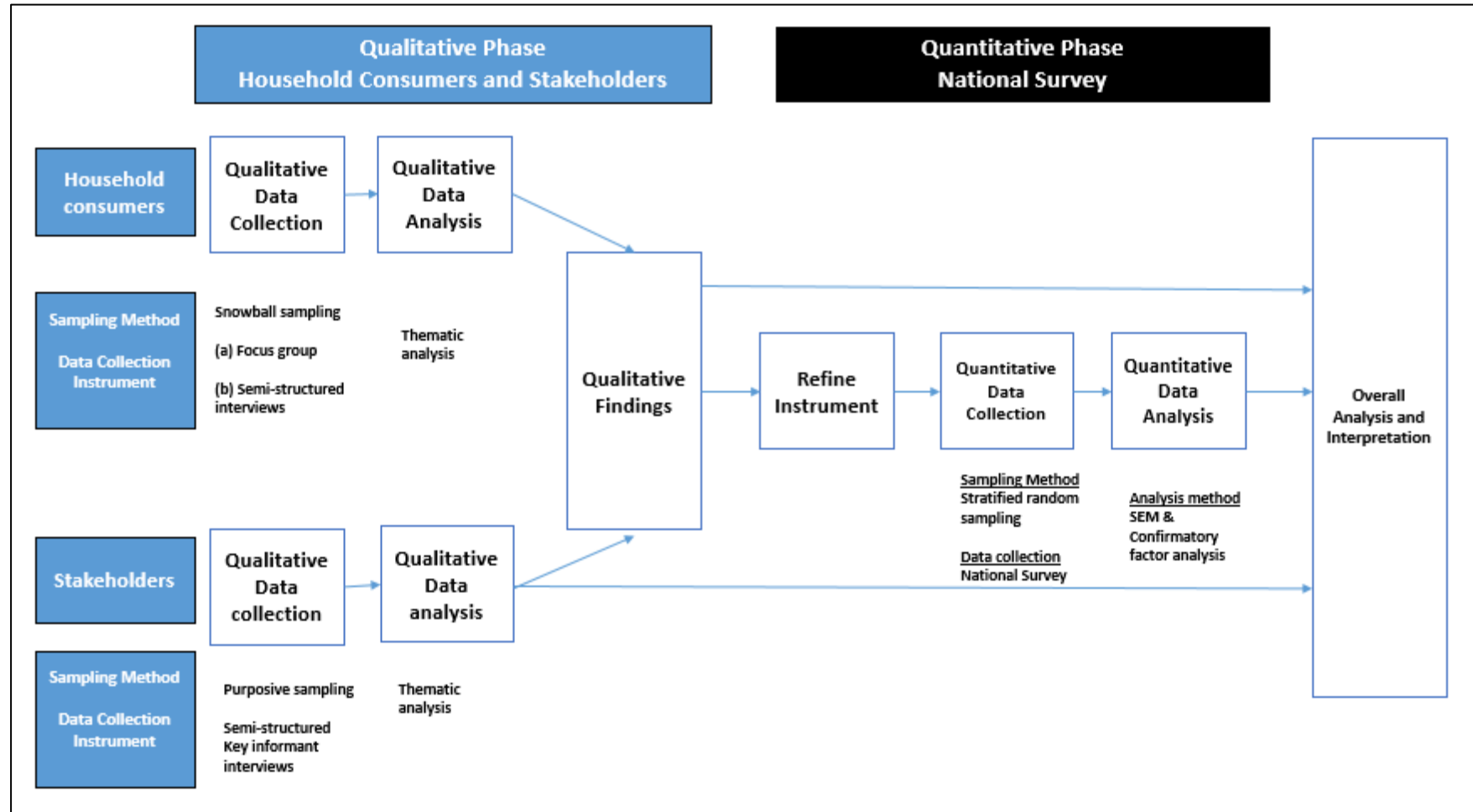


Figure 1. 2: Research methodology

1.6 Contributions

This research set out to explore the role of social marketing in addressing behavioural change for a circular economy and make contributions at the theoretical, methodological, managerial and policy levels.

1.6.1 Theoretical contribution

Social marketing has the potential to provide a toolkit of interventions to support behavioural change to address more value-action gaps and this research contributes to the theoretical field of social marketing in four ways. First, by extending the discussion of the value-action gap into the discipline of social marketing, the research provides a defined concept to articulate the need for behavioural change, particularly in the area of environmental research. The concept of the value-action gap, while not new in other disciplines i.e. sociology, environmental psychology and geography (Blake, 1999; Kollmuss and Agyeman, 2002; Gifford, 2011), is relatively unfamiliar in the discipline of social marketing. However, the concept of the value-action gap knits perfectly with the 'raison d'être' of social marketing i.e. to influence behavioural change that benefit the greater social good.

The second theoretical contribution achieved was the application of the behavioural reasoning theory model to understanding pro-environmental shopping behaviour in a social marketing context. This research offers social marketers a new multi-level behavioural intention model with the individual at the centre and the added dimension of contextual influences. The model developed by Westaby (2005) in the field of organisational behaviour had not been applied to examine pro-environmental shopping behaviour previously. The BRT provides a means of explaining behaviour at the micro/individual level and beyond, the reasons construct providing an insight into the external influences on behaviour. This integrated model was chosen for this research as it includes both internal and external influences on behaviour due to the inclusion of the reasons justifying behaviour.

Examining competition to pro-environmental shopping behaviours in a social marketing context was the third theoretical contribution proposed by this study. Competition, while one of the benchmarks in a social marketing context, had not been studied empirically to any great degree. The absence of research into competition in behaviour in the social marketing literature suggested the need for further investigation into this concept. A review of the literature indicated limited research and an absence of validated scales to measure competition at the different levels of abstraction. Using the framework offered by Noble and Basil (2011), this study set about measuring competition. The first step involved the development of a definition, to reflect the various interpretations of the competition concept and is as follows:

‘Any environmental or perceptual forces, both internal and external to the target audience, that impede the adoption of the target behaviour’.

The second step concerns the process adopted for identifying competition to behaviour, this involved the use of an elicitation study followed by thematic analysis. The final step here was the development of item scales specific to competition in pro-environmental shopping behaviour. Two item scales were created to measure competition in pro-environmental shopping at the product and brand levels.

A fourth and final theoretical contribution that this research makes is the use of an integrated model, the behavioural reasoning theory, combined with competition research augmented with industry and stakeholder research provided a new and original multi-level approach to dealing with the target behaviour. As a result of this research into the value-action gap and expanding the study into the industry and competition exposed further gaps within the system. Whereas stand-alone individual-level research will always be important (McDonagh and Prothero, 2014), adding meso and macro level research to the study provides a more comprehensive view of the value-action gaps which need to be addressed.

1.6.2 Methodological contribution

A number of key methodological contributions were made to address the value-action gap in a social marketing context. The first contribution lies in the mixed

methods approach adopted for this study which facilitated moving from a traditional micro level to a multi-level approach, thereby taking a multi-level approach to value-action gap analysis within a social marketing framework. Further, adding the competitive context and key stakeholder research to the study provided a more holistic view of the gap and exposed the existence of multiple potential value-action gaps in the system.

The second contribution lies in the method of data collection used here as it was different to previous applications of the BRT where the reasons construct was determined using an elicitation study involving a limited number of in-depth interviews. The approach taken in this study included an exploratory focus group to clarify the potential issues around the subject area. This was very useful as it exposed potential misinterpretation of the research agenda and identified the perception of the gap as the target audience understood it. Use of an exploratory focus group is advised in future applications of the model. The behavioural reasoning theory model applied to pro-environmental shopping behaviour provided a framework to understand the behaviour. However, this behaviour is context driven and as a result the first stage of the research involved identifying and developing scales for the reasons construct specific to this investigation.

A third methodological contribution involved the development of a method to assess competition in a social marketing context. Unlike previous competitor research, the approach taken here was based on the Noble and Basil's (2011) framework that proposes a system of identifying competition. The process developed begins with an elicitation study to determine what is perceived to be competing influences on behaviour of the target audience. Following an evaluation, these competing influences were used to develop new scales to measure competitive behaviours in the context of pro-environmental shopping. The lack of measurement scales in the area of competition in social marketing presented another methodological opportunity. The scales developed here reflect two levels of competition identified in Noble and Basil's (2011) framework that are further developed and tested in this study.

1.6.3 Managerial contribution

Social marketing managers engaging in this field will benefit from this research as it offers a multi-level approach to understanding the value-action gap to pro-environmental shopping behaviour. The findings of this research point to a need to develop multi-layered interventions which address the gap at the individual level, at the meso industry-level and at the macro level. This research reinforces the benefits of having a more complete picture of the value-action gap to facilitate a more comprehensive approach. Finally, the research would suggest that social marketing managers working in the field of pro-environmental behaviour would benefit from using an integrated framework to inform their research and that research would further benefit from exploring the role of other stakeholders in the behaviour under investigation.

1.6.4 Policy contribution

The final category of contributions is in the area of policy. This research has explored the challenge of the value-action gap and points to the opportunity for a multi-faceted approach which incorporates micro, meso and macro level interventions. Policy interventions can be developed to target the gaps in the system. One example of this is the potential for local and national government to reinforce the critical transition to a circular economy. This is essential as according to a number of key stakeholders, there is a risk of failure to engage with this concept locally and nationally. Specifically, policy opportunities around the product specific categories is something that could be adopted by the purchasing departments within government. At the macro level policy interventions which would substantially help to close the value-action gap around pro-environmental products could be achieved with the move towards a common labelling system to facilitate engagement.

1.7 Scope and limitations of the study

There are a number of limitations to this research study which must be acknowledged.

Firstly, the decision was taken to frame the research in the social marketing domain for the purposes of exploring behavioural change in the context of pro-environmental behaviour. While it should be acknowledged that other options exist such as sustainability marketing and consumer buyer behaviour; in terms of the framing, the decision at the outset was to adopt a social marketing approach.

The scope of this research is limited to the field of pro-environmental behaviour and in particular, shopping behaviour around recycled paper products. Paper products are low-involvement and low-cost products and therefore decision-making behaviour is reflective of this product category. Unlike previous research into 'pro-environmental or green behaviour' this research adopts a specific product category as opposed to a broad brush 'environmentally -friendly or green products' adopted by other studies (Coleman *et al.*, 2011; Johnstone and Tan, 2015; Yadav and Pathak, 2016b). Choosing a low involvement item such as recycled paper products has its limitations, none more so than their lack of 'visibility' and consumer's level of engagement with same.

As this research focuses on the behaviour around product choice in one particular product category i.e. paper products; therefore, findings cannot be applied to other product categories. Separate reasons-based research would be required when researching other pro-environmental products.

The findings of the national survey, while representative of the Irish population, can only be generalised to Irish shoppers.

Getting access to interview key industry stakeholders was challenging, particularly category buyers within the grocery retail sector. As a consequence, only two category buyers were included in the final sample. Another limitation relating to the key industry stakeholder research was access to the paper products manufacturers. The majority of paper producers are global companies with headquarters outside Ireland.

Only one manufacturer has a direct presence in the Irish market through their own supplier, while the remaining competitors use large distributors.

The scope of this study is a multi-level approach focussing predominately on the micro, competitive, meso and to a lesser extent the macro-level. This is not systems-based research but instead opens up the discussion around a behaviour to extend beyond the micro-level. The choice of an integrated behavioural intention model combined with the extent of industry level research broadens the scope beyond the micro-level without reaching a systems level.

Finally, the competition construct is not included for testing in the model. The behavioural reasoning theory is not adapted or modified in any way as to include competition. The competition scales created and developed in this study have not been tested outside of this context.

1.8 Structure of the thesis

This thesis is divided into six chapters. This first chapter introduces the research gaps, the problem and the objectives. This chapter includes a description of the context of the study and includes a summary of the research methodology and expected contributions.

Chapter Two presents a review of the literature exploring the value-action gap in a social marketing pro-environmental context, and includes a discussion on values, reasons. The review then goes on to explore the various approaches to modelling behaviour, in particular the behavioural reasoning theory model (Westaby, 2005) is examined in its application in other behavioural settings. The chapter concludes with a review of the literature on competition in social marketing.

The next chapter describes the details of the methodology used in this study. The elements of the mixed methods research are presented from the initial qualitative phase through to the quantitative phase. This chapter contains details of the target populations, sampling plan, data collection, fieldwork and data analysis. Supporting documents to accompany this chapter are supplied in the appendices.

Chapter Four is the first of two chapters outlining the findings and discussion of the empirical research. This chapter begins with the findings from the qualitative phase of the study and concludes with an overview of the survey results. The chapter is divided into four sections, starting with the reasons research findings and discussion, followed by the paper products industry findings. The next section deals with competition and measuring competition to pro-environmental behaviour and finally finishes with an overview of the survey findings.

In Chapter Five, the second findings chapter, the behavioural reasoning theory model is tested using data from the survey. This chapter presents the steps from the item scale selection through the hypotheses and concludes by testing the behavioural reasoning theory using structural equation modelling. The chapter presents the findings from both exploratory and confirmatory factor analysis and concludes with the structural equation modelling analysis.

The final chapter presents the discussion and recommendations based on the mixed methods research and combining the qualitative and quantitative data from phase one and phase two. This chapter draws all the analyses together to present conclusions and recommendations for further research.

1.9 Summary

The challenge of achieving a circular economy will demand a multi-disciplinary, multi-faceted approach. Social marketing brings a unique perspective to the agenda while offering practical interventions to influence behavioural change. This study involves multi-level research aimed at addressing the transition to a closed loop, circular economy. This chapter frames the research undertaken from the context and justification through the research question and supporting objectives, methodology and proposed contributions. Each of the following chapters examines an aspect of the research agenda beginning with a critical review of the literature.

Chapter Two

Literature Review 'Mind the Gap'

2.0 Introduction

This chapter sets out the literature informing this research study. The nature and scope of this topic covers a range of subjects, not least the value-action gap, the role of reasons, modelling pro-environmental behaviour and competition and social marketing. This literature review begins with an exploration of the topic of the value-action gap. A narrative review of the gap uncovered a vast body of literature originating in many different disciplines notably psychology, sociology, geography, environmental psychology and macromarketing (Barr, 2006; Blake, 1999; Kollmuss and Agyeman, 2002). Evidence of the gap and theories around the causes are critiqued and previous efforts to remove it are discussed. The role of values is then examined with a view to exposing those values pertinent to pro-environmental behaviour (Steg and de Groot, 2012; Bouman, Steg and Kiers, 2018). The chapter continues with a review of the literature surrounding modelling behaviour and the chosen framework is discussed i.e. the behavioural reasoning theory. The chapter finishes by extending the narrative beyond the individual, micro-level focus, with an examination of the competitive context in which the target behaviour is situated, through a social marketing lens.

2.1 The value-action gap

Individuals continue to voice their concern over environmental issues yet participation in pro-environmental behaviour does not reflect the expressed concern leaving an enduring mismatch which challenges researchers and practitioners (Gifford, 2011; Kennedy *et al.*, 2009; Moraes, Carrigan and Szmigin, 2012). This mismatch is often labelled the value-action gap and is described as the gap between what people do and say. The Sustainable Consumption Roundtable (2006, p. 63) working in conjunction with DEFRA and DTI in the UK, define the value-action gap as:

'the observed disparity between people's reported concerns about key environmental, social, economic or ethical concerns and the lifestyle or purchasing decisions that they make in practice'.

The term is not new but is sometimes given different labels i.e. the attitude-action gap (Newton and Meyer, 2013), the attitude-behaviour gap (Claudy *et al.*, 2013; Moser, 2015). Proof of the existence of the value-action gap is not difficult to find and confirmation of it permeates many disciplines including sociology, environmental psychology and marketing (Davari and Strutton, 2014; Davies *et al.*, 2005; Follows and Jobber, 2000). Jackson, (2005, p. 53) reminding us of the long history of the gap which has troubled the literature since Festinger (1957) first explored cognitive dissonance.

Evidence supporting the existence of this gap can be found across a range of pro-environmental behaviours, some within the waste hierarchy including, recycling (Chung and Leung, 2007; Davies *et al.*, 2005; Fahy and Davies, 2007), waste management (Ebreo, Hershey and Vining, 1999; Valle *et al.* 2005; Tudor, Barr and Gilg, 2007) and green purchasing behaviour (Gupta and Ogden, 2009; Olson, 2012; Pickett-Baker and Ozaki, 2008). Understanding the gap as it relates to a particular pro-environmental behaviour, in this case shopping behaviour for recycled paper products, requires tailored research, as what causes the gap depends on the behaviour in question (Barr, 2006; McKenzie-Mohr and Schultz, 2014; McKenzie-Mohr and Oskamp, 1995). Academics are in agreement that the value-action gap is caused by barriers and obstacles to behaviour. As Milbrath, (1995, p. 101) concedes 'the path to societal sustainability is strewn with barriers, opponents and traps'.

These barriers, opponents or traps might be internal or external (Gifford and Chen, 2017; Kollmuss and Agyeman, 2002) and are very often context driven (McKenzie-Mohr and Smith, 1999).

2.1.1 Understanding the gap

The issues posed by the gap between values and action raise many questions. The challenge is to make sense of this failure to turn values into action and, as a result, many academics have worked to research and develop models with the purpose of providing a better understanding of this phenomenon (Darnton, 2008c; Jackson, 2005; Kollmuss and Agyeman, 2002) as has been the case in environmental issues such as recycling (Bagozzi and Dabholkar, 1994; Guagnano, 2001; Tonglet, Phillips and Read, 2004). Value-action gap models are used to understand behaviour at the individual level and these simple, parsimonious linear models present behaviour as a product of some deliberate process (Darnton, 2008), which may explain the corresponding but largely unsuccessful 'information deficit' approach often taken by policy makers (Corraliza and Berenguer, 2000; McKenzie-Mohr, 2000).

2.2 Barriers in the value-action gap

Academics are in agreement that the "gap" is caused by a type of barrier or barriers that impede behaviour; these barriers may include internal psychological barriers to those occurring externally in the context of the action (Gifford, 2011; Kollmuss and Agyeman, 2002; McKenzie-Mohr, 2000). To achieve the objective of eliminating the gap will require the identification and subsequent removal of 'barriers, opponents and traps' (Milbrath, 1995, p. 101) and some will be easier to remove than others (McKenzie-Mohr and Smith, 1999). It is unlikely that any interventions designed to address the gap will be successful unless there is clear knowledge of the specific obstacles that exist.

Often cited in connection with the value-action gap is James Blake (1999) who when researching the gap identified three categories of obstacles that exist between value

(or concern) and action. These he identified as individuality, responsibility and practicality barriers. The barriers reflect the interaction within the individual and with various institutions and vary according to the situation. Individuality as a barrier refers to personal attitudes or cognitive structure (Ibid., p. 266), this barrier is also acknowledged by Kennedy *et al.*, (2009) and Leiserowitz *et al.*(2006) but is described as personal values and attitudes (see Figure 2.1).

Blake (1999, p. 267) illustrates the gap by identifying the possible barriers between values (environmental concern) and action.

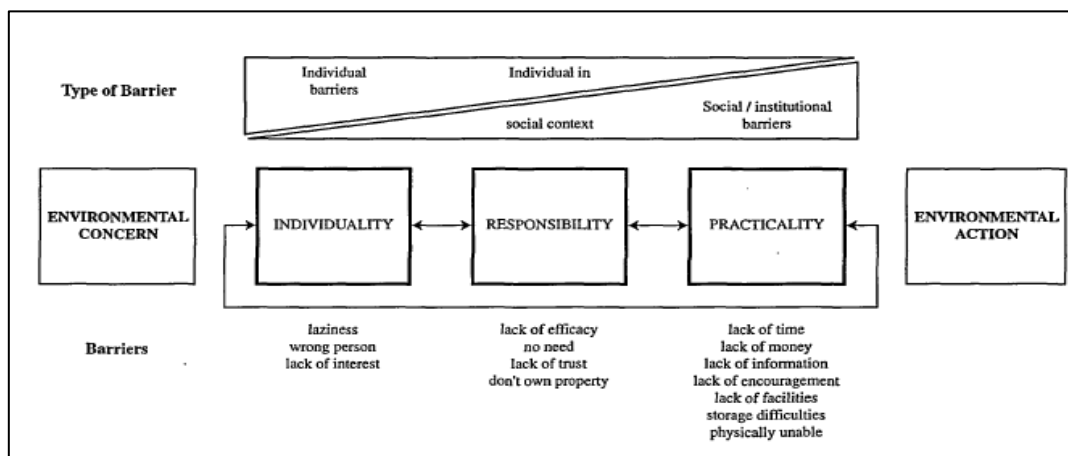


Figure 2. 1 Barriers between environmental concern and action (Blake, 1999)

Responsibility barriers are those relating to the perception of responsibility i.e. organisations and institutions who have responsibility for solving environmental problems. Finally, practicality barriers, the unforeseen reasons which may prevent some people acting responsibly. Both responsibility and practicality barriers are also recognised by Kennedy *et al.*, (2009) and Leiserowitz *et al.*, (2006) (see Table 2.1).

Table 2. 1: Generic barriers in the value-action gap

Blake (1999)	Individuality i.e. laziness, wrong type of person, lack of interest	Responsibility i.e. lack of efficacy, no need, lack of trust, don't own property	Practicality i.e. lack of time, money, information, encouragement, facilities, storage facilities and physically unable
Leiserowitz <i>et al.</i> (2006)	Existence, direction and strength of particular values and attitudes	Individual level – time, access, literacy, knowledge, skills, power or perceived efficacy	Structural – includes laws, regulations, social, economic and political context

Kennedy <i>et al.</i> (2009)	Individual Variables – basic values, environmental beliefs and lack of knowledge/information	Household variables – time, money and support	Societal variables – context, perceived control and access to community environmental services
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Fortunately the barriers to some behaviours have been identified in the psychology, environmental psychology and sociology literature (Chu and Chiu, 2003; Semenza *et al.*, 2008; Corner, Markowitz and Pidgeon, 2014) but as McKenzie Mohr (2000, p. 547) acknowledge, this research often needs contextualising. Although identification of the barriers has interested researchers for many decades and numerous suggestions have been made as to why abstract values do not translate into concrete action (Jackson, 2005; Kollmuss and Agyeman, 2002) the gap remains. Some of the suggestions are issue specific, yet there appears to be a general agreement on the overall contributing barriers (Blake, 1999; Leiserowitz, Kates and Parris, 2006; Kennedy *et al.*, 2009). These barriers or variables can be summarised into four generic categories; psychological (perception and personality), values (personal and environmental values), individual (barriers due to circumstance) and situational (external factors). The degree of influence of each barrier depends on the topic under review as barriers are behaviour specific, therefore those relating to the value-action gap in pro-environmental shopping behaviour must be identified. This next section explores each of these barriers in greater detail.

2.2.1 Psychological barriers

Psychological barriers to pro-environmental behaviour present an idiosyncratic challenge, exhibiting the distinctive nature of the individual. Psychological variables include perception, beliefs, concern and motivation and relate to 'personality and perceptual traits of individuals that determine their overall attitudes regarding an environmental behaviour' (Barr, 2004, p. 234). Acknowledgement of the challenge presented by these variables is the first step in removing them (Gifford, 2011). Gifford (2011) summarises the psychological barriers as the 'Dragons of Inaction', which prevent or limit pro-environmental behaviour. Many dragons exist, these are

summarised by Ibid. (2011, p. 292) into seven genera collating the work of many others; limited cognition (Corson, 1995), ideologies (Dunlap *et al.*, 2000), comparison with others, sunk costs (Bei and Simpson, 1995), discredence (Corson, 1995; Carrigan and Attalla, 2001), perceived risks and limited behaviour. Blake (1999) identifies individual barriers lying within the person i.e. attitude and temperament.

Kennedy *et al.*, (2009, p. 154) in trying to address the reasons 'why we don't walk the talk' in relation to environmental action, suggest that as well as values and beliefs acting as individual barriers; quite often the reason why people don't walk the talk is because of a lack of *information (knowledge)* or an abundance of information. On a similar note, one of the psychological factors identified by Costanzo *et al.* (1986) in their research into energy conservation behaviour refers to how an individual might process information as a potential obstacle to behaviour. Likewise, Gifford (2011) also examines the role of information in this context and goes on to explain the role of information during the three stages of inaction; to begin with genuine ignorance undoubtedly precludes taking action. Then, if an individual is aware of a problem, a variety of psychological processes can interfere with effective action. Finally, if some action is taken, it can be inadequate because the behaviour fades away and makes too little a difference in the person's own carbon footprint, or is actually counterproductive (Gifford, 2011, p. 291). It would suggest provocatively that the possession of or lack of information can serve as a psychological barrier.

Mobley *et al.* (1995, p. 165) identify *affect* as a potential threat to environmental behaviour as their early research into individual evaluation of recycled products found that reactions tended to be more favourably influenced by the presence of recycled material thereby supporting an affective evaluation process. Affective barriers were also acknowledged by many authors in different contexts including shopping and recycling behaviours (Biswas *et al.*, 2000; Puccinelli *et al.*, 2009; Steg and Vlek, 2009). Personality and personal characteristics are also identified in the literature, for example in examining the attitudes and behaviour of Irish households with regard to waste management, Davies *et al.*, (2005) found that having an optimistic or pessimistic personality can be an influencing factor. Corson (1995) exploring the priorities for a sustainable future highlighted the psychological and social barriers to

change. These barriers, he suggested, stem from an inability to recognise unsustainable trends; to barriers to making personal changes to practices (Ibid., p. 42).

The psychological barriers discussed here present a flavour of the tough task facing the social marketer as they endeavour to identify those unique to a specific environmental behaviour before designing interventions to address same. Gifford and Chen (2017, p. 176) suggest that 'understanding the psychological barriers may be one significant path' in achieving a change in behaviour. While the barriers presented here as psychological have been identified down through the decades, those specific to the value-action gap in this context have yet to be identified.

2.2.2 Values as barriers

Individual values, their strength and direction can also influence decision making and can act as a barrier to pro-environmental behaviour (Fraj and Martinez, 2006; Leiserowitz, Kates and Parris, 2006; Shu and Bazerman, 2010). The causal relationship between values and behaviour was confirmed by the work of Thøgersen and Ölander in 2002. Barr (2006) considers how environmentally supportive values or lack thereof can serve as a barrier to environmental action. The individual whose values are more prosocial than pro-self is more likely to have a positive relationship with the environment. Echoing the findings of Stern and Dietz (1994) who propose such an individual within whom the social altruistic and biospheric values are dominant. Values from the self-transcendence dimension identified in the work by Schwartz, 1992; 1994) i.e. universalism and benevolence are often identified as those with a positive relationship with pro-environmental behaviour (Grunert and Juhl, 1995; Schwartz, 2006; Stern, 2000). While those whose self-enhancement values (including power and convenience) are strongest tend to have a negative relationship with environmental behaviour (Schultz and Zelezny, 1998). The relationship between values and pro-environmental behaviour will be examined in more detail in section 2.3.5.

2.2.3 Individual barriers

Barriers at the individual level (not psychological barriers) are those pertaining to the unique circumstances of a person making a decision. The source of these may be explained by factors such as, lack of time, money and access, or perhaps it is caused by a lack of knowledge or skills (Kennedy *et al.*, 2009; Leiserowitz *et al.*, 2006; Peattie, 2010). As can be seen there is some overlap between the categories; psychological and individual, and, individual and situational. However, what are considered as individual barriers will be reviewed separately here. An alternative term used to describe individual barriers is positional; positional factors refer to the characteristics of the 'decision makers' situation in life, for example, income (Costanzo *et al.*, 1986, p. 522). Other examples of positional barriers in the case of energy conservation, might include cost in terms of time and money, lack of experience with the new technology, anxiety about the technology.

Lack of time comes up again and again as an impediment to environmental action because, as is often the case, pro-environmental behaviours require a time commitment such as recycling or cycling to work (Claudy and Peterson, 2014; Halvorsen, 2008). Lack of money or cost incurred is an obstacle for some (Ottman, 2004; Bray, Johns and Kilburn, 2010). It can make it more difficult for those struggling to make ends meet who are not in a position to pay extra for environmentally responsible products or services. The opposite can also be true; those individuals with more disposal income may travel more or purchase less sustainable products and services, thus compounding the 'rebound effect' (Gifford, 2011; Kennedy *et al.*, 2009).

2.2.4 Situational barriers

The final category of obstacles are those external to the individual, these may be called situational or structural variables and include any factor outside the control of the individual such as infrastructure, availability and policy, to name but a few (Blake, 1999; Kollmuss and Agyeman, 2002; Leiserowitz, Kates and Parris, 2006). These factors are often termed situational, structural or contextual and are often used interchangeably, but with noticeably different meanings. For instance, the term

situation has a number of different meanings. Situation signifies the circumstances of an individual at a point in time, i.e. demographics, culture, educational level and social norms (Barr, 2006; Pruneau *et al.*, 2006). A second interpretation of situation relates to a specific time and place separate to the object i.e. buying a gift or booking a holiday (Belk, 1975). The final explanation of situation is one which refers to all those factors external to the individual which can influence or inhibit behaviour. Structural barriers include regulations, laws, infrastructure and technology which are beyond the control of the individual but lie firmly at the door upstream with the policy makers (Leiserowitz, Kates and Parris, 2006). Macroeconomic and contextual factors are considered external and therefore outside the influence of the individual. The definition of situation adopted in this research is any factor external to the individual, outside their control.

This type of barrier reflects the idiosyncratic nature of environmental issues and what emerges from the research is the necessity for further investigation into specific behaviours in order to determine the blockages (Peattie, 2010). For example, recycling behaviour is influenced by situational factors such as access to kerbside facilities (Tonglet, Phillips and Read, 2004; Fahy and Davies, 2007) while research into green product purchase behaviour suggests that among other factors the effects of trade-offs and product attributes can obstruct purchase decisions (Pickett-Baker and Ozaki, 2008; Olson, 2012).

Emphasis is more often placed on the barriers with little or no mention of the potential benefits of engaging in pro-environmental behaviour (McKenzie-Mohr *et al* 1995; McKenzie-Mohr and Smith, 1999). As well as a predisposition to reflect on the barriers, there is often a myopic focus on those barriers internal to the individual such as affective barriers, scepticism, cognitive and knowledge (Finger, 1994; Fishbein and Ajzen, 2005) ignoring the situational or contextual barriers (Jackson, 2005; McKenzie-Mohr and Schultz, 2014).

'There can never be a blueprint for encouraging environmental action; different strategies must be designed to be appropriate to specific relationships between individuals, communities and institutions.' (Blake, 1999, p. 269)

One word of caution however, barrier research on its own may not be sufficient, for example, while discussing the role of social marketing in addressing the issue of climate change, Corner and Randall (2011, p. 1011) question whether barrier research on its own is sufficient and suggest that while being somewhat effective it 'would be greatly enhanced by linking behavioural change to social identity and building social capital necessary for community resistance' (Rabinovich, Morton and Duke, 2010). Consequently, understanding the causes of the value-action gap as it exists in the context of pro-environmental shopping behaviour for recycled paper products, demands targeted research to determine the specific barriers to this behaviour.

2.2.5 The value-action gap for recycled products

There is very little research into recycled products across the literature and any existing research points to psychological and situational barriers to behaviour. Researching the determinants of an individuals' willingness to purchase recycled products, Bei and Simpson, (1995) found that they believed that recycled materials were inferior to virgin materials and that they were more expensive. Bei and Simpson (1995) identified that individuals' perception of recycled products was often influenced by product specific factors. This negative perception of recycled products is something that needs to be addressed by manufacturers, retailers and marketers. Mobley *et al.* (1995) acknowledged the lack of research into reactions to recycled products, despite the growth of same.

2.3 The role of values

Values are guiding principles in life; they help to distinguish right from wrong behaviour in a given situation (Schwartz, 2006). They motivate, give direction and are used to defend decision making. The set of values that each person possesses is determined by social context and experience, among other factors (Stern and Dietz,

1994). What is understood about the value system of an individual is that it tends to be relatively stable, changing little over a lifetime (Thøgersen and Ölander, 2002, p. 608). Often cited and well renowned in this field of study is the work of Milton Rokeach who emphasised the critical importance of the study of values in understanding behaviour (Schwartz, 1992), Rokeach (1973, p. 5) defines values as:

'A value is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence. A value system is an enduring organisation of beliefs concerning preferable modes of conduct or end-states of existence along a continuum of relative importance.'

Building on the earlier work of (Ibid.), Schwartz, (1992; 1994) developed ten motivationally distinct types of values. These represent the response to three requirements; the need of biological organisms, the need to deal with social interaction and finally the survival of the wider group. Schwartz, (1994, p. 21) defined values as:

'Trans-situational goals, varying in importance that serve as guiding principles in the life of a person or other social entity. Implicit in this definition of values as goals is that (1) they serve the interests of some social entity, (2) they can motivate action – giving it directional and emotional intensity, (3) they function as standards for judging and justifying action, and (4) they are acquired both through socialization to dominant group values and through unique learning experiences of individuals.'

Values do not exist in isolation, the values held by an individual are as a direct result of a number of antecedents; culture, society and its institutions and personality (Rokeach, 1973, p. 3). The values that influence behaviour are in turn influenced by society and the existing paradigm. Stern and Dietz, (1994) agree that influencing factors such as the social context, mass media and external constraints can influence the preference construction process of values. Once formed values change very little over a lifetime and there are very few occasions when they might alter, e.g. age (Thøgersen and Ölander, 2002).

The term value however is open to some confusion as a number of different types of values exist; i.e. axiological, attributive and quantitative value (Clawson and Vinson, 1978). Rokeach (1973) distinguishes between persons who have 'values' as opposed to an object which has 'value'. Values as they relate to this research are those defined as axiological values i.e. relating to the principles or standards guiding behaviour.

2.3.1 The Nature of Values

Values are unique to each person, what motivates one person to act in a particular way is predetermined by their value system. The following characteristics of values are collated from key researchers including Rokeach (1973), Kluckhohn (1951), Feather (1991), Schwartz (2012) and (Chan, 2013).

Values are beliefs

Beliefs are linked to affect and when a value is activated, they are connected to feeling. 'Values, like all beliefs have cognitive, affective and behavioural components' (Rokeach, 1973, p. 7). In this regard, a person knows the correct way to behave, he or she can feel emotion about it and there exists a behavioural component when a value is activated.

Values refer to desirable goals

These goals motivate attitude and action. Whichever goals are important are likely to drive motivation. There are two types of goals according to Rokeach (1973); *Instrumental*, which are means- state goals while *Terminal* goals are end state.

Values transcend specific actions and situations

Values play an important role in all situations and differ from norms and attitudes that refer to a specific situation. Whichever values are most important to an individual are important regardless of the situation or the action. If security is a driving value at home, it will also be important at work (Chan, 2013).

Values serve as standards or criteria

When making decisions, people decide on what is good or bad based on their value system. The values important to an individual serve as a personal standard. The decision making may be a subconscious action. 'Values enter awareness when the actions of judgements one is considering have conflicting implications for different values one cherishes.' (Schwartz, 2012, p. 4)

Values are ordered by importance and the relative importance of multiple values guide action

Values are placed in order of importance relative to others, and are placed into a value system along a continuum. 'The trade-off among relevant competing values guides attitudes and behaviours' (Schwartz, 2012, p. 4).

Finally Rokeach (1973) talks of the enduring nature of values; he believes that values remain relatively stable throughout a lifetime only changing as a person matures or is faced with some life changing experience (Thøgersen and Ölander, 2002).

2.3.2 Researching values

Values research has a long history in philosophy and has engaged academia for many decades in different fields including; social science, psychology, anthropology, ecology and marketing for many decades (Beatty and Kahle, 1985; Chan, 2013; Homer and Kahle, 1988; Rokeach, 1973; Schwartz, 2006; Stern and Dietz, 1994). While the study of values began in the 1930's in social sciences it wasn't until forty years later that it emerged in the marketing literature (Vinson, Scott and Lamont, 1977; Chan, 2013). And in fact it wasn't until the development of measurement scales that research into values began to build extensively within the literature (Beatty *et al.*, 1985; Rokeach, 1973; Vinson, Munson and Nakanishi, 1977). Rokeach (1973, p. 5) stressed the critical importance of studying values when attempting to understand behaviour. He talks of the central role and the dynamic nature of the concept that would lead to greater collaboration between disciplines, a prediction that has come to fruition.

Thus values should play a central role in any research into behaviour (Rokeach, 1973; Schwartz and Bilsky, 1990; Schwartz, 1996; Schwartz, 2006). Firstly, values as a construct has been theoretically established and empirically tested (Krystallis, 2012; Lindeman and Verkasalo, 2005; Schwartz and Boehnke, 2004). Secondly, it has been shown that values influence behaviour generally through mediating factors such as attitudes and social norms (Thøgersen and Ölander, 2002). Finally as there exists a limited number of values, this means that the values instrument is an economically efficient one (de Groot and Steg, 2007).

2.3.3 Values and Behaviour

Individuals possess a fairly stable set of values which are thought to be a product of socialisation and life experience; whose antecedents are culture, society and personality and are believed to guide actions (Rokeach, 1973; Grunert and Juhl, 1995; Karp, 1996; Schwartz, 2006a):

'to say that a person has a value is to say that he has a prescriptive or proscriptive belief that a specific mode or end state of existence is preferred to an opposite mode of behaviour or end state.' (Rokeach, 1973, p. 25)

While values are expected to motivate behaviour (Schwartz, 2012), the degree and strength of influence is regarded as somewhat difficult to assess and is viewed as working through a number of determinants, such as attitude, norms or perceived efficacy (Homer and Kahle, 1988; Stern and Dietz, 1994; Thøgersen and Ölander, 2002). The relationship between values and attitudes is clear, while the direct relationship between values and behaviour is not so evident (Karp, 1996; Schultz *et al.*, 2005; Grankvist, Lekedal and Marmendal, 2007). Beatty *et al.*, (1985) reviewing the evidence of values and consumption behaviour research from the 1970's through to the 1980's, noted the uneven nature of the relationship between values and behaviour. Ibid. posit that the research in this field is confounded by the differing levels of abstraction between values and behaviour and that this makes the analysis more challenging, a view supported by Nordlund and Garvill (2002):

'It would seem fairly reasonable that there is a relation between general values and pro-environmental behaviour. However, values are abstract in the sense that they transcend situations, which could explain why relations between general attitudes or values and behaviour are usually weak.'

(Nordlund and Garvill, 2002, p. 744)

Research has shown that values influence behaviour but typically through some mediating factor such as social norms or attitudes (Armitage and Conner, 2001; Fishbein and Ajzen, 2005; Schwartz, 1996) and therefore the level of influence is difficult to measure. The relatively stable set of values held by an individual, which are a product of culture, background and experience can influence behaviour, just as behaviour can influence values. Another aspect of values and behaviour research sometimes overlooked is the reverse relationship between behaviour and values and how one affects the other. In their study of Danish households, Thøgersen and Ölander (2002) examined the direction of causality in relation to values and behaviour. While the focus remains on the value-behaviour relationship, there is also a proven cause-effect of behaviour on values; these were identified from the Danish research as differences in generations, changing conditions during the stage of lifecycle and significant events.

2.3.4 Schwartz Value Theory

Building on Rokeach's (1973) work, Schwartz (1992, 1994) identified a core set of ten values, as he set about resolving the issue of value classification. The theory builds on the previous research into values by Rokeach (1968; 1973) and has been developed and refined since 1992. The ten values in this theory represent the values recognised by all societies. This theory has been studied across many cultures and many measurement instruments have been developed and used successfully to test it (Lee, Soutar and Sneddon, 2010; Schultz and Zelezny, 1998; Schwartz *et al.*, 2012). The values are grounded in the three basic requirements as identified by Schwartz and Bilsky, (1990, p. 878),

'There are three universal human requirements to which all individuals and societies must be responsive: needs of individuals as biological organisms, requisites of coordinated social interaction, and survival and welfare needs of groups. These requirements must be represented cognitively, taking the form of values.'

In addition to identifying the ten values as part of a value system, Schwartz (1992, 1994) demonstrated the relationship between each of the values acknowledging the relationship between the values as a circular motivational continuum. The relationship between values within the system is illustrated by the circular diagram, the values beside each other tend to be more compatible, while those opposite each other tend to be in conflict. The two continua within the system depict the opposing values, i.e. self enhancement values (looking after oneself) tend to be in conflict with self-transcendence (caring for others and society). The second continuum is openness to change (a willingness to take chances) against conservation (tradition, conformity and security). Each of the values within each dimension is explained in Table 2.2.

Table 2. 2: Summary of Schwartz ten values

Dimension	Basic Value Type	Characteristics of value type
Self-Transcendence	Universalism	Protecting the environment – peace, social justice Three potential subtypes – tolerance, societal concern and protecting nature (Schwartz <i>et al.</i> , 2012)
	Benevolence	"Caring for the welfare of ingroup members" (Schwartz <i>et al.</i> , 2012) The need for affiliation, care and welfare of others in the group Helpful, Honest, loyal and responsible (Lee <i>et al.</i> , 2010)
Self Enhancement	Achievement	"refers to pursuing success as judged by the normative standards of society" (Schwartz <i>et al.</i> , 2012, p. 666) Capable, ambitious, successful – leads to social recognition and respect
	Power	Social status, wealth and standing Three potential subtypes – dominance over people, control over resources and <i>face</i> – maintaining position
Openness to change	Hedonism	The goal here is simply pleasure (Lee, Soutar and Sneddon, 2010) Seeking pleasure, indulgence and enjoying life. Sits equally between openness to change and self-enhancement dimensions.
	Stimulation	The need for novelty and stimulation in life – three subtypes excitement, novelty and challenge (Schwartz <i>et al.</i> , 2012). Seeking excitement and variety in life

	Self-direction	The goal of independent thought and action. Two subtypes – autonomy of thought and action (Schwartz <i>et al.</i> , 2012) Creativity, curiosity, freedom of choice/action, independence/self-reliance
Conservation	Conformity	Behaviour or thought that is socially acceptable. Two potential subtypes – interpersonal and compliance (Schwartz <i>et al.</i> , 2012). Restraining action that may upset others or social norms
	Tradition	Maintaining established pattern of behaviour - cultural and religious traditions. Respect, commitment and acceptance
	Security	The need for security is one of the most basic needs (Maslow, 1965). Schwartz (2012) suggests two subtypes – personal security and societal security. Safety, harmony and stability (of home and society) (Lee, Soutar and Sneddon, 2010)

2.3.5 Values and Environmental Behaviour

Up to this point the discussion has concentrated on the set of values which motivate an individual's behaviour, i.e. the relationship between general values and behaviour (Beatty *et al.*, 1985; Feather, 1991; Rokeach, 1973; Schwartz, 1994). Not all values in the value system pertain to environmental behaviour and so in the past thirty years attention has turned to understanding the role of values in environmental behaviour. The role of values in recycling and waste management behaviour has been examined and produced seemingly mixed results. Examining recycling and waste minimisation in a Danish context, Thøgersen and Grunert-Beckmann, (1997) confirmed the previous finding of the role values play in the value-attitude-behaviour theory (Homer and Kahle, 1988) and how crucial this is to understanding behaviour.

Various theories have been proposed which have attempted to identify environmental values. Schwartz (1994) acknowledges the self-transcendence and self enhancement dimension as that relating to environmental values. In 1994, Stern and Dietz, explored the value basis for environmental concern and put forward a three value basis for environmentalism; these are egoistic values, altruistic values and biospheric values (*Ibid.*). Egoistic values are those that prompt individuals to be more inclined to protect themselves against anything which may affect them personally. Altruistic values relate to how others might be affected and finally, biospheric is the view that the natural environment is important and needs protection (Nordlund and Garvill, 2002; Stern *et al.*, 1998). A not dissimilar classification was suggested by

Merchant (1992) who identified egocentric (egoistic), anthropocentric (altruistic) and ecocentric (biospheric) value categories (Nordlund and Garvill, 2002; Schultz and Zelezny, 1998; Eckersley 1992, Grendstad and Wolleback, 1998, Thompson and Barton, 1994). More recent to that, the work of Schultz and Zelezny, (1998) explored the relationship of values to pro-environmental behaviour through the NEP paradigm measurement (Dunlap *et al* 2000) which Stern and Dietz (1994) would classify as the biospheric lens.

Therefore it would appear that not all motivational types are equally relevant when it comes to a discussion on values and environmental behaviour (Thøgersen and Ölander, 2002, p. 608) and that research into specific pro-environmental behaviour and the values influencing same tends towards one or two single values. This is reinforced when results from research into values indicate that certain values are more in line with those of the collective good, i.e. self-transcendence, universalism and benevolence (Karp, 1996). Environmental values research using single values persists in the literature, it appears as though this research follows a particular pattern; the emphasis is placed on two of Schwartz's (1992) value categories, self-transcendence values which have been proven to have a positive correlation and self enhancement values which have a negative correlation (Karp, 1996; Krystallis, 2012; Schultz *et al.*, 2005).

Consistently throughout the literature a number of key values relating to pro-environmental beliefs and behaviour have emerged (de Groot and Steg, 2007; Steg *et al.*, 2014; Stern *et al.*, 1998). The four values most related to predicting pro-environmental behaviour are the Self-Transcendence values of (1) *biospheric* (a concern for nature and the environment) and (2) *altruistic* (a concern for the welfare of others) and the Self-Enhancement values of (3) *egoistic* (a concern for outcomes personal to oneself) and (4) *hedonic* (a concern for own pleasure and possessions) (Steg and de Groot, 2012; Steg, Perlaviciute, van der Werff, *et al.*, 2014). Measuring these four values gives an insight into an individual's belief and values around pro-environmental behaviours. While each individual endorses each of the four values to some degree (Rokeach, 1973), those 'individuals who strongly endorse biospheric and altruistic values typically act more pro-environmentally.... and those with strong

egoistic and hedonic values are less inclined to' (Bouman, Steg, and Kiers, 2018, p. 3). One approach to measuring these four values is the use of an adapted Schwartz Value Survey (SVS) (Schwartz and Bilsky, 1990) known as the Environmental-SVS (Steg, Bolderdijk, *et al.*, 2014; Stern *et al.*, 1998). A more recent adaptation of this measure (E-SVS) was the development by Bouman *et al.* (2018) of the Environmental Portrait Value Questionnaire based on the (Schwartz *et al.*, 2001) PVQ scale. The E-PVQ (Bouman, Steg and Kiers, 2018) that measures biospheric, altruistic, egoistic and hedonic values, was found to be slightly easier for respondents to complete. The four values integrate the environmental values research into a single usable framework. Thus addressing the dissatisfaction, voiced by Schwartz, (1996) with the singular approach to researching values and behaviour, who was unhappy with the 'piecemeal' approach believing that it lead to the 'construction of incoherent theories' (Schwartz, 1996, p. 121). Instead, Schwartz encourages a more comprehensive approach to the research, acknowledging that an integrated approach is better than a single value one. It would appear that the E-PVQ (Bouman, Steg and Kiers, 2018) captures the essential measures of pro-environmental value without sacrificing rigour.

2.3.6 How values affect behaviour

Values are guiding principles in life, they motivate action and are reflective of culture, society and an individual's upbringing. The values most closely connected to pro-environmental behaviour have been identified as those relating to the Schwartz, (2006b) self-transcendence and self-enhancement dimensions, namely biospheric, altruistic, hedonic and egoistic values (Steg and de Groot, 2012). Values function at a more abstract level and tend to remain stable over time, the result being that they influence behaviour indirectly. As Ibid. (2012, p. 87) acknowledge 'indeed, various studies showed that values mostly influence behaviour indirectly, via behaviour-specific beliefs, attitudes, and norms' as demonstrated through research (Stern, Dietz and Kalof, 1993; Nordlund and Garvill, 2002; de Groot and Steg, 2007).

2.4 Modelling the value-action gap

Behavioural models in environmental research provide an important support in understanding behaviour. These models are built from a set of conceptual premises and serve to better explain behaviour in a certain context. The models demonstrate some form of causal relationship between 'dependant and independent variables' (Jackson, 2005, p. 21). Social marketing as a relatively new discipline borrows from others and models are adapted to fit the requirements of the topic under investigation (Brennan *et al.*, 2014). There are many benefits to the use of models in understanding behaviour. They can provide heuristic devices and therefore identify factors that may be important to policy makers. They also provide a 'conceptual and theoretical framework for carrying out detailed empirical research' (Jackson, 2005, p. vi).

Both Darnton (2008) and Jackson (2005) writing about sustainable behavioural change distinguish between ***models of behaviour*** and ***theories of change*** and agree that they serve different purposes. Models of behaviour help explain behaviour in a given context while theories of change show how behaviour can change over time. There are many theories and frameworks which might be considered in this context of pro-environmental behaviour and social marketing; so many in fact that the task of choosing a model is very challenging. In addition to the two categories of models mentioned above; there are other categories including models at the individual level, the higher level as well as applied models such as community based social marketing. There is no one single theory which explains the value-action gap in this context, in fact various theories might be applicable in this context (Jackson, 2005).

Therefore, to address the central question around the value-action gap, it was decided that a ***model of behaviour*** was appropriate due to the unknown nature of the value-action gap and would help explain behaviour by identifying the most significant influencing factors. The model could then be supplemented with a change or applied model subsequently. In the process of choosing a model, a number of alternative models were included for consideration.

2.4.1 Choosing a theory

This research centres on pro-environmental behaviour and in particular the value-action gap. Identifying a relevant model to understand a pro-environmental behaviour indicates a number of potentially relevant models which are discussed within a social marketing and pro-environmental framework. Closer examination of the various theories points to a number of models applicable in the context. Choosing a theory requires careful consideration of a number of criteria. The criteria chosen were as the theory should have an individual-level focus, help to explain behaviour, be parsimonious and include contextual factors. The chosen criteria were determined by a literature review of the value-action gap and the advice around theory selection offered by various authors writing on the subject of model and theory use (Kollmuss and Agyeman, 2002; Andrew Darnton, 2008b; Brennan *et al.*, 2014).

The individual-level focus was determined by the unit of analysis which in this case was the household shopper. In order to be able to understand why a household shopper engages or fails to engage in the behaviour then the research had to be carried out at an individual level. The chosen theory had to help explain the value-action gap and at the same time be simple enough to be useful. Finally, the chosen model must specifically include context or have an 'external' perspective as research into the value-action gap indicated both 'internal' and 'external' influences.

The chosen criteria were used to identify a number of potential models applicable in this context. The use of models and theories in social marketing and pro-environmental behaviour were examined for the purposes of model identification.

2.4.2 Model and theory use in social marketing

Social marketing as a discipline relies on theories and models coming from other domains (Truong, 2014). Theories fulfil an important role in social marketing as they help simplify complex situations and may be used to explain behaviour. Reviewing a history of theory use in social marketing over a fourteen-year period between 1998 and 2012 (Ibid.) points to a relatively small percentage of articles reporting model use

(18.5%) and a limited range of models in use, including Social Cognitive Theory, Theory of reason action/planned behaviour, Health belief model, Stages of Change model, Ecological model and Diffusion of innovation theory. According to *Ibid.* earlier reviews of the literature by Bloom and Novelli (1981) and Lefebvre (1997) were calling for a more theoretical foundation for the discipline. In 2014, Brennan *et al.*, published a book summarising all the theories now in use in social marketing. This research points to a substantial growth in theory use within the field. To conclude, the authors (*Ibid.*, p. 331) point to theory identification as a starting point in social marketing practice. However, where to go for theory and what theory to use should be determined by the research question. The following section discusses the efforts made by others to address the value-action gap in the past and the various theories employed.

2.4.3 Modelling pro-environmental behaviour

The most commonly used models when it comes to pro-environmental behaviour and addressing the value-action gap in particular are offered by Kollmuss and Agyeman (2002). These include the early linear models, which could be described as deficit models (circa 1970's), the (adjusted) expectancy-value theories of the Theory of Reasoned Action (Fishbein and Ajzen, 1975), the Theory of Planned Behaviour (Ajzen, 1991) and the Model of Responsible Environmental Behaviour (Hines, Hungerford and Tomera, 1987). The second set of models were the altruism, empathy and pro-social models (Schwartz, 1977; Stern, Dietz and Kalof, 1993). The final category of models they describe as sociological models for explaining behaviour and include the work of Blake (1999). Following a discussion on the various influences on pro-environmental behaviour suggest that developing a model to reflect this behaviour would be neither 'useful nor feasible' (Kollmuss and Agyeman, 2002). They (*Ibid.*, 2002, p. 256) talk about the lack of a comprehensive model which explains the gap; 'what shapes pro-environmental behaviour is such a complex one that it cannot be visualised through one single framework or diagram'. That being said, there are many options available to anyone interested in researching a particular aspect of behaviour. The difficulty lies in choosing the appropriate theory or model.

The value-action gap points to a lack of understanding of the distinction between the abstract willingness to act and values and the concrete reasons for action. The variables influencing the value-action gap differ in different contexts; in sustainable consumer behaviour for example, it may be a case that the gap is a result of various trade-offs such as product quality and price (Olson, 2012). Leiserowitz *et al.*, (2006) concur and acknowledge that sustainable environmental behaviours are influenced by a unique set of barriers. As Howell (2013) states it isn't just values that can serve as a barrier to behaviour but other factors both internal and external might also be influential.

These researchers have identified different variables which serve as barriers to behaviour, yet the barriers relating to the value-action gap for recycled products, or behaviours on the other side of the recycling cycle, is much less commonly explored (Biswas *et al.*, 2000). The value-action gap within the recycling cycle requires further examination to identify those barriers specific to recycling activities. The purpose of this research is to examine the gap as it relates to the recycling cycle within a social marketing context. This research focuses on exploring the role of values and reasons that might help explain the gap. Studying the 'environmental value-behaviour' gap in Canada, Kennedy *et al.* (2009, p. 151) report that 72% of respondents acknowledge a gap between their intentions and their actions, and that:

'despite evidence showing that a large proportion of the public in various regions of the world expresses commitment to the environment, participation in environmentally-supportive behaviour rarely mirrors the strength of this stated commitment'.

While many have endeavoured to explain the gap, few have achieved some limited success. While reviewing numerous frameworks used to explain the gap, Kollmuss and Agyeman (2002, p. 240) state that 'although many hundreds of studies have been done, no definitive answers have been found'.

2.4.4 Limitations

However, there are also limitations to model use which must be acknowledged. Darnton (2008a) warns that models are concepts and are not representative of behaviour, thus while they help in understanding behaviour, they do not explain why an individual will act in a particular way. As models are developed within a particular context, they tend to work best in that context. But it does not mean they cannot work in other contexts. A frequently mentioned limitation is the issue around the simplicity of models. The fact is that behaviour is complex and if this was captured in a model it would be far too complex to use. Jackson (2005) discusses the tensions that exist in the research between simplicity and complexity in models. Getting the right balance of factors is important in applying a useful model for explaining behaviour.

As these models are used in empirical research, it is often the case that the models can be too simple and therefore fail to include all relevant factors. The opposite is also true, that the inclusion of all relevant factors can lead to a model too complicated to be useful (Kollmuss and Agyeman, 2002). The more parsimonious models are more frequently applied, where the more detailed models may be un-testable. Another limitation is the issue that many models particular to certain disciplines, concentrate on the internal antecedents of behaviour without any acknowledgement of the external influences, while others focus on the external issues only (Jackson, 2005, p. 23). Behaviour doesn't happen in isolation and therefore to exclude one of these could perhaps lead to a less informed understanding of the behaviour. Unfortunately, this often goes back to the problem of a trade-off regarding model complexity.

Researching the value-action gap for recycled paper products firstly indicates the use of a model to help understand behaviour. Another requirement is that the model or theory should be one which integrates the external and internal factors influencing behaviour. It should be simple enough to model the behaviour and yet should be comprehensive enough that nothing is missing from the model. A search of the literature (Jackson, 2005; Darnton, 2008b; Brennan *et al.*, 2014) identified a number of potential theories applicable in the context of the value-action gap and pro-environmental shopping behaviour. A selection of behavioural theories was given

careful consideration. The following section details the theories examined accompanied by a short discussion.

2.4.5 Model review and selection

The models considered for selection are based on the criteria discussed in 2.4.1 and are informed by the model use in the field of social marketing and pro-environmental research discussed previously. The following theories were examined in the process of selecting a theory; The Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975); The Theory of Planned Behaviour (Ajzen, 1991); Social Ecological Model (Bronfenbrenner, 1979); Stages of Change Model (Prochaska and DiClemente, 1983) and the Behavioural Reasoning Theory (Westaby, 2005). Each theory will be explained briefly and examined in light of the chosen criteria (See Table 2.3).

Theory of Reasoned Action (TRA)

Developed in 1975, based on the work of Fishbein (1967), this theory set out to explain behaviour based on rational decision making. According to the theory behaviour intention predicts behaviour and this intention is a function of attitudes and subjective norms. The model identifies intention to behave as the only antecedent to behaviour. Since its development, this theory has been robustly tested across many different contexts including environmental behaviours, Sheppard, Hartwick and Warshaw (1988) presented a meta-analysis of the application of the model. This models' use across different contexts such as recycling (Goldenhar and Connell, 1992), water conservation (Trumbo and O'Keefe, 2005), renewable energy (Bang *et al.*, 2000) and green product consumption (Paul, Modi and Patel, 2016) indicate a continued interest in applying this theory in a pro-environmental context.

Although the theory meets the criteria in terms of parsimony and individual-level applicability, it does not specify context within the model. The theory of reasoned action continues to be applied on a regular basis but was superseded by the theory of planned behaviour.

Table 2. 3: Model overview and applications

	Source	Context of development	Examples of model application	Criteria for selection
<i>Theory of reasoned action (TRA)</i>	(Fishbein and Ajzen, 1975)	Health-related behaviour	Recycling (Goldenhar and Connell, 1992), water conservation (Trumbo and O'Keefe, 2005), renewable energy (Bang <i>et al.</i> , 2000) and green product consumption (Paul, Modi and Patel, 2016)	Model of behaviour Individual-level Parsimony
<i>Theory of planned behaviour (TPB)</i>	(Ajzen, 1991)	Health-related behaviour	Food choice (Ruiz de Maya, López-López and Munuera, 2011), exercise (Downs and Hausenblas, 2005), green behaviour (Moser, 2015) and mode of travel (Bamberg, 2003)	Mode of behaviour, Individual-level Parsimony
<i>Social Ecological Theory</i>	(Bronfenbrenner, 1977)	Childhood development	Obesity (Gable and Lutz, 2000; Boonpleng <i>et al.</i> , 2013) and physical activity (Penhollow and Rhoads, 2014)	Model of behaviour Systems-level, Parsimony Context
<i>Stages of change model (Transtheoretical model TTM)</i>	(Prochaska and DiClemente, 1983)	Smoking cessation	Smoking (De Gruchy and Coppel, 2008; Diehr <i>et al.</i> , 2011), diet (Glanz <i>et al.</i> , 1994) and exercise (Booth <i>et al.</i> , 1993)	Theory of change Individual-level Parsimony
<i>Behavioural reasoning theory (BRT)</i>	(Westaby, 2005)	Employee turnover and relocation decision	Volunteering (Briggs <i>et al.</i> , 2009), binge drinking (Norman <i>et al.</i> , 2012), renewable energy and bicycle commuting (Claudy <i>et al.</i> , 2013. 2014)	Individual-level Parsimony Context

Theory of Planned Behaviour (TPB)

In 1991, Icek Ajzen offered an extension of the theory of reasoned action with the addition of Perceived Behavioural Control (PBC) as an antecedent to the intention to behave and behaviour. This addition to the theory addressed what was believed to be a gap in the model i.e. the perceived ease in carrying out the behaviour. Not unlike the theory of reasoned action, the theory of planned behaviour has been widely applied and robustly tested across many different contexts (Armitage and Conner, 2001) including food choice (Ruiz de Maya, López-López and Munuera, 2011), exercise (Downs and Hausenblas, 2005), green behaviour (Moser, 2015) and mode of travel (Bamberg, 2003). The scope and applicability of this theory presents an appealing option in the context of explaining the value-action gap. The TPB's continued recent application to pro-environmental issues such as plastic consumption (Hasan and Hock, 2015), green consumption (Paul, Modi and Patel, 2016) and (Lois, Moriano and Rondinella, 2015) makes this an attractive theory for consideration.

The TPB meets the same criteria as the theory of reasoned action, with the inclusion of perceived behavioural control offering greater detail. Context however, is not specified in the model.

Social ecological theory

Urie Bronfenbrenner's (1979, 1992) work on human development in the late 1970's led to the development of the ecological theory with the identification of four levels of nested environments, providing a framework to explore behaviour in context at different levels. According to the theory, human behaviour is affected by a number of different factors embedded in a person's environment. These four levels are the microsystem, mesosystem, exosystem and macrosystem. The microsystem consists of the 'complex relations between the developing person and the person in an immediate setting i.e. workplace, home, school' (Bronfenbrenner, 1977, p. 514). The mesosystem can be described as 'a system of microsystems' which 'comprises of the interrelations among major settings containing the developing person' (Ibid, p. 515), and might include workplace, school. The exosystem is an extension of the

mesosystem and involves external environment which does not directly affect human development but have an impact on the structures and settings of an individual (Ibid). The final level is the macrosystem is the larger sociocultural context (Stephens, 2008, p. 120). The ecological model has been successful in broadening the scope of interventions, achieving a multi-level multi-disciplinary approach (Ibid) particularly in the field of health promotion and community health. Its strength lie in its ability to address complex problems (Glanz, Rimer and Viswanath, 2008) by designing interventions at multiple levels within the system. While its application to health related behaviours such as obesity (Gable and Lutz, 2000; Boonpleng *et al.*, 2013) and physical activity (Penhollow and Rhoads, 2014) has been established, its' application within a social marketing context is less well known. However recent publications addressing the scope of social marketing exposes a growing systems perspective (Kennedy, 2016; Domegan *et al.*, 2017b).

The social ecological theory is appealing in the context of this research into the value-action gap and pro-environmental behaviour; in particular its appeal lies in its clear acknowledgement of a wider context influencing behaviour. While context is emphasised in the social ecological theory, the individual level is not.

Transtheoretical Theory (TTM) - Stages of change theory

The transtheoretical theory also known as the stages of change theory, was developed by Prochaska in the late 1970's while researching smoking behaviour (Prochaska and DiClemente, 1983). This research led to the framework of the stages of change. The framework assesses readiness to change and provides process of change intervention strategies to assist movement towards an intended behaviour. There are fifteen core constructs in the theory of which the major elements are the stages of change, pros and cons of the behaviour, self-efficacy and processes of change (Glanz, Rimer and Viswanath, 2008). The stages of change model is one of the most widely used behavioural theories in the area of health behaviour in particular addictive studies (French *et al.*, 2010). The framework is useful for segmentation purposes and is suitable for tailored interventions (Ibid). Created within the context of understanding and changing addictive behaviours, its application within the social marketing context

tends to be heavily focused on health-related behaviours (Luca and Suggs, 2013) such as smoking (De Gruchy and Coppel, 2008; Diehr *et al.*, 2011), diet (Glanz *et al.*, 1994) and exercise (Booth *et al.*, 1993). The stages of change model has a strong evidence base in social marketing and health behaviour but has received some criticism regarding its applicability to some behaviours such as substance abuse in children (Glanz, Rimer and Viswanath, 2008), the theory has also come in for some criticism from the addictive behavioural research community (Sutton, 2001; West, 2005).

The theory's relevance in the value-action gap for pro-environmental behaviour does not appear to provide a good fit, with evidence to suggest that the TTM is an appropriate model around health-related behaviours. Although it remains a popular model in the field of social marketing (Truong, 2014), it's focus is on the change process rather than understanding the behaviour. While the model fits the criteria for simplicity, it does not make it a good fit for the research question.

Behavioural Reasoning Theory

The behavioural reasoning theory developed by James Westaby in 2005 has its foundations in the traditional behavioural intention models of the theory of reasoned action and the theory of planned behaviour. Westaby (2005, p. 100) includes reasons as 'the subjective factors people use to explain their anticipated behaviour'. As a behavioural intention model, the BRT offers 'a more complete understanding of consumer decision making by including reasons' (Claudy, Peterson and O'Driscoll, 2013, p. 275). Reasons, according to the theory, are determinants of behaviour and important antecedents of global motives and mediate between values, global motives and intention to behave.

The reasons construct includes both the 'reasons for' and 'reasons against', representing the dichotomous dimensions of the pros and cons, cost/benefits and facilitators and constraints (Westaby, 2005, p. 100). The behavioural reasoning theory, while a relatively recent addition to behavioural intention models, has been tested in other contexts. Originally developed in the context of employee turnover and relocation decision, its applicability has since been demonstrated across a

number of diverse situations from volunteering (Briggs, Peterson and Gregory, 2009), binge drinking (Norman, Conner and Stride, 2012) and leadership decision-making (Westaby, Probst and Lee, 2010). The BRT has also been tested in the field of pro-environmental behaviours including purchase behaviour around renewable energy systems (Claudy, Peterson and O'Driscoll, 2013), bicycle commuting (Claudy and Peterson, 2014) and car-sharing (Peterson and Simkins, 2019).

This theory meets all of the criteria as it helps to explain behaviour at the individual level, it is a parsimonious model with well tested constructs. The reasons construct provides context and is specific to the behaviour under investigation. Although developed within the field of organisational behaviour and human resources, the theory has also been tested in environmental behavioural contexts as mentioned previously.

In conclusion, the five theories discussed have their own strengths and weaknesses and offer different value in different contexts. Choosing a theory relevant to the subject under investigation required the identification of criteria to which the theory must meet. Of the theories examined, the behavioural reasoning theory appeared to provide the most suitable and useful theory to give meaning to the value-action gap in the context of pro-environmental behaviour. The following section provides further details on the BRT and its constructs.

2.5 Behavioural reasoning theory (BRT)

In 2005, James D. Westaby, developed and tested the behavioural reasoning theory in the context of organisational behaviour, specifically employee turnover and relocation decisions. The premise of the behavioural reasoning theory is that reasons (both for and against) serve as important linkages between values, motives, intention and behaviour (Westaby, 2005, p. 97). Since its development, the BRT has been tested across behavioural contexts, as recommended by Westaby (2005, p. 118) including health (Norman, Conner and Stride, 2012), leadership (Wagner and Westaby, 2009; Westaby, Probst and Lee, 2010) and the environment (Claudy, Peterson and O'Driscoll, 2013; Claudy and Peterson, 2014) as can be seen in Table 2.4. The BRT

builds on the previous behaviour intention models of the Theory of Reasoned Action (Fishbein and Ajzen, 1975) and the subsequent Theory of Planned Behaviour (Ajzen, 1991) adding the construct of reasons to the model.

2.5.1 Applying the BRT to everyday products

The behavioural reasoning theory fits into the category of behavioural intention models whose purpose is to explain the fundamental determinants of behaviour. Behavioural intention models such as the theory of reasoned action and the theory of planned behaviour (Fishbein and Ajzen, 1975; Ajzen, 1991) and have a long history of application across many diverse contexts. They are sometimes described as general models of behaviour (Darnton, 2008a) applicable outside the domain in which they were developed. A search through the literature indicates the applicability of the TRA and the TPB in many diverse contexts not least pro-environmental behaviour and the value-action gap (Armitage and Conner, 2001; Bamberg and Möser, 2007; Paul, Modi and Patel, 2016).

Westaby's (2005, p. 98) behavioural reasoning theory combining traditional concepts from the TRA and TPB by addressing the 'context-specific factors' with the inclusion of the reasons construct which 'articulates theoretically justified linkages between people's beliefs, reasons, global motives and behaviour'. Westaby (2005, p. 118) goes on to suggest that 'future research is needed to test the theory across diverse behavioural domains.' Since then, the BRT has been selected across a range of research contexts (see Table 2.4) from binge drinking (Norman, Conner and Stride, 2012) to online teaching (Schneider *et al.*, 2018). Within the context of pro-environmental behaviour a number of studies have adopted the BRT model to examine what is described as high-cost environmental behaviours (Diekmann and Preisendörfer, 2003) including renewable energy and sustainable transport/bicycle commuting (Claudy, Peterson and O'Driscoll, 2013; Claudy and Peterson, 2014). The BRT has been tested in a pro-environmental context by the work of these researchers.

Table 2. 4: Application of the BRT -Authors and subjects

Author/Year	Research Context
Westaby (2005)	Employee turnover and relocation decisions
Briggs, Peterson and Gregory (2009)	Volunteering
Oh and Teo (2010)	Whistleblowing on software privacy
Westaby, Probst and Lee (2010)	Organisational theory/Leadership
Norman, Conner and Stride (2012)	Binge drinking
Claudy <i>et al.</i> , (2013)	Renewable energy systems
Probst and Graso (2013)	Safety/accident reporting
Claudy, Garcia and O ‘Driscoll (2014)	Consumer resistance to innovation
Claudy and Peterson (2014)	Urban bicycle commuting
Gupta and Arora (2017)	Mobile shopping
Park <i>et al.</i> , (2017)	Apparel donation
Schneider <i>et al.</i> , (2018)	Online teaching
Ryan and Casidy (2018)	Organic Food consumption
Peterson and Simkins (2019)	Commercial car sharing

Shopping behaviours

Shopping behaviour for environmentally-friendly or ‘green’ products are viewed as low-cost behaviours (Diekmann and Preisendörfer, 2003). The costs relating to low-cost products are not confined to financial costs but also include any costs relating to the situation. These every day, low-cost behaviours are typically easier for the individual to engage (Moser, 2015). There is a long history of using behavioural intention models in explaining green purchase behaviour (Moser, 2016; Paul, Modi and Patel, 2016; Yadav and Pathak, 2016b) and organic food consumption (Yadav and Pathak, 2016a; Scalco *et al.*, 2017; Carfora *et al.*, 2019) however, this research has tended to rely on the TRA and TPB frameworks. The application of these two theories in this context have limitations including their lack of consideration of habitual buying behaviour and the influence of situational factors (Joshi and Rahman, 2015). As a result, many studies have proposed adaptations to the model in order to address these limitations (Tarkiainen and Sundqvist, 2005; Onel, 2017).

The behavioural reasoning theory is offered here as a theoretical framework to explain pro-environmental shopping behaviour. Exploring previous and more recent applications of the BRT to everyday pro-environmental purchase behaviour exposed a gap until recently when Ryan and Casidy (2018) tested the model in the context of organic food consumption. Organic food consumption has been previously examined

using both the TRA and the TPB models (Tarkiainen and Sundqvist, 2005; Smith and Paladino, 2010). The product category chosen for this research is recycled paper products. Recycled paper products are environmentally friendly products which close the loop. Paper products in general are routinely purchased as part of a household shop. These products tend to be low-cost items requiring little if any engagement. Quite often household shoppers pick them up without little thought or engagement.

There are advantages and limitations to choosing the behavioural reasoning theory over the theory of reasoned action and theory of planned behaviour in this context. Firstly, context-specific reasons are identified as part of process. Using the elucidation method recommended by Westaby (2005, p. 100) exposes the barriers and facilitators, pros and cons and 'reasons for and against' engaging in the behaviour. There is a strong justification for reasons in the model as they motivate behaviour and are used to justify and defend behaviour. Secondly exposing the reasons for behaviour, beyond that explained by values and attitudes, identifies the barriers to behaviour, which are not processed in the other theories (Ryan and Casidy, 2018). Another advantage of using the behavioural reasoning theory is the reasons are identified in a product specific context while the other models tend to be more general (ibid). The final reason for using this theory lies in its previous applications in a marketing/macromarketing context, giving it a solid reputation (Claudy and Peterson, 2014; Claudy *et al.*, 2015).

Limitations to using this framework must also be acknowledged. The chosen product category of paper products are routine, low-involvement items and therefore the level of engagement in the purchase decision might be considered habitual or routine. Habitual product decisions occur 'when the consumer is familiar with the relevant product category makes a routine decision' (Bauer, Sauer and Becker, 2006, p. 345). The low level of involvement is often attributed to the relative cost and the 'small differences between competing products' (Thøgersen, Jørgensen and Sandager, 2012). One of consequences of this type of decision-making is that the degree of cognitive involvement is small (Bauer *et al.*, 2006). However, when a product is differentiated in some way such as adding new features, this perhaps has the potential effect of pushing the product category into a higher level of involvement.

However, Thøgersen *et al.* (2012), while researching organic milk products, found that everyday products with eco-friendly or 'green' credentials are treated in much the same way as conventional products. They (Ibid, p. 195) conclude that 'consumer involvement in the "green" issue matters, but its influence on choices is mediated through the learning of a choice heuristic based on the "green" product attribute as the performance criterion'. It might be argued that the application of the behavioural reasoning theory to this category of products creates a disparity or mismatch between the cognition of the model and buying recycled paper products. Notably, a recent application of the BRT model has extended its theoretical view to habitual routine purchases of organic breakfast cereals (Ryan and Casidy, 2018) thereby challenging the implied cognition of the model by identifying the 'drivers and barriers' to this behaviour.

Another limitation of the model lies in its simplicity, it has been argued by Kollmuss and Agyeman (2002, p. 256) that when it comes to understanding the value-action gap for pro-environmental behaviour that 'developing a model that incorporates all the factors behind pro-environmental behaviour might neither be feasible or helpful'. A model reflective of the 'gap' would be too complex to be useful. Therefore, with these considerations in mind, Westaby's (2005) behaviour reasoning theory was chosen for this study. The conceptual framework of the behavioural reasoning theory, the model constructs and relations are explored in detail in the next section.

2.5.2 The conceptual framework

Models are employed to better understand behaviour; they serve to frame the pattern of behaviour as they depict the influencers of behaviour, their antecedents and the relationships (Jackson, 2005; Darnton, 2008b). The established models of the Theory of Reasoned Action and the subsequent Theory of Planned Behaviour have received much support and have been endorsed in many different contexts (Sheppard, Hartwick and Warshaw, 1988; Armitage and Conner, 2001). The models don't however deal specifically with context, something which has been identified as a potential barrier to behaviour and behavioural change (McKenzie-Mohr and Smith, 1999; Westaby, 2005). The behavioural reasoning theory combines the internal and

external influences without complicating it, thus preserving the parsimonious nature of the original model. This combination of internalist and externalist views satisfies an oft quoted criticism of the lack of integration of the original behavioural intention models (Jackson, 2005). Few models have attempted to include both and instead tend to take one view over the other, some of those models incorporating external factors include Guagnano, Stern and Dietz (1995) ABC model, Triandis, (1977) Theory of Interpersonal Behaviour and more recently the conceptual model depicted by Kollmuss and Agyeman, (2002).

Westaby (2005, p. 103) believes that 'reasons serve as important linkages between an individual's beliefs, global motives, intentions and behaviour'. The model adds 'reasons' to the traditional behaviour intention models by addressing the context specific factors influencing behaviour (Claudy *et al.*, 2013). The BRT is quite similar to the values-attitude-behaviour hierarchy (Homer and Kahle, 1988) with the exception of the reasons construct which is included to help identify the context specific factors over and above global motives (attitudes, subjective norms and perceived control). Figure 2.2 illustrates the linkages created by reasons within the model. Reasons are influenced by values and beliefs which then act as a mediating influence on global motives and intentions.

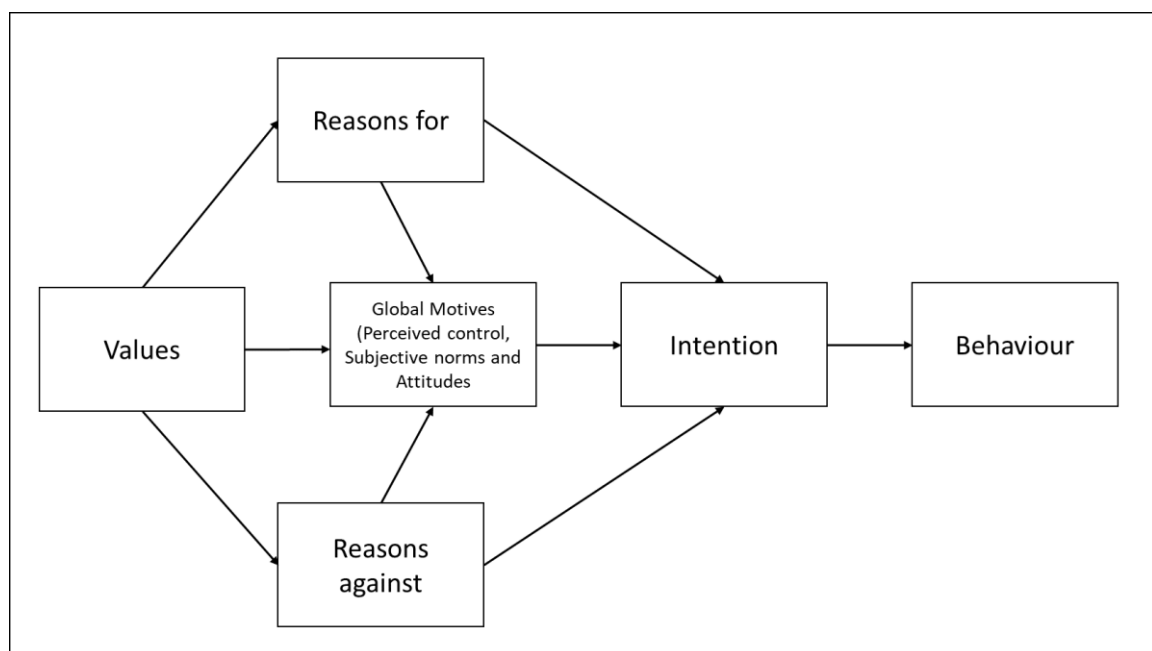


Figure 2. 2 The Behavioural Reasoning Theory- James D. Westaby (2005)

2.5.3 Model constructs and relationships

The key constructs of the model are values and beliefs, global motives, reasons (for and against), intention and finally behaviour (Westaby, 2005). Behaviour is a product of intention which is influenced by global motives and reasons which are based in core values and beliefs. Therefore, understanding each construct and the linkages between each provides valuable information when social marketers make decisions. The original model proposed by Westaby (2005) has been altered on occasion, global motives for example, has sometimes been altered to reflect attitudes only (Claudy *et al.*, 2013), while values and beliefs have sometimes been excluded also (Norman *et al.*, 2012). Each of the constructs and relationships will be discussed in this section.

The role of reasons

The BRT separates the 'reasons for' and 'reasons against' behaviour. In some instances, there may be pros and cons or benefits and barriers to acting in a particular way. These reasons represent a processing of values and beliefs and can act as a negative or positive influence. Therefore, as Westaby (2005, p.100) posits 'the reasons conceptualisation subsumes other dichotomised dimensions.' Barrier and benefit research are emphasised by community-based social marketing as a key step in the process of fostering pro-environmental behaviour (McKenzie-Mohr *et al.*, 1995).

The behavioural reasoning theory model (Westaby, 2005) provides the reasons construct as the missing link between values and action i.e. the value-action gap. The reasons construct must be identified in the first phase before the behavioural reasoning theory (BRT) can be applied. Reasons are context driven and are defined as the specific subjective factors used to explain their anticipated behaviour (Ibid., p. 100). Reasons can be further subdivided into two dimensions, the 'reasons for' and the 'reasons against'. When reasons are used to justify behaviour, they are used in either a positive or a negative way. Therefore, the term reasons, includes the opposing forces or the dichotomous dimensions, the pros and cons, the barriers and benefits, the costs and facilitators (Westaby, 2005).

Barrier and benefit research are critical to successfully changing behaviour, but sometimes it is avoided (McKenzie-Mohr, 2000). This can happen as the process can be considered too expensive or time-wasting. Those choosing to bypass the process make the assumption that they know what the barriers are and work off that basis. However, as McKenzie-Mohr and Smith (1999) stress overlooking this step in the process is a false economy in the long run. The BRT acknowledges the role of reasons within the behaviour model. It also highlights the interrelationship between the reasons and the behaviour.

The reasons construct within the behavioural reasoning theory provides a mechanism to understand the gap between values, intention and behaviour. There are two dimensions to reasons, the 'reasons for' and the 'reasons against', which serve as both sides to the justification for an action, i.e. the pros and cons, the barriers and benefits and 'subsumes other dichotomous dimensions' (Westaby, 2005, p. 100). Reasons are defined (Ibid, 2005, p. 100) as; 'the specific subjective factors people use to explain their anticipated behaviour'. The basis for adding reasons has solid foundations in reasoning theory (Westaby, Fishbein and Aherin, 1997), decision making (Claudy and Peterson, 2014) and cost- benefit models (Thaler, 1999 as cited by Claudy and Peterson, 2014). Each of the links in the model will now be considered in more detail.

Values and reasons

Reasons are a reflection of values. They are thought to result in part from individual processing of values (Norman, Conner and Stride, 2012). As Briggs, Peterson, and Gregory (2009, p. 64) comment:

'In BRT, reasons commonly used by individuals are presumed to result at least in part from the processing of their values. These reasons and values which together constitute 'reasoning' jointly determine their attitudes towards aspects of the environment.'

Recent application of the BRT across various behavioural settings emphasises different human values influencing reasons and behaviour. Based on Schwartz's (1992, 2012) value system, Claudy and Peterson (2014) assess and confirm the

influence of two key values in relation to urban bicycling commuting behaviour, the first was *Universalism*, from the self-transcendence dimension and secondly *Security* from the conservation dimension. While Briggs *et al.*, (2009) chose *Achievement* from the self-enhancement dimension and *Benevolence* from the self-transcendence dimension as important in the context of volunteering behaviour. Application of this model requires an identification of the relevant values influencing the specific behaviour, in the context of recycling this may be both values within the self-transcendence dimension, *Universalism* and *Benevolence*.

Intentions and behaviour

The behavioural reasoning theory hypothesises that behaviour is related to intentions echoing the relationship that has been researched and demonstrated by the behaviour intention models used widely throughout the social psychology literature (Jackson, 2005; Westaby, 2005; Darnton, 2008a). Intentions are the link between global motives, including attitude and reasons and the behaviour.

Global motives and intentions

The second relationship within the model connects global motives and intentions. The traditional models conclude that intention is influenced by three antecedents; attitudes, subjective norms and perceived control which together are classified as global motives (Ajzen, 2001). Westaby *et al.* (2010, p. 482) classifies these as global motives 'because they are broad constructs that have been validated across numerous behavioural settings.'

Attitudes represent an individual's positive or negative (pleasant/harmful or likeable/dislikeable) views towards a behaviour (Eagly and Chaiken, 1988; Fishbein and Ajzen, 2005). Subjective norms are the rules that govern behaviour in a particular situation (Thøgersen, 2008) while perceived behavioural control concerns a measure of control belief, i.e. those potential constraints on intention and behaviour outside the control of the individual (Armitage and Conner, 2001). Together these three constructs are identified as global constructs and are strong indicators of intentions.

Westaby (2010), Norman *et al.* (2012) and Oh and Teo (2010) found 'reasons for' and 'reasons against' to be related to global motives (attitudes). In the context of leadership and the decision to employ teens, Westaby (2010, p. 490) identified that 'reasons for' were stronger predictors than 'reasons against', which include 'to fill labour demand', 'because teens are available for work' and 'work part time during the summer'.

Values and global motives

Values and beliefs are antecedents of global motives and are expected to have a direct impact on same, while also influencing reasons (Westaby, 2005). This is consistent with previous research and is supported by the traditional behaviour intention models where a direct link between beliefs and values and global motives has been validated (Ajzen, 1991; Armitage and Conner, 2001).

Reasons and global motives

In the BRT model reasons capture the context specific 'reasons for' behaviours which are not addressed by global motives. Reasons precede global motives and do not exist in isolation as the 'reasons for' and 'reasons against' are formed by an individual's value system (Claudy and Peterson, 2014). However, not all reasons will mediate through global motives as some will influence intentions directly.

Reasons and intentions

Values and reasons together influence global motives which then in turn influence intention to behave. It is also proposed by Westaby (2005) that reasons can also directly influence intentions separate to and bypassing global motives. This may be because reasons may be context specific and so not represented by the other constructs within the traditional behavioural intention model. For example, in the case of the research by Claudy and Peterson (2014), the authors observed that even though an individual might have positive views on commuting to work by cycling, they may however feel that there are good 'reasons for' not cycling themselves, which are

separate to their values. Norman *et al.*, (2012, p. 692-693) confirmed the link between reasons and intentions, not fully mediated through global motives, these include 'to have fun' and 'to be sociable'. Westaby (2010) also confirmed this independent link in his research into leadership behaviour. Perhaps absent from the model presented by Westaby (2005) is the influence of behaviour on reasons in the future which might be added as a feedback loop, although Norman *et al.*, (2012) captures this by incorporating past behaviour as established previously in theory of planned behaviour (TPB) research into binge drinking.

2.5.4 Model choice

The behavioural reasoning theory (BRT) has a relatively short history while its predecessors the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour have much robust support, applied and validated over many decades and in many different fields (Sheppard, Hartwick and Warshaw, 1988; Armitage and Conner, 2001). It is still early days for the BRT as it has received limited application across different dimensions up to this point, although the relationships within the model have been confirmed through empirical testing (Claudy and Peterson, 2014; Westaby *et al.*, 2010). This integrated model includes an external dimension which is represented by the reasons 'for and against' construct in the model; this construct on top of an already established model makes the BRT a more fitting model ahead of the less parsimonious integrated models (Davies, Foxall and Pallister, 2002; Kollmuss and Agyeman, 2002; Darnton, 2008a).

The integrated nature of Westaby's (2005) behavioural reasoning theory, while addressing the context specific reasons influencing behaviour, alludes to an even broader context beyond that at the micro level. This context could best be captured using competitor research with a social marketing perspective.

2.6 The competitive context

Competitor analysis involves moving beyond the individual at the micro-level to explore the context of the behaviour. Researching the competition in a commercial context affords management the information required to intervene in order to minimise its impact, to understand and also cope with competition (Porter, 2008, p. 25). A similar challenge exists in the non-commercial context, the difference is that while competitor analysis is fundamental to good strategic management, it is often the case that competition is not given the same degree of attention it deserves in the social marketing domain (Hastings, 2003). More worryingly is the complete disregard of competition almost as if it is not relevant for social marketers; as Rothschild (1999, p. 96) states;

'Many social managers are equally presumptuous when they assume that they are operating in an environment devoid of competition; free choice, apathy and inertia are powerful competitive forces that are often ignored.'

Competition is not something to be overlooked or ignored, as Rothschild (1999, p. 96) put it 'for every choice there is an alternative'. Today competition is included as one of the key concepts in the benchmark criteria for best practice in social marketing. The eight benchmarks adapted from Andreasen's (2002) original list provide a definitive list of core concepts required for a comprehensive social marketing intervention (Andreasen, 2010; Dibb, 2014).

2.6.1 Competition and social marketing

A review of the social marketing literature uncovered contrasting approaches taken to conceptualising competition. The literature appears to be divided between some authors writing on the nature and concept of competition in social marketing (Andreasen, 2002a; Hastings, 2003; Lee and Kotler, 2008; Noble and Basil, 2011; Rothschild, 2000) and a second cohort writing on the application of competition analysis from a social marketing benchmarking perspective (Carins and Rundle-Thiele, 2013; Kubacki *et al.*, 2015; Buyucek *et al.*, 2016; Ulasevich *et al.*, 2017). The main

sources of competition analysis in the social marketing literature is summarised in Table 2.4, including definitions and suggested approach, if any, to competition analysis.

Table 2. 5: Sources, definitions and competition analysis in social marketing

Author	What is competition in social marketing?	Guide to competition analysis
Rothschild (1999)	<i>Any environmental or perceptual force that impedes an organisation to achieve its goals</i>	
Andreasen (2002, p.5; 2006, p104)	<i>Social marketing is one of many approaches to social problems and faces competition at five levels. Sometimes the competition takes the form of individuals or organisations trying to get their own behaviour adopted.</i>	SM faces competition at 5 levels; generic, intervention-level, subject-market, product, and brand.
Hastings (2003, p. 8; 2007, p. 160)	<i>Social marketers deal with voluntary behaviour that means their clients always have a free choice – they have buyer power and hence there is always competition.</i>	Three constructs that characterise social marketing competition – 1. Purposeful and inertial competition; 2. General or specific competition and 3. Short-term, low cost versus long term hard worn benefits.
Peattie and Peattie, (2003, p. 376)	<i>A battle of ideas</i>	Battle of ideas framework - Three critical A-factors; <i>attract, accept and adoption</i> Four sources of competition – commercial counter-marketing, Social discouragement, Apathy and Involuntary disinclination.
Andreasen and Kotler (2003, p. 53)	<i>Whatever the customer thinks it is</i>	
Lee and Kotler (2008, p. 164)	<i>Social marketers have tough competition. Competition should be identified from a number of different perspectives including the target audience.</i>	Define competition as; Behaviours target audience would prefer to do. Behaviours they have been doing forever Organisations and individuals who send counter messages
Noble and Basil (2011, p. 150)	<i>Competition is what the target audience perceives it to be and includes the barriers and costs to adopting a behaviour change.</i>	Four levels of competition framework – Generic, enterprise, product and brand
(NSMC, 2016)	<i>What competes for the time and attention of the target audience</i>	Identify all internal and external, direct and indirect competitors.

While competitor analysis is fundamental to successful marketing strategy, the approach taken in the social marketing domain could be described as informal (Rothschild, 2000; Hastings, 2003). Reassuringly, there is consensus on the necessity for competition analysis but this contrasts greatly with a distinct lack of agreement on what constitutes competition and how best to analyse it (Schuster, 2016, p. 1334). Failure to agree is demonstrated by the array of definitions including; Andreasen and

Kotler's (2003) definition as 'whatever the customer perceives it to be' while Peattie and Peattie (2003) frame it as a 'battle of ideas'. To further complicate matters, identification of competition is not a straightforward process. Sources of competition may be direct or indirect from other organisations marketing similar or related behaviours e.g. Rethink or #sickofplastic campaigns. A major source of direct competition comes from commercial companies' counter-marketing in the same space. Indirect competition is any other sources of information or messages which compete for the individuals time and attention (NSMC, 2016).

If the direct and indirect competition wasn't challenging enough, a second conceptualisation is internal and external competition (Noble and Basil, 2011; Schuster, 2016, p. 1335). Internal competition is any competition that originates internally within the individual and has been described in a variety of ways by Hastings (2003), Peattie and Peattie (2003) and Andreasen (2002b) as apathy, habit, voluntary disinclination and lethargy. External competition comes from outside the individual and may include other social marketing interventions or counter marketing from commercial organisations (Clay-Wayman *et al.*, 2007). Unsurprisingly perhaps, the approach taken and the number of interventions including a competition analysis and varies considerably, as illustrated in a series of recent systematic reviews of the benchmark criteria (Carins and Rundle-Thiele, 2013; Kubacki *et al.*, 2015; Kubacki *et al.*, 2015b).

2.6.2 Knowing the competition

A definition of competition in a social marketing context is offered by Rothschild in 1999 (Hastings, 2003, p.7) when he describes competition as 'any environmental or perceptual force that impedes an organisations ability to achieve its goals'. Paul Bloom (Lefebvre, 2003, p.28) warns of a broad definition and cautions against including everyone as a potential competitor. With this warning in mind, the social marketer then faces the challenge of defining the industry and therefore the scope of the competition it faces. Commercial companies are usually familiar with their competitors; they are informed about their product offerings, market share and the

competitive approach they use. This familiarity provides strategic managers with insight into competitor's strengths and weaknesses and allows for the development of strategies to mitigate the competition.

Unfortunately, identifying competition in a social marketing context is not a simple task. It requires the identification of all actions and behaviours that may be competing for the target's time and attention. This involves identifying all the potential and actual competitors (Andreasen, 2010). The difference between effective competitor analysis in social and commercial marketing often lies in the failure of identification of said competition.

Not unlike the commercial context, Rothschild's (1999) definition reflects an identification and perception of competition from an organisations point of view however adopting this approach fails to acknowledge the fundamental difference in competition within social marketing. Therefore, to clearly identify competition for a target behaviour, it should be identified from a number of perspectives including that of the target audience (Lee and Kotler, 2008, p. 164). Competition, therefore, is an external challenge facing behavioural change and should be reviewed from the customers' perspective. Since it was first identified as part of the responsibilities of social marketing managers, competition has been described in different ways. Current interpretation in practice identifies competition as anything that competes for the time and attention of the audience. The National Social Marketing Centre (NSMC) in the UK proposes a three-step process in competition analysis. This process begins with the identification of all competition (direct and indirect) that might prevent a change in behaviour. The second step is to analyse how each of these competitors compete for attention and time and finally develop a strategy that helps to negate the competition.

Hastings (2003, p. 7) acknowledges that as social marketers deal with voluntary behaviour their customers always have a choice and because of this, they will always have competition. Ibid. (2003) presents three constructs which explain competition in a social marketing context. The first is purposeful and inertia competition. Purposeful competition is the more direct competitor by its nature. The social marketer whose

task it is to develop interventions to change behaviour offers a product with built in delayed gratification, i.e. if smoking cessation is the target behaviour the payoff for same is in the future, better lung and overall health.

According to Lee and Kotler (2008, p. 164) competition for a target behaviour should be identified from a number of perspectives, including that of the target audience. To reflect this view, this study adopts a definition of competition which is an adaptation of Rothschild's (1999), refined by the market definition of Porter (2008) and is as follows;

'Any environmental or perceptual forces, both internal and external to the target audience, that impede the adoption of the target behaviour.'

This definition combined with the levels of competition framework (Noble and Basil, 2011) explained in the next section, informed the research into competition and the development of competition scales in the context of pro-environmental shopping behaviour.

2.6.3 Levels of competition

Andreasen, (1995, p. 81) first proposed a four-level framework for understanding the severity of competition. Desire competition, are those alternative desires that an individual might prefer to satisfy than the desired behaviour. The next level is generic competitors which are alternative ways to satisfy the behaviour. The third level is service form competition, an alternative way to perform the action. Finally, enterprise competitors are other organisations that offer a similar service. Noble and Basil's (2011) proposed framework also identifies four levels of competition from the generic level through the enterprise, product and brand levels. At each level, competition is situation specific and varies in scope; presenting yet another challenge to the analysis.

2.7 Summary

To conclude, the literature reviewed throughout this study clearly identifies the existence of the value-action gap across many different disciplines. Evidence of the existence of the value-action gap is examined at the start of the review, followed by a discussion on the barriers thought to be responsible for creating the gap. The scale and number of potential barriers, discussed in the subsequent section reinforces the challenge to removing it. The barriers presented extend from individual, situational and psychological barriers through to values.

Values are known to serve an important role in understanding behaviour, as not only do they act sometimes as barriers, they are also key to motivating and driving behaviour. Understanding values and behaviours is one step closer to changing the target behaviour. The use of behavioural models provides framing for the research and while many alternatives are offered, the integrated nature of the behavioural reasoning theory, chosen for this study affords a more complete picture. While the reasons construct in the model uncovers the context in which the behaviour operates, it indicates the factors influencing behaviour. The final piece of the puzzle, exposing the circumstances in which the behaviour occurs is addressed by the application of competitor analysis. Competitor analysis exposes both the implicit and explicit nature of competition unique to the target behaviour. The next chapter presents details of the methodology employed throughout this study.

Chapter Three

Research Methodology

3.0 Introduction

This chapter provides details of the research design chosen to address the primary question and secondary objectives of this study. The philosophical approach adopted in this research set out to answer the following question:

What is the value-action gap for recycled products and how does an understanding of values and reasons contribute to realising pro-environmental shopping behaviour in a competitive retail setting?

Given the multi-faceted nature of the research question and informed through a review of the literature, a research philosophy of pragmatism combining the philosophies of interpretivism and positivism was chosen for this study. The research design involved a two-phase, sequential mixed methods study, commencing with a qualitative phase then progressing to a quantitative phase (Figure 3.1).

This chapter provides an outline of the research design beginning with an overview of the research question and objectives followed by a description of the philosophical approach taken. The subsequent section provides an overview of the research design and lists the procedures of inquiry. The chapter then goes on to explain the strategies and specific techniques adopted within each of the empirical phases of the research. The qualitative and quantitative phases of the sequential mixed methods study are explained, from method selection to sampling to data collection and data analysis.

Literature review	Social marketing and CBSM
	Value-action gap and behavioural reasoning theory (BRT)
	Competition in a social marketing context
Phase 1 - Qualitative	Household consumers (Focus group and In-depth interviews)
	Industry stakeholders (In-depth interviews)
Phase 2 - Quantitative	Household consumers (National survey)

Figure 3. 1: Research overview

3.1 Research gap and objectives

This study set out to examine behavioural change for a circular economy, specifically, the value-action gap for recycled paper products. There is a lack of understanding around the value-action gap for recycled paper products and the role played by values and reasons in realising pro-environmental shopping behaviour in a competitive retail setting. Summarised in Table 3.1, four secondary objectives were chosen to assist in answering the primary question and to address the research gaps.

Research objective 1

To identify the context specific reasons in the value-action gap for recycled paper products.

The first objective dealt with the concept of reasons. Reasons serve as a justification for an action and are personal to an individual and situation and therefore must be collected within a specific study (McKenzie-Mohr and Smith, 1999; McKenzie-Mohr, 2000). The purpose of the first objective was to determine the reasons why some households buy recycled paper products and others don't. This objective was addressed during the quantitative phase when the context specific reasons were identified. The reasons identified were then used to create item scales for the survey instrument used in the quantitative phase.

Research objective 2

To examine the extent to which the behavioural reasoning theory model explains the linkages between values, reasons, intention and shopping behaviour for recycled paper products.

The second objective set out to test Westaby's (2005) behavioural reasoning theory (BRT) model's ability to explain the value-action gap for recycled products. The model highlights the linkages between values, reasons and behaviour intention but was previously untested for routine shopping behaviour in a retail setting. The measures used to test the model are described in Chapter Five.

Research objective 3

To determine the role of competition in realising pro-environmental shopping behaviours for recycled paper products.

This objective addressed another gap identified during the literature review. Competitor analysis within social marketing and specific to pro-environmental purchasing behaviour is a relatively new field of research and required exploratory research (Kubacki *et al.*, 2015). The purpose was to identify the perceived competing pressures faced by individuals when buying recycled products. Exploratory research in the qualitative phase helped identify the external and internal competitive forces in this context (see section 3.5.6). Three measurement scales were created and subsequently tested in the quantitative phase (see Chapter Four).

Research objective 4

To explore industry-wide systems gaps influencing the value-action gap for recycled paper products.

The final objective addressed the contextual or systems-based gaps in the paper products industry. Initial research pointed to other influences outside the individual which were context and systems driven. To complete the picture therefore, it was deemed useful to explore the role of the system and its participants in contributing to the value-action gap (see Chapter Four).

3.2 Research Philosophy

A clear understanding of the research philosophies, worldviews and the ontological and epistemological considerations although largely hidden (Wilson and Stutchbury, 2009) help to define the chosen paradigm, which ultimately influences the design of the study. Saunders, Lewis and Thornhill (2012, p. 129) describe the underlying philosophy as the outer layer of an onion and is sometimes viewed as just as useful. Having a clear understanding of this outer layer explains the chosen strategies and approaches which follow. The selected strategies and approaches were guided by the primary research question and secondary questions set out in the previous section.

3.2.1 Ontological and epistemological considerations

Beginning with the ontological considerations, determined by whether the researcher believes that the reality of the subject in question is objective or subjective, as defined by Burrell and Morgan (1979, p. 1) for example:

'Social scientists, for example, are faced with a basic ontological question: whether the 'reality' to be investigated is external to the individual – imposing itself on individual consciousness from without - or the product of individual consciousness; whether 'reality' is of an 'objective' nature, or the product of individual cognition; whether 'reality' is a given 'out there' in the world, or the product of one's mind.'

The assumptions underlying the ontological and epistemological considerations are not clear cut in this research. One piece of the puzzle is unquestionably tied to individual or personal cognition, i.e. the personal values and reasons underlying the existence of the value-action gap for recycled products. This personal cognition is a subjective point of view and calls for an examination of subjective realities. This then suggests a more qualitative or mixed methods approach to gathering the data. At the same time, measuring the values and reasons influencing the value-action gap within the population is one which clearly exists and can be measured. This would point towards an objective view of the subject in question. This presents a dilemma for the

researcher, when the ontological underpinnings are not clearly one or the other and instead fall somewhere along the continuum between objectivity and subjectivity (Doyle, Brady, and Byrne, 2009, p. 177).

Therefore, the ontological perspective adopted in this methodology is a dualistic one, i.e. one which adopts a multiple paradigm approach, blending subjectivity and objectivity (Burrell and Morgan, 1979; Saunders, Lewis and Thornhill, 2012). During the qualitative phase the underlying philosophy was one that assumed that a better understanding of this question would necessitate asking the people involved about their experiences i.e. why the gap exists and what the 'reasons for' this gap are. The quantitative phase is based on the assumption that a set of data exists which can be measured and recorded, prompting an objective approach.

Epistemological considerations are the second set of assumptions which relate to the study of knowledge and how it is obtained (Jackson, 2013). As Jackson (2013) points out this is 'central to the choice of methodology'. An epistemological continuum exists from positivism to anti-positivism (Burrell and Morgan, 1979) also known as positivism – interpretivism. This study begins with an interpretivist approach moving onto a more positivist perspective.

3.3 Research design

The chosen research design set out to answer the research question and supporting objectives. Divided into two distinct phases, this study employed a number of data collection techniques focusing on two target populations; individuals/household shoppers and industry stakeholders. Qualitative data on household shoppers in Ireland was collected using an exploratory focus group followed by in-depth interviews. Data on industry stakeholders was collected using key informant interviews. The qualitative data was analysed and then used to inform the development of a data collection instrument in the quantitative phase, involving a national survey of household shoppers in Ireland (Creswell and Plano Clark, 2007).

When the research question is ontologically and epistemologically multi-dimensional in nature requiring both quantitative and qualitative methods to tell the whole story, then a mixed methods research design is chosen to conduct the study. With a relatively recent history dating back to the mid 1980's, the growth in mixed methods research presents an opportunity for a holistic approach to addressing the research question. Incorporating qualitative and quantitative approaches in one study balances the pros and cons of the two methods. Described as the 'third wave' research movement, mixed methods research is defined by Johnson, Onwuegbuzie and Turner (2007, p. 123) as:

'Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the purposes of breadth and depth of understanding and corroboration.'

Mixed methods research may also be used for triangulation purposes, to facilitate further discoveries or widen the diversity of views within the study. As Greene, Caracelli and Graham (1989) and Creswell (2011) acknowledge, the most often cited reasons for using mixed methods research which includes completeness, confidence and to support interpretation. Details of the research design for this study are presented in the following section. According to Creswell and Plano Clark, (2007, pp. 26-27) there are three paradigm stances discussed in mixed methods research. The first is a view that there is no one best paradigm that fits this type of research i.e. pragmatism. The second stance is one where multiple paradigm can be used and the final view is that the worldview relates to the study design and may vary. The mixed methods sequential design chosen for this study consisted of two phases (Figure 3.2), an exploratory qualitative phase followed by a quantitative phase (Morse, 2003).



Figure 3. 2 : Exploratory mixed methods

The rationale for choosing sequential mixed methods research in this research design combines initial exploratory qualitative research followed by a quantitative phase. The qualitative phase exploring the reasons and competitive context informed the design and development of the research instrument applied in the second phase. Qualitative research was essential to identify the unknown variables. Qualitative data was collected, analysed and then used to inform the development and implementation of a data collection instrument in the second quantitative phase (Creswell and Plano Clark, 2007). The quantitative phase involves a national survey absorbing the results from the initial qualitative phase. Final interpretation included both the qualitative and quantitative phases (Figure 3.3).

Table 3. 1: Research design – mixed methods research

	Study Objectives	Target Population	Sampling and data collection method	Analysis method
Qualitative Phase	<p><i>RO 1: To identify the context specific reasons in the value-action gap for recycled paper products.</i></p> <p><i>RO 3: To determine the perceived competing behaviours to pro-environmental shopping behaviour and buying recycled paper products.</i></p> <p><i>RO 4: To explore industry-wide systems gaps influencing the value-action gap for recycled paper products</i></p>	<p>Individuals/household shoppers</p> <p>Individuals/household shoppers</p> <p>Industry stakeholders</p>	<p>Snowball sampling Exploratory focus group and in-depth interviews</p> <p>Purposive sampling In-depth interviews</p>	Thematic analysis
Quantitative Phase	<p><i>RO 2: To examine the extent to which the BRT model explains the linkages between values, reasons, intention and shopping behaviour for recycled paper products.</i></p> <p><i>RO 3: To ascertain the role of competition in realising sustainable shopping behaviours for recycled paper products.</i></p>	Individuals/household shoppers	<p>Stratified sampling (national Survey) Online questionnaire</p>	<p>Structural equation modelling</p> <ul style="list-style-type: none"> - Confirmatory factor analysis - Path analysis

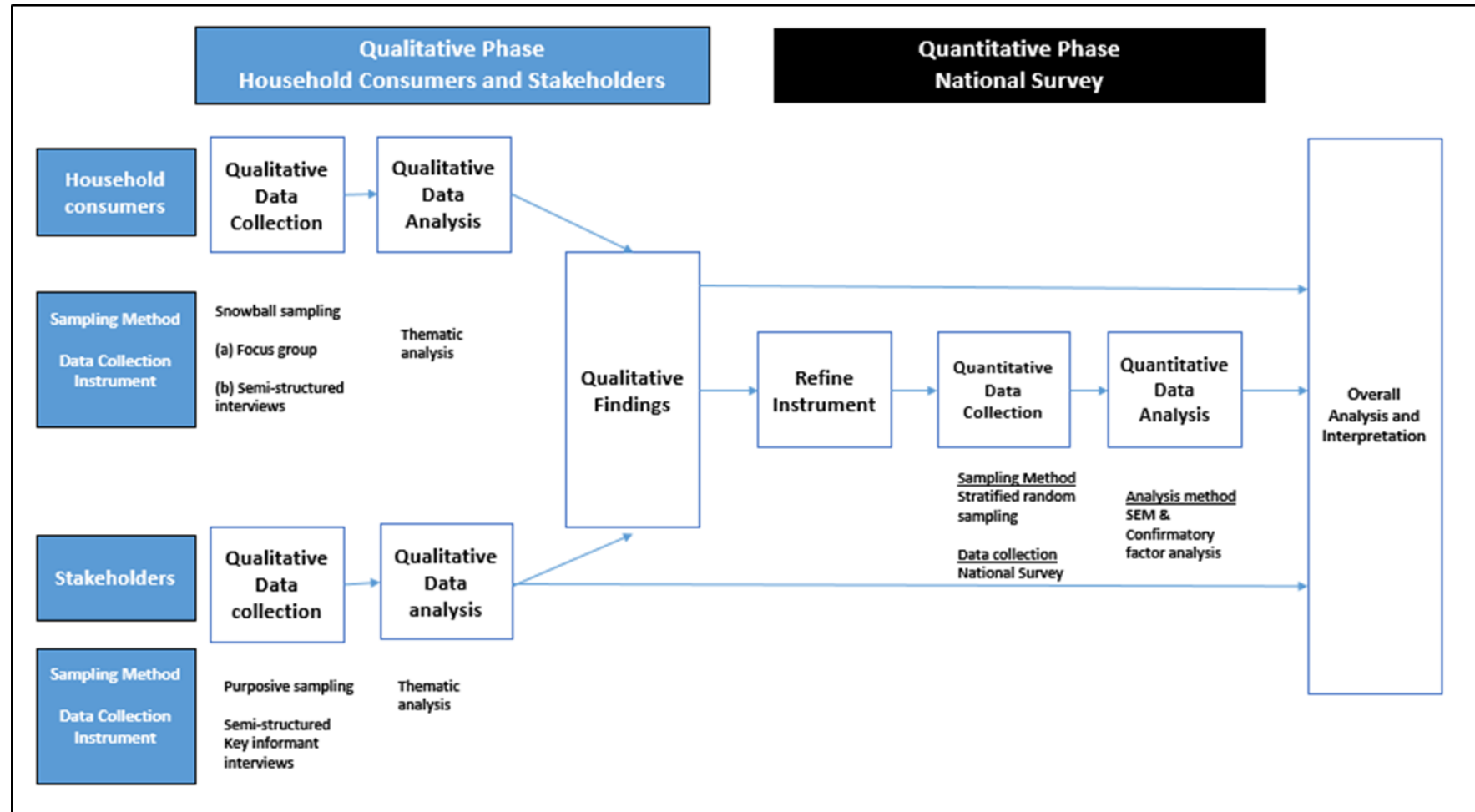


Figure 3. 3: Research Methodology

3.4 Qualitative phase

In the first phase, qualitative research was employed to examine two key concepts of reasons and competition. 'Reasons for and against' engaging in a behaviour are context specific and idiosyncratic and must be identified in the specific situation (Jackson, 2005; McKenzie-Mohr and Smith, 1999). Identifying the reasons why some individuals engage in pro-environmental shopping behaviour and others don't provides important information to understand the behaviour. The second concept investigated was the nature of competition in pro-environmental shopping behaviour. The purpose of which was to identify perceived competition to pro-environmental shopping behaviour. The views of both household shoppers and industry stakeholders were gathered in this phase.

The qualitative phase involved the use of an elicitation technique as recommended by Westaby (2005) when applying the behavioural reasoning theory. This method encourages respondents to share their views on more complex concepts using alternatives to direct questioning (Barton, 2015). The purpose of the elicitation study was to explore the concepts under investigation and to solicit the beliefs relevant to the behaviour under investigation from a sample of the target population(s) (Westaby, 2005; Westaby *et al.*, 2010; Claudy *et al.*, 2013). The techniques employed in this study were informed by the belief elicitation method used by Westaby, Fishbein and Aherin (1997) and based on the approach used in the application of the theory of planned behaviour (Ajzen, 1991). Details of the sampling plan follow and specifics relating to the elicitation method employed are described in greater detail in section 3.4.6.

3.4.1 The sampling plan

The target populations under investigation in the qualitative phase include individuals/household shoppers and key industry stakeholders. In the following section, the methods used for each population will be discussed separately.

Household shoppers

This study was interested in household shopping behaviour around recycled paper products. The purpose of individual research was twofold; first to garner the reasons used to justify their decision to buy or not buy recycled paper products and secondly to identify perceived competition to that behaviour. A household is defined by the Central Statistics Office (2018) as *‘a single person or group of people who regularly reside together in the same accommodation and who share the same catering arrangements. The household members defined in this fashion are not necessarily related by blood or by marriage’*. Household shoppers are defined in this study as members of a household with complete or partial responsibility for household grocery shopping for those residing in the household in the Republic of Ireland.

Industry stakeholders

The second population of interest was industry stakeholders, i.e. an organisation with an interest or stake in the industry. Industry stakeholders are members of the industry under investigation. This includes not only the producer and retailer but also any other organisation with a stake in the industry. A closer look at the industry from production through to consumption and waste management would indicate a not insignificant system (Euromonitor International, 2018). The purpose here was to gather broad industry data with a view to capturing an industry-wide view of reasons and competition. The industry in question is the recycled paper products industry. Each industry group represents a different area of expertise and point of view in the industry.

Key stakeholders are experts in the field of interest (Marshall, 1996) as they possess specialized knowledge and have a unique perspective of the area of interest. As Tremblay (1957, p. 689) states *‘in using key informants, one chooses them strategically, considering the structure of society and the content of the inquiry’*. While the central objective of the key stakeholder research was to explore reasons and competition from the industry and context perspective, this population also served the purpose of gathering details on the operation of the system for recycled

paper products; provided clarity around the stakeholders' role in the system and system members' opinions.

3.4.2 The sampling frame and sampling method

Non-probability sampling was employed in the qualitative phase for both target populations.

Household shoppers

A complete sampling frame for the target population was not directly available and was neither practical nor feasible to compile a complete list of the target household shoppers in the Republic of Ireland. Identification of suitable household respondents was achieved through the means of a snowball sample using predetermined criteria (section 3.4.3). The snowball sampling technique (Handcock and Gile, 2011) consisted of identifying initial respondents who fit the inclusion requirements who were then asked to identify further respondents. This technique was applied to sourcing participants for the focus group and the in-depth interviews. The resulting sample did not represent any specific population but included a range of different demographic profiles. Participants included in the focus group were not included in the in-depth interviews. The snowball sample had the practical advantage of speed of access to respondents while removing the time consuming and unnecessary random selection approach (Bryman and Bell, 2007).

Industry stakeholders

While a sampling frame does not exist for industry stakeholders, it was possible to compile a proposed list or indirect sampling frame for the stakeholder sample. The initial sampling frame was compiled using a range of secondary sources to identify the stakeholders operating in the industry, including; Kompass 2018, Enterprise Ireland, IDA Ireland, the Companies Registration Office and yourlocal.ie. Purposive sampling was then employed to identify the key stakeholders and selection was based on pre-determined criteria (section 3.4.4). In a system where individuals buy recycled paper products, there are many different stakeholders with different levels of interest and

different perspectives on the system. The choice of key informant was crucial to the process.

3.4.3 Sampling criteria

Sample selection criteria was informed by the literature and previous similar studies into reasons and competitor research. The following section outlines the inclusion and exclusion criteria for both target populations.

Household shoppers

The only inclusion and exclusion requirement of the sample was that each member was responsible for or had some responsibility for the household grocery shop which was determined by a screening question. Ranging in age, family size, place of residence in and gender the sample represented a broad range of households in Ireland. The following were excluded from the sample: a person not responsible for any part of the household grocery shop and those under the age of 18 years. Respondents who took part in the initial data collection methods were not eligible to take part in the preceding data collection phases.

Industry stakeholders

As recommended by Tremblay (1957), key informants were chosen strategically, in line with the nature of the subject under investigation and the system itself. The criteria used for selection employed was that recommended in the literature i.e. *role in the industry, knowledge, willingness, communicability and impartiality* (Tremblay, 1957; Marshall, 1996). An initial list of key stakeholder groups, both primary and secondary, were identified using secondary sources and referrals. Representatives from each stakeholder group were contacted and requested to participate in the research.

Using the five criteria of eligibility suggested by Tremblay (1957) and employed by Marshall (1996), the key informant's role in the recycled paper products industry is the only one which can be predetermined. The remaining criterion of willingness, knowledge, communicability and impartiality were judged in the field and included or

excluded as required. The main criteria for selection therefore, was their role and position within the industry that exposes them to the information required by the researcher. The first step in selecting the key informants involved identifying organisations involved in the industry, followed by the identification of the appropriate member of the organisation. In this case, the industry is defined as the paper products industry which includes primary and secondary stakeholders.

Hult *et al.* (2011) provide a stakeholder identification framework which includes primary and secondary stakeholders. Using the list provided by *ibid.* along with various depictions of the circular economy and the process of making and distributing recycled paper products, a preliminary list of key informants was identified (European Commission, 2015b) as shown in Table 3.2.

Table 3. 2: Primary and secondary stakeholders

<i>Primary Stakeholders</i>	<i>Secondary Stakeholders</i>
Retailer/ Speciality retailers	Waste Management/ disposal companies
Paper product producers	NGO's
Suppliers/distributors	Special interest groups
	Pulp paper producers

The final sample included ten stakeholders representing both the primary and secondary divisions of the industry. The inclusion criteria were deemed to be role specific; this is due to the nature of the activity of the stakeholders and their role in the recycled paper products industry. In retailing for example there are a number of roles that need to be examined including purchasing and the responsibility for these roles might fall to different individuals depending on the size of the organisation and the function. In order to identify the key experts, a representative organisation from each stakeholder group was identified and contacted. Initial contact was made with the purpose of identifying the most suitable individual to target for interview. This process was repeated within and for each stakeholder group with an emphasis on the primary stakeholder groups. As the industry includes various and diverse groups, the method of identifying key informants was determined by accessibility to organisations and the relevant individuals.

3.4.4 Data collection methods

The data collection methods used in the qualitative phase are presented in this section.

Household shoppers

This research began with the single exploratory focus group to examine the nature of the topic under investigation, it was then followed by a series of in-depth interviews (Creswell and Plano Clark, 2007; Krueger and Casey, 2014). The focus group was chosen for its exploratory nature and its ability to gather insights into the topic under investigation (Domegan and Fleming, 2007). The focus group served to begin the process of building a bank of reasons and opened the discussion on competitive behaviours. The single focus group was chosen as a preliminary data collection method and a precursor to the in-depth interviews and helped inform the design of the interview schedule. Participants in the in-depth interviews did not include the seven members of the focus group.

One to one in-depth household interviews (n=19) following the exploratory focus group (n=1) allowed for further probing of the issues with an increasing number and range of respondents. The advantage of flexibility with in-depth interviews afforded the researcher the opportunity to gather rich, detailed data for analysis. Semi-structured interviews were chosen while *'the researcher has a long list of questions on fairly specific topics the interviewee has great leeway in how to reply'* (Bryman and Bell, 2007, p. 474) An interview schedule (section 3.4.6) served as a guide to the key issues for discussion and respondents were encouraged to explore the issues with limited restrictions.

Industry stakeholders

Data on industry stakeholders was gathered through a series of key informant interviews. Key informant interviews were chosen for this phase of the research as Marshall (1996, p. 92) said 'a key informant is an expert source of information'. Tremblay (1957, p.688) explains the purpose of the key informant interview as a technique: 'pre-eminently suited to the gathering of the kinds of qualitative and

descriptive data that are difficult or time consuming to unearth through structured data gathering techniques such as questionnaire surveys’.

By targeting key experts within the paper products industry, the technique offered the advantage of speed of collection and a more targeted approach to data collection in comparison to in-depth interviews with general members of the community. The criteria used to determine the samples chosen are set out in the next section.

3.4.5 Sample size

The sample size for each of the methods employed in the qualitative phase are as follows; one exploratory focus group with seven participants, nineteen in-depth interviews and ten key informant interviews.

Household shoppers

The exploratory focus group comprised of seven participants. The group included a demographic profile including male and female respondents, between the ages of thirty and seventy-five years old, living in urban and rural residences and with differing sized households. Participants were nominated through a network of individuals based on personal recommendations.

The sample size of nineteen for the qualitative interviews was determined through a combination of achieving data and theme saturation. The sample size was also informed by reviewing sample sizes adopted in comparable studies using the behavioural reasoning theory (Claudy, Peterson and O’Driscoll, 2013; Norman, Conner and Stride, 2012; Westaby *et al.*, 2010). Interviews ceased on reaching data saturation point. Data and theme saturation was determined when the point at which no new variations or themes were identified in the sample (Guest, Bunce, and Johnson, 2006).

Industry stakeholders

Ten key informants were interviewed in this study, representing a reasonable sample of industry members and meeting the typical and recommended sample size for key informant interviews of ten to fifteen interviews (Tremblay, 1957; Marshall, 1996). Representatives of the grocery retailers and suppliers’ groups were invited to

participate in the study, alongside manufacturers, waste management companies, relevant government agencies and NGO's. The sample selected was based on the inclusion of a range of key informants within the system. A list of the interviewees and their role in the industry can be found in Appendix C.

3.4.6 Data collection methods and fieldwork

The process adopted for each of the data collection methods in the qualitative phase is explained in detail in this section from data collection instrument design through to pilot testing and fieldwork procedures.

Focus group

The focus group served to investigate the two key objectives of reasons and competitor research and acted to inform questionnaire design in the quantitative phase. The nature of this type of focus group allowed for the interaction between the participants and the opportunity to discover additional data not available through individual face to face interviews. The focus group plan involved five phases similar to that recommended by Krueger and Casey (2014). A variety of statements were used including open questions, picture sorting and rating. Throughout the session, the techniques of pausing and prompting were used to allow for further contributions and to prompt for clarity or additional information. The interview schedule and information sheet were pilot tested on two individuals in advance of the focus group.

The focus group took place in the Annaverna room in the library building of Dundalk Institute of Technology on 5th December 2016. Verbal invites were issued to participants two weeks in advance and were followed up with a written confirmation and information sheet (See Appendix A). Seven participants took part in the discussion, five female, two male, one person could not attend and sent their apologies. The focus group session was recorded for transcript-based analysis. This was supplemented with field notes collected by the assistant moderator, the oral summary and notes made following the debriefing immediately after the session. Photographs of the session were taken as a record with agreement from the

participants. Details of responses to each task were collected and saved in separate folders. A copy of the focus group script is contained in Appendix B.

In-depth interviews

Following the focus group, a series of nineteen qualitative interviews using a semi-structured interview guide was employed to collect data. The qualitative interviewing approach afforded the interviewer the ability to gather rich detailed data in a flexible format. This data collection method while offering many benefits, is also subject to some criticisms including the risk of subjective bias, an inability to generalise findings and problems with replication (Bryman and Bell, 2007, p. 423) and due to its unstructured nature can result in respondents going off onto unrelated topic or tangents. Comprehensive preparation of the data collection instrument and field strategy sought to address these risks. The interview schedule prepared for the in-depth interviews provided a checklist of relevant topics, specific focus questions and prompts while also allowing some flexibility in the conduct of the interview (see Appendix B for more detail). The interview schedule was divided into four sections and are explained below.

Section one – Opening questions

The opening section of the interview began with a screening question to confirm respondent suitability for inclusion in the sample. Once eligibility for household shoppers had been established, the screening question was followed by some warm up questions relating to household shopping habits. The purpose was to put the respondents at ease and to explore the household shopping behaviour of the sample. Respondents were asked about their usual household shopping behaviour and specifically whether any paper products were included in the weekly shop.

Section two – Belief elicitation method (Westaby et al., 1997)

The second section of the interview involved eliciting views on 'reasons for and against' pro-environmental shopping behaviour. This phase set out to establish the reasons used to justify behaviour in this situation. As Westaby (2005, p.100) stated reasons motivate behaviour because they help people justify and defend their

actions. The reasons construct plays an important part in testing the behavioural reasoning theory in the quantitative phase. Identifying reasons however is not a simple, straightforward task and requires the use of an elicitation technique of indirect questioning. Westaby, Fishbein, and Aherin (1997) in their test and application of reasoning theory identified an elicitation approach based on the procedures employed by Ajzen (1991) within the theory of planned behaviour. This approach is believed to be more relevant than simply asking why people behave in a particular way. Self-reporting reasons can prove difficult to assess and therefore the approach employed by Westaby *et al.*, (1997) in their research into chemical glove wearing in occupational behaviour, found this method to be more meaningful than simply requesting reasons.

The belief elicitation method used is based on the belief categories of **behavioural, normative and control** and uses the ***belief elicitation method*** from theory of planned behaviour (Ajzen, 1991) where reasons were gathered by asking participants a series of pertinent questions. Behavioural beliefs were collected by asking the respondent for the *advantages and disadvantages of performing a particular behaviour*. The second type of beliefs, normative beliefs refer to individuals' beliefs about the extent to which they think other people important to them should perform the behaviour. Finally control beliefs were measured by asking what *barriers or obstacles* might prevent someone from performing the behaviour (Westaby *et al.*, 1997, p. 486). These three beliefs combined provided a more precise method of eliciting the 'reasons for and against' the behaviour. Details of the questions asked can be found in the interviews schedule (Appendix B).

Section three – Competition

Questions used here were exploratory and open ended and reflected three levels of competition identified by Andreasen (2002) and Noble and Basil (2011) from an abstract to specific level. This section included three questions, the first required the respondent to identify what they perceived as competing influences on pro-environmental household and shopping behaviours (enterprise level competition); the second question explored the respondent's knowledge of competing brands

(product level competition) and the final question in this section gathered information on the preferred brands which went to identify the direct competition (brand level competition).

Section four – Demographics of the sample

Finally, the study gathered demographic data on the sample including age, gender, occupation and household size.

The interview schedule was pre-tested on two individuals responsible for the household shop in Dundalk, in November 2016. The pre-test identified questions which required rewording and further prompting. It also resulted in the exclusion of questions which were not required. The interview schedule was then pilot tested on a further three individuals in December and January 2017. Final changes were made to the interview schedule and the interviews commenced January 2017. In-depth interviews (n=19) were conducted over a five-month period between January and May 2017. The interviews were held in many venues in Dublin, Dundalk, and Drogheda in the East and North East counties in Ireland. Interviews continued until theme saturation was achieved when no new themes or information could be obtained from the data. Each interview including the pilot interviews were recorded with permission.

Industry stakeholders - Key informant interviews

The stakeholders were identified as primary and secondary stakeholders. Primary stakeholders have a central role in the industry for recycled paper products: retailers, distributors and paper products manufacturers and have the most power and influence in the recycled paper products industry. Secondary stakeholders also play a role in the industry but are less evident in the shopping context. For instance, waste management companies, special interest groups, governmental organisations and pulp paper manufacturers have a role but this is somewhat peripheral to the core industry activities.

Following pre-test, it was clear that identification of key informants would have to be customised for each stakeholder group. Initial contact with the stakeholder

organisation was either by telephone or email and once the agreement of participants was received, it was followed up with the provision of the key informant information sheet by email or mail (Appendix A). The interview format was either face to face, phone or VoIP call at a time and place convenient to the respondent. The format for the key informant interviews was in-depth interviews. An interview schedule was developed with the support of the literature in the field and results from the focus group and in-depth interviews. Broad thematic areas were used to inform the list of topics for discussion and a separate interview schedule was developed for each stakeholder group (Appendix B). The key informant sheet and interview schedule were pilot tested on a former buyer with a major UK retailer in Ireland and the schedule was subsequently edited to reflect industry specific prompts in section one. The ten key informant interviews took place over a two-month period from February and March, 2018.

There were three main sections to the interview schedule, the purpose of the first section was to explore the role of the stakeholder in the paper products industry, and this section was altered to suit the target respondent. The interview schedule was tailored to each key informant interview due to the variety of stakeholders and the distinctive nature of their roles i.e. section two. Each interview began with a number of fact-finding stakeholder specific questions. These questions sought to clarify the operational aspects of each specific part of the system. Central to the interview were the key questions relating to the issue of reasons and competition. This next section examined the perceived 'reasons for' and 'reasons against' buying recycled paper products and uncovering what might be stakeholder driven barriers to the behaviour. The final section set out to investigate competition to the behaviour as identified by the stakeholders. Finally, all stakeholders were asked to identify ways in which individuals might be encouraged to make more pro-environmental choices when they shop. Probing questions were employed to encourage further reflection by the participants and to add depth to the data. The interviews concluded with closing comments and a summary.

3.4.7 Data analysis

When all the data was collected from household shoppers and industry stakeholders research, it was then transcribed into NVivo 11 software and the process of data analysis began. The analytical approach adopted for the qualitative phase of this research was similar for both target populations using thematic analysis based on six step process of Braun and Clarke (2006). Ibid. offer this framework to the most widely used approach to qualitative analysis. Adopting an inductive, data driven thematic approach allowed for the identification of themes across the data set in the first phase:

‘A theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set.’ (Braun and Clarke, 2006, p. 10)

The advantage of using this analytical technique lies in its flexibility in application and allows for a detailed and structured approach to analysing a data set (Braun and Clarke, 2006; Guest, MacQueen and Namey, 2012). It is also quick and easy to use and is a more accessible approach to qualitative data analysis. While its flexibility is often cited as an advantage it might also be viewed as a disadvantage as it could lead to inconsistencies in the analysis and a lack of cohesion (Nowell *et al.*, 2017, p. 2). Compared to other more established qualitative approaches such as grounded theory or ethnography, there is often some doubt as to the rigorousness of this approach. To address this issue, this research adopted the step by step approach to ensuring rigor offered by Ibid. based on the criteria recommended by Guba (1981) and Guba and Lincoln (1994).

Computer aided qualitative data analysis software (NVivo 11)

Throughout the data analysis NVivo 11 (CAQDAS) software was employed to support data capture, coding and thematic analysis (QDA Training, 2013). Data gathered during the focus group and in-depth interviews were transcribed into NVivo 11. Key literature relating to the topics under investigation were uploaded into the software to allow for integration of the data. The benefits gained by using NVivo software

included the storage, organisation, integration and management of the data (Saldana, 2009) throughout the analysis.

Table 3.3 presents a summary of the phases, the analytical strategy and its application within NVivo and presents the method used to meet criteria for trustworthiness.

Table 3. 3: Qualitative data analytical strategy

Phases of thematic analysis (Braun and Clarke, 2006)	Application of thematic analysis in NVivo 11 software (QDATraining.eu, 2013) – Day 1 & 2 NVivo workshop manuals)	Means of establishing trustworthiness (Nowell <i>et al</i> , 2017)
1. Familiarising yourself with the data 2. Generate initial codes 3. Search for themes 4. Reviewing themes 5. Defining and naming themes 6. Producing the report	<p>1. All recordings, field notes and relevant literature imported into NVivo. Transcribing focus group and in-depth interviews into NVivo.</p> <p>2. Initial open coding process applied to each data collection method. Reading and reviewing data for initial codes. Descriptive and attribute coding applied. (Stages 1 & 2 – data management)</p> <p>3. Initial codes from focus group and in-depth interviews merged. Second cycle coding applied searching for themes and patterns across the codes. Codes were then categorised into candidate themes.</p> <p>4. All codes are reviewed and checked against the data extracts. A thematic map is generated from the candidate and subordinate themes. Analytical memos are produced, incorporating results of various coding queries. (Stages 3 & 4 – descriptive accounts)</p> <p>5. Following the review, each theme is clearly named, scope and content is defined.</p> <p>6. The report is produced from the analytical memos, data extracts and thematic map. (Stages 5 & 6 – Analytical accounts)</p>	<p>Prolonged engagement with the data – researcher acted as moderator, interviewer, transcriber and analysed data Triangulation of methods -two data collection methods used – focus group and in-depth interviews. Initial thoughts documented in analytical memos and field notes. All raw data stored separately outside software.</p> <p>Reflective journal entries following each interview. Audit trail of each stage of coding accessible through NVivo. Codebooks generated for each stage of coding (See Appendix D).</p> <p>Analytical memos written to support the analysis. Theme map generated to reflect candidate and subordinate themes.</p> <p>Themes and subthemes reviewed. Documentation of all theme names. Peer review of themes (see Appendix E).</p> <p>Detailed description and evidence of data coding at all phases Thick description of context Evidence of audit trail</p>

Sources: Braun and Clarke (2008); QDA Training (2013a, 2013b) and Nowell *et al*. (2017)

The search for themes (Braun and Clarke, 2006) began during data collection when the researcher noted interesting or pertinent comments in their field notes. Analysis continued through each phase including transcription, first cycle and second cycle coding until themes were determined through an iterative and reflective process. Analytical memos were generated as the data was questioned at each phase. Throughout this process, reliability and validity (trustworthiness) was established applying the method suggested by Nowell *et al.* (2017, p. 4).

Step one: Familiarizing yourself with the data

Data was gathered using two data collection techniques; an exploratory focus group and in-depth interviews with individuals and industry stakeholders. As moderator, interviewer and transcriber for this phase, the researcher established deep familiarity with the data by allowing time to read, write, re-read and clarify. This engagement afforded complete immersion in the data. Field notes were generated at this phase as well as early analytical memos, a sample of which can be seen in Figure 3.4. Highlighted points of note were identified for further investigation.

Name	Sources	References
Competition	0	0
1. Generic level c	11	26
2. Enterprise level	17	128
3. Product level C	17	199
4. Brand level Co	17	180
Entity based	17	100
Non-entity ba	17	68

Drag selection here to code to a new node

Brand level competition Click to edit

This is level 4 of the competition
This points to specific topic area, the most narrow focus of analysis.

What competes directly with recycled paper products on the shelves i.e. brands that customers prefer,
Commercial competition
Other preferred brands
Habitual purchases
Choice or range available
Named brands
Alternative products and perhaps non-usage
Labelling confusion??

The literature says:
(Noble and Basil 2012)

"Brand represents the final level of analysis. This stage addresses competition for the choice of specific behaviours. **For the individual social marketer, at the brand level, competition represents the other behaviours their target may choose over the behaviour they are advocating.** Our competition matrix can be applied to this level of competition as well (see Figure 9.6). **This is the most concrete level of application.** At this level competitors should be identified as specifically as possible. It is not sufficient to identify 'sedentary video games' as a competitor at this level, for

Figure 3. 4: Analytical memo in NVivo on brand level competition

Step two: Generate initial codes

The second phase involved the initial coding based on the ideas emerging in the data set. The data was addressed from the perspective of the two central constructs i.e. reasons and competition. Initial coding methods used were descriptive and attribute coding (Saldana, 2009, p. 48). Attribute coding was facilitated and simplified by the use of computer aided qualitative data analysis (NVivo 11) with regard to the data collected on individuals/household shoppers; initial coding was conducted on the focus group data in isolation from the interview data. The initial codes were merged at the second stage. All initial codes were then recoded through a second cycle of coding. The second cycle of coding used was pattern coding described by Miles and Huberman, (1994, p. 69) as 'explanatory or inferential codes, ones that identify an emergent theme, configuration or explanation'. An overview of the stages of coding can be seen below (Table 3.4).

Table 3. 4: Stages of coding for reasons construct

<i>Open coding</i>	<i>Second cycle</i>	<i>Final coding</i>
Apathy	Apathy	Lack of interest
Availability and choice	Availability and choice	Lack of availability and choice
Cost/price of product	Cost/price of product	Cost/price of product
Mistrust/scepticism	Mistrust/scepticism	
Not obvious	Can't find them	Can't find them
No reason	No reason	
Not suitable for some people	Not suitable for some people	
Oblivious	Never thought about it	Never thought about it
Product features		
Poor quality	Poor quality	Poor quality
Special offers		
Traditional or habitual purchases	Traditional or habitual purchases	Traditional or habitual purchases

Step three: Searching for themes

After initial and second cycle coding, the search began to identify themes from the data. Second cycle codes were reviewed and collated as overarching themes were identified in the data. As this phase progressed second cycle codes were divided into two overarching subjects of 'reasons' and 'competition' and where each of the

relevant codes were assigned to either of these categories. Further analysis and refinement included an iterative and reflective process (see Figure 3.5).

Find

Quick Coding ▾

Detail View

Undo All

Close All

Bookmarks

Close

Layout ▾

Window

List View ▾

List View

Coding Stripes ▾

Coding

Highlight ▾

See Also Links

Links

Relationships

Classification ▾

Report ▾

Detail View

Next

Reference

Colours

Screenshots

Visualisation

Workspace

des

Look for

Search In ▾

Competition

Find Now

Clear

Advanced Find

Nodes	Competition					
First Cycle Coding	Name	Sources	References	Created On	Created By	
Second Cycle Coding	Non-entity based - Internal to the individual or		10	20	07/05/2018 20:05	
Thematic Analysis	Its only something the rich can do		4	4	07/05/2018 20:05	
Competition	Lack of engagement		2	3	07/05/2018 20:05	
Industry Analysis	Somebody elses problem		3	3	07/05/2018 20:05	
Cases	Saving money		1	2	07/05/2018 20:05	
Focus Group	Never give it a thought		1	1	07/05/2018 20:05	
Interviews	Take the choice away		1	1	07/05/2018 20:05	
Key Informant Interview	Poor education levels		1	1	07/05/2018 20:05	
Relationships	Everybody needs to be onboard		1	1	07/05/2018 20:05	
	Its a cultural thing		1	1	07/05/2018 20:05	
Sources	Entity based		6	13	07/05/2018 20:05	
Nodes	Promotion and advertising		2	4	07/05/2018 20:05	
Classifications	Litter		2	4	07/05/2018 19:54	
Collections	Nature		3	3	07/05/2018 19:54	
Queries	Schools and role of education		2	2	07/05/2018 20:05	
Reports	Government responsibility		1	1	07/05/2018 20:05	
Maps	Legislation		1	1	07/05/2018 20:05	
	Farming		1	1	07/05/2018 20:05	
	Public sector organisations		1	1	07/05/2018 20:05	

Figure 3. 5: Screen shot of thematic analysis

Step four: Reviewing themes

Once candidate themes were established, the next step involved reviewing these themes for clarity and distinctiveness. Often at this stage some of the candidate themes may collapse into another or separate (Braun and Clarke, 2006, p. 20). There are two aspects to this phase: firstly, checking the coded extracts to see if they form a coherent pattern and review where necessary, secondly is to review the entire data set at a holistic level to see whether the thematic map reflects the content.

Step Five: Defining and naming themes

At this stage each of the themes are defined and named for clarity. Sub themes are identified within each candidate theme. At the end of this phase each theme is clearly described and the scope and content of each clarified.

Step six: Producing the findings

This phase involved collating analytical memos and reporting on the data. Extracts were selected to support the narrative of the findings.

3.4.8 Integrity of phase one qualitative research

Validity and reliability are equally important in qualitative research as they are in quantitative, albeit the latter is more easily measured. The integrity of the research conducted is determined by the measures put in place to ensure it. The following were the procedures adopted to establish reliability and validity in the phase one of the data collection. The criteria proposed by Guba and Lincoln, (1994) and Guba (1981) (Bryman and Bell, 2007) were adopted here for the purposes of establishing the *trustworthiness* of this research.

The four criteria of **credibility**, **transferability**, **dependability** and **confirmability** are conveyed using the following techniques. Credibility which reflects **Internal Validity** i.e. measures what it sets out to measure and is determined by a number of strategies. Firstly the approach adopted follows the practice established by other researchers on this topic, i.e. a small sample, often convenience or purposive to establish the reasons and values construct (Claudy and Peterson, 2014; Claudy *et al.*, 2013; Norman *et al.*, 2012). Credibility was reinforced by the snowball method to select participants in the sample. While strategies to increase honesty in responses were also used. Thick descriptions were used to reinforce the meaning of the responses. Triangulation is key to ensuring credibility and was achieved through the various data collection methods in the first and final phase.

External validity also referred to as **transferability** (Bryman and Bell, 2007, p. 411) was achieved through the use of thick descriptions which enabled the capture of a rich account of responses which can then be compared to other contexts to assess its validity. Data captured was analysed using NVivo software. **Dependability** of the research which reflects **reliability** was achieved through a thorough and detailed approach to record keeping. To confirm dependability of the research complete records of all interviews were recorded, transcribed and analysed (see Appendix D for

a sample of the codebooks from NVivo 11). A detailed interview guide was also employed. An experienced researcher collected the data. Finally, **confirmability** or **objectivity** was accomplished when the information gathered reflect respondents' views and was free from interviewer bias.

3.5 Quantitative phase

Phase two of the research was quantitative in nature and sought to achieve the following: to examine the extent to which the BRT model explains the linkages between values, reasons, intention and shopping behaviour for recycled paper products and to test the competition construct developed during the first phase. The objectives set out in this phase were accomplished through a national survey informed by the findings from the qualitative phase, in Republic of Ireland, distributed online, employing a stratified sampling technique (n=1,010).

3.5.1 The sampling plan

The target population for this study was individual household shoppers in the Republic of Ireland, with full or partial responsibility for the household grocery shop in 2018.

3.5.2 The sampling frame and sampling method

Probability sampling was chosen in this phase of the research to minimise the sampling error and allow the findings to be generalised to the Irish population. The chosen method of probability sampling selected was stratified sampling. The advantage of using a stratified sampling approach ensured a sample which is representative of the chosen population. In order to reflect the characteristics of the general population of households in Ireland, a stratified sample was selected. The strata were chosen to represent the Irish population for this sample were gender, age and region (Table 3.5). The strata were indicative of the age, gender and region of the Irish population based on the findings of the Irish Census of Population, 2016 (CSO, 2017).

Table 3. 5: Sampling frame

Gender		%
Male	2,272,699	49.5%
Female	2,315,553	50.5%
Total	4,588,252	100.0%
Provinces		
Leinster	2,504,814	54.6%
Munster	1,246,088	27.2%
Connacht	542,547	11.8%
Ulster	294,803	6.4%
Dublin	1,273,069	27.7%
Age groups		
% Proportion		
9%	12%	18-24
16%	22%	25-34
15%	20%	35-44
13%	17%	45-54
6%	8%	55-60
4%	5%	61-64
12%	16%	65+
75%		

Source: (CSO publication, 2017)

Target respondents were identified as anyone over the age of eighteen who has full or partial responsibility for household shopping and it was decided that the survey would be administered online, all of which influenced the nature of the survey design (section 3.5.5).

3.5.3 Sample size

Sample size was determined using an estimate of the strata based on a 3.5% confidence interval at a 95% confidence level. The chosen sample was selected to be representative of the Irish population based on the chosen strata (Table 3.6). The target sample size was 1,000 individuals out of a total population age 18 and above, with a total population of 4.9 million. The final sample size was 1,010, giving a 3.1% confidence interval at 95% confidence level.

Table 3. 6: Sample demographics

Gender	%	Required in strata if (n=1000)	Sample %	Sample size (n=1010)
Male	49.5%	490	49%	495
Female	50.5%	510	51%	515
Other	n/a		0%	0
Provinces				1010
Leinster	26.9%	269	26.4%	267
Munster	27.2%	272	25.8%	261
Connacht	11.8%	118	10.8	109
Ulster	6.4%	64	4.3%	43
Dublin	27.7%	277	32.7%	330
Age groups		1000		1010
100% sample				
18-24	9%	120*	3.2%*	31*
25-34	16%	213	18%	183
35-44	15%	200	28.4%	287
45-54	13%	173	19.2%	195
55-60	6%	80	5%	140
61-64	4%	53	4.8%	57
65+	12%	160	11.6%	117

* small sample size in age category due to lack of respondents meeting the criteria of household shoppers.

3.5.4 Data collection method

The objective of the survey was to reach a representative national sample in the Republic of Ireland (ROI). A large-scale survey of this nature and in the required time frame, prompted the use of a structured questionnaire, distributed online. An online survey offers many advantages including speed of turnaround, access to large sample sizes and easier data processing. Following consultations with commercial agencies and considerations of cost, it was decided that the approach taken would be an online questionnaire distributed to an audience panel using a market research company. The services of Opinions Market Research Agency, based in Dublin, were acquired. Opinions provide a range of services including access to an online panel of 10,000 adults in the Republic of Ireland. All panel members were invited to participate in the survey, upon choosing to participate, each respondent was screened for eligibility (Figure 3.6). When the required number of respondents was reached within the strata the survey was closed.

A structured questionnaire was used for the survey. Respondents were required to answer every question within the survey. This eliminated the issue of missing data and skipped questions. The survey instrument employed for the national survey was developed and informed through a combination of the qualitative phase with pre-existing item scales and will be discussed in section 3.5.5.

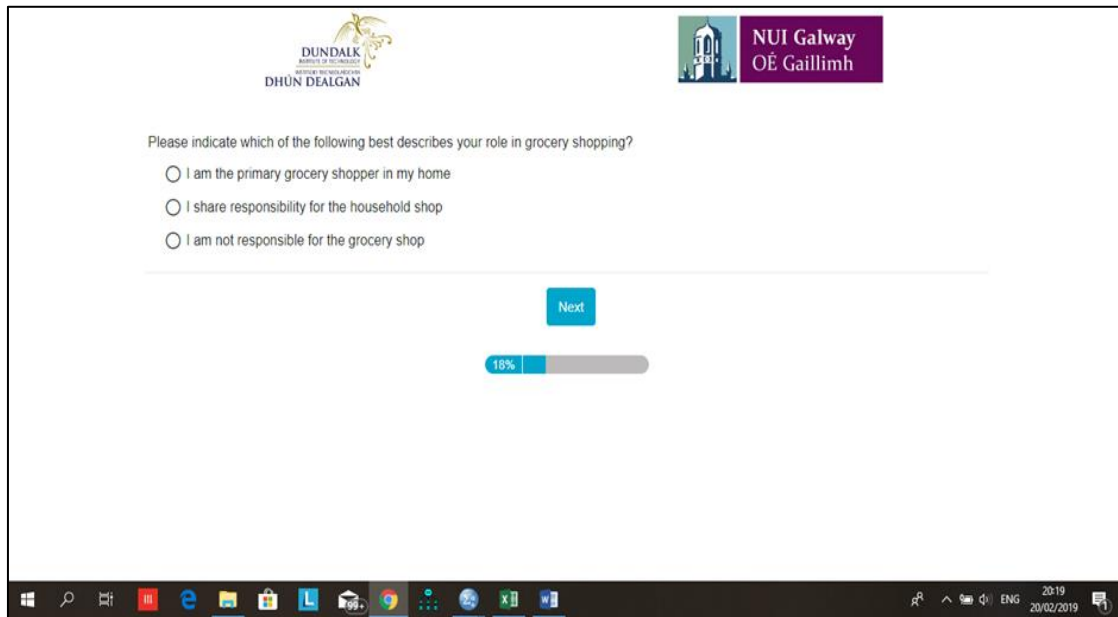
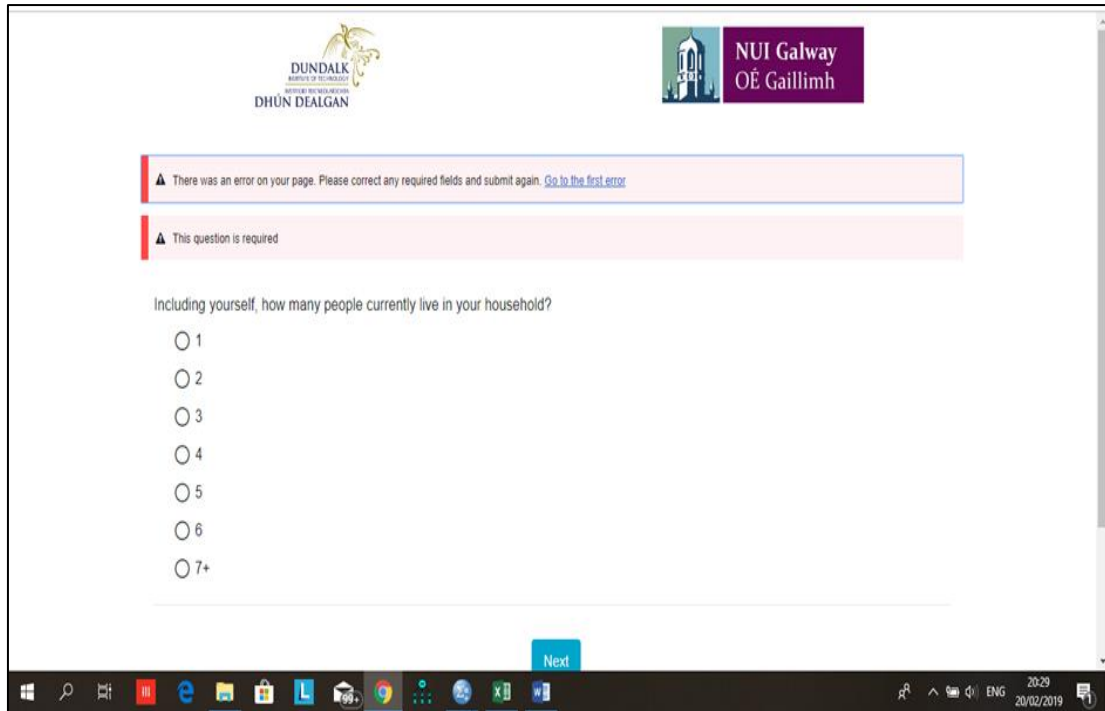
The image is a screenshot of a web-based survey interface. At the top, there are two logos: on the left, the Dundalk Institute of Technology logo with the text 'DUNDALK INSTITUTE OF TECHNOLOGY' and 'DHUN DEALGAN' below it; on the right, the NUI Galway logo with the text 'NUI Galway' and 'OÉ Gaillimh' below it. The main content area contains a question: 'Please indicate which of the following best describes your role in grocery shopping?'. Below the question are three radio button options: 'I am the primary grocery shopper in my home', 'I share responsibility for the household shop', and 'I am not responsible for the grocery shop'. A blue 'Next' button is positioned below the options. A progress bar is located below the 'Next' button, showing a blue segment and the text '18%'. The bottom of the screenshot shows a Windows taskbar with various application icons and a system tray on the right displaying the time '20:19' and date '20/02/2019'.

Figure 3. 6: Screenshot of screening question

If respondents failed to answer a question, they were prompted by an error message which informed them they had missed answering an item and were unable to move forward without completing the question (Figure 3.7).



The screenshot shows a web-based survey interface. At the top, there are logos for Dundalk Institute of Technology (DHÚN DEALGAN) and NUI Galway OÉ Gaillimh. Below the logos, there are two red error message boxes. The first box contains the text: "▲ There was an error on your page. Please correct any required fields and submit again. [Go to the first error](#)". The second box contains the text: "▲ This question is required". Below the error messages, the question is: "Including yourself, how many people currently live in your household?". There are seven radio button options: 1, 2, 3, 4, 5, 6, and 7+. A blue "Next" button is located at the bottom right of the question area. The Windows taskbar is visible at the bottom of the screen, showing various application icons and the system clock indicating 20:29 on 20/02/2019.

Figure 3. 7: Error message

3.5.5 Survey design

The questionnaire used in this study was designed to gather information on three main subject areas; household shopping behaviour and demographics; the behavioural reasoning theory model and perceived competition to pro-environmental shopping behaviour.

Shopping behaviour and demographics

One section of the survey gathered data on respondents shopping behaviours and personal demographics. The purpose of collecting this data was to build a profile of respondents and to gain an insight into household shopping behaviour in Ireland. Questions relating to frequency, method and location of shopping behaviour were asked in addition to questions around paper product purchase behaviour. Demographics gathered included family size, stage of life and level of education achieved along with age, gender and location. The final survey instrument included some of these questions at the start and the remainder at the end. The purpose of which was to facilitate screening of sample respondents. See Appendix B for a copy of the survey instrument.

Behavioural reasoning theory

In order to test the behavioural reasoning theory model in the context of household shopping behaviour, respondents were asked a series of multi-item questions relating to the core constructs of the model, i.e. values, reasons, global motives and intention to buy. The process of item scale selection is described in detail in Chapter Five.

Measuring the competition

The final section included in the survey tested new multi-item scales for measuring perceived competition to pro-environmental shopping behaviour. The process used to develop and evaluate scales to measure competition to pro-environmental behaviour used in the survey are presented in the next section.

The questionnaire

The online questionnaire included a total of thirty questions. A number of these questions were worded differently depending on how the respondent answered the behaviour question i.e. Do you buy recycled paper products? If a respondent answered **yes**, they were asked one set of questions phrased around a positive response to that behaviour and one additional question as to the frequency of the purchase. Respondents who answered **no** or **not sure** were asked a different set of questions worded to reflect that response. Both groups answered all other questions. The instrument contained a range of question types; dichotomous, multiple choice and multi-item Likert scale questions. See Appendix B for a copy of the survey and Appendix F for the final list of measurement scales. Item selection for the behavioural reasoning theory is discussed in Chapter Five and those relating to competition are discussed in the section below.

3.5.6 Competition scale development and validation

Scales to measure competition in a social marketing context do not exist in the literature. According to Lee and Kotler (2008, p. 164) competition for a target behaviour should be identified from a number of perspectives including that of the target audience. To reflect this view, this study adopted a definition of competition

which is an adaptation of Rothschild's (1999), refined by the market definition of Porter, (2008) and is as follows:

'Any environmental or perceptual forces, both internal and external to the target audience, that impede the adoption of the target behaviour'.

This definition combined with the levels of competition framework (Noble and Basil, 2011) informed the identification of competition and the development of product and brand level competition in the context of pro-environmental shopping. Findings from the literature review and qualitative research phases reveal that both internal and external factors operate across all levels of competition. These are summarised in Table 3.7. The internal competitive factors identified in the research have pre-existing scales (indicated in the table), while those relating to the external factors are context specific and do not have pre-existing scales.

Noble and Basil's (2011) proposed framework identifies four levels of competition from the generic level through the enterprise, product and brand levels. At each level, competition is situation specific and varies in scope; presenting yet another challenge to the analysis.

Table 3. 7: Internal and external influences

<i>Internal Factors (pre-validated scales)</i>	<i>External Factors</i>
Values and Beliefs Environmental knowledge Environmental concern Inertia Apathy Habit Level of involvement Scepticism Attitude Personal characteristics	Competing pro-environmental behaviours Competing shopping behaviours Store related attributes Product and brand related attributes Competing suppliers Social influences (Family/peers) (pre-tested scales)

The process used to develop competition scales in the context of pro-environmental shopping behaviour is based on the approach proposed by Boateng *et al.*, (2018). The three-phase process for scale development began with the item development phase. During this phase, the exact domain of the measure is identified and construct validity is sought. The second stage involved the scale development phase when the initial

scale is tested and where item reduction and factor extraction take place. The final phase is scale evaluation where a series of tests are carried out on the measurement scale to ensure its validity and reliability.

Item development phase

Domain identification

A clear identification of the construct domain is essential to successful scale development. This is the first step creating a scale that measures what it is required to measure. The domain is the scope of what is being measured and, in this study, refers initially to brand, product, enterprise and generic level competition to pro-environmental shopping behaviour. Extensive search produced no competition scales in social marketing. The search was extended beyond the scope of social marketing into traditional marketing and then into management literature. This search failed to distinguish any pre-existing scales that were relevant to the subject of competition to behavioural change. Examining the social marketing literature in more detail identified Noble and Basil (2011) framework built on the earlier work of Andreasen (2010; 2002b) which was adopted as a *priori* guiding this study (Boateng *et al.*, 2018).

Based on the framework, the reach of the domain extends from the abstract (generic) level to the most concrete level (brand). The greater the degree of abstraction the more difficult it is to measure. When generic level competition is defined, it could refer to 'anything that deters you from the broad topic area' (Noble and Basil, 2011, p. 139). The scope of competition at the generic level is so broad as to make it almost impossible to measure, it is also very personal to the individual making the task of measurement very difficult. Therefore, at the start of this process it was decided that the scales developed would extend only as far as enterprise level, (see Chapter Four).

The next stage in this phase involved deciding on a clear definition for the brand, product and enterprise levels of competition. To begin, with each of the terms used to describe each level was changed to be more representative of the context i.e. pro-environmental shopping behaviour. Enterprise level was changed to household level,

product became shopping-level and brand became product choice level. The basis for the definitions discussed below.

At the household-level (enterprise-level) the focus is on external competition, the construct is as follows: ***Enterprise-level competition to pro-environmental behaviours for individuals*** that ‘deter the target (audience) from addressing the issue’ (Noble and Basil, 2011, p. 139). At the household-level (two levels above the point of purchase) there are other pro-environmental behaviours that compete with or complement the target behaviour of pro-environmental shopping. If the target behaviour is pro-environmental shopping behaviour; in question is what other environmental issues compete with this activity at the household level. The question is which general approach to the environment do I focus on? The chosen definition of this construct is as follows:

Any household level forces, external to the target audience that impede the adoption of pro-environmental shopping behaviour.

Initially this construct was measured using a multi-item scale, however, following the pilot test it was decided that measuring the construct would be approached differently using a ranking system (Table 3.8). The list of behaviours chosen for enterprise level competition was determined through the in-depth interviews and takes into account those household behaviours likely to exert the most environmental pressure (DEFRA, 2008; OECD, 2008). This measure aims to capture self-reported engagement in competing behaviours in the home and offers the opportunity in the data analysis stage to look at relationships between this and other variables.

Table 3. 8: Enterprise competition level

Which of the following six behaviours do you do the most often? Please rank these behaviours in order from 1 to 6, 1 being the most often and 6 being the least often.	
Reduce food waste	
Conserve energy (i.e. switch off lights, reduce the heating)	
Manage household waste (separate and recycle)	
Conserve water (i.e. turn off taps when brushing teeth, take showers instead of bath)	
Donate unwanted items (i.e. clothes, toys)	
Use public transport	

At the next level of competition, the shopping (product) level, these are the ‘forces that deter the target from addressing your specific target behaviour’ (Noble and Basil, 2011, p. 140). This is one level above the lowest level of abstraction and the construct here is: ***Product-level competition to pro-environmental shopping behaviours for individuals***. This level applies to those behaviours and organisations that compete with or complement behaviours when shopping. When conducting their grocery shopping, what are the other shopping behaviours individuals might focus on? Choosing to buy recycled products is only one of many pro-environmental shopping behaviours available from which an individual can choose. The question here is, ‘which type of pro-environmental shopping behaviour do I focus on?’ The definition of this construct is as follows:

Any shopping-level forces, external to the target audience that impede the adoption of pro-environmental shopping behaviour.

Adapted from the Gatersleben, Steg, and Vlek (2002, p. 343) pro-environmental behaviour scale and informed by the findings of the qualitative research combined with the recommendations for *sustainable shopping behaviours* (EPA, 2018; One Green Planet, 2018), respondents were asked to indicate how often they perform a range of pro-environmental shopping behaviours at the product (shopping) level (Table 3.9).

Table 3. 9: Product-level competition measurement scale

Below is a list of common shopping behaviours, please indicate how often you do the following (if at all). Please tick (✓) the appropriate box.					
	Never	Not very often	Quite often	Very often	Always
Buy Irish made products					
Choose products with low air miles					
Buy fair trade products					
Buy organic products					
Choose products with reduced packaging or plastic					
Buy refills for products e.g. coffee, sugar or spices					
Buy paper products with recycled content					

Use reusable shopping bags					
Buy local, seasonal products					

The final level of competition is at the brand-level, when individuals are making their product choices. For the purposes of this study, these were labelled the product-choice level and are defined by (Noble and Basil, 2011, p. 140) as the ‘forces that deter your target (audience) from adopting your intervention’. The competition here points to those behaviours that individuals might choose over the target behaviour i.e. buying recycled paper products. When making a choice between recycled and non-recycled paper products, what are the competing options? In this case shoppers are faced with many branded products as well as the choice of non-consumption. The construct here is; ***Brand-level competition to sustainable product choice for individuals***. The definition of this construct is as follows:

Any product-choice level forces, external to the target audience that impede the adoption of pro-environmental shopping behaviour.

Competition at brand level is heavily influenced by a range of external and internal factors. Marketing influences such as pricing, advertising and point of sale promotions can greatly influence the choice made. Brand level competition is measured by asking respondents to identify which (if any) product related and store related attributes have influenced their choice of product. The items included in this scale were determined through the in-depth interviews combined with the literature (Table 3.10). The factors are then measured by their perceived influence on product choice. This measure aims to capture the degree to which different external brand level factors influence product choice.

Table 3. 10: Brand-level competition measurement scale

Thinking about the last time you purchased paper-based products such as kitchen towel, which (if any) of the following influenced your choice? Please tick (✓) the appropriate box.					
The following factor(s) influenced my choice of paper product	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Manufacturers promotions					
Brand name					
Product display					
Supermarket offers and promotions					
Product quality					
Pack size					
Price					
Environmentally friendly					
Product packaging					
Product features (e.g. scented, designs)					
Advertising					

Item generation

The list of items associated with each of the three levels of competition i.e. household-level, shopping-level and product-choice level were generated using a combination of inductive and deductive methods. Using a deductive approach, the literature around the topic was examined for potential items. This search identified a number of actions which might serve as potential items (Sustainability Active, 2017; Nielsen Company, 2018b; One Green Planet, 2018). Added to this an inductive approach using in-depth interviews with household shoppers provided the remaining items.

The scale chosen for the first two measures i.e. household-level and shopping-level competition was based on the work by Gatersleben, Steg and Vlek, (2002) where the researchers examining energy use adopted a commonly used pro-environmental measurement scale from environmental psychology (Guagnano, Stern and Dietz, 1995; Karp, 1996). Adapting the scale from Gatersleben *et al.*, (2002, p. 343) and informed by the findings of the qualitative research, respondents were asked to indicate how often they perform competing pro-environmental behaviours at the household and shopping levels. This is measured on a scale of 1= never, 5=always. The list of household-level and shopping-level behaviours chosen for this item was determined through in-depth interviews and took into account those household

behaviours most likely to exert the most environmental pressure (DEFRA, 2008; OECD, 2008). The measures aimed to capture self-reported engagement in competing behaviours in the home and while shopping. Product-choice level items included in this scale were determined through in-depth interviews combined with the literature. This measure aimed to capture the degree to which different external factors influence product choice. The three scales presented in Table 3.11 are preceding expert reviews and panel.

Table 3. 11: Initial competition scale items

<i>Household-level items</i>	<i>Shopping-level items</i>	<i>Product-choice level items</i>
Below is a list of common household behaviours, please indicate how often you do the following (if at all). Please tick (✓) the appropriate box. <i>Scale: Never=1 to Always=5</i>	Below is a list of common shopping behaviours, please indicate how often you do the following (if at all). Please tick (✓) the appropriate box. <i>Scale: Never=1 to Always =5</i>	<i>Thinking about the last time you purchased paper-based products such as kitchen towel, which (if any) of the following influenced your choice?</i> Please tick (✓) the appropriate box. <i>Scale: Never=1 to Always =5</i>
<i>Recycle and separate waste</i>	<i>Buy Irish made products</i>	<i>Product related attributes</i>
<i>Reduce food waste</i>	<i>Choose products with low air miles</i>	<i>Price</i>
<i>Use public transport</i>	<i>Buy fair trade products</i>	<i>Manufacturers promotions</i>
<i>Conserve energy in the home</i>	<i>Buy organic products</i>	<i>Brand</i>
<i>Conserve water</i>	<i>Choose products with reduced or recyclable packaging</i>	<i>Product quality</i>
<i>Donate clothes to charity</i>	<i>Buy refills for products e.g. coffee, tea or spices</i>	<i>Quantity (e.g. family pack, single size)</i>
<i>Buy eco-friendly products</i>	<i>Buy recycled paper products</i>	<i>Product features (e.g. scented)</i>
	<i>Use reusable shopping bags</i>	<i>Eco-friendly</i>
	<i>Buy local, seasonal products</i>	<i>Store related attributes</i>
		<i>Special offers and promotions</i>
		<i>Product display</i>
		<i>Product range available</i>

Content validity

The completed scales were then assessed for their validity. There were three parts to the assessment of content validity; expert judges, expert panel and target population reviews of the items. Experts in the field of social marketing and competition were contacted and requested to review the proposed items (Hardesty and Bearden, 2004). Based on the recommendations of the expert judges, a panel of seven experienced

researchers were asked to assess the measures for face and content validity. The final step involved an evaluation of the measures by a small number of the target population. A number of changes including a change to the scale employed were made to the items based on the feedback from the experts and panel members. Following the reviews and pre-tests, the items were added to the survey instrument and included in the pilot test.

Pilot survey administration

In the quantitative phase the items were administered during the pilot test of the survey (n=108). The details of the methodology employed in this phase was described earlier in the chapter. The data from the pilot test of the items was assessed to test reliability of the measures.

(a) Household level competition

The results from the data analysed following the pilot study, it was found that reliability of this measure was poor, as Cronbach's alpha of the scale was $\alpha = .544$. No item deletion would make any significant difference to the overall reliability of this measure. An initial exploratory factor analysis (EFA) found a KMO's measure of sampling adequacy was .641 and Bartlett's test of sphericity was found to be significant at $p \leq .01$. The total variance explained by two factors was 55.6%. A review of the results from this scale did not afford any useful information on what behaviours were competing with pro-environmental shopping behaviour. It was therefore decided that this measure would be reviewed for the national survey. Based on the results, a decision was taken to ask respondents to rank the pro-environmental household activities in order of importance.

(b) Shopping-level competition

This scale of nine items achieved a reliability level of Cronbach's alpha $\alpha = .805$. Addressing exploratory factor analysis, KMO's measure of sampling adequacy was a

strong 0.815, with Bartlett's test of sphericity significant at $p \leq .01$ ($\chi^2 = 271.947$, $df = 36$). The total variance explained by three factors was 64%.

(c) Product choice level competition

The product-choice level competition scale had eleven items and a reliability level of $\alpha = .753$. KMO's measure of sampling adequacy was .779 ensuring there was sufficient items for each factor in the data set (Boateng, 2018, p. 84). Bartlett's test of sphericity was significant $p \leq .01$ ($\chi^2 = 392.258$, $df = 66$). The total variance explained by three factors was 59.5%.

National survey administration

Before going to national survey with the three scales, a number of changes were made. One major change was the decision to change the format of the household-level scale. Following an assessment of the pilot test data it was decided that the scale created was not effective, the findings from the test did not produce any useful information except that all respondents engaged in all the behaviours but some to a lesser degree. The scale failed to highlight the competing behaviours which the respondent prioritised. Therefore, the approach taken in the national survey was to ask respondents to rank pro-environmental household behaviours thereby giving the researcher an insight into which activities are more important. Minor editing changes were made to the shopping-level and product-choice level scales (Table 3.12). The national survey was administered in December 2018 to a sample size of 1,010.

Table 3. 12: Final competition scale items

Household-level items	Shopping-level items	Product-choice level items
Below is a list of SIX green household behaviours, please rank these behaviours in order of importance from 1 to 6 (1 being the most important)	Below is a list of common shopping behaviours, please indicate how often you do each of the following (if at all). Please tick (✓) the appropriate box Scale: Never=1 to Always=5	Thinking about the last time you purchased a paper product such as kitchen towels, tissues or toilet paper, which (if any) of the following factors influenced your choice? Please indicate your level of agreement with these factors. Scale: Strongly disagree =1, Strongly agree =5

<i>Recycle and separate waste</i>	<i>Buy Irish made products</i>	<i>Manufacturers promotions (e.g. 25% extra free)</i>
<i>Reduce food waste</i>	<i>Choose products with low air miles</i>	<i>Brand name</i>
<i>Use public transport</i>	<i>Buy fair trade products</i>	<i>Product display</i>
<i>Conserve energy in the home</i>	<i>Buy organic products</i>	<i>Supermarket offers and promotions</i>
<i>Conserve water</i>	<i>Choose products with reduced packaging or plastic</i>	<i>Product quality</i>
<i>Donate clothes to charity</i>	<i>Buy refills for products e.g. coffee, sugar or spices</i>	<i>Pack size (e.g. family pack, single size)</i>
<i>Buy eco-friendly products</i>	<i>Buy paper products with recycled content</i>	<i>Price</i>
	<i>Use reusable shopping bags</i>	<i>Environmentally friendly</i>
	<i>Buy local, seasonal products</i>	<i>Product packaging</i>
		<i>Product features (e.g. scented, designs)</i>
		<i>Advertising (e.g. television, print, radio and social media)</i>

3.5.7 Fieldwork

Fieldwork was conducted using the services of Opinions Market Research agency. This agency provided access to a representative online panel. The survey was distributed to the Opinions' panel members on 5th December, 2018. Panel members, who have full responsibility or share responsibility for the household shop, were invited to participate in the survey. Panel members fitting the inclusion criteria were invited to take part then once a stratum was complete, it was then closed for responses. This continued until all strata were complete and the survey closed on 17th December, 2018.

Survey instrument pre-test and pilot

Pre-testing the survey instrument was vital to reducing measurement error and respondent burden. To achieve this, the survey instrument went through a two-phase process; an expert driven and a respondent driven pre-test. The first phase was an expert panel pre-testing of item scales for two of the key constructs; reasons and competition. Items in the reasons scale were developed following the elicitation study and construction was informed by the pre-existing reasons scales used in other studies testing the behavioural reasoning theory (Claudy and Peterson, 2014; Westaby *et al.*, 2010), see Chapter Five for more details.

To confirm the approach taken in relation to the reasons scale, the researcher solicited advice from three subject experts. Following agreement, the reasons scales

were then reviewed by the panel of experts. Each member of the panel had previously tested the behavioural reasoning theory model in other contexts (see Appendix E for details). The feedback received prompted a number of changes to the scale, i.e. inclusion and exclusion of scale items and the range of the scale to be used. The reason scale was then subsequently tested in the pre-tests and pilot.

The multi-item scales developed for the competition constructs were new and consequently a review was requested from key academics on the subject of competition in social marketing (See Appendix E). As these scales are new it was decided that key authors in the field of competition in social marketing would be approached in the instance. The resulting reviews were conducted by a panel of three experts, two of whom are published authors on the subject area and the final panel member was a quantitative researcher with experience in scale development (Noble and Basil, 2011; Kubacki, Rundle-Thiele, Lahtinen, *et al.*, 2015; Buyucek *et al.*, 2016). The competition scales were subsequently reviewed by an expert panel of seven academic researchers. (see Appendix E). Following the panel review a number of changes were made to the scale in advance of the pre-test and pilot testing.

When the scales were finalised, the survey instrument was pre-tested in three stages; an academic panel of five individuals were asked to complete the questionnaire and then take part in a debriefing session (Ruel, Wagner and Gillespie, 2016). Following amendments to the survey instrument, a small number (three) of target audience respondents were asked to complete the questionnaire using cognitive interviews. Finally, a pre-test of the online survey was distributed to ten respondents to complete. The questionnaire was also pre-tested by two statisticians (Figure 3.8).

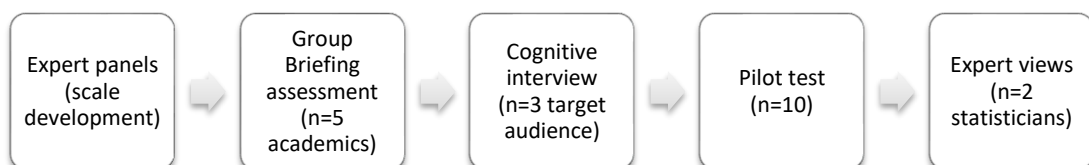


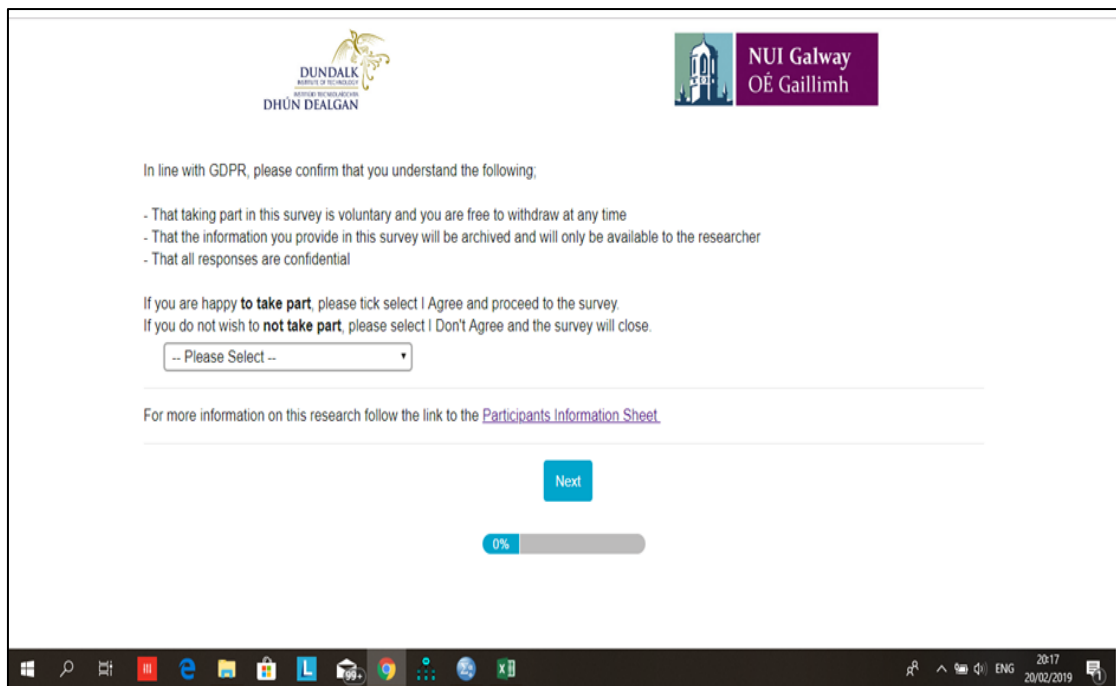
Figure 3. 8: Pre-test process

Following the pre-test, a pilot test of the questionnaire was undertaken to achieve a number of objectives. Firstly, the purpose of the pilot was to test the survey instrument and the data collection method using an approach similar to that planned for the final survey i.e. online, using the same platform and script. This facilitated testing the platform on the potential respondents. A second objective tested the survey on respondents who might be considered extreme in their views around this topic. To achieve this a number of respondents chosen for the pilot were self-declared pro-environmentalists i.e. zero waste enthusiasts and recycling ambassadors. Finally, the pilot sought to test the reliability and validity of the scale selection for the behavioural reasoning theory model constructs and the competition scales developed in this study.

The pilot study took place between 26th October and 5th November 2018. Respondents matching the inclusion criteria were invited by email and text to take part. Due to the length of the survey and the number of items, it was decided that a pilot of 100 would be sufficient. This target sample also allowed for the application of structural equation modelling. The final number of respondents was 108. Although there was a higher proportion of female respondents (80%) everyone who took part in the pilot survey met the criteria for inclusion and a good representation of all other demographics was achieved. Collection of the data was undertaken by the research agency employed. When the survey closed data collected was provided in SPSS and Excel format.

Data from the pilot was prepared for structural equation modelling. Initial descriptive statistical analysis identified a problem with the data, it appeared that unfortunately, some data was missing from the pilot results. On closer inspection it was identified that one group of respondents failed to answer the multi-item scale measuring intention. This missing data was due to an error in the scripting and was not identified until the results were examined. To avoid a repetition of this error occurring in the national survey, it was decided that a review of the data would take place once 100 responses were achieved.

Regardless of the missing data for one question for one group of respondents, the pilot data provided a lot of feedback on the survey instrument and a number of changes were made as a result of the pilot test. Two further recommendations from the NUIG Research Ethics committee were incorporated into the survey and its administration. First 'other' was added to the gender demographics and secondly, a link was added to the Participants Information Sheet at the launch of the survey i.e. respondents follow the link to the information sheet before commencing the survey.



The screenshot shows a web browser window displaying a survey consent form. At the top, there are logos for Dundalk Institute of Technology (DUNDALK INSTITUTE OF TECHNOLOGY, DHÚN DEALGAN) and NUI Galway (OÉ Gaillimh). The text reads: "In line with GDPR, please confirm that you understand the following," followed by three bullet points: "That taking part in this survey is voluntary and you are free to withdraw at any time", "That the information you provide in this survey will be archived and will only be available to the researcher", and "That all responses are confidential". Below this, it says: "If you are happy to **take part**, please tick select I Agree and proceed to the survey. If you do not wish to **not take part**, please select I Don't Agree and the survey will close." There is a dropdown menu currently showing "-- Please Select --". Below the dropdown, it says: "For more information on this research follow the link to the [Participants Information Sheet](#)." At the bottom of the form is a blue "Next" button. A progress bar below the button shows "0%". The Windows taskbar is visible at the bottom of the screen, showing various application icons and the system clock indicating 20:17 on 20/02/2019.

Figure 3. 9: Link to participants information sheet

The following changes were implemented following pilot testing;

Demographics – apart from changing the gender question to add 'other', two additional changes were made to improve data collection (stratification) and to facilitate analysis i.e. age bands and a question on which region they live with a drop-down menu for county.

Grocery shopping – As a number of respondents in the survey mentioned they do their shopping online and this was not catered for, therefore, an additional a question was added to determine how participants do their shopping; 'In store, online or a mix of both'. A second change in this section was driven by the analysis and relate to where

individuals shop. This question did not provide any useful information in the pilot. As a result, respondents were instead asked to identify where they do their main shop and their top up shop.

Competition scales – the analysis demonstrated weak reliability with this question ($\alpha = .543$), although correlations within the scale were significant, the measure did not provide the data expected. Therefore, the question was adjusted to a ranking question thereby setting out to determine which behaviour respondents did the most often to the least often.

Level of involvement scale – a minor editing change was required as a number of respondents mentioned the difficulty in answering the third item in the scale.

Reasons scale – ‘reasons for’ and ‘reasons against’ were separated for the national survey. This allowed for ease of response and facilitates analysis.

Intention to buy scale – another minor editing change was necessary for the third item.

At the end of the pilot test, respondents were asked for their feedback in relation to the questions.

3.5.8 Data analysis

The target sample population was 1,000, the final sample size was 1,010 respondents. Due to the format of the online survey there was no missing data from the sample. Data was provided in Excel and SPSS format for analysis and both IBM SPSS and AMOS were used for the analysis of data in this phase. The analysis commenced with data cleaning and preparation for use in structural equation modelling. Descriptive statistics were first extracted and analysed (see Chapter Five). Following the initial analysis, Anderson and Gerbing's (1988) two-step process to structural equation modelling was implemented: the measurement phase followed by the structural phase. Exploratory factor analysis followed by confirmatory factor analysis was used in conjunction with the measurement model, i.e. BRT.

Data analysis for the newly developed competition constructs began with correlation analysis followed by exploratory factor analysis (EFA), data was then tested using CFA within structural equation modelling (see Chapter Four for details).

3.5.9 Validity and reliability in the quantitative phase

To ensure the quality of the research in this study a number of strategies were employed to confirm reliability and validity throughout all stages in the data collection process, from construct development and selection to instrument development and data collection.

Reliability

Reliability determines how consistently the method adopted measures what is sets out to measure. In other words, if a similar method was used would it produce the same result and, if the same scales were used again would they also produce the same result. Reliability applies to both the methodology employed and the construct measures. There were three strategies chosen to improve reliability in this study. The first involved the methodology chosen, mixed methods research was employed using both quantitative and qualitative techniques, thus reducing the risk of researcher bias. Next both the constructs and the survey instruments went through a series of pre-tests including expert reviews and were followed by a pilot test (section 3.5.7). Finally, data was collected using an online survey, also removing the possibility of interviewer bias.

An inter-rater reliability test was not appropriate in this case and the reliability test of test-retest was not deemed necessary based on the chosen method of data collection and the sample size. Internal consistency reliability was measured using the most commonly used diagnostic methods as suggested by Hair *et al.* (2014, p. 123), commencing with item-to-total correlations for each measure. The recommended level of item-to-total correlation is 0.5 and above and was measured using reliability analysis in SPSS. The second and perhaps the most common approach uses Cronbach's alpha (α) to assess the reliability of the entire scale. The recommended

level is 0.7 or above and these results are detailed in Chapter Five (Table 5.13, 5.14 and 5.15) for the behavioural reasoning theory and reliability measures for competition scales are discussed in Chapter Four findings. Finally, due to the high number of items in some scales, a further test of reliability is also recommended i.e. composite reliability (CR) and Average Variance Extracted (AVE) and can be used in conjunction with structural equation modelling (Table 5.16).

Validity

Also known as construct validity, this is a means of checking whether a construct or set of scales measures what it is supposed to measure. Is the construct 'attitudes' to pro-environmental shopping behaviour, measuring what it purports to measure? This is one of the greatest challenges in social science research where items and constructs are created to measure something intangible (latent construct). The following measures of validity were employed in this research, face, content, convergent and discriminant.

Face validity measures whether on the 'face of it' do the items appear to be a good representation of the construct. By simply looking at it would someone know what it is measuring? Hand-in-hand with this is content validity which is intended to test whether the construct is complete, if it contains all the items necessary to measure the construct. Both are the weakest measures of validity and tend to be subjective (Domegan and Fleming, 2007). In order to establish face and content validity for the new measures (i.e. reasons and competition) developed during this research the assistance of expert judges and an expert panel were solicited (see Appendix E). The remaining constructs were adapted from pre-validated scales i.e. pro-environmental values (Bouman, Steg and Kiers, 2018); attitudes, subjective norms, perceived control and intention (Ajzen, 1991; Claudy *et al.*, 2013; Francis *et al.*, 2004; Westaby, 2005; Westaby *et al.*, 1997).

Convergent validity test measures the 'closeness with which a measure relates or converges on the construct it is trying to measure' (Bhattacharjee, 2012, p. 59). This was tested using factor analysis in SPSS and tested using a Fornell and Larcker (1981)

and Hair *et al.* (2014) criterion as suggested by Boateng (2018, p. 133). According to the criterion, to meet the requirement for convergent validity, the measures must have an average variance extracted (AVE) of greater than 0.5 and factor loadings for each item of not less than 0.5, and a composite reliability (CR) of 0.6 (Table 5.16). Discriminant validity refers to the degree to which each construct differs from others. No two constructs should measure the same thing, they should be distinct (Hair *et al.* 2014). Again Fornell and Larcker's (1981) criteria for measuring discriminant validity was used, where the AVE for the construct should be greater than the corresponding inter-construct correlation (Boateng, 2018). See Chapters Four and Five for a discussion on the above-mentioned calculations and measures.

3.6 Ethical considerations

Potential ethical issues around data collection in this mixed method study were addressed using a number of techniques:

During the qualitative phase, all participants received an information sheet in advance of the focus group or in-depth interview. This information sheet includes details around the research and contact details for both the researcher and supervisor. Participants were made aware that they could stop the interview at any stage. Permission to record the focus group and interviews was requested in advance. If agreeable the researcher explained the procedure for gathering, transcribing and storing data. Participants identities were kept confidential and an identifier code was used instead.

Ethical approval was sought and granted for the online survey from the NUIG Research Ethics Committee in October 2018. As the services of a market research agency were employed in the quantitative phase, consideration had to be given to issues around data protection, confidentiality, data storage and access to data. Before commencing the survey, participants were asked to confirm their willingness to take part and were aware they could leave the survey at any time. Respondents were guaranteed confidentiality and anonymity.

3.7 Summary

This chapter outlines the phases of the research undertaken in this study to answer the research question. Following a review of the research objectives, the research philosophy of the researcher is discussed, including ontological and epistemological considerations. The research design follows and involves a mixed method sequential approach beginning with qualitative research followed by a quantitative phase. Details of the sampling plan, data collection and fieldwork strategies are outlined, concluding with the data analysis plan and approach taken to ensure reliability and validity of both phases.

The following chapter presents a comprehensive review of the findings and analysis of this study, from the qualitative phase through to a summary of the survey findings. The chapter discusses the findings and analysis relating to the reasons construct, the industry and stakeholder research, followed by an exploration of competition findings and concludes with an overview of the survey results. The behavioural reasoning theory model test will be discussed in detail in Chapter Five.

Chapter Four

Findings and Analysis

4.0 Introduction

The first phase of the study involved addressing a number of key objectives connected to the primary research question. The qualitative phase of the mixed methods research used in this study was undertaken to collect data around the reasons construct, the industry and the competitive context. The findings and analysis of three of the study objectives are presented in this chapter. The first objective (RO1) is: ***to identify the context specific reasons in the value-action gap for recycled paper products.*** Identified as a key construct in the behavioural reasoning theory and recommended by Westaby (2005), reasons tend to be context driven and therefore must be collected during the study. The findings from the qualitative phase identified the 'reasons for' and 'reasons against' buying recycled paper products, the item scales developed were later tested using structural equation modelling in the behavioural reasoning theory model in Chapter Five.

A second objective of the study focuses on the paper products industry, and the findings and analysis presented in this chapter include those from the industry analysis and the key stakeholder interviews carried out under (RO4) is: ***to explore industry-wide systems gaps influencing the value-action gap for recycled paper products.***

The chapter then presents the findings and analysis addressing a third research objective (RO3) is: ***to determine the role of competition in realising pro-***

environmental shopping behaviours for recycled paper products. This research study examined the role of competition in a social marketing context and, using data from the qualitative phase, developed scales to measure competition at the product/shopping and brand/product choice levels.

Finally, this chapter presents and discusses an overview of the survey findings around shopping and pro-environmental behaviour.

4.1 Qualitative phase (reasons findings)

In order to gather the reasons specific to buying recycled paper products, an elicitation study was conducted in phase one to identify the reasons why people buy recycled paper products.

4.1.1 Respondents' profile

Both the focus group and the in-depth interview populations varied in age, gender, family size and place of residence in order to ensure diversity within the sample. Seven participants (n=7) took part in the focus group and they ranged in age from 45 to 75 and were all resident in Co. Louth. There were two male participants and five females. The group represented different household sizes from single households to one household of five persons. Participants in the in-depth interviews with household shoppers (n=19) were aged from 25 to 65+ years; four of the nineteen interviewees were male and six respondents lived in a rural location. Family size varied from single households to one household of six persons. A copy of the participants' matrices and codes used to identify interviewees, can be found in Appendix C.

4.1.2 'Reasons for' and 'reasons against' findings

Following data collection, thematic analysis (Braun and Clarke, 2006) was applied to the data and Table 4.1 presents the initial list of 'reasons for' and 'reasons against' buying recycled paper products generated during this phase. The final list (Table 5.5)

was subsequently used to support item scale development in the quantitative phase. Each of the reasons identified in this table is described in more detail.

Table 4. 1: Initial list of reasons findings

<i>'Reasons for'</i>	<i>Number of sources and references</i>	<i>'Reasons against'</i>	<i>Number of sources and references</i>
Good for the environment	15 (40)	Cost or price	16 (50)
Good for me	11 (21)	Poor quality	10 (29)
Product features	6 (11)	Can't find them	12 (26)
For future generations	2 (3)	Lack of availability or choice	10 (22)
		Never thought about it	8 (21)
		Traditional or habitual purchases	7 (14)
		Lack of interest	4 (7)

4.1.3 'Reasons for'

Based on the data, there appeared to be far fewer 'reasons for' engaging in pro-environmental shopping behaviour than not. If respondents had no experience of buying or using recycled paper products they could not comment on the positive 'reasons for' the behaviour. Therefore, many of the reasons, both for and against, were drawn from the responses relating to the advantages and disadvantages of using such a product and, in the cases where some respondents had used the products, the 'reasons for' and 'reasons against' mentioned are based on the self-reported reasons. The four main reasons identified were as follows: good for the environment, good for me, product features and for future generations (see Figure 4.1 and Figure 4.2).

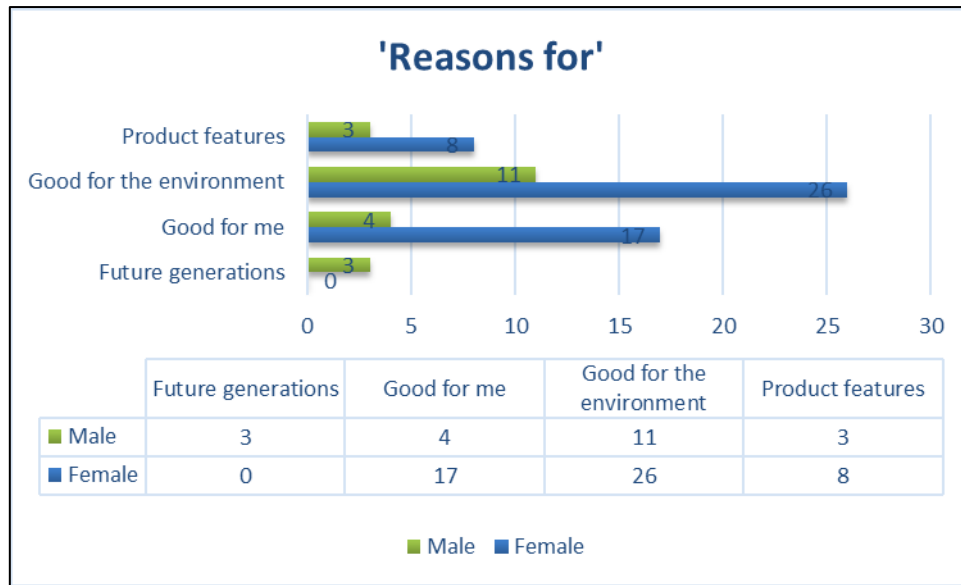


Figure 4. 1: Summary of the 'Reasons for'

Good for the environment

This was the most frequently mentioned reason for buying eco-friendly/recycled paper products. For the most part the reason given was non-specific i.e. 'it's good for the environment'. One or two mention the ozone layer, renewables and climate change but for the remainder it was a nonspecific good for the environment comment.

"Well obviously the earth is the most important thing ...I mean, we are all very conscious of that you know, eh that's the biggest advantage really." (FU18)

More specific comments mentioned how recyclables benefit the environment.

"Well, I suppose recyclable and renewables all that means that we are using less resources, you could argue that you are using less energy burning less fuels, it will have an effect on global warming, it will reduce global warming." (MU17)

When probed, two respondents mentioned less waste and cleaner water. As reducing waste was mentioned by ten of the sample respondents, it seems that the majority see a link between waste, the amount of waste and buying recycled. This links to the value-action gap and the connection appears to be made between the two i.e. waste

and recycled products. A wide range of demographics are included in this theme. There do not appear to be any distinctive differences in the demographics.

Good for me

The second most popular reason given for buying eco-friendly or recycled paper products was themed as 'good for me'. These products are considered better to use than regular bought products due to a number of personal benefits. The first benefit concerns health as respondents talked about the lack of chemicals and perfumes and how they were likely to be less harmful to the individual. Two of the respondents said they deliberately choose these products because of health concerns.

"I would feel that maybe they're a very safe product because they are very safe so there would be no impact on yourself as a user, in terms of allergies." (FG6)

"I would look for ones that have very limited parabens, very little, so I would look for more natural products." (MR12)

The second 'good for me' benefit is classified as the 'feel good factor'. Three respondents mention this as a benefit of buying eco-friendly or recycled paper products. This reason could be described as the feeling that one gets when one does something good. This the same feeling one might get when they bring bottles to the bottle bank or contribute to a charitable cause. The respondents who mention this feel good factor were two professional men in their 40's with young families. The third respondent was a retired woman in her 60's.

"Yeah like that's what its all about, that's how they aim it, the more people that think they are doing their bit, they get that little warm feeling inside themselves thinking they are saving the planet." (MU08)

Product features and benefits

This category of 'reasons for' contains any reference to product features such as quality, price and performance. Six of the sample respondents mentioned some of the above features when asked why they might buy an eco-friendly or recycled paper

product. If the product performs in the same way or is competitively priced then the environmentally friendly one would be considered as a good alternative. As one respondent said

“...the way I look at it is, it’s the same product really, do you know, I’d have no issue and if it’s recycled well that’s great that’s a bonus. That would be the way I’d look at it. I wouldn’t be saying that one was better over the other or anything like that like with kitchen paper but it’s like a bonus, say, if it is recycled.” (FR13)

Talking specifically about the quality, one respondent considered there to be no difference between them and the typical non-recycled products.

“You find it’s a product would do the same thing so more ethic or moral. You feel you are contributing something towards a more sustainable environment but beyond that very seldom do the products not do the same job.” (MR12)

The same features mentioned here emerged as reasons against purchase and featured more strongly among the sample.

Future generations

The final category of ‘reasons for’ was mentioned in three references only by two people in the sample. Two male respondents talked about future generations; they are both fathers with teenage children. They are both educated to higher degree level. Parents with younger children did not mention this as a reason for purchase. While this reason relates to ‘good for the environment’, it is for a specific reason i.e. for future generations and therefore was chosen as a separate category.

“Well, like, I mean I would say that we all have a responsibility to ensure that the resources of the earth and that our ...whatever state we got them, in we hand them over to our children and our grandchildren, em in the same manner that we got them, you know I mean you have to think of your kid’s future, your grandchildren’s future like so you know that’s an advantage to the family I would say.” (MU17)

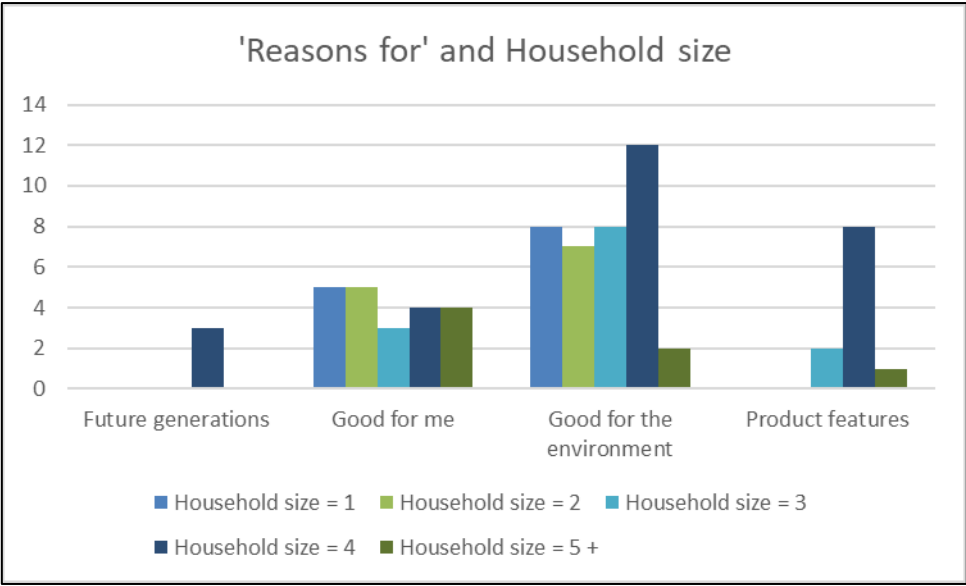


Figure 4. 2: 'Reasons for' mapped to household size

4.1.4 'Reasons against'

The findings show that there seemed to be more 'reasons against'. Respondents appeared to find it easier to identify the disadvantages and obstacles to using eco-friendly or recycled paper products. As discussed in Chapter Three, the original list of twelve codes were further distilled into ten and then a final list of seven 'reasons against' (see Figure 4.3).

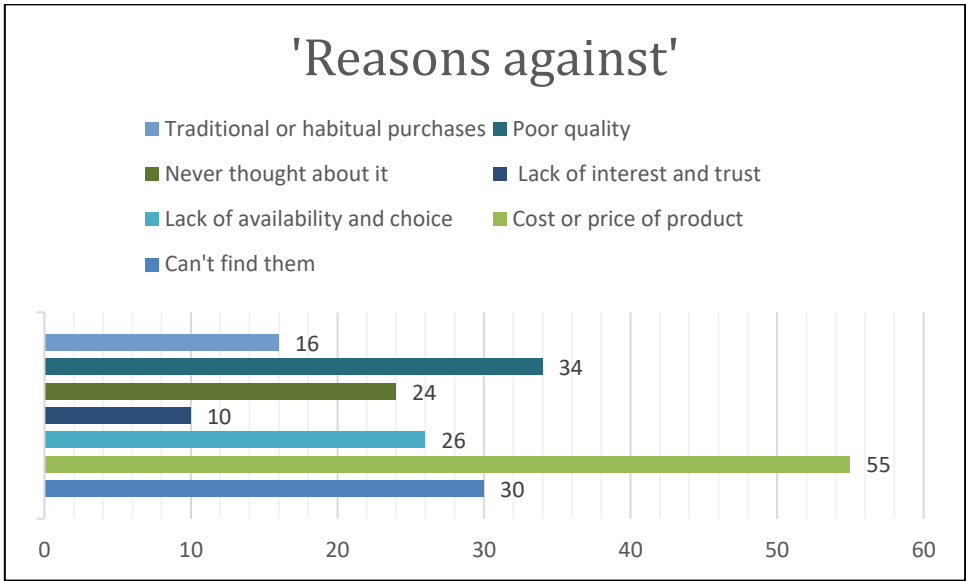


Figure 4. 3: 'Reasons against' findings

Cost or Price

Not surprisingly perhaps, the issue of cost or price of the product was the most often cited reason for not purchasing. Sixteen respondents out of nineteen in the in-depth interviews mentioned price as a reason for non-purchase. The phrasing varied a little from 'too expensive' to 'the price is too high' or 'the products are not competitively priced'. Cost was also discussed in the focus group and was offered as both a 'reason for' and a 'reason against' purchase.

"There's no disadvantage, the only disadvantage is economically I suppose, the more environmentally friendly products are inclined to be more expensive in the norm so you can see how people on a very tight budget would have to weigh up what they buy." (MR12)

"I think the cost of course, I think if it's cost prohibitive people are not going to they're watching their pennies, you know, the majority aren't going to ...you'll have the likes of the more seniors ...the more conscious ...when you are not buying so much it's not going to affect your purse as much but when you have a large shop and a large family you are, it's cost is a big influence." (FU18)

"Well I suppose are they more expensive, I mean the practicalities of it might be a bit more expensive but then maybe the expense would come down when em ...in time to come but eh ...I suppose the expense is the only one I can think of." (MU17)

Many of the respondents citing cost or price did not have first-hand experience and mention it as something they believe to be the case. Only one respondent who regularly buys eco-friendly products could confirm the price difference. This however may be due to the fact that these items are bought in a specialty store.

"They are more expensive, oh yeah, definitely a fair bit more expensive." (FR14)

"I really think, I think myself it is an affluence thing, I do think that even the Supervalu here which is really fancy and lovely is a lot more expensive if you do your shopping there and the Dunnes I think for example in Donnybrook (Dublin) they have this lovely organic market shop and people around that area can probably afford it to shop in it

but people from certain areas of say maybe you know North Drimnagh road really couldn't go there at all so I really think it's got a lot to do with money.” (FR14)

The issue of high cost or price is one that crosses all age groups, both male and female, urban and rural. This is a reason cited with conviction regardless of experience. Those with experience of purchasing said items tended to shop at specialty stores and thereby pay a slightly higher price.

Poor quality

The perceived quality of eco-friendly and recycled paper products consistently came up for discussion. In many cases this is a perception and not actual knowledge that the products are of poorer quality. Some respondents had very definite views about quality, some of which were unfounded i.e. they had not actually tried the products and weren't really in a position to comment. However, perceived poor quality was a recurring theme. The views on the quality issue were spread across the age groups and the younger age group (under 44 years) had very definite ideas. Respondents from the older age groups did not comment, apart from one. Reviewing these comments, it was the case that only two of the respondents have specific experience of using recycled paper products and could rightfully comment on the quality.

“Well some of them are probably not as good quality as let's be honest you know, I've used them and some of the stuff can fall apart and the toilet tissue might not be as, yeah as efficient.” (FU18)

“I had a toilet roll at one stage that wouldn't flush that was a few years ago it was like as if it wouldnt dissolve properly.” (FU01)

The issue of quality was extended to other types of eco-friendly products including cleaning products and personal care products.

“I suppose again it's my own personal choice to do a little bit for the environment the only thing that would put me off, I suppose, is that they don't seem to be as good a quality as non-eco friendly so I might decide not to buy them.” (FR19)

One respondent spoke about their experience of recycled copy books in school and the lasting impression that these products had on her views.

“Yeah, not as good quality I think, even going back to school I remember them copies was it the Aisling copies or something, their recycled copies and I just thought I always remember my friends sat beside me 'your copy's way nicer and glossier than mine' and then yours is recycled and I always just thought the quality was crap in it so I think that has stuck me as well that the recyclable kind of products are not as good quality.”
(FU16)

Can't find them

This category included all references regarding perceived difficulty in finding recycled paper products. This included poor display, marketing or labelling of eco-friendly and recycled paper products. The comments made here referred to the belief that recycled paper products are not obvious in the stores. According to the respondents, there's little or no display or marketing. The suggestion here is perhaps to make them more obvious for the customer either through labelling or display. A recurring theme appeared to be that customers don't see them they don't jump out or catch their eye. There were a few respondents who shop in the discounters and believe that they don't stock these products. The barriers here are marketing, labelling, display and prominence. There were some differences in the comments made across the sample, i.e. discount store shoppers mention that recycled paper products are possibly not stocked or carried which also brings up the question of availability. The other supermarket shoppers mention a lack of display or obvious labelling.

“There probably would if you could come across them simply and that you didn't have to...maybe that they were more advertised.” (FU02)

“You wouldn't know where eco-friendly products is in the supermarket like you would know where the organic aisle is. It's well labelled, not that I ever go down it, but you would never see, you know, eco-friendly products in one area, maybe you do?” (FU03)

“Yeah well you don't kinda see it advertised, you don't, there's nothing kinda shouting

out at you, I know it probably should be and that.” (FR09)

It would appear from the comments made by respondents that they don't know where to find them if they are available in the stores. The labelling is not obvious and it is not clear where these items are kept. Underlying this is the possibility that individuals would not be able to identify them.

“Well if there was more, to me I can't bring any to my mind so they're not under my nose, you know, or they are not displayed properly, you know, so otherwise I know I would be able to recall them or I'd know I'd have seen some at some stage eh and as I said I really don't think there is in Aldi.” (FU10)

Lack of availability and choice

There is a certain amount of overlap between lack of availability and choice and the previous 'reason against' i.e. can't find them. Where the previous reason refers to the poor display and labelling of the products, this reason refers to the perceived lack of availability and choice of these products. Availability or perceived availability of the products was the stated reason here. While it is mentioned as a 'reason against' buying it is stated more as a question than a definite. Reviewing the comments, it would appear as though the respondents are not sure if they are available or not and this would suggest that the reason is more of a question and links to lack of awareness.

“it's not always in the shop, as you say, like Dunnes (Stores) wouldn't maybe have a great range and then they mightn't have it and then you pick up something else to do you at the time, which I have I probably would do, so yeah if it wasn't there I'd probably just get the next best thing or just grab something off the shelf.” (FU01)

“Just the source of them, they are not widely available just in the natural stores and if you are just doing one shop and you are not going go to another shop to get those products I think, I mean if they were in the main shops more I think more people would be inclined to go and pick up a few things maybe not everything but like certain things.” (FU07)

"The availability, very much the availability but maybe that's because if you are going to the likes of the discounters they, you always don't get the same range of products eh whereas if I was doing my shopping all the time in Tesco, you might have a greater range of products." (MR12)

The lack of availability was specifically mentioned by those shopping in the discount stores who appeared to think that the discounters probably didn't stock them unless they were on special offer.

Never thought about it

Another way to describe this reason for non-engagement in the behaviour is that this is something that the individual is oblivious to. It's almost as though they are thinking about it for the first time. This first emerged as a potential reason against during the focus group. One respondent was very clear when he said that he hadn't given it much thought.

"Well it goes back to whether you would think about buying recycling, it just doesn't enter into my consciousness to look whether it's recycled or not. I would buy it because it's nice or not or as good a quality or not good quality and if it's recycled, I probably wouldn't even notice in fairness. If it's recycled it's a bonus, I suppose but it doesn't enter my stream of consciousness which is probably very poor." (FG2)

The impression created was that many of these respondents were thinking about it for the first time during the discussion. This could be described as more than a lack of engagement; rather it is more a case that the respondents just hadn't given it any thought. It didn't appear to be a lack of interest in this case, more a lack of awareness.

"Eh, I don't know much about that actually I never really think much about that, I just get the regular ones of those actually." (FR14)

Could this be better described as lack of awareness? It is different to not being engaged or interested, it is different to not knowing about the products. It is a reasonable excuse why someone might not purchase these products as they simply hadn't given it any thought.

"You don't be thinking of it, you don't go out with the intention to see what's eco-friendly." (FU04)

Traditional or habitual choices

Respondents mentioned their preference for their usual brands as a reason for non-purchase. This reason also includes brand preferences, buying special offers and habit. During some of the interviews and in particular the focus group there was some discussion of what people typically do i.e. habit or tradition in how they make purchases which can act as a reason for non-purchase.

"Usually if I go in with a shopping list I pick up what I want and that's it and I'm out but like to kind of ...and if I've no cleaning products to get that week I wouldn't even go up that aisle, so I don't know how you could encourage people to, I don't really know how you would do it." (FR09)

"Yeah I guess it's just what we are used to and what we see pretty much every day." (FU07)

"It's what you are brought up with and, you know, afraid to try something because then if you are left with it then you don't like it." (FU03)

Habit is something that comes up for discussion in competitive behaviours also.

Lack of interest

The final reason was mentioned by a small sample of respondents. The issue of lack of interest was very clearly stated by two of the interviewees, both female and both in their 30's (see Figure 4.4).

"Who would buy eco-friendly? Eh, it just doesn't apply to me at all." (FU10)

"I don't see any advantages for me personally, yes, obviously for the earth and the world, I get the advantages of that, but for me no, I don't see. I can see the energy saving light bulbs and stuff they last longer and stuff, I get that, and the energy rating appliances buying the A rating, they last longer and they're less, eh, pricy for your

electricity bills but for products like paper and stuff no, I don't see any advantage for me to be using them.” (FU16)



Figure 4. 4: 'Reasons against' mapped to gender

While these two respondents were clear in their view that the issue is nothing to do with them, another two mentioned the lack of engagement by others.

“They couldn't be bothered they don't have the time, d'you know? Or they couldn't be bothered ...they don't see it as their responsibility to make sure the next generation are set up or ...do you know, which is awful, and I suppose it's society as well ...you know it depends in the view you kind of ...everything is throw away.”(FR19)

“That it won't happen because people just can't be bothered, you know I mean, they just don't think about the environment at all really, you know.” (FU11)

Lack of trust

A lack of trust in the product quality was raised by two respondents only, one mentioned eco-friendly products, while the second raised this issue when discussing organic products. This reason refers to a lack of trust in the product, because it is eco-friendly or recycled. This could be linked to the term green washing where companies claim their products are environmentally friendly but may in fact, not be.

“Price maybe, eh, and the quality and also I suppose, how do you know they are eco-friendly ...what standards or what monitoring is there of eco-friendly products? Sometimes you wonder what, you know, what is really eco-friendly or how eco-friendly they are. Is it a label that’s just stuck on that’s trustworthy, you know, well I’d give it, like eh organic, low fat is there the same tendency as eco-friendly products as there is to mislead the public?” (FR19)

The findings from this phase were used to inform the development of scales for the reasons construct in the behavioural reasoning theory. Following the pilot phase, the list of ‘reasons against’ was further reduced (see Chapter Five).

4.1.5 Analysis

The findings from the qualitative research indicate more ‘reasons against’ engaging in pro-environmental shopping behaviour than for. It became clear during the interviewing that for some respondents it was the first time they had thought about recycled paper products. The ‘reasons for’ given were quite generic, the ‘reasons against’ were much more specific.

Four categories of ‘reasons for’ were identified, which were ‘good for the environment’, ‘good for me’, ‘product features’ and ‘for future generations.’ The ‘reasons against’ included six themes: ‘cost or price’, ‘poor quality’, ‘can’t find them’, ‘lack of availability or choice’, ‘traditional or habitual purchases’ and ‘lack of interest’. This phase was followed by an expert review and pilot testing before the final survey. The findings from the qualitative phase provided the items for the development of the reasons item scales included in the survey of Irish household shoppers, which will be discussed in Chapter Five.

4.2 Industry findings

This section addresses the fourth objective (RO4): *to explore industry-wide systems gaps influencing the value-action gap for recycled paper products*. It includes an overview of the paper products industry based on desk research and presents the findings from key informant interviews.

4.2.1 The household paper industry

In 2017, the tissue and hygiene products market in Ireland was valued at €307m of which retail tissue accounted for €167m (Euromonitor International, 2018). The retail tissue segment of the market includes paper towels, tableware, napkins, tablecloths, facial tissues and toilet tissue. Sales by category in 2017 were: kitchen paper €29.8m (18%), paper tableware €7m (4%), facial tissues €18m (11%) and toilet tissue €111m (67%). Essity (formerly SCA Hygiene products) had the largest share of the retail tissue market in Ireland with an 18.6% share, followed by Tesco with 15% and Kimberly Clark with 14% (Ibid.). The market shares have changed very little over the last five years with Tesco bucking the increasing trend and losing 1.5% over the past three years. This change is attributable in part to the growth of the discounters Aldi and Lidl in the Irish retail grocery industry (Kantar WorldPanel, 2018). The retail tissue industry is dominated by multinationals, many of which operate under a number of different brand names. After Tesco's own-brand, the best-known brands in the retail tissue category are Cushelle and Lotus (Essity), Andrex and Kleenex (Kimberly Clark), Regina (Sofidel) followed by the discounters Florayls and Saxon (Lidl and Aldi respectively) (Euromonitor International, 2018).

The retail tissue industry is forecast to continue its steady growth of 1-2% YoY, supported in part by innovations in product development and investment in marketing (Kavanagh, 2017). Key assets (brand equity) such as the Andrex puppy and Cushelle's koala are important drivers in terms of recall and ultimately choice (KS07). However, within some product categories, the average unit price is dropping due to large sales at a lower price and according to a recent report by Euromonitor International (2018), Irish shoppers will switch brands as they perceive very little

difference in product offering for the smaller category paper items such as napkins. Retail tissue products sold in Ireland are mainly manufactured and supplied by large multinationals based in Europe and the UK. There are only a handful of paper mills operating in Ireland today and they produce for a small portion of the domestic and *Away from Home* markets (KS06; KS07). There are twelve companies competing in the domestic side of the Irish market in what is essentially a fragmented market, headed by a number of multinationals including Essity, Sofidel (Intertissue Ltd), Kimberly Clark and P&G. In 2017, ninety percent of retail tissue was sold through grocery, traditional and mixed retailers with the remaining ten percent through online retailers (Euromonitor International, 2018).

4.2.2 Sustainability trends in the industry

When it comes to the issue of sustainability, recent coverage in the media of careless disposal of paper and plastic waste has resulted in growing demand for sustainable products which can be seen in the demand for reusable products and a trend towards recycled paper products (Euromonitor International, 2018). These trends have yet to manifest in increased sales of recycled paper products in Ireland as they currently account for only a tiny portion of the total market (5%) growing at the average market rate (Ibid.). The demand for recycled paper products in the UK is similarly small (4% in 2017), while the demand within mainland Europe is much higher, for instance recycled paper accounts for 40% of the retail tissue market in Germany (Ibid.).

4.2.3 Key Informant Interviews

Key informant interviews with industry stakeholders were carried out to collect qualitative, descriptive data on the household paper industry. The interviews served a twofold purpose, firstly to provide a snapshot of the industry and secondly, to ascertain key stakeholders' views on the value-action gap for recycled paper products. In total ten key informant interviews were conducted with various stakeholders throughout the industry. Table 4.2 includes a list of the key stakeholders in the sample and relevant reference code.

Table 4. 2: Primary and secondary stakeholders' interviews

<i>Meso-level environment</i> Primary Stakeholders	<i>Macro-level environment</i> Secondary stakeholders
Grocery retailer (2) (KS1) (KS10)	Special interest group (1) (KS9)
Specialist retailer (1) (KS2)	Government agency (1) (KS5)
Distributors (2) (KS3) (KS7)	NGO (1) (KS4)
Manufacturer (1) (KS6)	Waste management company (1) (KS8)

4.2.4 The industry environment

There are a number of levels of influencing factors in a business environment from the micro to macro environment as illustrated in Figure 4.5. At the micro level of the industry is the individual. The gap here is explored in the reasons research and detailed in the first part of this chapter. The meso level is the next level in the system and applies to the immediate business environment where the stakeholders directly involved in the industry interact. This includes retailers, distributors, suppliers and manufacturers.

**Figure 4. 5: Levels of the business environment**

The broadest level, also known as the macro level, refers to the organisations that can have an influence within the industries, but to a greater or lesser degree, depending on the industry (Johnson, Scholes and Whittington, 2009). At the macro level, political, economic, social and technological factors can have an influence on the industry and can be measured using a PEST analysis. Data from the key informant interviews suggest that a number of gaps exists at the macro and meso levels within the industry. The findings from the key stakeholder in-depth interviews will be presented according to the level of business environment, starting with the macro-level and then moving onto the meso level issues.

4.2.5 Macro level issues

The macro level factors are those drivers of change in the broader environment and can be identified using the PEST analysis technique (political, economic, social and technological). A scan of the business environment identifies potential gaps within the macro environment for the paper products industry. Using the PEST framework and informed by the themes identified in the interviews, the findings from the key informant interviews are presented below.

The role of government

Political influences at both national and European Union level play an important role in the macro environment. The European Commission's Circular Economy package is driving change across Europe (Bourguignon, 2016). At EU level, changing EU directives (Directive (EU) 2018/851) regarding waste introduced as part of the Circular Economy package require increased levels of prevention, reduction and reuse with the purpose of more efficient use of resources. These directives have implications for national targets, which filter down to county council level. Feedback from key industry stakeholders point to the role of government when it comes to changing behaviour (KS1; KS4; KS8). Many argue that change will only happen where the state legislates as evidenced by the introduction of the plastic bag levy (KS5). Purchasing policies within government departments have seen a move in this direction which has been noted by distributors and manufacturers alike.

"I think basically as we've seen governments and those people in charge of various departments ...as we see them becoming more and more environmentally friendly, I think that goes hand in hand with the demand for more recycled products and less pure product. I can see that happening." (KS6)

However, political will drive change. What is currently on the political agenda is more likely to receive attention. A recent announcement by the Irish government suggests the focus of the current government is on energy efficiency and reducing carbon emissions (Department of Communications Climate Action and the Environment, 2018). Investment by the current government through the EPA in the recycling list and

recycling ambassador program demonstrates a level of commitment in this area (KS4; KS5).

Economic trends

As economic conditions improve and disposable income increases, trends suggest increasing demand for premium and own brand products (KS1). The own brand products remain competitive while the demand for premium paper products is growing:

“But premium in terms of quilts, aloe, shea butter, the enriched [paper] products, you know there was definitely an appetite more of an appetite for those because I suppose there is a recovering economy and there's a shopper who is prepared to trade up maybe for their guest bathroom or whatever it is, or they buy a bit of both, they buy a lot of own branding and maybe they treat themselves to an Aloe Vera enriched product or something and it was more the middle brands where the sales were being a little bit squeezed you know.” (KS1)

Issues around Brexit and the implications for product supply were not highlighted as an issue when the data was gathered. It is however something which may affect some retailers more than others. Some companies have a separate buying department in the North of Ireland which may negate the issue to a certain degree (KS1), but it is still too early to judge (FitzGerald and Morgenroth, 2018).

Societal trends

Growing awareness of the devastating effect of plastic waste on the environment has become a familiar topic for debate in the media as witnessed by a recent reduction in plastic consumption, now called the *Attenborough Effect* (GlobalWebIndex, 2019). This has led to an international citizen-led campaign to ban single use plastics which has prompted many businesses to engage in this issue, including McDonalds and Starbucks. The issue of plastic waste extends to product packaging also which was highlighted by the ‘Sick of Plastic’ and plastic free July campaigns run by Friends of the Earth. Key stakeholders acknowledge the growing debate around plastics as more

engaging to the public at present (KS4). The strength and level of interest in this campaign dominates environmental discussions at this present time.

“Yeah absolutely it’s just expected from companies now, especially with everything going on. The consumers are starting to speak a little bit more, given the plastic where they were leaving it back to retailers like they were there at the weekend. Em the retailers are putting a lot of pressure on the manufacturers. We get a lot of pressure from the retailers eh and then we are part of Repak obviously, as a business, we’ve all paid towards Repak and that has helped in terms of the disposal and everything of packaging a lot of companies have signed up to it.” (KS7)

The Irish market

Due to the geography and limited size of the Irish market, retailer buyers work with designated suppliers rather than directly with the producers (KS06; KS07). Direct contact with producers is limited. In fact, in 2018 only one manufacturer has their own team of representatives based in the south of Ireland. Unless retailers are looking for own-brand suppliers, they have little direct contact with manufacturers. Looking at Ireland as a target market, while it is part of the European Union, Ireland is an island nation and a relatively small market in European terms (KS7). The majority of paper-based products sold in Irish supermarkets are imported. Options to change the product mix is limited, not only by demand, but by the economies of scales required to make it worthwhile.

“I mean at the end of the day Ireland is a relatively small market, you know, at the edge of Europe so when you are dealing with a company like Essity or whatever who are across Europe, you know, I suppose part of future range is determined by what they’re launching or by what they’re discontinuing for the rest of their business, you know, because they, I suppose in terms of economies of scale, they are going to have, you know, they are going to try to have as tight a range as possible as well from their perspective. They’re unlikely to do exclusive products for one customer.” (KS1)

4.2.6 Meso-level issues

The meso level of the industry is that level above the individual/micro level. This part of the industry includes the supply chain and distribution channels. Closer examination of the meso level of the retail paper industry exposes features which may act as barriers within the industry. These barriers are active within the meso level but individuals may not be aware of them.

Advance planning

Retailers agree on store planograms ten to twelve months in advance with limited room for changes to the product offerings (KS1). The timing of promotions and special offers on paper products are also negotiated and agreed between the producers and retail buyers (KS1). The result of this advanced planning by retailers is a lack of flexibility within the system. Therefore, significant changes in the product range are hindered by the lead time required (KS1; KS10). The brand leaders within the market account for a large percentage of the total market value (46% in 2017), leaving limited leeway for changes in the portfolio in stores. Introducing new products into the range has implications for the traditional range and the traditional brand leaders. Retailers considering adding a recycled paper product into their range will have to make decisions to displace some better-known brands.

Footfall driver

The paper category is considered a footfall driver in stores: a necessary purchase (KS7). Shoppers go into the stores for paper products as part of their grocery shop and while there pick up many other products. Planning within this category is important for the retail sales calendar. Special offers and discounts drive additional sales and the retailer must co-ordinate these into their calendar. The importance of paper as a footfall driver necessitates the careful selection of the product range to satisfy brand loyal shoppers.

Brand leaders

Within the paper product category, there are established brand leaders which customers expect retailers to supply. The brand leaders within this category have valuable assets which are promoted heavily through various medium. The brand associations are strong and reinforced through continued manufacturer investment in promotion. The leading brands are not 100% recycled but contain some percentage of recycled paper. Some have Forest Stewardship Certification (FSC) but that does not make them recycled (KS2). The brand leaders are not offering what might be termed a 'sustainable product' and the strength of brand loyalty means that individuals are less likely to opt for a competing sustainable brand when their tried and tested brand is available to them and often at discounted prices.

Established relationships

Retail buyers from the major supermarkets tend to deal with a small number of companies (3-5) producers and suppliers (KS1; KS10) in order to provide a range of products for their customers. Established retailers have time-honored or traditional relationships with manufacturers and suppliers and therefore find it more difficult to move away from the traditional suppliers and products in their network (see Figure 4.6). Adding new suppliers and products often means dropping one of the traditional products in the range. This presents a dilemma when there is no proven track record with a new product and there is a complete lack of awareness of the brand. A completely unknown products is a risk for the retailer and often at the expense of omitting a safe or reliable brand. Smaller retailers buy from key suppliers in the market (KS2).

"I suppose when you come into a particular portfolio to manage it you inherit a lot of the range decisions, I suppose, do you know what I mean, you can't just suddenly say well I don't agree with those 100 products you know like, they tend to be the brand leaders, they tend to be the key sellers, you know, I suppose for the most part, it's a lot of small changes and tweaks or whatever in the range from there on in you know."
(KS1)

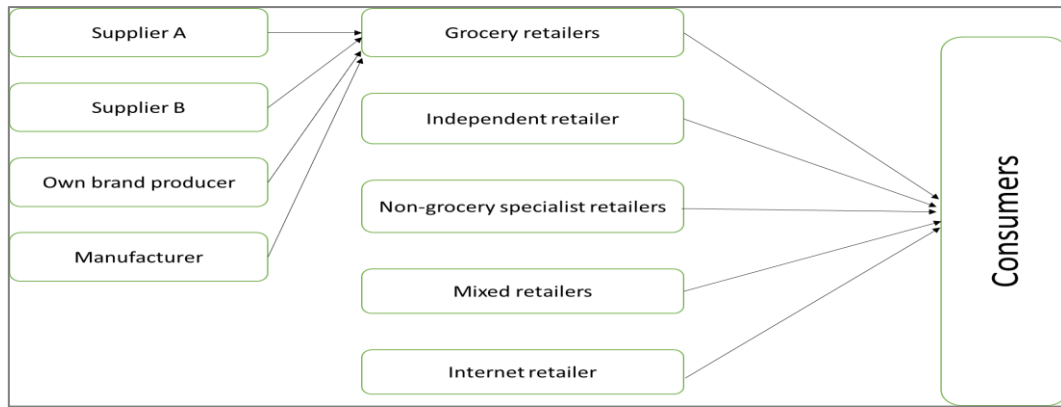


Figure 4. 6: Supply chain for paper products

The key drivers in product selection within the product category in the main supermarkets are market trends, sales growth and availability of space. In the case of discounters, the arrangements with suppliers is much more straightforward: available space and product range are standardised across the chain and with the exception of special promotion products, there is no change to the product offering within the category (KS10).

Market trends

Market trends are one factor driving product range decisions. Preferences within the paper products category have changed over the years from colour coordinated tissue to today's luxury premium products. There is a preference today among Irish and UK markets for white paper products, unlike in the past when paper products were chosen to match bathroom suites and came in a variety of colours. Pure paper products (non-recycled) tend to have a higher brightness level unlike the recycled products (KS6).

"You know if you are looking at what's in growth, what's in decline, you know because even within paper there can be patterns, I suppose. So, say if you go back to 10 years ago in paper it was very common to see pink paper and blue paper, that is now completely disappeared and I would say 90 - 95% of what we sell is just white paper" (KS1)

4.2.7 Industry analysis

This section presents the findings from the household paper products industry research and the key stakeholder in-depth interviews. The resulting findings point to potential barriers or ‘gaps’ at the macro and meso levels. Moving upstream from the individual (micro) level to examine these barriers is essential to get a complete picture of the challenge. At the macro level, governmental, economic, societal and market influences were identified as potential barriers and in some cases enablers to addressing the gap. Government at both Irish and European levels play a significant role at the macro level. Directives and regulations around the Circular Economy agenda regarding product production, waste management and closing the loop signal changes in the marketplace (Bourguignon, 2016). Government has the ability to drive the agenda around this issue, as can be seen by recent initiatives to ban single use plastics by 2021 and to tackle marine litter.

4.3 Exploring the competition

Another objective tackled in this phase was to explore competition in a social marketing context. The objective here was to determine the role of competition in realising pro-environmental shopping behaviours for recycled paper products. The first step in tackling this objective involved a review of the literature on social marketing and competition. In this section, the findings from the focus group and in-depth interviews with household shoppers are presented.

This section contains the findings relating to competition from the same focus group participants and in-depth interviewees described in the introductory section.

4.3.1 Qualitative research findings

The research for this study comprised a qualitative phase followed by a quantitative one. In the in-depth interviews, respondents were asked a series of questions relating to pro-environmental behaviour in the home and pro-environmental shopping behaviour (See Appendix B). At the household level, respondents were asked about

their level of engagement with pro-environmental behaviour in the home such as waste management and water conservation (OECD, 2008; EPA, 2018). At the shopping level, respondents were asked whether they engage in a range of pro-environmental shopping behaviours such as buying local and buying refills or organic products. At the product choice-level questions centred on potential influences on respondents' product choices at the product level. Finally, at this level, respondents were asked about influences when they make a product selection from the paper product category i.e. brand name, price, special offers.

The data gathered from the focus group and interviews was then analysed using thematic analysis to identify the various influences on pro-environmental behaviour (Braun and Clarke, 2008). Guided by the four-level framework (Noble and Basil, 2011), the data was analysed for references to competition and competing behaviours.

Generic level competition

At the highest level of abstraction is generic competition, according to the Noble and Basil's (2011) and Andreasen's (2002b) framework. This type of competition is difficult to pin down as it relates to anything that is likely to deter from the broad topic area i.e. pro-environmental behaviour. The source of competition might be internal or external, entity based or non-entity based. Data was gathered during the focus group and interviews by discussing the broad issue of the environment and environmental behaviour. Thematic analysis of generic competition demonstrates the array of issues likely to distract from the behaviour: farming, education, the government, culture and legislation were all mentioned.

"The government should put some ...or do something to help, they should, you know, they should, be making it more out there you know, if you like making people more aware of it you know". (FU11)

It was acknowledged (ibid. p. 6) that measuring the generic level might be beyond the scope of the discipline. Given the variety of issues mentioned and the commentary of the authors, it was decided to focus on the remaining three levels of competition (Andreasen, 2002b).

Enterprise (household) level competition

Reducing the degree of abstraction by moving down a level makes the scope of competition a little easier to define. The focus group participants and interview respondents were asked to comment on what they did at home which might be considered good for the environment and whether they would consider their household an environmentally friendly one. Certain behaviours were frequently mentioned by both sets of respondents, these included reducing food waste, recycling and energy conservation.

“Well, the recycling of course is the big thing, so we have the green bin and we have the brown bin and the black bin, since we have the two other bins ...is very minimal for collection which makes you feel better, there's a feel-good factor...” (FU06)

“Yeah that’s only a recent enough thing, it’s only in the last 6 months that we took out all the bulbs and put in the energy saving ones.” (MU08)

“I put waste as number one, I seem to be obsessed with waste and where it’s going, for some silly reason, the food waste goes to animals so I’d never sort of waste but waste is a bit of a thing that causes rows in our house”. (FG5)

The behaviours identified were then used to create a scale to measure competition at household level (Table 4.3), this is explained in more detail in Chapter Three.

Table 4. 3: Enterprise (Household level) competition

Which of the following six behaviours do you do the most often? Please rank these behaviours in order from 1 to 6, 1 being the most often and 6 being the least often.	
Reduce food waste	
Conserve energy (i.e. switch off lights, reduce the heating)	
Manage household waste (separate and recycle)	
Conserve water (i.e. turn off taps when brushing teeth, take showers instead of bath)	
Donate unwanted items (i.e. clothes, toys)	
Use public transport	

Product (shopping) level competition

When asked about pro-environmental shopping behaviours, respondents were given a list to choose from and asked for any other behaviours they engaged in. Shopping local appears to be an important behaviour today with many respondents mentioning local shops they favour.

"I suppose if you look at ...consciously ...if you buy more locally produced stuff, locally produced food or locally produced, it would have a more direct impact straight back into the [locality]. It's keeping stuff meant to be local." (MR12)

"Usually in Colemans or McArdle Meats, James would go, he knows the butchers, do you see in the shops..." (FR09)

"Butchers is Traynors in the shopping centre, actually it's on the Dublin Road and then McArdle meat and, fish, we go to the fish cart, yesterday, Thursday and Friday he's there, Morgan's, its first class." (FU06)

Buying Irish was also a big factor in decision making after buying local.

"I always look at where they're from, like, if they are from South America, I wouldn't go for it but if it's from Europe you know some products, I just feel the transportation of them you know. The air miles from Venezuela ...I just don't understand what they are doing in Ireland coming all that way." (FU10)

All respondents mentioned using reusable shopping bags when doing their grocery shopping. The final list of behaviours identified at this stage was used to inform the development of a scale to measure shopping-level competition (Table 4.4). The process of scale development and evaluation for competition is described in more detail in Chapter Three.

Table 4. 4: Product (shopping level) competition

Below is a list of common shopping behaviours, please indicate how often you do the following (if at all). Please tick (✓) the appropriate box.					
	Never	Not very often	Quite often	Very often	Always
Buy Irish made products					

Choose products with low air miles					
Buy fair trade products					
Buy organic products					
Choose products with reduced packaging or plastic					
Buy refills for products e.g. coffee, sugar or spices					
Buy paper products with recycled content					
Use reusable shopping bags					
Buy local, seasonal products					

Brand (product-choice) level competition

At the lowest level of abstraction i.e. the most concrete level, brand level or in this case product-choice level, competition is any force that deters the audience from choosing to buy recycled paper products (Noble and Basil, 2011). In the focus group, participants were asked to imagine themselves walking up the paper products aisle in the supermarket, and then asked to describe their behaviour and what might influence it. During the in-depth interview's respondents were asked what was the most important influence on their decision to buy a paper product and whether they had a preferred brand. A range of prompts was used in both to encourage further discussion. As can be seen from the screenshot below, there was a range of influences suggested, not least marketing-related i.e. promotion, price and product features but also retailer led influences were also mentioned.

The retailer's role was frequently mentioned, with regard to the provision, selection and display of products available. Some respondents mentioned how difficult it was to identify recycled products from the others and availability was sometimes an issue.

"it's not always in the shop, as you say, like, Dunnes wouldn't maybe have a great range and then they mightn't have it and then you pick up something else to do you in the time, which I have ...I probably would do , so yeah if it wasn't there I'd probably just get the next best thing or just grab something off the shelf." (FU01)

“If it’s not displayed well, so like you talked there about symbols like a green dot and the arrows, but they should be displayed very prominently on the product, shouldn’t they, if you want to make a success of it, you know because you’re buying something ...I don’t look at all the details on the ...I throw it into the basket because it’s what I want but if I knew ...if you could see the symbol prominently, I think it would be good.”
(MU17)

Some respondents were happy with the choice available and didn’t bother looking for recycled or eco-friendly products. The final list identified after the thematic analysis was then used to inform the development of a construct to measure competition in this context (Table 4.5). The original scale developed and the process of scale testing and evaluation is explained in greater detail in the next section.

Table 4. 5: Brand (product-choice level) competition

Thinking about the last time you purchased paper-based products such as kitchen towel, which (if any) of the following influenced your choice? Please tick (✓) the appropriate box.					
The following factor(s) influenced my choice of paper product	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Manufacturers promotions					
Brand name					
Product display					
Supermarket offers and promotions					
Product quality					
Pack size					
Price					
Environmentally friendly					
Product packaging					
Product features (e.g. scented, designs)					
Advertising					

Having discussed the views on competition the chapter then moves on to the measurement of same. The process of measuring competition was informed by the literature and findings from the empirical research. Firstly, a definition of competition in a social marketing context was clarified, then a framework was chosen to inform the research and combined with the findings from the qualitative and quantitative phases. A further literature search prompted by the findings informed the remainder

of the research around the measurement scales and will be discussed later in the chapter.

From this data the internal and external sources of competition were separated (see Figure 4.7). The codes relating to each other were collated into single variables. After all variables were created, a second literature search was undertaken with the objective of identifying pre-existing validated scales for these items. Many of the internal influences have pre-existing scales: environmental concern (Tarrant and Cordell, 1997; Mohd Suki and Mohd Suki, 2015); habit (Vermeir and Verbeke, 2006); inertia (Anderson and Srinivasan, 2003); environmental knowledge (Lee, 2008) and scepticism (Stern and Dietz, 1994). There were fewer pre-existing scales on the right-hand side of the diagram, i.e. those relating to external competition. External influences such as peer and normative influences appear in the literature (Bearden, Netemeyer and Teel, 1989; Mangleburg, Doney and Bristol, 2004), while the remaining competitive forces were context specific and do not appear to have pre-validated scales. Due to the scope identified during the research, a decision was taken to continue with an investigation into competition to pro-environmental shopping behaviour concentrating on the following variables: competing pro-environmental behaviours (household-level competition), competing pro-environmental shopping behaviours (shopping-level competition) and product choice-level competition (including store and product related attributes).

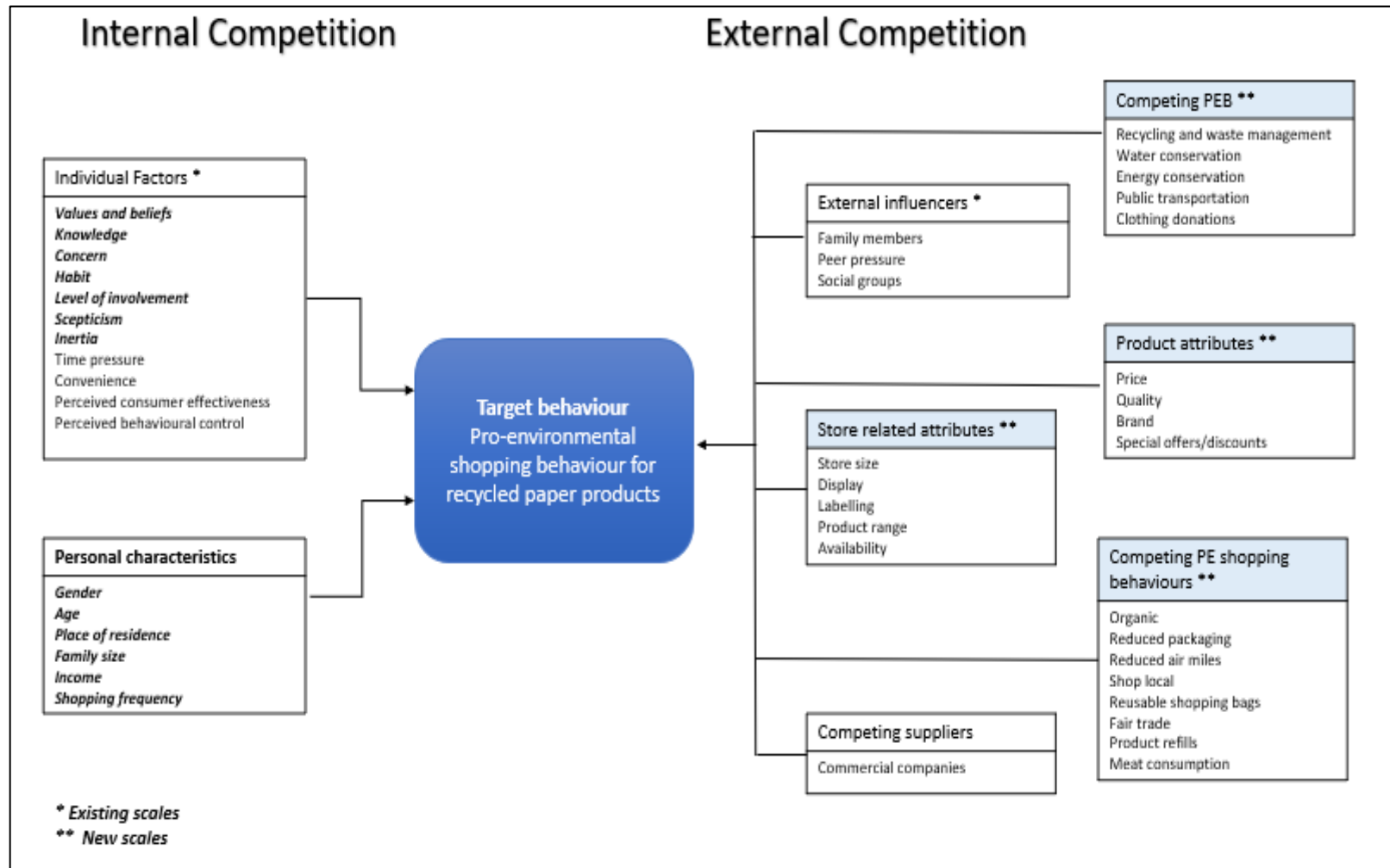


Figure 4. 7: Internal and external competition to pro-environmental behaviour

4.3.2 Exploratory factor analysis

The next stage of scale development involved factor analysis. However, before extracting factors the suitability of the data must be assessed. First a correlation analysis was performed to measure the relationship between each of the items in the scale. Because the household level competition scale is now a ranking question, factor analysis was not applied to this question. As recommended, correlation analysis was applied to both the shopping-level and the product-choice level competition scales (Boateng, 2018, p. 84). The correlation matrix from the shopping level scale showed a significant degree of loading at a $p \leq .001$ level for the most part across this eight-item scale. However, one item i.e. using reusable shopping bags loaded differently from the others (see Figure 4.8). Excluding this item, the remaining seven items loaded on a scale from .225 to .595 (Table 4.6). Only one inter-correlation score was below the minimum of $\pm .30$ and none were above $\pm .60$ (Hair *et al.*, 2014). Cronbach's alpha for the nine-item scale was $\alpha = .832$. An initial factor analysis suggested that there were two factors in this scale explaining 57% of the total variance. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was .864 and Bartlett's Test of Sphericity was significant at $p \leq .01$.

Table 4. 6: Correlation matrix for Shopping level competition items

Item	1	2	3	4	5	6	7	8
Buy Irish made products	1							
Choose products with low air miles	.410**	1						
Buy fair trade products	.395**	.507**	1					
Buy organic products	.336**	.427**	.594**	1				
Choose products with reduced packaging or plastic	.338**	.420**	.434**	.428**	1			
Buy refills for products e.g. coffee, sugar or spices	.225**	.335**	.396**	.324**	.514**	1		
Buy paper products with recycled content	.328**	.411**	.458**	.341**	.582**	.512**	1	
Buy local, seasonal products	.465**	.419**	.415**	.335**	.430**	.376**	.446**	1

** $p < .001$

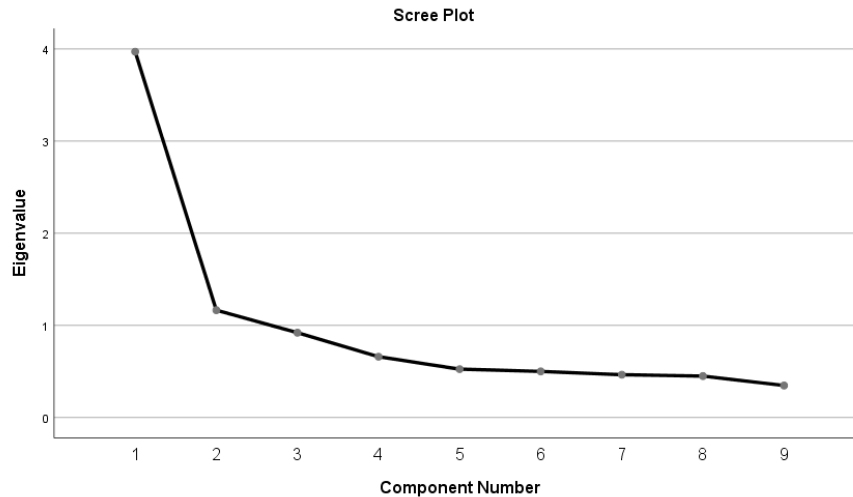


Figure 4. 8: Scree plot for competing shopping behaviour scale

Reviewing the correlation matrix for the next scale, the product-choice level eleven-item scale showed a more complicated output. The initial correlation matrix showed a number of items correlating strongly with each other, while others were not correlated. A factor analysis using principal components extraction suggested that there were three factors in this scale explaining 61% of the total variance. The KMO Measure of sampling adequacy was .782 and Bartlett's test of sphericity was found to be significant at $p \leq .01$. Factors with an eigenvalue of 1.0 or more were retained and the cumulative percentage of variance explained was above the 50% benchmark at 61.5%. Using Principal Components extraction produced the following scree plot (Figure 4.9) and pattern matrix (Figure 4.10).

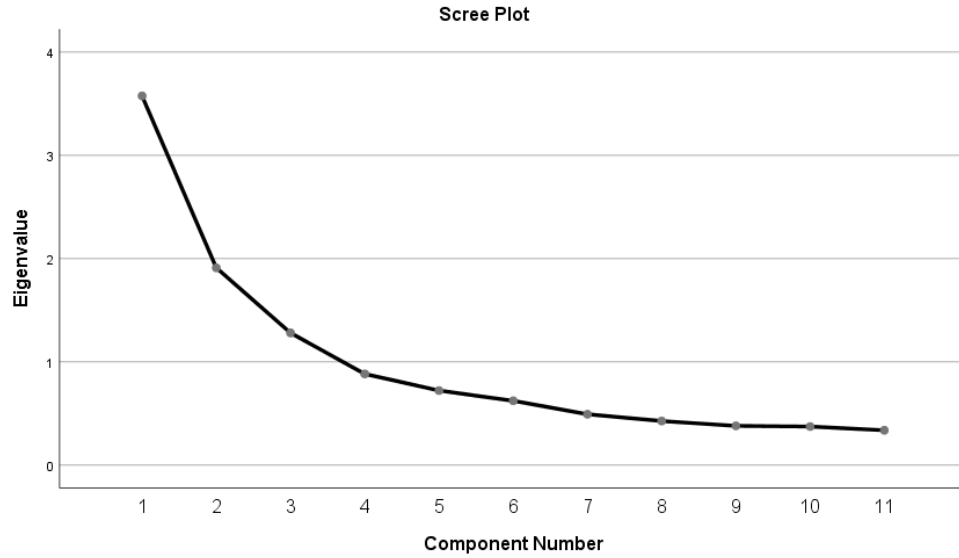


Figure 4. 9: Scree plot for product-choice level competition

Pattern Matrix ^a			
	Component		
	1	2	3
Advertising (e g television, print, radio and social media)	.819		
Product display	.793		
Product features (e g scented, designs)	.779		
Brand name	.709		
Supermarket offers and promotions		.833	
Manufacturers promotions (e g 25% extra free)		.795	
Price	-.314	.591	.323
Environmentally friendly			.835
Product packaging	.436		.619
Product quality			.561
Pack size (e g family pack, single size)		.392	.498
Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.			
a. Rotation converged in 13 iterations.			

Figure 4. 10: Pattern matrix for product-choice level competition

4.3.3 Scale evaluation

Factor analysis

The output from the exploratory factor analysis identified different loadings for each of the two measures. Reviewing the output from the factor analysis for the shopping level competition identified two factors with eight of the nine items loading together and one item loading separately. The lowest level of loading was .593. The first factor with eight items includes all pro-environmental shopping behaviours and might be called ***Pro-environmental Shopping*** (competition). This leaves the second factor with one single item; this single item does not constitute a separate factor. It simply measures whether respondents use reusable shopping bags when they shop.

The output from the product-choice level scale factor analysis identified three factors. For the first factor four items loaded together and one item loaded negatively (price), and for the final item there was cross loading between it and the third factor. Looking at these items, it appears as though this factor represents product brand, appearance and promotion. This factor might be called ***Brand and promotion*** (competition). Four items loaded onto the second factor, all of which relate to price and special offers. This factor might be called ***Value for money*** (competition). The final factor included five items, one of which loaded with the second factor and had a low loading <.50. This final factor appears to represent the EF credentials of the product, including its packaging and whether it is environmentally friendly. This factor might well be called ***Product factor*** (competition).

4.4 Measuring the competition

Any effort to change behaviour requires careful consideration of the competition irrespective of the context. If the task of the social marketer is to encourage a healthier diet or more exercise, they must be aware of the competition in order to inform intervention development. The same is true for social marketers working to address road safety behaviour, binge drinking or in this case pro-environmental

shopping behaviour. Conducting desk research into the household paper industry will provide an awareness of the commercial competition faced by pro-environmental product providers. However, this research offers little insight into competition to behaviour change. Exploring competition to behaviour change requires greater clarity around the appropriate process to measure and capture this information. This research set out to explore the concept of competition to pro-environmental shopping behaviour in a social marketing context. It then merges the findings from the literature and the results from the qualitative research discussed in the previous section and concluded by proposing new scales to measure competition at the Product (shopping) level and the Brand (product-choice) level.

4.4.1 Confirmatory factor analysis

As a final step in the process, the scales were tested using confirmatory factor analysis (Figure 4.11). Using Amos 22, each of the two scale items was tested. One factor representing pro-environmental shopping was created in AMOS. The factor loadings for the eight items ranged from .538 to .712 (Table 4.7). The lowest item loading was 'buy Irish'.

4.4.2 CFA for pro-environmental shopping competition

Table 4. 7: Factor loadings for PE Shopping competition

			Estimate
Air Miles	<---	PEshop	.645
Fair Trade	<---	PEshop	.712
Buy Organic	<---	PEshop	.622
Reduced Packaging	<---	PEshop	.708
Buy Refills	<---	PEshop	.605
Buy Recycled	<---	PEshop	.696
Buy Local	<---	PEshop	.627
Buy Irish	<---	PEshop	.538

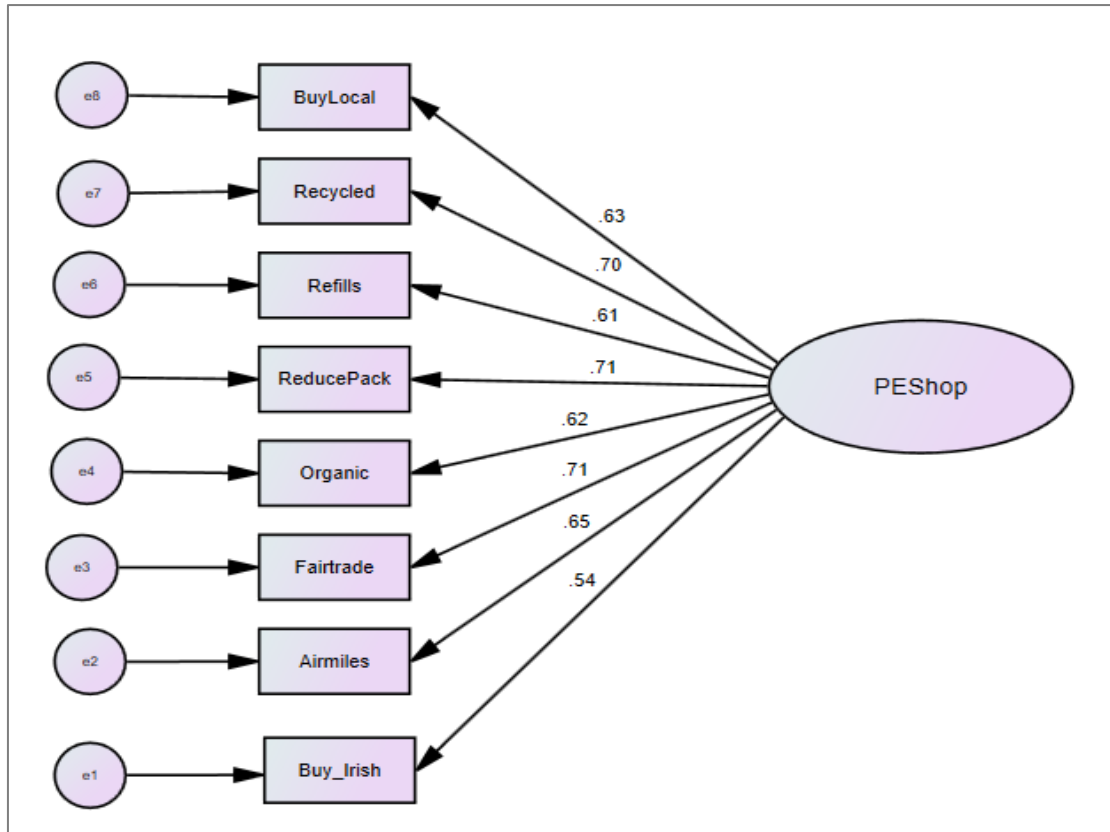


Figure 4. 11: CFA for pro-environmental shopping competition scale

4.4.3 CFA for product-choice level competition

The next competition scale when analysed through EFA was found to have three factors, defined here as brand and promotion competition, value competition and product factor competition. The items loading together were presented as separate constructs within the scale (Figure 4.12).

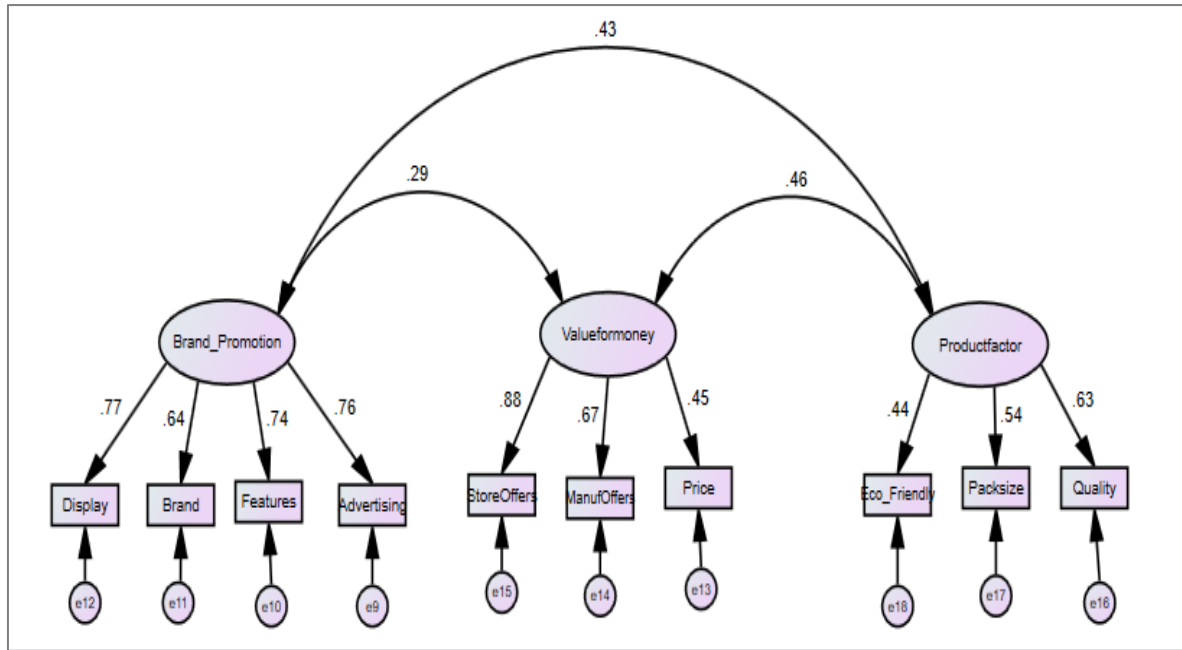


Figure 4. 12: CFA for product choice level competition scale

The following are the factor loading values for each of the items in the construct (Table 4.8). The lowest factor loadings were eco-friendliness (.441) and price (.450).

Table 4. 8: Standardized Regression Weights

			Estimate
Bcomp11	<---	Brand_Promotion	.763
Bcomp10	<---	Brand_Promotion	.740
Bcom2	<---	Brand_Promotion	.639
Bcomp3	<---	Brand_Promotion	.772
Bcomp7	<---	Valueformoney	.450
Bcom1	<---	Valueformoney	.666
Bcomp4	<---	Valueformoney	.878
Bcomp5	<---	Productfactor	.629
Bcomp6	<---	Productfactor	.543
Bcomp8	<---	Productfactor	.441

What can be clearly seen in Table 4.9 is the significant relationships. The model estimates suggest a significant relationship between each of the constructs in the model.

Table 4. 9: Model estimates for Product-choice level competition

		Estimate	S.E.	C.R.	P
Bcomp11 <---	Brand_Promotion	1.000			
Bcomp10 <---	Brand_Promotion	1.011	.047	21.383	***
Bcom2 <---	Brand_Promotion	.884	.047	18.667	***
Bcomp3 <---	Brand_Promotion	.969	.044	22.065	***
Bcomp7 <---	Valueformoney	1.000			
Bcom1 <---	Valueformoney	1.970	.159	12.356	***
Bcomp4 <---	Valueformoney	2.271	.196	11.561	***
Bcomp5 <---	Productfactor	1.000			
Bcomp6 <---	Productfactor	.953	.097	9.845	***
Bcomp8 <---	Productfactor	.843	.094	9.004	***

4.5.4 Competition summary

To conclude, this section has explored the topic of competition in social marketing in the context of pro-environmental shopping behaviour. The chapter began with a review of the literature, then explored how competition is defined within social marketing. It then proposed a new definition of competition in social marketing. Attention then turned to the development of scales to measure competition within the selected context. Using the Noble and Basil (2011) four level framework two new scales are offered to measure pro-environmental shopping competition one at shopping-level and the other to measure product-choice level competition. Finally, it is recommended that the proposed scales undergo further testing in the field. An overview of survey findings will be presented in the final section of this chapter.

4.5 Survey findings

A total sample of 1,010 respondents took part in the survey of household shoppers in the Republic of Ireland in December 2018. The sample was representative of the population and stratified according to gender, age and province. Respondents ranged in age from nineteen to eighty-seven years. Over fifty percent of respondents had achieved a third level qualification. Sixty seven percent of respondents live in an urban community. While household varied in size from single households (13%) to more

than seven members (1.3%), the most common household size in the sample was two persons. When describing their stage in life, the most common stage selected was 'couple' (38%) followed by 'full nest' (31%). Table 4.10 includes a breakdown of the demographic profile of survey respondents.

Table 4. 10: Demographic profile of respondents

Demographic	Number of respondents	Valid percent (%)
Gender		
Female	515	51
Male	495	49
Other	0	0
Age		
18-24	32	3.2
25-34	182	18
35-44	287	28.4
45-54	194	19.2
55-64	198	19.6
65+	117	11.6
Province		
Dublin	330	32.7
Rest of Leinster	267	26.4
Munster	261	25.8
Connaught	109	10.8
Ulster	43	4.3
Type of Community		
Urban	679	67.2
Rural	331	32.8
Household size		
1	134	13.3
2	295	29.2
3	224	22.2
4	204	20.2
5	111	11
6	29	2.0
7+	13	1.3
Level of Education		
Primary	10	1
Secondary	260	25.7
Technical/vocational	160	15.8
Third level	366	36.2
Post graduate/PhD	205	20.3
No formal education	2	.2
Other	7	.7
Stage in Life		
Single	203	20.1
Couple	385	38.1
Full nest	313	31
Empty nest	44	4.4
Senior	65	6.4

4.5.1 Shopping habits

The majority of respondents described themselves as the primary shopper in the household (62%). Not surprisingly perhaps, women made up the majority of the primary household shoppers (62.8%), while those who said they shared responsibility for household shopping were mostly men (68%). Based on household size, women were more likely to be the main shopper in households of three or more, whereas men were the main shopper in smaller households. The weekly shop is something only a quarter of households still do, while the majority of households (65%) shop a minimum of two or three times a week, with 8% of households doing a daily shop (Figure 4.13).

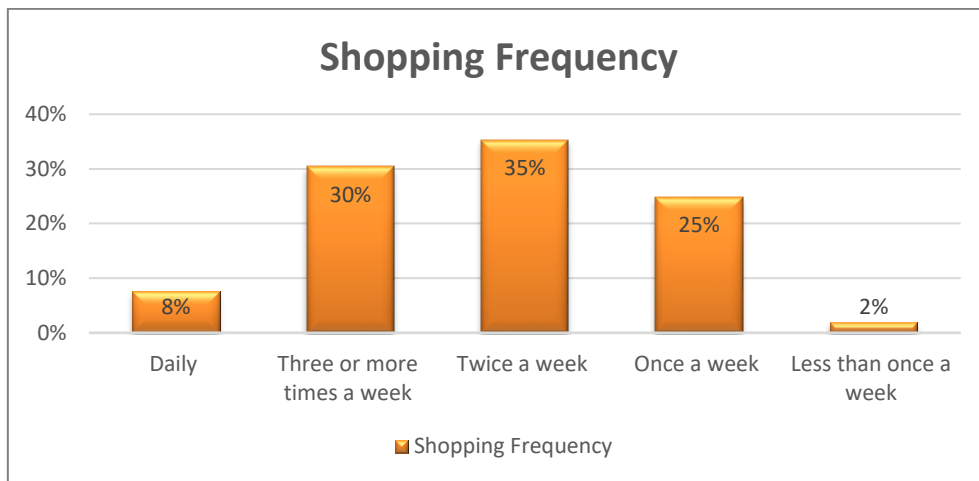


Figure 4. 13: Shopping frequency of the sample

The average weekly spend , depicted in Figure 4.14, on grocery shopping in the sample is less than €100 which matches the CSO finding of a spend of €97 in the Household Budget Survey 2015-2016 (CSO publication, 2017).

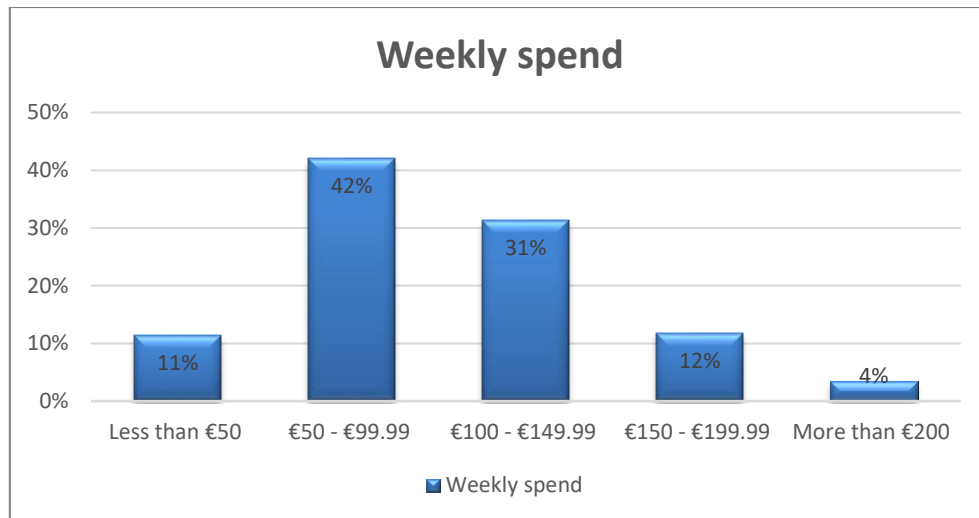


Figure 4. 14: Weekly spend on groceries

The majority of Irish households continue to shop instore (90%) while a small percentage do their grocery shopping online (3%) and the remainder use a mix of both (7%) (Figure 4.15). The majority of online shoppers describe their stage in life as full-nesters (3 or 4 person households) and are in the 35-44 age bracket.



Figure 4. 15: How respondents do their shopping

When it comes to the main shop, 27% of respondents do their main shop in Aldi, 24% in Tesco and 18% in both Dunnes and Lidl. Tesco and Aldi are also top of the list for any 'top up' shops, with 23% and 22% respectively (Figure 4.16). Both Aldi and Tesco are popular regardless of family size, but there appears to be a preference by younger respondents for shopping in Aldi (18-24 years).



Figure 4. 16: Where respondents do their shopping

4.5.2 Pro-environmental shopping behaviours

The majority of respondents, 59%, claim to buy recycled paper products, while 29% of respondents were unsure and 13% said they did not buy them (Figure 4.17). Of those who said they buy recycled paper products; the majority tend to buy them once a month or less (56%).



Figure 4. 17: Buy recycled paper products

Respondents were asked to indicate how often they engage in a range of pro-environmental shopping activities. The list of behaviours include grocery shopping activities which are understood to be better for the environment (EPA, 2018; One Green Planet, 2018). These activities include buying local, using reusable shopping bags, buying organic and fair trade and choosing products with reduced packaging. The most common activity undertaken by respondents is using reusable shopping bags in the store and 71% of respondents said they always do this (Figure 4.18). The five behaviours that Irish shoppers engage in most often are using reusable shopping bags; buying Irish made products; buying local and seasonal produce and recycled products and choosing products with reduced packaging or plastic.



Figure 4. 18: Pro-environmental shopping behaviours

In the survey, respondents were asked to rank a list of pro-environmental household behaviours, the purpose of which was to identify which behaviour was considered most important by Irish households. By far the most important behaviour was waste management in the home, followed by conserving energy and reducing food waste (see Figure 4.19).

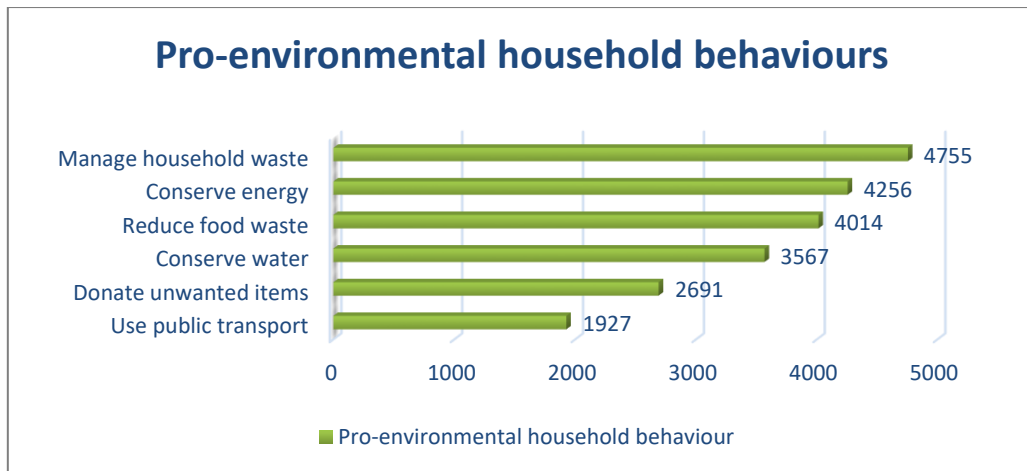


Figure 4. 19: Pro-environmental household behaviours

The findings in this section here present an overview of the sample respondents, their demographics and shopping behaviour and a brief view of pro-environmental behaviours when shopping and at home. The next chapter will present the remainder of the survey findings.

4.6 Summary

This chapter presents the findings and analysis relating to three of the study's research objectives and an overview of the survey findings. The chapter begins with the first research objective: the reasons construct (RO1). Using thematic analysis, the context-driven 'reasons for' and 'reasons against' were described. Findings from the qualitative phase identified four 'reasons for' and seven 'reasons against' engaging in the behaviour. These reasons expose how household shoppers justify their behaviour. Following the analysis, the reasons uncovered in the research were subsequently used to develop item scales for use in the survey. These are discussed in greater detail in the next chapter.

The second section of this chapter examines the paper products industry in more detail and in doing so addresses research objective number four (RO4). Included in this section along with the industry analysis are the findings and analysis of the key stakeholder in-depth interviews.

The next research objective examined is research objective three (RO3): competition and social marketing. The findings relating to this objective were sourced from the literature review and followed by qualitative research, specifically, the focus group and in-depth interviews with household shoppers. Competition was examined at household shopping and product-choice levels. The findings from the qualitative phase informed the development of item scales to measure competition at shopping level and at product-choice level. An evaluation of the scales follows the development phase in this chapter.

The final part of the chapter presents an overview of the findings from the survey on shopping and pro-environmental behaviour. The presentation and structural equation modelling analysis of the survey data is presented in Chapter Five.

Chapter 5

Testing the model:

Structural equation model methodology, findings and analysis

5.0 Introduction

In this chapter, James Westaby's (2005) behavioural reasoning theory (BRT) model is evaluated using structural equation modelling (SEM) in the context of pro-environmental shopping behaviour. This is the first time this particular behavioural intention model has been used to explain shopping behaviour for a routinely purchased item i.e. recycled paper products. Since it was developed by Westaby in 2005, the BRT model has been applied in a variety of contexts including; leadership behaviour (Westaby, Probst and Lee, 2010), binge drinking (Norman, Conner and Stride, 2012), volunteering (Briggs, Peterson and Gregory, 2009) renewable energy adoption (Claudy, Peterson and O'Driscoll, 2013) bicycle commuting and car sharing (Claudy and Peterson, 2014; Peterson and Simkins, 2019). The purpose of testing the model in this study is to see whether the behavioural reasoning theory captures a more complete understanding of behaviour intention regarding shopping behaviour for recycled paper products. This chapter details the approach taken to testing the behavioural reasoning theory from the conceptual model and hypothesis development, through item selection, methodology, findings and analysis.

5.1 The conceptual model and research hypotheses

The conceptual model of the behavioural reasoning theory includes the key constructs of values, reasons, global motives and intention (Figure 5.1). Reasons in the model serve as a link between values, global motives and intentions and as Westaby (2005, p. 97) posit that reasons ‘help individuals to justify and defend their actions’. By including the reasons construct, Westaby (2005) cleverly captures the externalist view in an integrated model. It is proposed that using this model provides a more complete picture of individual behaviour where earlier internalist behavioural intention models, such as the theory of planned behaviour (Ajzen, 1991) might have failed. Reviewing previous tests of the model has exposed the many different approaches taken to the application of the model. Some researchers chose to exclude values and others omitted some of the global motives construct from their application (Briggs *et al.*, 2009; Claudy and Peterson, 2014; Park *et al.*, 2017). Informed by the original research into the model and its subsequent application by Westaby (Westaby, 2005; Westaby, Probst and Lee, 2010), the conceptual model applied in this study includes all global motives constructs, values and separates out ‘reasons for’ and ‘reasons against’ construct.

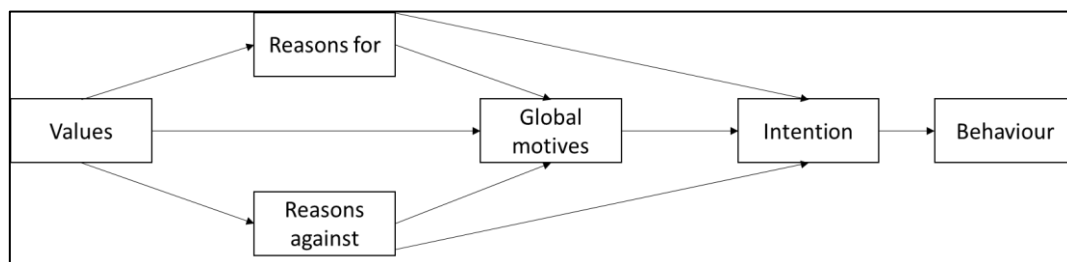


Figure 5. 1: Conceptual model (Westaby, 2005)

* (Global motives construct includes attitudes, subjective norms and perceived control)

5.1.1 The model constructs in the study

Values are unique to every individual, these guiding principles help distinguish between right and wrong and give direction to decision making (Schwartz, 2006a). Values which are important tend to guide motivation, are stable and transcend situations (Schwartz, 2012). In other words what is valued by an individual tends to

motivate action across different situations; values are also relatively stable as our values tend not to change very often (Chan, 2013). According to the BRT model, values are an important antecedent to global motives and 'reasons for' and 'reasons against'; they inform the reasons used to justify behaviour and have an influence on attitudes, perceived control and subjective norms (Westaby, 2005). Household shoppers pro-environmental values in this study are measured using the Environmental Portrait Value Questionnaire (E-PVQ) (Bouman, Steg and Kiers, 2018)

Fundamental to Westaby's (2005) BRT model is the inclusion of the reasons construct. Reasons are context-specific cognitions and were collected prior to testing the model in the qualitative phase of the study. The reasons construct includes the 'reasons for' and 'reasons against' behaviour and cleverly 'subsumes the dichotomous dimensions of pros and cons, benefits and costs and facilitators and barriers' (Westaby, 2005, p. 100). In the model reasons act as a link between values and global motives and intentions and are thought to explain some of the variance between these constructs. While beliefs and reasons are clearly separate constructs, the creation of the reasons construct emerges from behavioural, normative and control beliefs (discussed in Chapter Three). Reasons in a sense might be considered a more concrete construction or articulation of beliefs. The inclusion of reasons negates the repeated criticisms aimed at traditional behavioural intention models which relates to lack of integration (Jackson, 2005). The addition of reasons bridges the gap between the internalist and externalist views by offering an integrative model. The reasons construct was created using data gathered from in-depth interviews with Irish household shoppers.

Global motives are defined in the model as broad substantive factors that influence intention across diverse behaviour domains (Westaby, 2005). The global motive construct encompasses attitudes, perceived control and subjective norms. Reviewing earlier models, it would appear that these three constructs lie at the heart of behavioural intention models and represent consistent influence, positive or negative, on intention to behave (Fishbein and Ajzen, 1975; Ajzen, 1991). Attitudes in this study represent the household shoppers' mind-set when it comes to buying recycled paper products which may be negative or positive. Attitudes are often cited as a key antecedent of intention (Claudy *et al.*, 2013; Fishbein and Ajzen, 2005).

Subjective norms measure the perceived pressure on household shoppers to act in a particular way. This pressure may come from influential people such as family members, friends or peers. The third global motive factor is perceived control; in this study, it measures how an individual perceives the ease or difficulty of engaging in the behaviour i.e. engaging in pro-environmental shopping behaviour. The final construct in the model represents intention; intention to engage in the behaviour under investigation i.e. intention towards pro-environmental shopping behaviour. Intention is related to subsequent behaviour (Fishbein and Ajzen, 1975; Ajzen, 1991), i.e. the stronger the intention to behave, the more likely the behaviour.

5.1.2 Research hypotheses

The conceptual model discussed above provides an initial framework for construct identification. The model adopted for use in the study and the proposed research hypotheses are illustrated in Figure 5.2 and listed in Table 5.1. The model depicts the separation of pro-environmental values and global motives and omits behaviour. The conceptual model in this depiction was used to develop the hypotheses for the study. A description of each of the hypothesis working from right to left, H1 to H5 follows.

Global motives  *Intention*

Attitudes, subjective norms and perceived control together represent global motives in the BRT. The three constructs are likely to have a positive influence on intention to buy if household shopper have a positive attitude towards it, it is easy for them to do it and they feel a social pressure to engage in this type of behaviour. If attitudes towards the action are positive then it is likely to have a positive influence on intention to buy. Perceived control measures the extent to which household shoppers believe it is easy to engage in this behaviour, the higher the perceived control felt by the respondent the more likely there will be a positive effect on intention to buy. Subjective norms which measure the degree to which household shoppers perceive pressure from important influences in their life such as family, friends or peers can

also positively influence the intention to buy. If subjective norms are strongly pro-environmental, the more positive the influence on the intention to buy.

H1a: Pro-environmental attitudes will positively influence intention to buy

H1b: Perceived control will have a positive influence on intention to buy

H1c: Subjective norms have a positive influence on intention to buy

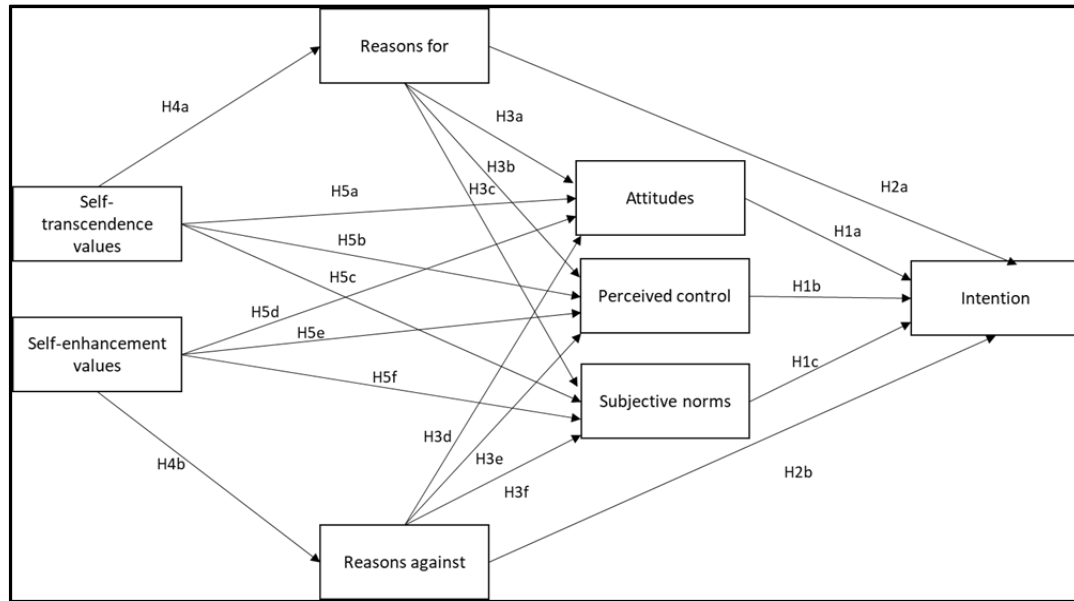


Figure 5. 2: Conceptual model and hypotheses

Reasons → **Intention**

Reasons identified during the qualitative phase informed the 'reasons for' and 'reasons against' construct in the model. Reasons, it is hypothesised, mediate between values and intention to act. They are also thought to represent any variance not explained by attitudes, subjective norms and perceived control (Westaby, 2005, p. 100). The reasons used by household shoppers to justify their behaviour will be influenced to a certain degree by the wider narrative around the behaviour i.e. environmental issues such as climate change and the sustainability debate. The growing awareness of the global concerns around single use plastics and plastic packaging filters into this debate. The stronger the 'reasons for', the greater the effect on intention to buy, while the stronger the 'reasons against', the more negative influence on intention to buy.

H2a: 'Reasons for' buying are positively related to intention to buy

H2b: 'Reasons against' buying are negatively related to intention to buy

The BRT posits that reasons act as an important influence on global motives i.e. attitudes, perceived control and subjective norms. It is anticipated that 'reasons for' are likely to have a positive influence on attitudes, perceived control and subjective norms while 'reasons against' are expected to have a negative influence. If the reasons are strongly held, they are likely to have a greater influence on global motives and vice versa.

H3a (H3b and H3c): 'Reasons for' buying positively influence global motives

H3d (H3e and H3f): 'Reasons against' buying negatively influence global motives

Values  ***Reasons and Global motives***

Values and beliefs are core to understanding behavioural intention models (Jackson, 2005). Values most relevant to pro-environmental behaviour centres around the two dimensions of self-transcendence and self-enhancement in Schwartz's (2006) value system (Steg and de Groot, 2012). Self-transcendence values of universalism and benevolence emphasise concern for the welfare and interest of others (Schwartz, 2012) while self-enhancement values of power, achievement and to a certain degree, hedonism emphasis concern for one's own welfare and interests. Research has shown that pro-environmental behaviour is positively related to self-transcendence values (Karp, 1996; Schultz and Zelezny, 2003; Steg *et al.*, 2014) while self-enhancement values were found to negatively correlate with pro-environmental attitudes and behaviour (Guagnano, Stern and Dietz, 1995; Karp, 1996). This study adopts a recent approach presented by Bouman, Steg, and Kiers, (2018) where their classification of pro-environmental values lies in measuring the four values most relevant to predicting environmental beliefs and behaviours. These are biospheric (concern for the environment), altruistic (concern for the welfare of others), hedonic (values pleasure and comfort) and egoistic (values personal resources) (Steg and de Groot, 2012; Stern and Dietz, 1994). Biospheric and altruistic values represent self-transcendence and tend to be positively correlated. While hedonic and egoistic values

representing self-enhancement also tend to be positively correlated (Bouman, Steg and Kiers, 2018).

Individuals who endorse biospheric and altruistic values tend to have pro-environmental attitudes and make pro-environmental choices. Biospheric values are more predictive of pro-environmental behaviour and when they conflict with altruistic values, the stronger value tends to influence behaviour (Steg and de Groot, 2012, p. 85). Schultz *et al.* (2005) found a negative correlation between egoistic concerns and self-transcendence values. A recent study (Steg *et al.*, 2014) found that the inclusion of hedonic along with egoistic values provided a better understanding of pro-environmental attitudes and behaviours.

In the model, values and beliefs are thought to be important antecedent of 'reasons for' and 'reasons against' engaging in the behaviour (Westaby, 2005). Reasons in the BRT serve as a link between values and behaviour yet some of the variance is also explained by a direct influence on global motives. The influence of values on 'reasons for' and 'reasons against' may be positive or negative. It is anticipated that 'reasons for' are positively influenced by biospheric and altruistic values and 'reasons against' are positively influenced by egoistic and hedonic values.

H4a: Self-transcendence values (biospheric and altruistic) are positively related to 'reasons for' buying

H4b: Self-enhancement values (egoistic and hedonic) are positively related to 'reasons against' buying

Values influence behaviour; however, the influence is often thought to mediate through global motives. Research has shown that it mediates through norms, beliefs, thereby influencing behaviour indirectly (de Groot and Steg, 2007; Steg and de Groot, 2012). In the BRT, values are thought to mediate through attitudes, subjective norms and perceived control. Strongly held biospheric and altruistic values are expected to positively influence pro-environmental attitudes, norms and perceived control, while strongly held hedonic and egoistic values are hypothesised to have a negative influence.

H5a (H5b and H5c): Self-transcendence values (biospheric and altruistic) are positively related to pro-environmental global motives

H5d (H5e and H5f): Self-enhancement values (egoistic and hedonic) are negatively related to pro-environmental global motives

Table 5. 1: Research hypotheses

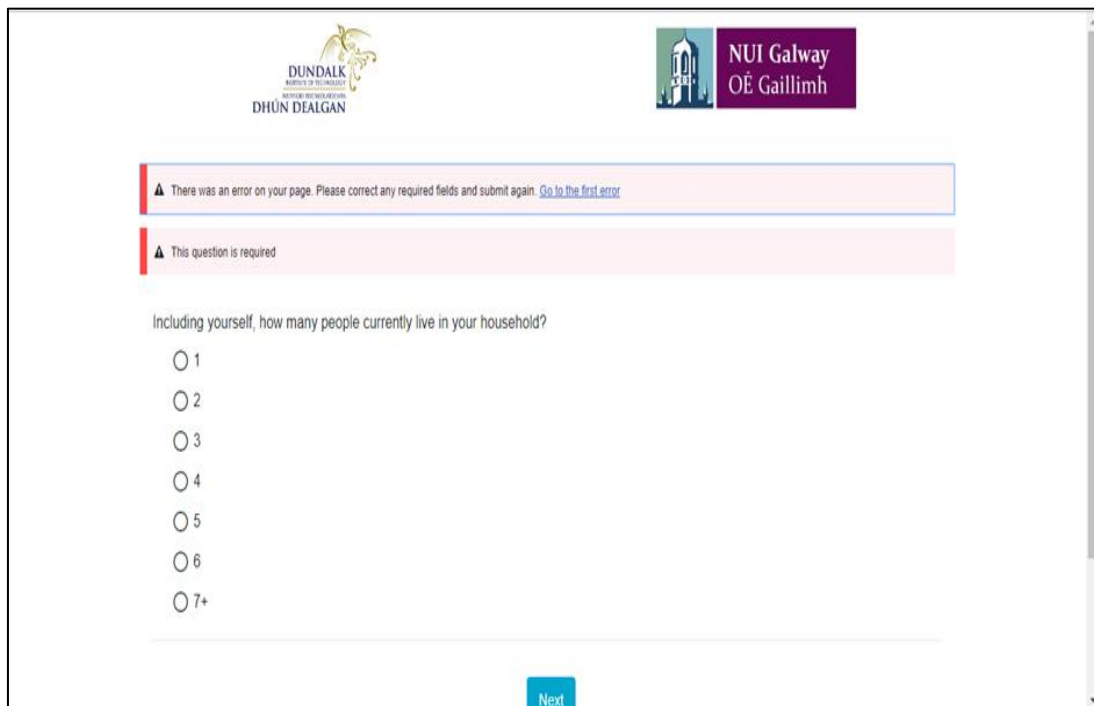
Research hypotheses
H1a: Pro-environmental attitudes will positively influence intention to buy
H1b Perceived control will have a positive influence on intention to buy
H1c: Subjective norms have a positive influence on intention to buy
H2a: 'Reasons for' buying are positively related to intention to buy
H2b: 'Reasons against' buying are negatively related to intention to buy
H3a (H3b and H3c): 'Reasons for' buying positively influence pro-environmental global motives
H3d (H3e and H3f): 'Reasons against' buying negatively influence pro-environmental global motives
H4a: Self-transcendence values (biospheric and altruistic) are positively related to 'reasons for' buying
H4b: Self-enhancement values (egoistic and hedonic) are positively related to 'reasons against' buying
H5a (H5b and H5c): Self-transcendence values (biospheric and altruistic) are positively related to pro-environmental global motives
H5d (H5e and H5f): Self-enhancement values (egoistic and hedonic) are negatively related to pro-environmental global motives

5.2 Data collection

The constructs in the conceptual model outlined above were operationalised and tested using an online survey distributed to a nationally representative sample of Irish households. The final sample size was 1,010 and was indicative of the national population based on the following stratum; gender, age and province (See section 5.4). The services of a market research agency were employed to distribute the online questionnaire to a panel of Irish households. Having access to a dedicated panel through the research agency facilitated a comprehensive stratified sample. A structured questionnaire was designed to capture data around the desired constructs and shopping and pro-environmental behaviour.

5.2.1 Data collection instrument

The questionnaire used in this survey included multi-item scales to measure each of the variables depicted in the conceptual model and are discussed in more detail in the next section. Each of the model constructs are latent variables and are represented by the reflective measures defined for this study. Each of the pre-existing measures were adapted to reflect the context of the study. The reasons constructs were specifically developed for this research. Descriptive statistics of the measures and item scale selection are included in this section. An online survey facilitated the capture of complete responses by ensuring that respondents could not skip a question or even a single item. The system flags any missed items to the respondent before they can move onto the next question (see Figure 5.3). This might, under normal circumstances result in increased dropout but the panel members here are practiced survey takers and expect this to be the case according to the market research agency.



The screenshot displays a web-based survey interface. At the top, there are logos for Dundalk Institute of Technology (DHUN DEALGAN) and NUI Galway (OÉ Gaillimh). Below the logos, there are two red error messages: "There was an error on your page. Please correct any required fields and submit again. [Go to the first error](#)" and "This question is required". The main question is "Including yourself, how many people currently live in your household?". Below the question, there are seven radio button options: 1, 2, 3, 4, 5, 6, and 7+. At the bottom right, there is a blue "Next" button.

Figure 5. 3: Screenshot of error message

5.2.2. Item scale selection process

The item scales used to represent the constructs in the model were a combination of new items ('reasons for' and 'reasons against'), borrowed items (values E-PVQ) and adaptations of validated scales used to test the constructs of the BRT in other contexts. A four-step process was used to determine the appropriate item scale for each construct within the model. The first stage involved a review of all previous applications of the behavioural reasoning theory (Table 5.2) from Westaby's (2005) original research up to and including all applications of the model (Gupta and Arora, 2017; Park *et al.*, 2017; Peterson and Simkins, 2019). On completion of the first step, a draft list of constructs was developed. The next step involved an examination of the various applications of the model with a particular emphasis on those applications researching within a pro-environmental context. Table 5.2 below lists the various applications and the context of the research. All adaptations of the model were considered at this stage. The third step involved extending the research for scale items outside those involving the behavioural reasoning theory where similar constructs had been employed, particularly those within the earlier behavioural intention models (Karp, 1996; Nigbur *et al.*, 2010; Gabler, Butler and Adams, 2013). Finally, the model constructs were selected, adapted and tested. The details of the item scale selection used in this study are described in section 5.3.

Table 5. 2: Application of the BRT

Author/Year	Research Context
Westaby (2005)	Employee turnover and relocation decisions
Briggs, Peterson and Gregory (2009)	Volunteering
Oh and Teo (2010)	Whistleblowing on software privacy
Westaby, Probst and Lee (2010)	Organisational theory/Leadership
Norman, Conner and Stride (2012)	Binge drinking
Claudy <i>et al.</i> , (2013)	Renewable energy systems
Probst and Graso (2013)	Safety/accident reporting
Claudy, Garcia and O 'Driscoll (2014)	Consumer resistance to innovation
Claudy and Peterson (2014)	Urban bicycle commuting
Gupta and Arora (2017)	Mobile shopping
Park <i>et al.</i> , (2017)	Apparel donation
Schneider <i>et al.</i> , (2018)	Online teaching
Ryan and Casidy (2018)	Organic Food consumption
Peterson and Simkins (2019)	Commercial car sharing

5.2.3 Pilot study and data collection

Once item scales for each construct was chosen, they were then put through a series of pre-tests followed by pilot testing of the online survey (n=108). Details of the pre-test and pilot are presented in the methods chapter. Following the pilot, a number of minor changes were made to the constructs. After checking the correlations and reliability of each measure, an exploratory factor analysis (EFA) was conducted followed by a pilot run of the structural equation model in R software. One finding from the pilot was the importance of checking the scripting of the online questionnaire. An error in scripting resulting in some missing data in the pilot and subsequently the measurement model was tested on a limited number of respondents (n=51).

5.3 Item scale selection

An objective of the study was to test the behavioural reasoning theory (BRT) in the context of pro-environmental shopping behaviour. To achieve this, the key constructs of the BRT would require measurement. With this purpose in mind, a four-step process was employed to determine the appropriate item scales (Boateng *et al.*, 2018). During the first stage of item selection, Westaby's (2005) original research on the behavioural reasoning theory was examined, including constructs and item scales. Each of the subsequent applications of the BRT were then reviewed with respect to the item measures applied (Westaby, 2005; Wagner and Westaby, 2009; Westaby, Probst and Lee, 2010). This step identified the relevant constructs to be examined and provided a draft framework for the measures.

The second step of the process involved examining the various empirical applications of the BRT in diverse contexts including volunteering and binge drinking (Briggs, Peterson and Gregory, 2009; Norman, Conner and Stride, 2012). Particular attention was paid to the BRT's application in the context of pro-environmental behaviour (Claudy and Peterson, 2014; Claudy *et al.*, 2013) and at this stage adaptations in the constructs were identified and considered. The third step in the process involved

extending the search into relevant measures. When the scales applied in other studies were not applicable i.e. security and power values, the search was extended within the context to identify relevant measures as applicable, those examined included pro-environmental behaviour and values (Nordlund and Garvill, 2002; Peattie, 2010) and social marketing (Lee, Soutar and Sneddon, 2010; Nagy, 2012). Finally, new items were developed based on the results of the qualitative phase to reflect the reasons construct. Each construct within the BRT was examined and the chosen item scales detailed in the next section. The following constructs of **values, reasons (for and against), global motives (attitudes, perceived control and subjective norms), intention** and **behaviour** and associated selected item scales are described in detail.

5.3.1 Values

The behavioural reasoning theory postulates that personal values and beliefs are related to ‘reasons for’ and ‘reasons against’ that individuals use to justify their behaviour as well as having a direct effect on global motives. The approach taken in previous research to measuring the values construct in various studies testing the Behavioural Reasoning Theory use different but relevant values depending on the context (Claudy and Peterson, 2014; Claudy *et al.*, 2013; Gupta and Arora, 2017). Studies examining values relevant to pro-environmental and green behaviour but not in the application of the BRT, identify values significant to these behaviours (Karp, 1996; Nordlund and Garvill, 2002; Grankvist, Lekedal and Marmendal, 2007; Krystallis, 2012; Bouman, Steg and Kiers, 2018). The table below (Table 5.3) details the items used to measure values in studies applying the BRT.

Table 5. 3: Value items in BRT model applications

Source	Context and values measured	Scale items
Briggs <i>et al.</i> , (2009, p. 67)	Volunteering for the non-profit sector Values measured – <i>Achievement and Benevolence</i>	Subjects were asked to rate specific values according to how each served as a guiding principle in their life, using a 9-point scale, respondents were asked to rate each according to (-1 opposed to my values) to (7 extremely important) 3 items used to measure each value (Schwartz, 1992)

Claudy <i>et al.</i> , (2013)	Attitude behaviour gap for renewable energy Values measured – <i>Value alignment</i>	Strongly agree Strongly disagree 1 2 3 4 5 Do you believe that using solar panels would be: “In line with my own personal values” “fits the way I view the world” “consistent with the way I think I should live my life”
Claudy and Peterson (2014)	Urban bicycle commuting Values measured – <i>Universalism and Security</i>	Scale items from Schwartz Universalism It is important that every person in the world should be treated equally and have equal opportunities in life. That people should care for nature and look after the environment. To listen to people who are different from you and even when one disagrees, one should aim to understand them Security It is important to you to live in secure surroundings and avoid anything that might endanger one’s safety. It is important to you that the government ensures one’s safety against all threats and to be strong so it can defend its citizens.
Gupta and Arora (2017)	Mobile shopping adoption Values measured – <i>Stimulation and self-direction and hedonism</i> (3 items each, 5 point scale)	It is very important to think up new ideas and be creative. It is very important to have an exciting life and to have adventure and take risks. It is important to have a lot of fun, and to enjoy life.
Park <i>et al.</i> , (2017)	Young people’s attitudes towards apparel donation Values measured – <i>Benevolence and Power</i>	Measures were adopted from Schwartz (1992). Respondents were asked to read three items for each value and rate how important each was as a guiding principle in their life. A seven-point scale was used (-1 opposed to my principle and up to 5 extremely important)

The table above identifies two options to examining values in this context of this research; one approach is to choose values which have been identified as those *positively* and *negatively* associated with pro-environmental behaviour i.e. self-transcendence (Universalism and Benevolence) and self-enhancement values (Achievement and Power) (de Groot and Steg, 2007; Bouman, Steg and Kiers, 2018). The second option is to include all values and measure in this context. Values can be measured using the Schwartz Value Survey (SVS) or the Portrait Values Questionnaire (Schwartz, 2012). Schwartz (1994, p. 21) defined values as ‘desirable transsituational goals, varying in importance that serve as guiding principles in the life of a person or other social entity’.

While the original Schwartz Value Scale (Schwartz, 1992; 2006) instrument is a validated measure of value priorities within populations (Lindeman and Verkasalo, 2005; Doran, 2009), the Portrait Values Questionnaire (PVQ), another validated instrument, offers an alternative to the (SVS) and the shorter 21 item PVQ was developed for use with national surveys (Schwartz *et al.*, 2001). Informed by the selection of values to support testing of the BRT and the work of Bouman *et al.* (2018) the values chosen for inclusion are those defined in the Environmental Portrait Value Questionnaire (E-PVQ), see Table 5.4. These items are based on the environmental values of biospheric, altruistic, hedonistic and egoistic and reflect the self-transcendence and self-enhancement dimension within Schwartz circular structure.

Table 5. 4: Environmental Values (E-PVQ) scale

<i>Environmental values</i>
Values are deep rooted and personal beliefs and there are 'four values considered to underlie environmental beliefs and behaviours (Bouman <i>et al.</i> , 2018, p. 1) biospheric (i.e., concern for environment), altruistic (i.e., concern for others), egoistic (i.e., concern for personal resources) and hedonic values (i.e., concern for pleasure and comfort)'.
Each of the 17 items are measured on a scale from 1 to 7. Instructions - Here is a brief description of some people. Please read each description and think about how much each person is or is not like you then proceed to indicate how much the person in the description is like you. Each item is measured on a scale of 1-7, 7= Totally like me, 1 = totally not like me at all It is important to this person... <div> <div>that every person has equal opportunities</div> <div>to work hard and be ambitious</div> <div>to be influential</div> <div>that there is no war or conflict</div> <div>to protect the environment</div> <div>to have fun</div> <div>to respect nature</div> <div>to have authority over others</div> <div>to do things this person enjoys</div> <div>to have money and possessions</div> <div>to prevent environmental pollution</div> <div>that every person is treated justly</div> <div>to enjoy life's pleasures</div> <div>to take care of those that are worse off</div> <div>to have control over others' actions</div> <div>to be in unity with nature</div> <div>to be helpful to others</div> </div>

5.3.2 Reasons scales

Items were informed and adapted from the approach taken by Westaby, Prost and Lee (2010) and Claudy and Peterson (2014). Respondents were given a list of reasons why individuals buy or do not buy recycled paper products and were asked for their level of agreement with each statement. As recommended by Westaby (2005, p. 117) advice was solicited from subject matter experts to refine reasons categories in the survey instrument. Table 5.5 below includes the complete list of reasons identified in the study which were then used to develop measurement scales.

Table 5. 5: Reasons items

<i>'Reasons for'</i>	<i>Number of sources and references</i>	<i>'Reasons against'</i>	<i>Number of sources and references</i>
Good for the environment	15 (40)	Cost or price	16 (50)
Good for me	11 (21)	Poor quality	10 (29)
Product features	6 (11)	Can't find them	12 (26)
For future generations	2 (3)	Lack of availability or choice	10 (22)
		Traditional or habitual purchases	7 (14)
		Lack of interest	4 (7)

Three subject experts who have applied the Behavioural Reasoning Theory model in previous research reviewed the items (see Appendix E). Based on this review, the following adjustments were made to the item scale: (a) the scale used was changed from a three-point to a five-point scale (b) a number of items were rephrased to make them more comprehensible (c) the number of items were adjusted and limited only to those items mentioned by more than 20% of respondents and (d) the wording of the scale was adjusted depending on whether the respondent buys recycled paper products or not. The reasons scales used in the survey are presented in Table 5.6.

Table 5. 6: Reasons measurement scale

<i>Reasons</i>
Reasons as stated by Westaby (2005, p. 100) 'are defined as the specific subjective factors people use to explain their anticipated behaviour' and represents the two sub-divisions of 'reasons for' and 'reasons against'.

The items used in this scale were generated during the qualitative phase. The scale used was adapted from Claudy and Peterson (2014) and Westaby *et al.* (2010). Both the items and scale were examined and refined by an expert panel.

Respondents were asked to indicate their level of agreement with a series of statements indicating the reasons from strongly agree to strongly disagree.

Below is a list of reasons why consumers buy recycled paper products. please indicate your level of agreement with these statements.

Recycled paper products...

'are good for the environment'

'help reduce waste'

'are safer for me to use (i.e. fewer chemicals, perfumes)'

'perform just as well as regular paper products'

Below is a list of reasons why consumers do not buy recycled paper products, please indicate your level of agreement with these statements.

Recycled paper products...

'are more expensive than regular paper products'

'are difficult to find in the supermarket'

'are of inferior quality'

'are not available in the supermarket'

'are not as appealing as other brands'

'do not interest some shoppers'

Statements were adapted to suit those respondents who indicate that they do not purchase or are not sure if they purchase recycled paper products (see Appendix B)

5.3.3 Global motives

Global motives in the behavioural reasoning theory (BRT) (Westaby, 2005) represent three well established antecedents of intention, these are attitudes, subjective norms and perceived behavioural control. The behavioural intention models of the Theory of Reasoned Action (Fishbein and Ajzen, 1975) and the Theory of Planned Behaviour (Ajzen, 1991) which have been robustly tested in numerous domains, highlight these three constructs as predicting intention, which is often described as 'a proximal measure of behaviour'. The three constructs (attitudes, subjective norms and perceived control) are subsumed under the label *global motives* in Westaby's (2005, p. 98) behavioural reasoning theory.

While reasons are specific to the context, global motives reflect the person's global motives towards the behaviour under investigation. Exploring the various applications of the BRT model presents two different approaches taken to measuring global

motives. The first is that used by Westaby *et al.* (2010, p. 485) and Norman *et al.* (2012) when examining leadership decision making and binge drinking respectively. In these applications all three constructs were measured i.e. attitudes, subjective norm and perceived control.

The second approach to measuring global motives in the BRT model was that taken by Claudy *et al.* (2013), here the researchers chose to measure attitudes only. The reason cited for the approach taken was that ‘attitudes are one of the most significant predictors of adoption decisions’ (Ajzen, 2002 as cited in Claudy *et al.*, 2013, p. 33). A similar approach was taken by Claudy and Peterson (2014) in understanding bicycle commuting; also by Briggs *et al.* (2009) exploring volunteering attitudes and by Park *et al.* (2017) examining apparel donation.

The different measuring of item scales can be explained by Ajzen (1991, pp. 188-189) as stated ‘the relative importance of attitude, subjective norm, and perceived behavioural control in the prediction of intention is expected to vary across behaviours and situations.’ The approach taken in this research is that proposed by Westaby (2005) where all three constructs were measured with multiple items. The decision to include all three constructs was influenced by the originality of the research as there was no precedent in the chosen research domain.

The global motives measures were constructed using an elicitation study, based on the manual for constructing measures in the theory of planned behaviour by Francis *et al.* (2004). The manual advises that respondents are asked a series of questions relating to behavioural, normative and control beliefs. In this study, respondents were asked the following questions; *What do you think are the advantages (and disadvantages) of buying eco-friendly/recycled paper products? Who do you think should (and shouldn't) buy eco-friendly/recycled paper products? And what might act as a barrier or obstacle to buying eco-friendly/recycled paper products?* The most often cited beliefs were identified and then converted into items.

Attitudes measure the degree to which an individual has a positive or negative view of the behaviour in question i.e. pro-environmental shopping behaviour for recycled paper products (Table 5.7). The wording of the item scale was altered depending on

whether respondents buy or do not buy recycled paper products. The survey instrument can be found in Appendix B.

Table 5. 7: Attitudes item scale

Attitudes
Definition of attitude (Ajzen, 1991, p. 188): 'Refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question.'
Adapted from Ajzen (1991), Westaby (2005), Westaby <i>et al.</i> (2010) and Francis <i>et al.</i> (2004) Items were measured using the scale 1 – 5, from strongly disagree to strongly agree Respondents were asked to indicate whether they disagree or agree with each of the following statements. The phrasing is adapted for those respondents who buy recycled paper products and those who don't.
Please indicate whether you agree or disagree with the following statements. When I buy recycled paper products; "I know It's better for the environment than non-recycled paper" "It means less paper waste in the system" "I feel I am doing my bit for the environment" "I believe it is more expensive than buying non-recycled paper products" (reversed) "It means compromising on quality" (reversed) If I were to buy recycled paper products; "It would be better for the environment" "It would mean less waste in the system" "I would feel I am doing my bit for the environment" "It would be more expensive to buy than non-recycled paper products" "It would mean compromising on quality"

Subjective norms are an indication of the degree to which someone feels under pressure from people who are important to them to behave in a certain way, three items were used to measure subjective norms in this research (see Table 5.8).

Table 5. 8: Subjective norms item scale

Subjective Norms
Subjective norms (Ajzen, 1991, p188), 'refers to the perceived social pressure to perform or not to perform the behaviour'.
Adapted from Ajzen (1991), Westaby (2005), Westaby <i>et al</i> (2010) and Francis <i>et al</i> (2004) Items were measured using the scale 1 – 5, from strongly disagree to strongly agree Respondents were asked to indicate whether they disagree or agree with each of the following statements. The phrasing is the same for all respondents regardless of whether they buy recycled paper products or not.

Please indicate whether you agree or disagree with the following statements about buying recycled paper products

"Most people whose opinion I value believe that I should buy them"

"My family think it is important that I do buy them"

"People of my own generation believe that I should buy them"

Perceived behavioural control measures the extent to which an individual believes he/she has control over the behaviour, the ease or difficulty in performing the behaviour, also measured using three items and edited according to whether respondents buy recycled paper products or not (see Table 5.9).

Table 5. 9: Perceived control item scale

<i>Perceived behavioural Control</i>
Perceived behavioural control is defined by (Ajzen, 1991, p. 188) as: 'Refers to the perceived ease or difficulty of performing the behaviour and it is assumed to reflect past experience as well as anticipated impediments and obstacles.
Adapted from Ajzen (1991), Westaby (2005), Westaby <i>et al.</i> (2010) and Francis <i>et al.</i> (2004) Items were measured using the scale 1 – 5, from strongly disagree to strongly agree Respondents were asked to indicate whether they disagree or agree with each of the following statements. The phrasing is adapted for those respondents who buy recycled paper products and those who don't.
Please indicate whether you agree or disagree with the following statements about recycled paper products. <i>When it comes to recycled paper products;</i> "It's easy for me to buy them" "It is difficult to buy recycled paper products" "I can buy them whenever I want" <i>When it comes to recycled paper products;</i> "It would be easy for me to buy them" "It would be difficult for me to buy recycled paper products" "I could buy paper products if I wanted to"

5.3.4 Intention item scales

Intention, according to Westaby (2005, p. 99) 'has a robust ability to predict behave'. The antecedents of intention are global motives, i.e. attitudes, subjective norms and perceived behavioural control. This construct mediates the effects of global motives, beliefs and context (Table 5.10).

Table 5. 10: Intention item scale

Intentions
Ajzen (1991, p. 181) defines intentions as: 'Intentions are assumed to capture the motivational factors that influence a behaviour; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour'.
Intention item scales were adapted from Ajzen (1991), Westaby <i>et al.</i> (2010) and Claudy <i>et al.</i> (2013). Intention to behave is measured on a scale from 1-5, from very unlikely to very likely. The phrasing is the same for all respondents regardless of whether they buy recycled paper products or not.
Please indicate your intentions regarding recycled paper products, When it comes to recycled paper products "I intend to buy them when I next buy paper products" "I want to buy them when I next buy paper products" "I will not buy them when I next buy paper products" (reversed)

5.3.5 Behaviour

Respondents were asked to report their behaviour in relation to recycled paper products i.e. do they buy recycled paper products (Table 5.11). Those who responded "Yes" were asked in general, how often they purchase; every week, every two weeks, every month or less than once a month.

Table 5. 11: Behaviour item scale

Behaviour
Adapted from Claudy and Peterson (2014) and Westaby <i>et al.</i> (2010). All respondents were asked if they buy recycled paper products. The responses provided were Yes, No and Not sure.

5.4 Data cleaning and preparation

A total of 1,010 responses were gathered to the survey distributed in December 2018. A response rate of one hundred percent was achieved. Before undertaking multi-variate analysis, it is necessary to perform a number of checks and tests on the data. While time-consuming, the checks are vital to producing good quality data analysis (Pallant, 2004). On receipt of the data in SPSS and Excel format, it was then checked and screened for missing data and cleaned for use in structural equation modelling.

This was followed by a series of statistical tests to check normality and linearity (Hair *et al.*, 2014).

5.4.1 Check for missing data and outliers

There was no missing data in the sample. This was due to the structure and format of the questionnaire. All respondents were required to answer all questions (see 5.2.1). A scripting error in the pilot resulted in one question not answered by the respondents in one group. In order to ensure that all data was being collected for all items during the final survey, the responses from the first one hundred respondents were provided to run initial checks for missing data. Using SPSS 25, boxplots of each of the variables were examined for outliers. The outliers in the sample were not extraordinarily different and fell within the normal range and were therefore retained. If the same case had emerged across all variables there might be a case for exclusion (Hair *et al.*, 2014).

5.4.2 Check for errors and reversed items

The data file was then checked for any data entry errors and reversed items. It was the case that the scale items were occasionally reversed across the questionnaire to test respondent engagement and to prevent respondent fatigue. Due to this switching between items, there was a strong possibility of items requiring recoding. It was therefore necessary to check the scale applied within the data file. First the raw data file in Excel was reviewed to check that scale order was correct, then the SPSS data file was checked for the defined scale. As was the case, many of the scales were reversed coded as strongly agree=1 and strongly disagree=5. These items were re-coded in the data file to reflect the scale accurately, i.e. strongly agree=5 to strongly disagree=1. Finally, two scales included reversed worded items which were employed to ensure reliability of responses. All of the reverse worded items were then transformed in the software using SPSS 25. A clean set of data with no missing items and no errors or reversed items was then tested for the statistical assumptions underlying multi-variate analysis.

5.4.3 Statistical testing

According to Hair *et al.* (2014, p. 68) before multi-variate analysis begins the data must undergo a number of statistical tests to check the assumptions underlying the data including normality and linearity. Fundamental to the data is the assumption that the sample data is normally distributed. The question to be asked of the data is whether the variables are normally distributed. Given the sample size of 1,010 and the fact that many of the items within the study are ordinal scales, the usual tests of normality do not apply. However, it is advisable to look at the overall normality of the measures. This is achieved by reviewing histograms of the data with the normal curve. Also the software can be used to generate the skewness and kurtosis of the data (Boateng, 2018). Linearity is a second assumption underlying multi-variate analysis and is key to regression analysis, factor analysis and structural equation modelling. Non-linearity is not measured in correlation effects and therefore does not identify the strength of the relationship. Scatterplots can be used to explore linearity between variables or simple regression analysis to test for the degree of non-linearity in the residuals (Hair *et al.*, 2014). These simple regressions will be presented in the next section.

5.5 Descriptive findings and EFA

The final sample used in this study was 1,010 respondents of which fifty one percent (515) were female and forty nine percent male (495). The sample profile can be found in Table 5.12. Each of the constructs in the behavioural reasoning theory applied in this study are described in more detail below, followed by an exploratory factor analysis of the measures and a summary of the regression analysis.

Table 5. 12: Sample size and strata

Demographic	Number of respondents	Valid percent (%)
Gender		
Female	515	51
Male	495	49
Other	0	0
Age		
18-24	32	3.2
25-34	182	18

35-44	287	28.4
45-54	194	19.2
55-64	198	19.6
65+	117	11.6
Province		
Dublin	330	32.7
Rest of Leinster	267	26.4
Munster	261	25.8
Connaught	109	10.8
Ulster	43	4.3

5.5.1 Construct measures and descriptive statistics

The constructs depicted in the conceptual model are detailed in this section. Each of the constructs were analysed using a series of tests before embarking on structural equation modelling. These tests involved analysing the construct items beginning with descriptive statistics, moving then to reliability analysis (Cronbach's alpha α), single regression analysis and exploratory factor analysis (EFA) with the results presented in Table 5.13.

Table 5. 13 :Values construct measures and descriptive statistics

Construct	Item	α	Mean	Std dev	No. of items
Self-transcendence		.884			17
Biospheric	<i>to protect the environment</i> <i>to respect nature</i> <i>to prevent environmental pollution</i> <i>to be in unity with nature</i>	.888	5.51	1.202	4
Altruistic	<i>to take care of those that are worse off</i> <i>that every person is treated justly</i> <i>that there is no war or conflict</i> <i>that every person has equal opportunities</i> <i>to be helpful to others</i>	.784	5.57	1.082	5
Self-enhancement					
Hedonic	<i>to enjoy life's pleasures</i> <i>to have fun</i> <i>to do things this person enjoys</i>	.816	5.64	1.088	3
Egoistic	<i>to have control over others' actions</i> <i>to be influential</i> <i>to work hard and be ambitious</i> <i>to have authority over others</i> <i>to have money and possessions</i>	.733	4.26	1.044	5

Based on the sample results, the overall reliability score for the Environmental Portrait Value Questionnaire (E-PVQ) used in the study, was $\alpha = 0.884$ (Bouman, Steg and Kiers, 2018). While each of the four values showed good reliability with a $\alpha > 0.7$, the factor loading varied across the items (Table 5.14) and will be discussed later in the exploratory factor analysis. Reasons were measured separately, i.e. 'reasons for' and 'reasons against'. Four items were measured in 'reasons for' and initially six items were measured in 'reasons against', however reliability was poor when all six items were included ($\alpha < 0.7$). Further analysis using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to inform the final measurement items around reasons. This is explained in more detail in the next section.

Table 5. 14: Reasons construct descriptive statistics

Construct	Item	α	Mean	Std dev	No. of items
Reasons					
'Reasons for'	Recycled paper products are good for the environment help reduce waste are safer for me to use (i.e. fewer chemicals, perfumes) perform as well as regular paper products	.769	4.04	.687	4
'Reasons against'	Recycled paper products... * are more expensive than regular paper products are of inferior quality are not as appealing as other brands do not interest some shoppers	.718	3.09	.642	4*

*reasons against reduced to 4 items

The remaining constructs in the model are global motives and intention to behave. Global motives were measured using three variables; attitudes, subjective norms and perceived control (Westaby, 2005). Initially attitudes were measured using five items, but following a reliability analysis, the number of items were reduced to three and the resulting Cronbach's alpha was a strong $\alpha = 0.854$. Each of the variables, presented in Table 5.15, are discussed in more detail in the next stage of the analysis.

Table 5. 15: Global motives and intention descriptive statistics

Construct	Item	α	Mean	Std dev	No. of items
Attitudes	When I buy recycled paper products *	.854	4.20	.681	3*

	I know it is better for the environment than non-recycled paper It means less paper waste in the system I feel I am doing my bit for the environment				
Perceived control	<i>When it comes to recycled paper products</i> <i>It's easy for me to buy them</i> <i>It is difficult to buy recycled paper products (reversed item)</i> <i>I can buy them whenever I want</i>	.734	3.31	.752	3
Subjective Norm	<i>Most people's opinion I value believe that I should buy them</i> <i>My family think it is important that I do buy them</i> <i>People of my own generation believe that I should buy them</i>	.805	3.24	.798	3
Intention to buy	<i>When it comes to recycled paper products</i> <i>I intend to buy them when I next buy paper products</i> <i>I want to buy them when I next buy paper products</i> <i>I do not intend to buy them when I next buy paper products (reversed item)</i>	.728	3.54	.800	3

* attitudes reduced to three items from 5

5.5.2 Exploratory factor analysis

The final step in preparation for confirmatory factor analysis (CFA) and path analysis in structural equation modelling (SEM) involved exploratory factor analysis (EFA). Exploratory factor analysis was used to explore the loading of each item relating to each of the constructs in the model. The purpose of this was to reduce or condense the variables into a smaller set (Hair *et al.*, 2014, p. 94) by identifying representative variables from a larger set. While the research draws on the pre-tested constructs this is not the case for all of the constructs in the model as the value construct and the reasons constructs were selected and created by the researcher respectively. The remaining constructs were adapted from previous empirical research testing the model (Claudy and Peterson, 2014; Westaby *et al.*, 2010). Using the approach to exploratory factor analysis recommended by Boateng (2018, p. 103) each of the model constructs were examined.

Self-transcendence and self-enhancement values

Self-transcendence includes both biospheric and altruistic values and those respondents who endorse these values tend to behave in a more pro-environment way (Bouman, Steg and Kiers, 2018). Egoistic and hedonic values represent the self-enhancement values which were found to be negatively related to pro-environmental behaviour (Schultz and Zelezny, 1998). Factor analysis in SPSS 25 was applied to both sets of value items; selecting maximum likelihood method, Promax rotation and excluding cases with coefficients < 0.50. Maximum likelihood method was used as according to Boateng (2018, p. 110) it allows for 'the computation of a wide range of indices on the goodness of fit model and permits statistical testing of factor loadings and correlations among factors' which is important for structural equation modelling.

Self-transcendence values had a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy value of 0.906 and Bartlett's test of Sphericity was significant at $p < 0.01$. The total variance explained identified one component (factor) with an eigenvalue of 4.94 which explain 49.4% of the variance. The factor matrix generated in SPSS identified the factor loading for each of the items (with a coefficient above 0.50). The analysis resulted in the omission of one factor (Altruistic 2 'that every person is treated justly') and at least four of the remaining values have a factor loading of less than 0.70. Given the low loading of the altruistic items following EFA, these items were omitted from the model.

Self-enhancement values had a KMO of 0.794 and Bartlett's test of Sphericity was also significant at $p < 0.01$. The total variance explained identified two factors with eigenvalues of 3.29 and 1.62, which explained 32.9% and 16.2% in total. A total of three items were eliminated because of a low loading coefficient (< 0.50), these were Egoistic 1, 2 and 4 ('to have control over others actions', 'to be influential' and 'to have authority over others'). These items failed to load together as one item and therefore it was decided to adopt one self-enhancement value in the model thereby matching the self-transcendence values. In this case Hedonic values were retained.

Reasons construct

‘Reasons for’ and ‘reasons against’ were created using the data gathered in the qualitative phase. Initial review of all of the items across reasons and global motives presented some unexpected conflict across the loadings (‘reasons against’ and perceived control). After closer examination, two items were omitted from the ‘reasons against’ construct (2 and 4) (Figure 5.4). Both of these were already measured by perceived control (‘are difficult to find in the supermarket’ and ‘are not available in the supermarket’).

For the reasons construct, the KMO measure of sampling adequacy was .711 and Bartlett’s test of sphericity was significant at $p < 0.01$. Initial eigenvalues indicated two factors, explaining 21.09% and 17.75% of the variance. A total of three items were omitted as they failed to have a factor loading of 0.5 or above. The ‘reasons for’ all loaded together and two ‘reasons against’ also loaded together. The items omitted were ‘reasons for’ 4 (‘perform as well as regular paper products’) and ‘reasons against’ 1 and 6 (‘Are more expensive than regular paper products’ and ‘do not interest some shoppers’). Subsequently a third ‘reason for’ (no.3) was omitted due its low factor loading (see Figure 5.4).

Pattern Matrix ^a		
	Factor	
	1	2
Reason for 2	.912	
Reason for 1	.797	
Reason for 3	.518	
Reason for 4		
Reason against 5		.798
Reason against 3		.784
Reason against 1		
Reason against 6		
Extraction Method: Maximum Likelihood.		
Rotation Method: Promax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

Figure 5. 4: Pattern Matrix (reasons construct)

Global motives and intention EFA

The three variables included in global motives; attitude, perceived control and subjective norms and intention were all included for the final EFA. Using the same process as before, the data suitability tests indicated a KMO measure of sampling adequacy of 0.728 above the suggested level of 0.60. Bartlett's test of sphericity was significant ($p < .01$). Again, maximum likelihood method was applied to the factors (Figure 5.5). Four factors were identified with eigenvalues of 3.039, 1.70, 1.439 and 1.208 explaining 30.4%, 17%, 14.4% and 12% of the variance. Only one item was removed and that was one of the items used to measure intention to buy. While it is not generally advised to have fewer than three items, this was a reversed item ('I do not intend to buy recycled paper products when I next purchase paper products') and was already asked in the first intention to buy item (see Figure 5.5).

Pattern Matrix^a				
	Factor			
	1	2	3	4
SubjectiveNorms2	.963			
SubjectiveNorms3	.869			
SubjectiveNorms1	.635			
Attitudes2		.869		
Attitudes1		.804		
Attitudes3		.758		
int1			.870	
int2			.773	
int3				
PC1				.899
PC2				.614
PC3				.603
Extraction Method: Maximum Likelihood.				
Rotation Method: Promax with Kaiser Normalization.				
a. Rotation converged in 5 iterations.				

Figure 5. 5: Pattern matrix (Global motives and intention constructs)

As a result of the exploratory factor analysis, a number of potential items were identified for omission before testing the model using structural equation modelling. The final items included for CFA are displayed in the Table 5.16. Reliability analysis

was conducted on the constructs a second time following editing of items. These items were used in the next phase of analysis.

Table 5. 16: Measurement model constructs, factor loadings, CR and AVE

Construct	Items	Factor Loadings	Number of items	Composite Reliability (CR)	Average Variance Extracted AVE
Self-Transcendence (Biospheric)	Bio1 to protect the environment Bio2 to respect nature Bio3 to prevent environmental pollution Bio4 to be in unity with nature	0.86 0.801 0.875 0.745	4	0.892	0.675
Self-enhancement (Hedonic)	Hed1 to enjoy life's pleasures Hed2 to have fun Hed3 to do things this person enjoys	0.786 0.728 0.808	3	0.818	0.597
Reasons for	Recycled paper products are good for the environment help reduce waste	0.782 0.89	2	0.824	0.702
Reasons against	Recycled paper products... are of inferior quality are not as appealing as other brands	0.785 0.818	2	0.782	0.642
Attitudes	When I buy recycled paper products I know it is better for the environment than non-recycled paper It means less paper waste in the system I feel I am doing my bit for the environment	0.788 0.867 0.774	3	0.852	0.657
Perceived control	It's easy for me to buy them It is difficult to buy recycled paper products (Reversed item) I can buy them whenever I want	0.833 0.62 0.648	3	0.746	0.499
Subjective Norm	Most people's opinion I value believe that I should buy them My family think it is important that I do buy them People of my own generation believe that I should buy them	0.666 0.941 0.864	3	0.869	0.692
Intention to buy	I intend to buy them when I next buy paper products I want to buy them when I next buy paper products	0.696 0.955	2	0.819	0.698

5.5.3 Regression analyses

The next stage in data preparation involved regression and correlation analysis to assess the strength and direction of the relationships between each of the variables in the model. The table below (Table 5.17) includes the biospheric and hedonic values only. As can be seen, 'reasons for' have a positive influence on global motives and intention to buy, while the relationship between 'reasons against', global motives and intentions are negative. The strength of the relationship between biospheric, hedonic values and the reasons and global motives variables while not particularly strong is still positive.

Table 5. 17: Pearson's correlations among the model constructs

	1	2	3	4	5	6	7
Biospheric							
Hedonic	.552**						
Reasons for¹	.195**	n/a					
Reasons against²	n/a	n/a	n/a				
Attitudes	.468**	.237**	.468**	-.563**			
Perceived control	.138**	.122**	.138**	-.248**	.244**		
Subjective norms	.160**	.157**	.160**	-.080*	.191**	.189**	
Intention	n/a	n/a	.173**	-.376**	.400**	.153**	.209**

**p < 0.01 *p < 0.05

1. Reasons for includes two factors
2. Reasons against also includes two factors

5.6 Structural Equation Modelling

Structural equation modelling (SEM) techniques were used to test the behavioural reasoning theory using the data collected for this study. Following the recommended two-step process outlined by Anderson and Gerbing (1988), analysis began with the measurement model using confirmatory factor analysis followed by a test of the structural model.

5.6.1 Measurement model

The measurement model in this study consists of eight latent indicators i.e. biospheric and hedonic values, 'reasons for' and 'reasons against', attitudes, perceived control and subjective norms (global motives) and intention (Figure 5.6). Post exploratory factor analysis, the latent indicators were reflective of a total of twenty-two observed variables.

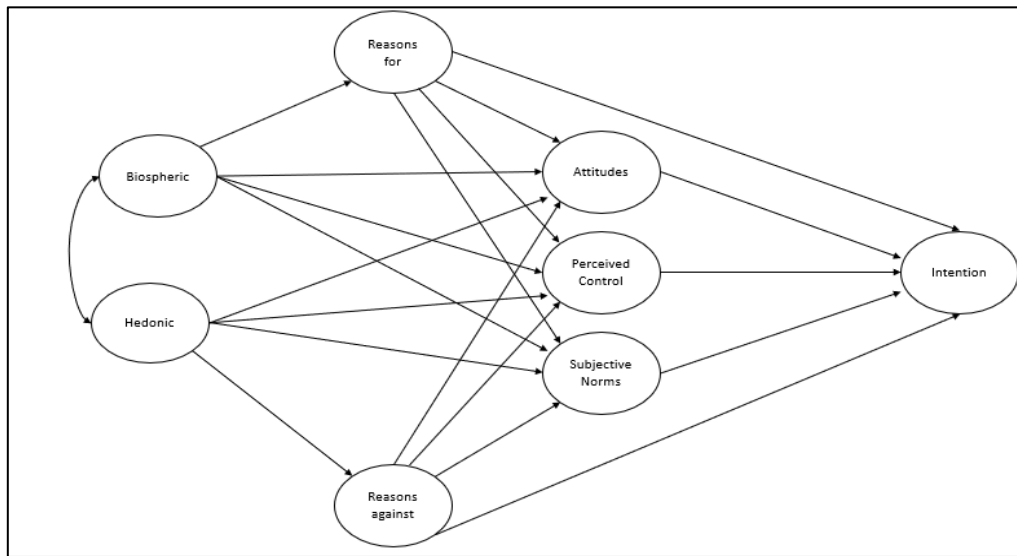


Figure 5. 6: BRT path diagram of latent constructs

Confirmatory factor analysis (CFA) in this study was used to test the reliability of the model and to estimate the unidimensional nature of the latent indicators (Anderson and Gerbing, 1988) and as Hair *et al.* (2014, p. 600) remarked it 'enables us to test how well the measured variables represent the constructs'. Unlike exploratory factor analysis which is statistically driven, the CFA is theory driven and is based on the behavioural reasoning theory which informed the measurement model in this research. Presented below are the results of the factor loading of the CFA, only one construct falls below the threshold of average variance extracted of 0.5 or higher i.e. perceived control (Table 5.18). In this case one of the observed items is a reversed item and is the opposite of another item. Based on the CFA the average variance extracted is measured as well as the composite reliability for each of the latent constructs. The structural model with standardised estimates can be seen in Figure 5.7.

5.6.2 Validity and reliability

An essential part of the analysis involves testing the reliability and validity of the measurement model. Reliability analysis for latent constructs were measured during the confirmatory factor analysis using Cronbach's alpha, with each item having a factor loading of 0.5 or higher. The total construct loading achieved a measure of $\alpha \geq 0.7$ (see Table 5.16). The composite reliability measure (CR) exceeded the recommended level of ≥ 0.6 (Bagozzi and Yi, 1988, p. 82) as well as exceeding an average variance extracted of ≥ 0.5 . Convergent validity measures the degree to which items within a construct converge or share a high amount of variance in common (Hair *et al.*, 2014, p. 618). At a minimum the factors should load at .5 or higher (ideally at 0.7 or above). All measures meet the requirement of convergent validity and the composite reliability for each construct is not less than 0.6 (see Table 5.18). Discriminant validity measures the degree to which a construct is distinct from other measures in the model. This is assessed using the Fornell and Larcker (1981) criterion. It requires that the average variance extracted (AVE) must be greater than the square of the corresponding inter-construct correlations (Boateng, 2018, p. 133).

Table 5. 18: Convergent and discriminant validity

	1	2	3	4	5	6	7
Biospheric	(.675)						
Hedonic		(.600)					
Reasons for	.195**		(.702)				
Reasons against		-.120		(.643)			
Attitudes	.321**	.282**	.577**	-.220**	(.657)		
Perceived Control	.061	.122**	.138**	-.248**		(.499)	
Subjective Norm	.289**	.157**	.160**	-.080			(.692)
Intention	n/a	n/a	.173**	-.376**	.257**	.153**	.209**

Pearson's Correlation, * significant at .05 level ** significant at 0.01 level.

Diagonal values in parenthesis indicates the AVE.

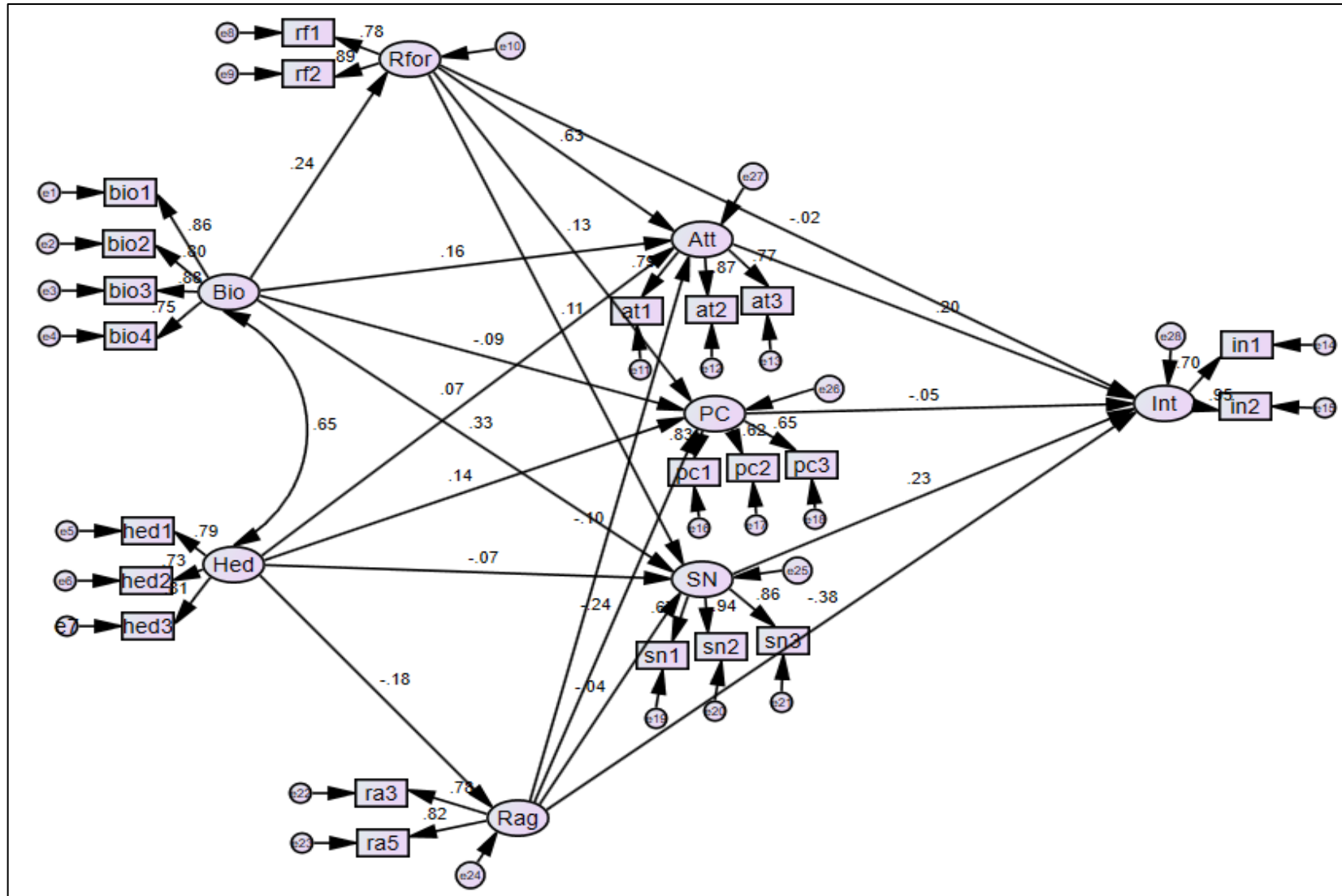


Figure 5. 7: Structural model

5.6.3 Testing the research hypotheses

This section reviews the results from testing the behavioural reasoning theory in the context of pro-environmental shopping behaviour for recycled paper products. As a result of the analysis the following findings can be presented based on the output from the application of structural equation modelling on the data collected. Reviewing the regression weights for the relationships, nine of the nineteen are significant at the $p \leq .001$ and another four at the $p \leq .05$ level (Table 5.19).

Table 5. 19: Standardised estimates and P values

			<i>Estimate</i>	<i>S.E.</i>	<i>C.R.</i>	<i>P</i>
Rfor	<---	Bio	.137	.021	6.471	***
Rag	<---	Hed	-.136	.029	-4.648	***
SN	<---	Hed	-.054	.040	-1.339	.180
PC	<---	Hed	.081	.033	2.451	.014
Att	<---	Hed	.040	.025	1.591	.112
Att	<---	Bio	.081	.021	3.918	***
PC	<---	Bio	-.042	.027	-1.584	.113
SN	<---	Bio	.222	.033	6.709	***
SN	<---	Rag	-.042	.038	-1.104	.270
PC	<---	Rag	-.192	.034	-5.740	***
Att	<---	Rag	-.080	.024	-3.273	.001
Att	<---	Rfor	.527	.032	16.509	***
PC	<---	Rfor	.108	.033	3.253	.001
SN	<---	Rfor	.126	.040	3.157	.002
Int	<---	Rfor	-.018	.050	-.366	.714
Int	<---	Rag	-.356	.043	-8.231	***
Int	<---	SN	.203	.031	6.527	***
Int	<---	PC	-.056	.043	-1.302	.193
Int	<---	Att	.238	.062	3.869	***

The research hypotheses expressed in section 5.1.2 will be assessed in light of these findings. Each of the stated hypothesis will be examined and conclusions drawn and are summarised in Table 5.20.

The first hypothesis tested was that of the relationship between each of the global motive constructs and the household shoppers' intention to buy. Attitudes and subjective norms both have a significant influence on intention to buy ($\beta = .198$, $p < .001$; $\beta = .228$, $p < .001$) while perceived control had no influence on intention to buy ($\beta = -.046$, $p = n.s.$) Therefore, both H1a and H1c were supported and H1b was rejected. 'Reasons for' and 'reasons against' are key to the behavioural reasoning theory and it is proposed that 'reasons for' will have a positive influence on intention to buy while 'reasons against' has a negative influence. Findings suggest that in the case of pro-environmental shopping behaviour that 'reasons for' do not have a positive influence when it comes to buying recycled paper products ($\beta = -.018$, $p = n.s.$) in fact it has no influence, as a result, hypothesis H2a was rejected. However, 'reasons for', was found to have a positive effect on global motives, the strongest on attitudes ($\beta = .625$, $p < .001$) followed by perceived control ($\beta = .128$, $p < .05$), and subjective norms ($\beta = .111$, $p < .05$). The following decision was made regarding H3a, H3b and H3c. The first hypothesis H3a was supported; H3b and H3c were partially supported at significance level of $p < .05$.

'Reasons against' were found to negatively influence intention to buy ($\beta = -.328$, $p < .001$), therefore hypothesis H2b was supported. It was also hypothesised that 'reasons against' would negatively influence global motives. This was the case although the influence was more significant with perceived control ($\beta = -.244$, $p < .001$) and attitudes ($\beta = -.101$, $p < .05$) and there was no significance with subjective norms ($\beta = -.040$, $p > .05$). As a result, H3e was supported, H3d was partially supported and H3f was rejected.

It was hypothesised that pro-environmental values, i.e. biospheric values would positively influence 'reasons for' and global motives. Biospheric values was found to have a positive effect on the 'reasons for' construct ($\beta = .235$, $p < .001$) and also had a strong positive influence on subjective norms ($\beta = .334$, $p < .001$) and attitudes ($\beta = .165$, $p < .001$) but had no influence on perceived control ($\beta = -.086$, $p = n.s.$). The following hypotheses were supported H4a, H5a and H5c, while hypothesis H5b was rejected. The final set of hypotheses related to hedonic values and the likely effect on 'reasons against' and global motives. As a self-enhancement value, it was anticipated that

strong hedonic values would have stronger ‘reasons against’ engaging in pro-environmental behaviour and these values would have a negative influence on pro-environmental global motives. However, the stronger the influence is dictated by the strength of hedonic consequences (Steg *et al.*, 2014). Hedonic values in this study were found to have a negative influence on ‘reasons against’ ($\beta = -.182$, $p < .001$). The influence of hedonic values on attitudes was not significant ($\beta = .068$, $p = \text{n.s.}$) it’s influence on subjective norm was also not significant ($\beta = -.068$, $p = \text{n.s.}$) and perceived control was positive ($\beta = .138$, $p < .05$). As a result, hypothesis H4b was rejected, in addition to H5d and H5f while H5e were all rejected.

Table 5. 20: Research hypotheses, model estimates and p values

Research hypotheses	Standardised estimates	p-value	Hypothesis verification
H1a: Pro-environmental attitudes will positively influence intention to buy	.198	***	Supported
H1b: Perceived control will have a positive influence on intention to buy	-.046	.193	Rejected
H1c: Subjective norms have a positive influence on intention to buy	.228	***	Supported
H2a: ‘Reasons for’ buying are positively related to intention to buy	-.018	.714	Rejected
H2b: ‘Reasons against’ buying are negatively related to intention to buy	-.375	***	Supported
H3a (H3b and H3c): ‘Reasons for’ buying positively influence global motives	.625 .128 .111	*** <.001 <.002	Supported *Supported *Supported
H3d (H3e and H3f): ‘Reasons against’ buying negatively influence global motives	-.101 -.244 -.040	<.001 *** .270	Supported Supported Rejected
H4a: Self-transcendence values (biospheric) are positively related to ‘reasons for’ buying	.235	***	Supported
H4b: Self-enhancement values (hedonic) are positively related to ‘reasons against’ buying	-.182	***	Rejected
H5a (H5b and H5c): Self-transcendence values (biospheric) are positively related to pro-environmental global motives	.165 -.086 .334	*** .113. ***	Supported Rejected Supported
H5d (H5e and H5f): Self-enhancement values (hedonic) are negatively related to pro-environmental global motives	.068 .138 -.068	.112 .014* .180	Rejected Rejected Rejected

5.6.4 Structural model

The overall fit of the behavioural reasoning theory model was tested using a range of measures (Table 5.21). According to McDonald and Ringo Ho (2002) model fit varies considerably across the literature. This is not surprising given the number and ranges of indices available from programmes performing structural equation modelling. Bearing in mind the most common indices reported and based on recommendations from various authors including, Bagozzi and Yi (1988), McDonald and Ringo Ho (2002) and Schreiber *et al.*, (2006), a number of absolute and incremental (relative) indices were used to measure the fit of the model in this study. Absolute fit measures how well the proposed model reproduces the data (Hair *et al.*, 2014, p. 577), with a good model fit requiring few if any re-modifications. The measures generated including absolute fit measures of Chi-square (χ^2), Root mean square error of approximation (RMSEA), Goodness of Fit (GFI) and Root mean square residual (RMR) and Standardised root mean square residual (SRMR). The second measure of fit employed in testing the model was incremental (or relative fit) and this measures how well a model fits with an estimated baseline model such as the null model (McDonald and Ringo Ho, 2002). Incremental fit indices employed include the TFI (Tucker-Lewis Fit Index), the Comparative Fit Index (CFI) and parsimonious fit indices. The recommended thresholds are listed in the table below along with the results of the model fit. While there is some level of agreement on threshold measures they may be sensitive to sample size (Hair *et al.*, 2014).

Table 5. 21: Model fit indices

Fit Indices	Threshold level (Bagozzi and Yi, 1988; Hooper, Coughlan and Mullen, 2008)	Levels based on sample size (Hair et al., 2014)	Structural Model Fit	Modification 1 (See 5.6.5)
Absolute Fit Indices				
Chi-square χ^2	Low χ^2 relative to degrees of freedom	Significant p- values	928.709 Df 189 (4.914)	455.431 Df 137 (3.324)
Root mean square error of approximation (RMSEA)	Values \leq 0.06 to 0.08 (Boateng, 2018, p. 194)	Values <0.08	0.062	0.048
Goodness of fit (GFI)	Values \geq 0.95	N/A	0.921	0.954
RMR	Good models have small RMR	Values <0.07	.066	.062
Incremental Fit Indices				
Tucker-Lewis Fit Index (TFI)	\geq 0.95	Above .92	0.917	0.959
Incremental Fit Index (IFI)	\geq 0.95	N/A	0.933	0.968
Comparative Fit Index (CFI)	\geq 0.95	Above .92	0.932	0.967

5.6.5 Model modification

While the model fit indices could be considered good overall, there is perhaps some potential to improve the fit. However this comes with a warning as Hooper *et al.*, (2008, p. 56) warns that ‘allowing modification indices to drive the process is a dangerous one’. A view echoed by others in the field (Martens, 2005; Schreiber, 2006) who emphasise the use of SEM for confirmatory purposes and not exploratory analysis. The risk lies in the increased chance of type 1 errors. Any decision to modify indices will require theoretical evidence. There should be a theoretical justification for the modification of the model (Schreiber, 2006; Schreiber *et al.*, 2013).

Adopting a nested models approach as recommended by Anderson and Gerbing, (1988, p. 418) the model was tested to reflect four nested models (see Table 5.22). The following changes were made to the original model based on the significance of the relationships identified in the model estimates. First, the baseline model was tested against a series of nested models where non-significant paths were constrained one by one until a better model fit can be achieved. In Model 1, the path

between 'reasons for' and intention was constrained to zero. The next path to be constrained to zero was the path between 'reasons against' and subjective norms. In the third model, the path between perceived control and intentions was then constrained to zero. In the final nested model, the path between hedonic values and subjective norms was constrained to zero.

Table 5. 22: Comparison of alternative models

Model	χ^2	df	χ^2/df	CFI	RMSEA	GFI
Baseline	928.7	189	4.914	0.932	.062	.921
Model 1	928.4	190	4.889	0.933	.062	.921
Model 2	929.97	191	4.869	0.933	.062	.922
Model 3	959.08	192	4.995	0.930	.063	.921
Model 4	960.89	193	4.979	0.930	.063	.920
Re-specified model	455.43	137	3.324	0.967	.048	.954

5.6.6 Re-specified model

The re-specification involved removing the perceived control construct as a lack of significance was found between perceived control and intention to behave. The original hypothesis stated that there would be a positive relationship between it and the intention to buy. The findings from the first test of the model indicate no influence ($r=-0.05$, $p= n.s.$) When the model was re-estimated there was no noticeable difference across the focal path estimates i.e. attitudes and intention, social norms and intentions and 'reasons for' and 'reasons against' and intention varied only slightly. The overall model fit indices improved however (see Table 5.23).

Removing the perceived control construct from the model had the following effects; the path estimates between 'reasons for', attitudes, subjective norms and 'reasons against', changed very little while there was a significant effect on the chi-square statistic ($\chi^2 = 455.43$, $df = 137$ and the $\chi^2 / df = 3.324$). The root mean square error of approximation (RMSEA) in the baseline model was .062 while the re-specified model index decreased to .048, indicating a good fit (Hooper, Coughlan and Mullen, 2008). The goodness of fit (GFI) index has also increased from .921 to .951 which is perhaps due to the fact the model is now simpler, parsimonious, without this additional construct. The comparative fit indices improved overall, the Tucker-Lewis index (TLI)

and Normed Fit Index (NFI) measured .959 and .954 respectively. The following are the estimates from the re-specified model. Reviewing the output from this model shows that eight of the fourteen paths are significant at the $p \leq .01$ and another two are significant at the $p \leq .05$ level. See Figure 5.8 for an illustration of the re-specified model.

Table 5. 23: Re-specified model - maximum likelihood estimates

			<i>Estimate</i>	<i>S.E.</i>	<i>C.R.</i>	<i>P</i>
Rfor	<---	Bio	.137	.021	6.465	***
Rag	<---	Hed	-.145	.031	-4.708	***
SN	<---	Hed	-.064	.040	-1.589	.112
Att	<---	Hed	.038	.025	1.495	.135
Att	<---	Bio	.083	.021	3.999	***
SN	<---	Bio	.233	.033	7.015	***
Att	<---	Rfor	.525	.032	16.465	***
SN	<---	Rfor	.126	.040	3.143	.002
SN	<---	Rag	-.015	.036	-.407	.684
Att	<---	Rag	-.076	.023	-3.280	.001
Int	<---	Rag	-.329	.041	-8.118	***
Int	<---	SN	.205	.031	6.566	***
Int	<---	Att	.234	.062	3.802	***
Int	<---	Rfor	-.025	.050	-.507	.612

5.7 Contributions of the model

This research tests the behavioural reasoning theory model to help explain the value-action gap for pro-environmental shopping behaviours. In the model reasons serve as an important link between values, global motives and intention to behave (Westaby, 2005) and are believed to help explain the variance in behaviour beyond that explained by global motives (i.e. attitudes, subjective norms and perceived control). Reasons are used to justify behaviour, for instance, a person may have strong biospheric values towards pro-environmentally shopping yet they may not purchase these products because of the perceived quality or a strong preference for their usual brand ('reasons against'). That way individuals might justify their behaviour for not purchasing the product. Positive values might also be reinforced by strong 'reasons for' influencing attitudes (global motives) and intention to behave.

5.7.1 Structural equation modelling

The value-action gap for pro-environmental purchasing behaviour is a difficult concept to explain, it is not directly observable, has variables and this is where confirmatory factor analysis and structural equation modelling come into play. Structural equation modelling (SEM) 'is a family of statistical models that seek to explain the relationships among multiple variables' (Hair *et al.*, 2014, p. 546). In this study, the structural equation modelling technique was used to compare the model to empirical data gathered on Irish shoppers. The model was used to explain the relationships between all the variables and as a result, according to Nachtigall *et al.*, (2003, p. 5), 'If the model fit is acceptable, then the assumed relationships are explained by the data'. In this study the model was seen to be a good fit and therefore the behavioural reasoning theory can be used to explain the value-action gap for pro-environmental purchasing behaviour for recycled paper product.

5.7.2 Findings overview

Following structural equation model testing, a number of key findings emerged from the data. Significantly, according to the tests conducted, the model was judged to have an acceptable fit. According to (Hair *et al.*, 2014, p. 577) it 'meets the requirements based on the sample size and number of variables' (see Table 5.21). The key findings relate to the hypotheses tested in the model.

On testing the model, it was found that biospheric values have a significant effect on three variables, the individual's 'reasons for', attitudes and subjective norms ($H4a = .235$, $H5a = .165$, $H5c = .334$). These values if they are enhanced, the individual will have stronger 'reasons for', attitudes and subjective norms around these products. Therefore, activating biospheric values can improve the chance of the household shopper choosing these products and closing the value-action gap. 'Reasons for' have a significant impact on intention to behave when mediated through attitudes but not directly ($H2a = -.018$). As can be seen in Figure 5.8, attitudes are greatly influenced by the 'reasons for' ($H3a = .625$), which in turn influences intention to buy. Therefore,

'reasons for' have a mediating role in this behaviour. This study supports the mediating relationship of 'reasons for' between biospheric values and attitudes.

Subjective norms are also significantly influenced by biospheric values, that the good opinion of others is important when engaging in this behaviour, thereby suggesting that although individuals might possess pro-environmental values, it is important to them to be seen 'being green'. Subjective norms have a significant impact on intention to behave and therefore it would appear that Irish shoppers are influenced by what others think including friends and family ($H1c = .228$). In the model, attitudes, were also found to have a significant influence on intention to behave ($H1a = .198$) and therefore shoppers with a positive attitude towards these products were more likely to purchase them. Finally, 'reasons against' were found to have a significantly negative influence on intention to behave ($H2b = -.375$). The two most significant reasons identified in the study were perceived quality and preference for usual brand. The 'reasons against' might be addressed using a barrier removal strategy, i.e. quality comparisons and/or introduction of a branded recycled paper product (see section 6.2.1).

In conclusion, the application of structural equation modelling in testing the behavioural reasoning theory helps to explain the value-action gap for recycled paper products among Irish household shoppers. The findings indicate a number of opportunities to address the gap by targeting specific paths within the framework. An analysis of these findings will be presented in the next chapter.

5.8 Summary

Using structural equation modelling, the behavioural reasoning theory (Westaby, 2005) was evaluated in the context of pro-environmental shopping behaviour for recycled paper products. The constructs in the model were operationalised using a combination of construct items adapted from previous empirical tests of the model and items created for the purposes of this study. The model was tested using maximum likelihood (ML) using Amos 25 software. Adopting the two step process recommended by Anderson and Gerbing (1988), confirmatory factor analysis was first

conducted on the measurement model. It was then followed by an examination of the relationships in the model i.e. hypotheses testing within the structural model. Reliability and validity were assessed using a range of measures. Composite reliability of each construct was calculated in addition the average variance extracted is presented. Discriminant validity was assessed by comparing the average variance extracted (AVE) to the correlations of the constructs. Finally, the model fit was assessed using a number of indices and a re-specified model was presented and discussed.

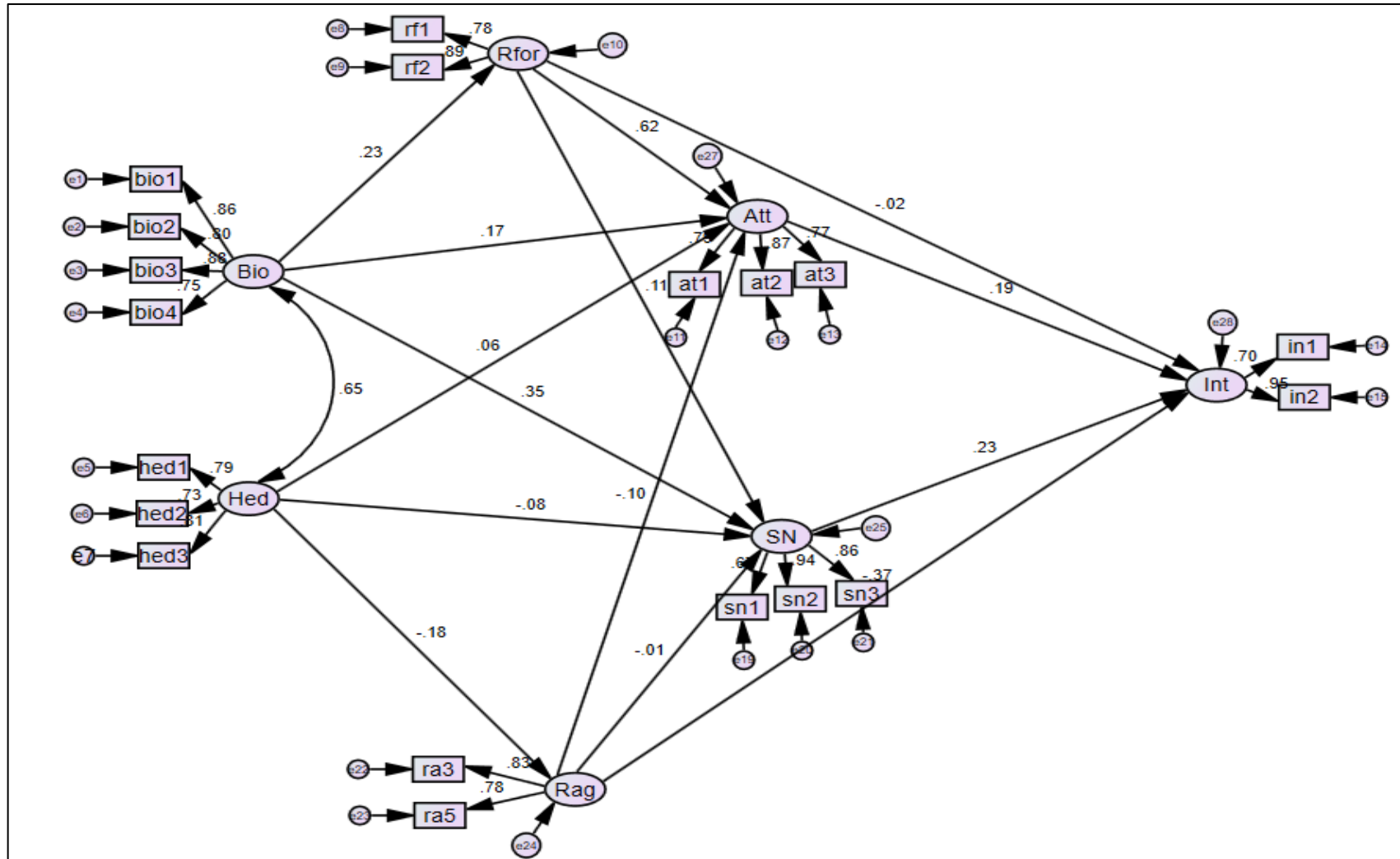


Figure 5. 8: Re-specified model

Chapter Six

Conclusions and recommendations

6.0 Introduction

Extending the boundaries of social marketing beyond the individual provides a framework to address the 'wicked' environmental problem of removing the value-action gap. Westaby's (2005) behavioural reasoning theory provides an integrated model to understand the nature of behavioural change for pro-environmental shopping behaviour, which coupled with stakeholder and competition research provides substantial insight into the subject. Moving to a circular economy requires substantive behavioural change across all levels within society, from policy makers to manufacturers, retailers and citizens (Kirchherr, Reike and Hekkert, 2017). However this will not be easy with Jackson (2005, p. xi) describing behavioural change as the 'Holy Grail' of sustainable development policy, while Kilbourne and Mittelstaedt (2012) warns that to be successful any change must be transformational. Central to successfully achieving behaviour change requires the removal of the so called value-action gap, 'the failure to convert values and beliefs into action' (Blake, 1999, p. 275).

This purpose of this final chapter is to discuss the findings from the study, to draw conclusions and offer recommendations. The chapter begins with a review of each of the research objectives in light of the research question, followed by study conclusions and contributions to theory, method, policy and management and concludes with recommendations for future research.

6.1 Research question and objectives

The purpose of the research was to explore the role of social marketing in addressing behavioural change for a circular economy. Following a review of the literature in social marketing and behavioural change, the value-action gap, values and competition, four research objectives were chosen to support the research question. Understanding the value-action gap for recycled paper products was accomplished by achieving each of the secondary research objectives in order to answer the primary research question. In this section, each of the four research objectives will be discussed in light of the findings and analysis presented in the previous chapters.

6.1.1 Research objective one - reasoning it out

The first objective set out to scope out the reasons construct within the behavioural reasoning theory and was ***to identify the context specific reasons in the value-action gap for recycled paper products***. Westaby's (2005) behavioural reasoning theory posits that 'reasons for' and 'reasons against' explain the linkages between motives and behaviours. Westaby (2005, p. 100) defines reasons as 'the specific subjective factors people use to explain their anticipated behaviour'. By using this framework, this research sought to provide a better understanding of individual behaviour as it applies to buying recycled products.

An exploration of the literature exposed a gap in this context. The term reasons include both 'reasons for' and 'reasons against' or in other words the barriers and the benefits to engaging in the behaviour. While the literature provided a range of potential barriers, none were specific to the context under investigation. The focus group and in-depth interviews with household shoppers identified the context-specific reasons. The original list was then exposed to an expert review and pilot testing before the final survey.

It became clear during the process of identifying the reasons that for many respondents it was the first time they had thought about recycled paper products. As a result, the reasons construct items were created based on the responses to 'what are the advantages and disadvantages of recycled paper products?' Significantly

perhaps there were more ‘reasons against’ than ‘reasons for’. While the ‘reasons for’ were quite generic, the ‘reasons against’ were much more specific.

Exploring the response to the reason items in the survey exposed some differences in the views of those who buy recycled paper products and those who don’t. When it came to the ‘reasons for’ buying, there was no difference between the two, however the ‘reasons against’ were very different. Those who buy recycled paper products (58.6%) believe the reasons why others do not are (a) a lack of interest or (b) they are difficult to find in the supermarket. However, those who don’t buy recycled paper products say it is because (a) the products are difficult to find, (b) tend to be more expensive and (c) are not as appealing as their usual brand. Following a confirmatory factor analysis and structural equation modelling, two ‘reasons for’ and two ‘reasons against’ were identified as significant across the target population (Table 6.1).

Table 6. 1: Reasons construct: descriptive statistics and correlations with Intention to buy

	Mean	SD	Intention to buy (r)
Reasons for:			
• <i>Are good for the environment</i>	4.20	.885	.063
• <i>Help reduce waste</i>	4.27	.821	.125*
Reasons against:			
• <i>Inferior quality</i>	2.63	.943	-.218**
• <i>Prefer usual brand</i>	2.76	.981	-.196**

* $p < .05$, ** $p < .001$

The ‘reasons for’

The results of this survey highlight that Irish shoppers believe that the ‘reasons for’ choosing recycled paper products are that they are good for the environment and they reduce waste in the system. Although these may be considered nonspecific reasons to justify behaviour, they help to explain why an individual would choose to purchase recycled paper products over non-recycled. It could be surmised due to the lack of specificity that these reasons might be used in other circumstances to justify other pro-environmental behaviour such as choosing products with reduced packaging, or shopping in zero waste stores. Due to the fact that paper products are a low cost, low involvement item, these products tend to be chosen without much search or consideration. More than half of respondents (52.9%) said they don’t spend

much time thinking about which paper product to buy. This was reinforced during the qualitative interviews when it became clear that respondents were thinking and discussing these products for the first time.

“I don't particularly see ...I wouldn't actually go in looking for anything like that so I don't know if I'd have a pro or a con towards it, you know” (FU07)

“you don't be thinking of it ...you don't go out with the intention to see what's eco-friendly” (FU03)

The 'reasons against'

When it comes to reasons for not buying recycled paper products, the survey points to a different set of reasons for those who buy and those who don't. To begin with those who don't buy, point to a difficulty in finding the products and cost as well as a lack of appeal as reasons for non-purchase. Therefore, in order to target those who don't buy the products, interventions for this segment might focus on the perceived price difference in addition to the product features. Preferring their usual brand was another reason given. Looking at the population as a whole, the two main reasons for not buying were perceived poor quality and a preference for regular brands.

“I suppose again it's my own personal choice to do a little bit for the environment, the only thing that would put me off, I suppose, is that they don't seem to be as good a quality as non-eco-friendly so I might decide not to buy them” (FR19)

“I never think of it funny enough, strangely enough ...I suppose you just get into the habit ...you use the same things the whole time” (FR09)

The context specific reasons identified through the first phase of the research can be used to inform social marketing intervention planning. Knowing the reasons acting as barriers or facilitators to behaviour provides concrete evidence to design targeted interventions to increase engagement with pro-environmental behaviour. Some suggestions for interventions will be discussed later in this chapter.

6.1.2 Research objective two – testing the behavioural reasoning theory

The second objective sought to examine the behavioural reasoning theory in the context of pro-environmental shopping behaviour and was ***to examine the extent to which the behavioural reasoning theory model explains the linkages between values, reasons, intention and shopping behaviour for recycled paper products.*** Westaby's (2005) BRT behavioural intention model was chosen to explain the value-action gap for recycled paper products by examining the linkages between values, reasons, global motives and intention to behave. This integrated model provides a more complete understanding of the behaviour by including context-specific reasons which explains some of the variance in the behaviour. The model fit indices presented in Table 6.2, demonstrate that the behavioural reasoning theory is a good fit and the results provide support for the application of the framework in the context of exploring the value-action gap for recycled paper products. The findings here are discussed in light of the initial structural model.

To establish the validity and overall fit of the measurement model, a number of indices were selected to establish whether the measurement model is valid and fits. The absolute fit measures used include chi-square (χ^2) goodness of fit, RMSEA (root mean square error of approximation) and RMR (root mean square residual). The incremental fit indices included the TFI (Tucker-Lewis Fit) Index, IFI (Incremental Fit) Index and the CFI (Comparative Fit) Index. According to the indices, the model meets the levels required based on the sample size ($n=1,010$) and number of observed variables ($m=22$) (Hair *et al.*, 2014).

Table 6. 2: Model fit indices. Threshold levels and model fit

Fit Indices	Threshold levels - Levels based on sample size (Hair <i>et al.</i>, 2014)	Structural Model Fit
Absolute Fit Indices		928.709
Chi-square χ^2	Significant p-values	Df 189 (4.914)
Root mean square error of approximation (RMSEA)	Values <0.08	0.062
Goodness of fit (GFI)	N/A	0.921
RMR	Values <0.07	.066

Incremental Fit Indices		
Tucker-Lewis Fit Index (TFI)	Above .92	0.917
Incremental Fit Index (IFI)	N/A	0.933
Comparative Fit Index (CFI)	Above .92	0.932

Absolute fit

Absolute fit of the model was measured using the models chi-square (χ^2) goodness of fit. Hooper, Coughlan and Mullen (2008, p. 53) describe this as the ‘most traditional measure’ for evaluating how the model fits the sample data. A second measure involves calculating the chi-square relative to degrees of freedom, and an acceptable ratio range from 2 to 5 (3:1 with less complex models). The application of the BRT model resulted in 928.709/189 or a ratio of 4.914:1. The second absolute fit index calculated through AMOS measured RMSEA at .062; a good fit here is a measure of less than .08. The RMSEA measures how well the model fits the population and not just the sample data and a lower measure indicates a better fit. An extension and further measure of absolute fit is the RMR, which measures the overall residual value in the model. The lower the measure the better, and anything over 1.0 suggests a problem with the model fit. In this case the RMR was calculated at .066.

Incremental fit

Three measures were used to assess the incremental fit of the model (Hair *et al.*, 2014, p. 580), which tests how ‘well the estimated model fits relative to some other baseline model’, usually the null model (where variables are not correlated). The closer the values to 1.0 the better the incremental fit. All three measures used here have scored above .90, and in the case of the comparative fit index and incremental fit index scored above .92 (as recommended by Hair *et al.*, 2014). Overall the conclusion to be drawn here is that the measurement model is valid and is a good fit.

The hypotheses test

Based on the behavioural reasoning theory model, eleven hypotheses were created based on nineteen paths in the framework. Of the eleven hypotheses, five were fully

supported, two partially supported and four rejected. The results of which are summarised in Table 6.3.

Table 6. 3: Research hypotheses

<i>Research hypotheses</i>	<i>Standardised estimates</i>	<i>p-value</i>	<i>Hypothesis verification</i>
H1a: Pro-environmental attitudes will positively influence intention to buy	.198	***	Supported
H1b: Perceived control will have a positive influence on intention to buy	-.046	.193	Rejected
H1c: Subjective norms have a positive influence on intention to buy	.228	***	Supported
H2a: 'Reasons for' buying are positively related to intention to buy	-.018	.714	Rejected
H2b: 'Reasons against' buying are negatively related to intention to buy	-.375	***	Supported
H3a (H3b and H3c): 'Reasons for' buying positively influence global motives	.625 .128 .111	*** <.001 <.002	Supported *Supported *Supported
H3d (H3e and H3f): 'Reasons against' buying negatively influence global motives	-.101 -.244 -.040	<.001 *** .270	Supported Supported Rejected
H4a: Self-transcendence values (biospheric) are positively related to 'reasons for' buying	.235	***	Supported
H4b: Self-enhancement values (hedonic) are positively related to 'reasons against' buying	-.182	***	Rejected
H5a (H5b and H5c): Self-transcendence values (biospheric) are positively related to pro-environmental global motives	.165 -.086 .334	*** .113. ***	Supported Rejected Supported
H5d (H5e and H5f): Self-enhancement values (hedonic) are negatively related to pro-environmental global motives	.068 .138 -.068	.112 .014* .180	Rejected Rejected Rejected

Hypothesis one predicts that global motives, i.e. attitudes, perceived control and subjective norms would positively influence intention to buy. The path between attitudes and intention was found to be positive and significant ($\beta = .198$, $p < .001$) which was also true for subjective norms and intention to buy ($\beta = .228$, $p < .001$). However, this was not the case for the path between perceived control and intention to buy ($\beta = -.046$, $p =$ not significant). As a result, hypotheses H1a and H1c were supported and H1b was rejected. This finding points to attitudes and subjective norms as part of global motives having an influence on Irish shoppers' intention to buy. The stronger the attitude towards pro-environmental products, the greater the influence on intention to buy. Subjective norms play a significant role in the intention to buy, as

Irish shoppers are positively influenced by what other people such as family, peers and friends, think they should do. When it comes to perceived control, Irish shoppers are not at all influenced by their perceived ability to buy these products. The data from the qualitative phase indicated a lack of ability to find or buy the products in supermarkets, but this was not borne out in the survey. The respondents felt they had the ability to purchase these products in store. In a sense there is never a need to delay purchase because there is always something else available. As it was clearly stated by one of the respondents in the in-depth interviews:

"It's not always in the shop, as you say, like Dunnes, wouldn't maybe have a great range and then they mightn't have it and then you pick up something else to do you at the time, which I have I probably would do ...so yeah if it wasn't there, I'd probably just get the next best thing or just grab something off the shelf" (FU01)

Hypothesis two predicted that 'reasons for' would be positively related to intention to buy and 'reasons against' would be negatively related. The path between 'reasons for' and intention to buy was found not to be significant ($\beta = -.018$, $p = \text{n.s.}$) and therefore H2a was rejected. 'Reasons against' presented a very different finding: the path between 'reasons against' and intention to buy was predicted to be negative and this was found to be true ($\beta = -.328$, $p < .001$). 'Reasons against' directly influence intention to buy and therefore H2b was supported. The two 'reasons against' i.e. poor quality and a preference for usual brand have a strong negative influence on intention to buy. In other words, Irish consumers have strong reasons to justify not buying these products.

Hypothesis three relates to the influence of 'reasons for' and 'reasons against' through global motives. 'Reasons for' were predicted to have a positive influence on attitudes, perceived control and subjective norms. This was found to be true. The path between 'reasons for' and attitudes was strongly positive and significant ($\beta = .625$, $p < .001$), while the paths between 'reasons for' and perceived control and subjective norms were also positive but at a lower level of significance (Perceived Control $\beta = .128$, $p < .05$; Subjective norms $\beta = .111$, $p < .05$). These findings point to a positive influence of reasons on global motives since the reasons individuals use to justify

behaviour has an influence on attitudes, perceived control and subjective norms. The first hypothesis H3a was supported; H3b and H3c were supported at significance level of $p < .05$ and were therefore partially supported.

'Reasons against' were predicted to negatively influence global motives and this was found to be true for perceived control and to some degree for attitudes but not for subjective norms. The influence was more significant with perceived control ($\beta = -.244$, $p < .001$) and attitudes ($\beta = -.101$, $p < .05$) and there was no significance with subjective norms ($\beta = -.040$, $p > .05$). As a result, H3e was supported, H3d was partially supported and H3f was rejected.

Hypothesis four conveys the relationship between self-transcendence and self-enhancement values with 'reasons for' and 'reasons against'. It was predicted that self-transcendence biospheric values would have a positive influence on 'reasons for'. Biospheric values are those related to the natural environment. Findings indicate that respondents with strong biospheric values will have stronger reasons for engaging in the pro-environmental behaviour. In other words, the more value an individual place on the natural environment, the stronger their reasons for engaging in the behaviour ($\beta = .235$, $p < .001$), H4a was supported. The self-enhancement hedonic values reflect an individual's concern with fun, pleasure and enjoyment, and anything which is likely to impact on their comfort and enjoyment is to be avoided. When it comes to buying paper products which is a routine and necessary purchase, there is unlikely to be any effect on a personal enjoyment or fun. It was predicted that self-enhancement values would positively influence 'reasons against', but this was found not to be the case ($\beta = -.182$, $p < .001$). These findings suggest that the outcome is unlikely to have hedonic consequences. Therefore, H4b was rejected.

The final hypothesis five, predicts that the self-transcendence values are likely to be positively related to global motives, while the self-enhancement values are likely to be negatively related. Findings indicate a strong positive influence between biospheric values and subjective norms ($\beta = .334$, $p < .001$) and attitudes ($\beta = .165$, $p < .001$) but no influence on perceived control ($\beta = -.086$, $p = \text{n.s.}$). Hedonic values had little influence in this context. The influence on attitudes was found to be not significant ($\beta = .068$, p

= n.s.) as was the case with subjective norms $\beta = -.068$, $p = \text{n.s.}$) while its relationship with perceived control was positive ($\beta = .138$, $p < .05$). As a result, hypotheses H5d and H5f was rejected while H5e was partially supported.

A final part of the structural equation modelling analysis involved an examination of the indirect paths in the models. Exploring the indirect paths in the framework also indicated significant indirect paths; biospheric values have an indirect effect on attitudes partially mediated through 'reasons for' of $\beta = .072$, while 'reasons for' have an indirect effect on intention to buy mediated through attitudes of $\beta = .145$.

To conclude, the most significant path in the model is mapped from biospheric values -> reasons for -> attitudes -> intention to buy. This indicates the significance of biospheric values in this research context. 'Reasons for' play a significant role in influencing attitudes and ultimately intentions. The findings from the structural equation modelling also point to the role of subjective norms in influencing the intention to buy and the negative influence of the 'reasons against'. The results of this analysis will be discussed in conjunction with the analysis from the other objectives in the conclusions section.

6.1.3 Research objective three – competition and the competitive context

The third objective set out to explore the role of competition to pro-environmental behaviour. Although the context of the behaviour under investigation indicates substantial commercial competition, the traditional interpretation in this context ignores the role of competition in behaviour. The objective was ***to determine the role of competition in realising pro-environmental shopping behaviours for recycled paper products.***

A review of the literature on the topic of competition in a social marketing context indicated a lack of empirical research (Noble and Basil, 2011), apart from the research by Schuster (2016) into individual level competition and goal theory. It also exposed the absence of any type of scale to measure said competition. The starting point for achieving the objective was to determine the competition in a social marketing context and then to identify the specific competition. The definition created for this

study was based on that proposed by Rothschild (2000) and informed by the work of Michael Porter (2008). Competition is defined in this study as: *‘any environmental or perceptual forces, both internal and external to the target audience, that impede the adoption of the target audience’*. Qualitative research helped to identify the competition and resulted in the discovery of a considerable number of possible sources (Figure 6.1). A decision was made to concentrate on the product and brand levels of competition in the Noble and Basil (2011) framework.

Thematic analysis of the exploratory focus group and the in-depth interviews provided a comprehensive list of potential competitive influences. This was followed by a search to identify any measurement scales for the competitive forces. While there are pre-existing scales available to measure many of the internal forces, none could be found to measure external competition. Competition is very much context specific and context driven and requires custom designed scales.

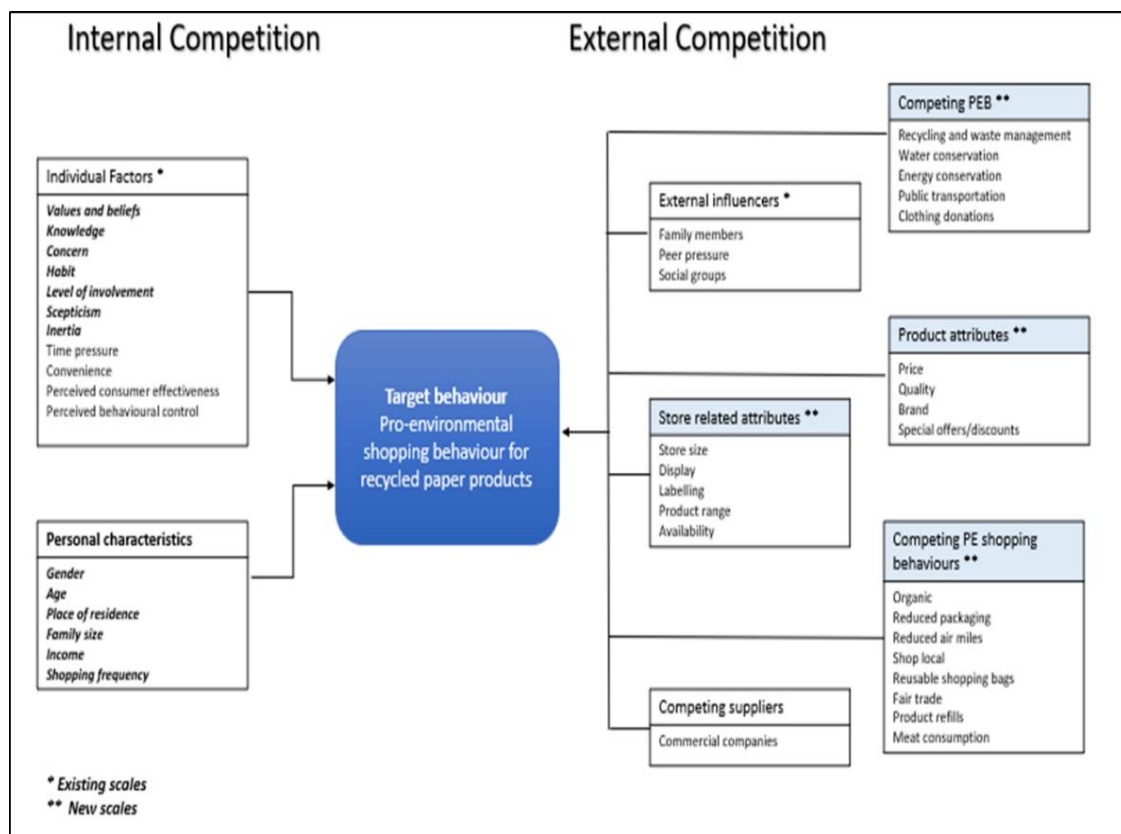


Figure 6. 1: Internal and external competition to pro-environmental behaviour
PEB = Pro-environmental behaviour

Household level competition

The findings from the survey indicate that when it comes to pro-environmental behaviours in the home recycling and waste management rank as number one. This finding suggests a high level of engagement by Irish households in recycling and waste management which is important to achieve a circular economy. However, if anything, this reinforces the need to research the other side of the recycling loop, the purchase of products made with recycled materials, in order to close the loop. This finding presents an opportunity to capitalise on a pro-environmental activity that Irish households already perceive as being important.

Shopping level competition

Following scale development, testing and data collection, an exploratory factor analysis indicated that eight of the nine items loaded together. The one item excluded was the use of reusable shopping bags by shoppers. The eight items had factor loadings of between .538 and .712. This scale measured how often Irish shoppers engage in competing pro-environmental shopping behaviours. Looking at the data, Irish shoppers prioritise buying local and buying Irish made products, followed by buying products made with recycled material. Bottom of the list of competing shopping behaviours are buying products with low airmiles, buying organic and fair-trade products. Irish households are engaged with pro-environmental shopping behaviours to a moderate level, as the majority of Irish shoppers use reusable shopping bags regularly but they engage to a lesser degree in other pro-environmental behaviours.

Product-choice level competition

At the product level there are many influences on product choice competing for attention. The scale developed here measures the degree to which different factors, identified during the qualitative phase, influenced decision to buy. An exploratory and confirmatory factor analysis points to three overarching competitive forces at the point of purchase. Unsurprisingly, the three factors are marketing related: promotion

and brand influences, price and special offers and the product itself. Given the nature of the products under investigation there are strong commercial competitive forces influencing choice. Even with pro-environmental credentials, there is little evidence to suggest that an individual will spend more time considering their choice (Thøgersen, A.-K. Jørgensen and Sandager, 2012).

Conclusions based on the findings and analysis of the third objective relating to competition in a social marketing context will be concluded later in the chapter.

6.1.4 Research objective four - Industry analysis

Finally, this study addressed the gap in understanding around the industry in question by expanding the agenda and exploring further the context and industry-specific systems gaps that may interfere with pro-environmental behaviour. The fourth and final objective was ***to explore industry-wide systems gaps influencing the value-action gap for recycled paper products.***

While the household paper products industry is growing at an average of 1-2% year on year, the strong growth in the Irish economy today has the potential to drive change in the paper products preferred by consumers (KS1). Increasing economic growth usually results in a demand for premium products, thus influencing product range in retailers. This may have the effect of acting as a barrier to attracting more recycled papers products on to the shelves in Irish supermarkets. However, the growing societal interest in environmental issues i.e. climate emergency might be the catalyst for change throughout the system.

At the meso level, the potential barriers or 'gaps' lie at the retail and supply side of the industry. Retailers play a key role in the industry for a number of related reasons. Firstly, product planning in the system occurs ten to twelve months in advance leaving little room for changing the product range. Alongside the fixed nature of the planogram are the planned promotions negotiated between retail buyers and producers/suppliers, leaving little or no room for change. The nature of the relationship between the paper products supplier and the retail buyer is often quite static, changing very little over the years. It is not uncommon for a retailer to deal with

a small number of suppliers only. A new manufacturer/supplier of recycled paper products trying to get their products onto the shelves would find it quite difficult. In some cases, for a retailer to add a new supplier they would have to remove another. Understanding the buying process of the retailer exposes potential barriers in the system.

On the supply side, the major suppliers in the market have, to a certain extent the power to dictate the products available within a market. The manufacturers of paper products such as Essity, provide a range of products including recycled paper products but not all products are sold into every market. For instance, only 5% of paper products sold in Ireland are made from recycled paper, while 40% of paper based products sold in Germany are 100% recycled (Euromonitor International, 2018). Changes to the products available in the Irish market rest with market trends and to certain extent the demands of the UK market. Ireland is such a small market that shipping small amounts of specialist paper products into the market is uneconomical (KS2) and is often dictated by the market demands in the UK.

A number of suggestions to deal with the other value-action gaps in the system are discussed later in the chapter.

6.1.5 The research question

Combined the four objectives offer an answer to the research question. The overarching research question was ***what is the value-action gap for recycled products and how does an understanding of values and reasons contribute to realising pro-environmental shopping behaviour in a competitive retail setting?***

The idiosyncratic nature of the value-action gap and the related context and systems gaps can be explained using the behavioural reasoning theory in conjunction with stakeholder and competitive context research. While the values to support pro-environmental behaviour are present, they do not translate directly into action. The value-action gap is caused by a complex mixture of context-driven factors both internal and external to the individual.

6.2 Research conclusions

The previous section presents a discussion relating to each of the four research objectives. In light of these findings and informed by the nature of the problem and social marketing literature a number of key interventions are offered across different levels of the system (Brennan, Previte and Fry, 2016; Domegan *et al.*, 2017). The first set of recommendations are tailored to the social marketing interventions centered around the individual. The second presents suggested interventions targeting meso and macro level gaps.

6.2.1 Micro-level interventions

Behavioural change at the individual level, informed by the application of the BRT model presents many opportunities for tailored interventions to address the value-action gap. The recommendations presented in this section will begin with conclusions drawn based on the model results and will then be followed by barrier removal strategies.

Modelling change

In order to model change social marketers can enhance the importance of the natural environment and focus on emphasising the 'reasons for' as a means of changing behaviour. The results of this mixed method study suggest that when designing interventions, the findings from the application of the behavioural reasoning theory model point to significant paths of influence that are crucial to planning. The most significant path is that which connects biospheric values to 'reasons for' which influences attitudes and then ultimately intention to buy.

A second significant method of modelling change concerns targeting individuals with strong pro-environmental values to engage in this behaviour by emphasising the impact on the natural environment is recommended. Informational strategies can be particularly effective if as Steg (2008, p. 4450), suggests when 'pro-environmental behaviour is relatively convenient and not very costly in terms of money, time, effort or social disapproval', which is certainly the case when it comes to recycled paper

products. Biospheric values reflect a concern for nature and the natural world. In the application of the model it was found that there is a significant relationship between biospheric values, 'reasons for' and subsequently attitudes. This relationship demonstrates how the strength of an individual's biospheric values is linked to their intention to behave and is therefore significant. Individuals with strong biospheric values are therefore more likely to have strong 'reasons for' engaging in the behaviour and have positive attitudes towards the behaviour. These findings suggest that in order to change behaviour it is better to target those individuals with strong biospheric values to buy recycled paper products. This is consistent with other research into values and pro-environmental behaviour (de Groot and Steg, 2007; Nguyen, Lobo and Greenland, 2016).

A third possible opportunity for modelling change is distributing information, focusing on the 'reasons for', to reinforce the importance of buying recycled paper products through prompts on packaging or through promotion. The two 'reasons for' are they are better for the environment and that they reduce waste. 'Reasons for' were found to have a strong significant influence on attitudes ($\beta = .625, p < .001$), this suggests that reasons are important antecedents of attitudes in the model and therefore should be recognised.

Finally, emphasising what others think and how their purchasing behaviour is perceived by others is another potential intervention. There are numerous possibilities for intervening here from the endorsement of celebrities to social media influencers (Hanna *et al.*, 2018). It would be hard to avoid mention of the 'Attenborough effect' prevalent in the media today. It would seem that Irish shoppers are influenced by what others think and that peers, family and friends are a big influence on their intention to buy. Given that subjective norms were found to be positively influenced by biospheric values thus ultimately influencing individuals' intention to purchase.

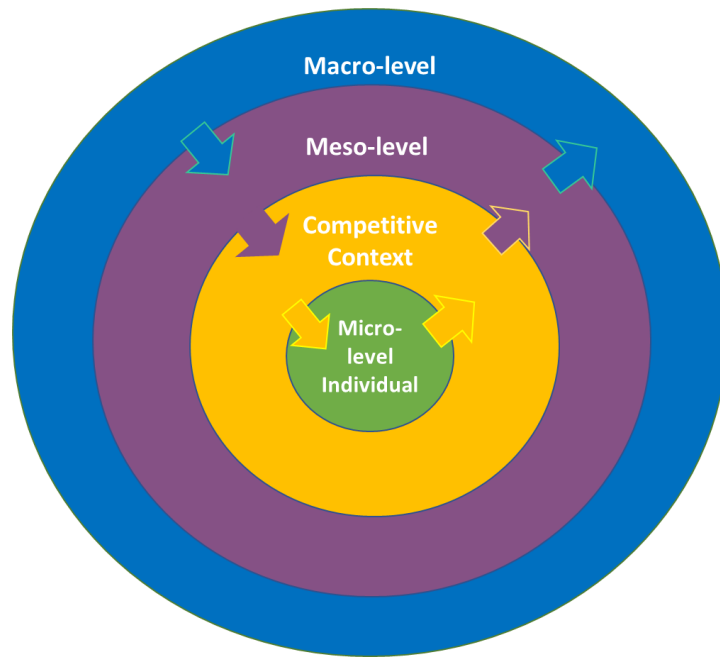
Barrier removal strategy

Another key intervention is to remove barriers to the behaviour, as it applies to the 'reasons against' construct was found to have a strong direct negative influence on intention to buy. The two reasons most likely to influence the decision not to buy in the case of recycled paper products are the product quality and the fact that Irish shoppers tend to prefer their usual or regular branded products. As these reasons act as strong influencers of behaviour they have to be removed so as to facilitate the ease of purchase (Veríssimo *et al.*, 2018). When it comes to quality, this is more of an impression or a perception of the product which is not necessarily based on fact. When recycled paper products first hit the Irish market, they left a lot to be desired in terms of appearance and quality. Today the standard of recycled paper products is just as good as that of any other product on the shelves. The impression held by individuals can only be changed by trying the product. It may be the case that this needs to filter down through the AFH (away from home) market where Irish consumers come into contact with recycled paper products in public buildings, restaurants and hotels. An intervention aimed at promoting the comparable quality of recycled paper products could be emphasised.

Preference for their usual brand is the second reason Irish shoppers might use not to purchase a recycled paper product. Removing this barrier means that retailers would have to provide a recycled version of the branded product to their consumers. The range of products available to Irish shoppers is controlled by a number of factors not least what the manufacturer makes available into the market. Research into the household paper products market indicates that most of the brand leaders sell one hundred percent recycled paper products into other European markets and therefore the branded products are available but just not for sale in the Irish market. There is the issue of lead time to get a new product onto the shelves of the supermarket but according to the retailers this demand would have to come from consumers and so far, this has not happened. Lobby groups can get involved in encouraging retailers to provide pro-environmental options for their customers. Recent engagement in the Irish market by Friends of the Earth has driven the discussion around the plastic agenda which is growing apace.

6.2.2 Meso-level and macro-level interventions

The nature of the aforementioned gaps points to barriers within the paper industry at both macro and meso levels and therefore requires Interventions at these levels. The system's levels, based on Bronfenbrenner (1979) ecological systems theory, are depicted in Figure 6.2. The diagram includes the competitive context as a separate level within the system, crossing the micro and meso levels and illustrates individual competition at the micro level and external at the meso level and beyond.



**Figure 6. 2: The competitive context in the system
(Based on Bronfenbrenner's (1979) ecological systems theory)**

Macro level

At the macro level, factors here tend to lie beyond the industry members but this is perhaps where the government have an important role to play, in forming policy. Many of the primary stakeholders mention the part that a government intervention might have in this area, pointing to the success of the plastic bag levy introduced in 2002. But not everyone agrees that it is the government who needs to lead change;

“No it doesn’t have to be government led, there’s a little bit of a habit across Ireland that we kind of throw it back and say the government need to do something about

this, no yeah it would be interesting and probably more engaging if the likes of Industry were ever able to ...government ends up getting dragged in I guess because could say well I need people to do things and people cost money and then we are back to government again.” (KS05)

However short of mandating that only recycled paper products be sold in Ireland, the government could perhaps play a leadership role. This is emerging in the AFH market where government departments are being instructed to purchase paper products made with recycled content. This policy could perhaps be extended to all government offices, schools, hospitals and colleges. The net effect would be the growing familiarity with recycled paper products which may filter down into growing demand for the products at the retail level. The European market for recycled paper products is much larger than Ireland and the UK and as observed by one of the stakeholders;

“Big time you go to Europe you go to the centre of Europe and we are concerned here with how white a toilet roll is ...it has to be a brilliant white you all this type of thing and you go to central Europe, I mean I've been over there and staying in good quality hotels and what not and you go to the bathrooms and the tissue is almost grey. What is this thing about white, its toilet tissue for goodness sake.” (KS06)

If the Irish government were to lead by example this could have a pull effect through the channels of distribution from the individual. A second intervention might be to work towards the adoption of a single label, which would greatly help to simplify product selection. In-depth interviews with individuals highlight the lack of awareness of eco-labelling and, as often the case, the FSC logo is often misinterpreted as meaning recycled. A ‘know the label’ campaign thus might be of benefit. As opined by a special interest stakeholder, the key is to keep the message simple.

“I have to say having a simple message really works, the conscious cup it is focusing only on coffee cups and people understand it. When you get into the whole thing of circular economy and all these different things peoples eyes glaze over” (KS04)

Work also needs to be done at European level to agree on a common label, because at the moment there are a number of labels denoting different eco credentials from

the EU Ecolabel to the German Blue Angel label and everything in between. It is no wonder that individuals are confused. Lucas *et al.*, (2008, p. 464) recommend that policies need to have a consistent message and need to 'pull in one direction'. A simple, single logo denoting a product's eco credentials would simplify matters greatly. A scoring system based on sustainability of the product not unlike the traffic light system for food nutrition might be an option. This would have to become law before manufacturers are likely to get onboard. As remarked by one of the special interest stakeholders, there is a risk in creating this additional burden:

"the danger with that is that you create a huge beast and you undo any environmental benefits you might have by creating an administrative burden of hundreds of people going around putting sticky labels on things, there just might be something there that you can do around labelling to encourage people who want to do the right thing to make it easy to do" (KS05)

Meso level

Moving to the meso level, there are potential interventions that might address some of the value-action gaps in the system. Reid *et al.*, (2010) acknowledge the emphasis in environmental research tends to be at the macro and micro level, thus the potential for the meso level needs to be heightened. The meso level can be defined as the intermediate aggregation level and may extend from the household to the industry level, including key stakeholders who determine the industry structure (Brennan, Previte and Fry, 2016). While the government has a role to play upstream; a frequent observation by the stakeholders was the potential role of the manufacturer or retailer in addressing the issue. Suppliers in the system point to the role of the larger companies:

"It will probably take some of the bigger companies to make the move and if they market it properly and they will then consumers may well go for that, but you know I think on the consumer end when you go into your supermarket or cash and carry your buying some toilet tissue for your house you are drawn to the nice bright one the nice packaged one, the brand ...It's going to have to be some of the retail names, some of

the brand names are going to have really get out there and flag it up. I do see in the supermarkets like Sainsbury and Tesco” (KS06)

Product placement in stores is another potential gap that could be addressed. The commercial reality is that pro-environmental products are often absent from stores or, if available, enjoy limited and often obscure shelf space. For this to change retailers have to make the decision to switch products and actively promote the sustainable brands. But as previously mentioned, the commercial reality is that retailers are not often in a position to make those changes.

“...now at the end of the day we have a very commercial role, the decisions we make must be commercial ...they tend to be the brand leaders they tend to be the key sellers you know I suppose for the most part, its a lot of small changes and tweaks or whatever in the range from there on in you know” (KS01)

The commercial risk of choosing a recycled paper product is one companies cannot afford, especially if the product is perceived to be of poor quality. Quality generally trumps price as explained by another stakeholder:

“Quality is king, if the product is recycled but does not perform you disincentivise your customer from trading into the range. [Our business] ...will only launch products once they are happy, they perform as expected” (KS10)

Finally, the issue of the strength of relationships between retailers and suppliers and the influence of brand leaders is one that can only be addressed by retailers. Choosing to supply or sell a particular brand is driven by promotions and market demand. Ultimately any changes to the product range to include recycled paper products requires retailers to take the initiative.

Competitive context

The two levels of competition examined in this study were shopping level and product-choice level. At the shopping level, the Irish household shopper has many competing behaviours evidence perhaps of the strength of the ‘buy local’ and Bord Bia (Irish made) campaigns. A similar approach would be required to address the gap

here. Competing behaviours are influenced by strong brands including fair-trade and organic produce. If recycled paper products are to make it into the consciousness of the household shopper then a decision must be made to establish a brand and brand awareness. A manufacturer might champion the change here.

At the brand level, external competition exists in the form of competing products on the shelves. Many of these competitors have long established brands with associated assets, this is then reflected in what is perceived as competing behaviours here i.e. promotion, price and product. Addressing these forces will require a strong brand with sufficient resources. Michael Porter (2008) recommends avoiding 'zero sum' competition by trying to take the entrenched competitors head on and to look instead at making a product offer which enhances the market and results in 'positive sum' competition. Any competitor entering the market with a 100% recycled paper product is bringing something unique in the current market. However, in addition to what the product is made from, it must be in the current price range and careful management of brand and promotion is required. As mentioned previously, a task best undertaken by an existing manufacturer.

Opportunities to intervene in the competitive context therefore cross many levels. Achieving behavioural change for a circular economy will require interventions at the individual level through targeted interventions and the removal of barriers. Interventions at the meso and macro levels require system-led or stakeholder-level change as a concerted effort. One minor tweak in the system is not going to work, it will take a multi-level, multi-faceted approach to achieve the desired change.

The next section concludes this study with some recommendations for future research.

6.3 Recommendations for future research

There are many opportunities for further research which can build on the work undertaken in this study. The prevalence of behavioural intention models throughout the social marketing literature is significant (Brennan *et al.*, 2014), however, within

the pro-environmental domain, community-based social marketing tends to be a popular choice for practitioners (McKenzie-Mohr and Schultz, 2014). This technique offers practitioners a set of steps and a toolbox to use in the pro-environmental context. Its emphasis being the behavioural change process.

The behavioural reasoning theory applied for the first time here in the context of a low involvement shopping item presents an opportunity to a broad range of social marketing contexts, thus offering a more integrated understanding of behaviour. In addition, the reasons construct within the model provides what is often missing in behavioural intention models, i.e. the context. Integrating the context within the model provides social marketers with a multi-layer approach to the research absent in other models. Reasons research can then be used to inform barrier strategy in the next stage of community-based social marketing thereby providing an insight into the barriers and benefits analysis. One recommendation for further research therefore strongly endorses the use of an integrated model such as the behavioural reasoning theory to understand behaviour. Further testing in the subject of low involvement products is also recommended.

Building on the first recommendation, a second suggestion is that all future research using the behavioural reasoning theory model includes a multi-layer approach. The advantage of this is that it provides a more complete picture of the behaviour in the context under investigation. While this study included a limited examination of the industry through desk research and in-depth interviews with key stakeholders, it was found that other gaps exist within the industry. While the micro level continues to be very important, it only presents one side of the story, one that remains incomplete without an understanding of the other parts of the system. This research could be extended further through in-depth interviews with a representative sample of the manufacturer and retailers in the industry as opposed to a purposive sample used in this study.

The exploratory research into competition commenced in this study opens many opportunities for further research. It is recommended that the approach taken in this study is replicated in other context driven competitor research to explore the

applicability of the process developed here. In addition, the scales offered in this study must undergo further testing. The next phase of testing would involve modifying or adapting the BRT to include competition as a construct in the model. Pro-environmental shopping behaviour for recycled paper products occurs in a competitive context, where shoppers are presented with traditional brands alongside the 'green' or environmentally-friendly brands. Many factors might influence decision-making, not least what the competitors are doing. It is recommended that a further extension to this research might involve testing the role of competition as a moderator in the model.

The concept of the value-action gap is most often used in the environmental domain and this can be traced back to its roots in psychology and sociology. The concept however could be used in many other contexts beyond the environment. One such context is the health domain. It is quite often the case that individuals know what they need to do to for their health but what is blocking this behaviour. The concept therefore is applicable to other social issues. Perhaps addressing the problem in this way will facilitate more successful and sustainable interventions.

A final recommendation for future research involves broadening the scope to explore pro-environmental behaviour and health together. These two subjects are inextricably linked. The environment is a determinant of health and therefore the two issues often collide, thereby magnifying the problem. Therefore, a role for social marketing in behavioural change around 'healthy environments' could be explored in the future.

6.4 Conclusion

This research study set out to address the research question adopted for this study: *What is the value-action gap for recycled paper products and how does an understanding of values and reasons contribute to realising pro-environmental shopping behaviours in a competitive retail setting?* This question was addressed using mixed methods research targeting Irish shoppers and industry stakeholders. The two-phase study began with a qualitative phase which involved an elicitation study

into Irish shoppers' pro-environmental behaviour and their 'reasons for' engaging or not with the behaviour. There followed a series of in-depth interviews with key industry informants. The second qualitative phase involved a national survey of Irish shoppers in which the behavioural reasoning theory model was tested.

This research sought to explain behaviour around the value-action gap for recycled paper products, in other words, the failure to convert values into action when it comes to pro-environmental products. Understanding behaviour is the starting point to changing behaviour and with this in mind the behavioural reasoning theory model was chosen to frame the research. This integrated behavioural intention model had not previously been applied in the context of pro-environmental shopping behaviour for low involvement products and therefore was tested for the first time in this study. Coupled with research into the industry itself, the findings from this study suggest that there is more than one value-action gap in the industry and that the value-action gap for Irish shoppers is driven by systems gaps.

The findings from this study provide evidence for more targeted and potentially successful interventions around pro-environmental behaviour in the future.

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Appendix A

Focus group information sheet



Focus Group Information Sheet

Thank you for agreeing to take part in the study. The focus group will take place in the Annaverna Room in DKIT library on Monday 5th December 2016 at 5.15pm.

The study

The purpose of this study is to gather your views on shopping behaviour. I am interested in hearing your views on shopping for grocery items and in particular paper products. I would also like to get your views on “green living”.

Who is doing it and why?

My name is Maeve McArdle and I am a part time PhD student with NUI Galway. I also work full time in Dundalk Institute of Technology. I am conducting this focus group as part of my research into understanding behaviour and shopping behaviours.

What is a focus group?

A focus group is a discussion among a small group of people. The focus group will last no more than 90 minutes. Refreshments will be provided.

What will be done with the results?

The information gathered today will be used to help design a questionnaire for a national survey on this subject. I will also conduct interviews as part of the research. The data collected today will form part of the research into the subject.

How you were chosen?

A colleague or friend nominated you for this study.

How this might benefit you?

In taking part in this survey you will be contributing to research which on completion may be used to inform policy or management changes. Refreshments and a small gift will be distributed on the day.

If you have any questions please contact me on (086) 3160391.

Key informant information sheet



Key Informant Information Sheet

Title: Behavioural change and sustainable shopping behaviour for recycled paper products in a competitive retail setting.

The study

The aim of this research study is to understand the market for recycled products and the role played by different stakeholders. I am interested in hearing your insights into the market for eco-friendly and recycled paper products and your views on consumer behaviour relating to these products. The information gathered in this study will be used to help to identify the barriers to behavioural change and where possible inform development of interventions.

Who is doing it and why?

My name is Maeve McArdle and I am a part time PhD student with NUI Galway and I work full time in Dundalk Institute of Technology. I am conducting this interview as part of my research into behaviour change and household shopping behaviours as they relate to recycled paper products.

How you were chosen?

You were invited to take part in this study because of your role in the industry and because you bring a specific insight into this subject area. Your expertise and knowledge of how the industry operates is important to the research.

What will you be asked?

The interview should take no more than 30 minutes. You will be asked questions relating to your organisations role in the industry and your views on household consumer behaviour relating to eco-friendly and recycled paper products.

How will your privacy be protected?

All information gathered will be collated and analysed to provide an industrywide view of the issue in hand. The information you provide will be recorded, transcribed and kept secure. Information will be password protected and data will be safely stored. My records will indicate your responses by pseudo name only.

If you have any questions please feel free to contact me at;

Dundalk Institute of Technology

Dundalk, Co Louth

Or by email at

Maeve.mcardle@dkit.ie

Tel: 086 3160391

Alternatively you may contact the project supervisor;

Dr Christine Domegan

NUI Galway

Christine.domegan@nuigalway.ie

Tel: 353 91 524411 Ext. 2730

Participant information sheet



Participant Information Sheet

Title: Behavioural change and sustainable shopping behaviour for recycled paper products in a competitive retail setting.

The study

The purpose of this survey is to better understand Irish household consumer behaviour around sustainable products i.e. recycled paper products. The information gathered in this survey will be used to help to identify the barriers to changing behaviour and where possible inform development of interventions.

Who is doing it and why?

My name is Maeve McArdle and I am a part time PhD research student with NUI Galway working in Dundalk Institute of Technology. I am conducting this survey as the final part of the research into Irish household consumer behaviour and recycled paper products.

How you were chosen?

You were invited to take part in this survey as a member of the Opinions.ie panel and fit the criteria for inclusion in this survey.

What will you be asked?

The survey should take no more than 12 minutes. You will be asked questions relating to your shopping behaviour, buying paper products and your views on recycled paper products.

How will your privacy be protected?

In line with GDPR guidelines, you will be asked for your agreement to take part in this survey. All information gathered will be collated and analysed to provide a national household consumer view of the issue in hand. Data gathered in the survey will be retained and stored by the researchers as well as the research agency. All data will be stored and password protected. Opinions.ie will store the data, using their survey platform and internal server with data file password protected.

If you have any questions please feel free to contact me at; Dundalk Institute of Technology Dundalk, Co Louth Or by email at Maeve.mcardle@dkit.ie	Alternatively, you may contact the project supervisor; Dr Christine Domegan Marketing Department NUI Galway Christine.domegan@nuigalway.ie
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Appendix B

Focus group script

	Opening statement and guidelines
Opening	1. We will begin the session with a brief introduction. Please introduce yourself and tell us a little bit about you, your family and what you do.
Introductory	<p>2. As you know you have been asked here today to give your views on grocery shopping, perhaps we might begin by asking everyone to tell us a little bit about where you do your grocery shopping.</p> <p>Name stores and ask why these shops</p> <p>3. Do you do one big shop a week or a number of smaller shops?</p> <p>4. How many people do you shop for?</p>
Transition	<p>5. Let's talk about when you are doing your grocery shopping, would you ever check labels for information on whether the product is environmentally friendly, made from recycled material or the packaging can be recycled?</p> <p>Typical information sought</p>
Key Concepts	<p>Reasons</p> <p>6. Let's imagine you are buying an eco-friendly product such as a household cleaning product or washing powder</p> <p>How would you know it's eco-friendly</p> <p>Any advantages of buying for you</p> <p>Advantages for the environment</p> <p>Any disadvantages</p> <p>7. Let's say you are buying a paper product such as printing paper or wrapping paper, you can choose a recycled paper product or a regular product</p> <p>Advantages of buying the recycled paper product</p> <p>Any disadvantages</p> <p>What do you think might stop you from buying a recycled paper product?</p> <p>How would you know the difference do you think?</p> <p>What might encourage you to buy a product made from recycled material?</p> <p>Competition</p> <p>Distribute pictures/pamphlets identifying green behaviours around the home</p> <p>8. From this selection of materials (pamphlets & brochures) of green behaviour please select what you believe are the most important things we can do when it comes to being</p>

	<p>pro-environment in the home and when shopping (rank these activities)</p> <p>9. Imagine you are walking up the paper products aisle in the supermarket, do you go straight to a particular brand or do you look at the other products on display. If so what are you looking for?</p> <p>Price, special offers, preferred brand</p> <p>10. From this list of brands, what are the brands you use?</p> <p>Any particular reason for choosing this brand</p>
Ending statements	<p>11. Let's imagine that you get an opportunity to make changes the government might encourage us to be more environmentally friendly in our shopping behaviour.</p> <p>What would you suggest they do to encourage you to be more eco-friendly?</p> <p>12. Imagine you could make changes to how and what retailers do to sell recycled paper products what you do?</p> <p>Pricing, display</p>
	Oral summary

Interview Schedule with Irish Shoppers



Introduction

Thank you for giving up your time today to take part in this study. The interview should last no more than 60 minutes. The purpose of this research is to explore shopping behaviour of Irish consumers. I would like to find out how you shop and also your views on environmentally products and in particular recycled products.

Guidelines

Thank you for agreeing to take part in this interview, if you are agreeable I would like to record this interview to use for reference afterwards. I will take a few notes as we chat. There are no right or wrong answers, I am simply collecting your views on the subject. Please know that you may stop the interview at any stage.

All information collected during the interview is confidential and your name and what you say will be kept confidential. My records will indicate your responses by initials only and all other data will be stored separately.

The information you provide will help to inform a national survey on this subject.

Question Guideline
1. Topic/section
2. Question
3. Follow up question/prompt

Section one – screening and introductory questions

I would like to begin by asking about your shopping behaviour.

1. Tell me about the grocery shopping in your household, who looks after this job?
How many people do you shop for? Adults/Children
2. Can you tell me a little about how you do your grocery shopping? Do you do a big shop or a number of smaller shops in a week?
Do you use a list?
3. Where do you do most of grocery shopping? Is it one store in particular or a number of stores?
Why these stores? Convenience/tradition?
Do you have or use loyalty cards/vouchers for the store?
Would you do any of your shopping in local shops such as butchers, vegetable shops, fish shops or bakeries?
4. Can you please tell me what paper products you might buy regularly? E.g. kitchen towels. Examples (order mentioned) *Any other paper products you buy on a regular basis?*

Paper napkins	
Paper Towels	
Toilet tissue	
Tissues	
Printing paper	
Paper cups	
Paper plates	
Refill pads	
Newspapers	
Others	

Section two – Reasons for and against buying eco-friendly (environmentally friendly) products and recycled paper products

In this section I want to get your views on eco-friendly products and in particular products made with recycled paper

An EF product is... Eco-friendly literally means earth-friendly or not harmful to the environment. This term most commonly refers to products that contribute to green living or practices that help conserve resources like water and energy. Eco-friendly products also prevent contributions to air, water and land pollution.

5. What do you think are the advantages of buying an **eco-friendly product** (such as EF cleaning product) for the environment? Do you think there are any advantages for you?

Are there any possible disadvantages of buying/using these products? For the environment? For you?

6. Paper products made of recycled paper are eco-friendly (such as wrapping paper or tissues), what do you think might be an advantage for you of buying/using this product?

And the disadvantages of buying/using a recycled paper product?

7. Who do you think should buy eco-friendly products?

Who do you think shouldn't buy environmentally friendly products? And recycled paper products?

And do you think the same is true for recycled paper products?

8. Tell me what you think could be a barrier or an obstacle to you buying an eco-friendly product in the supermarket?

(Such as household cleaner and organic food)

And what do you think might be a barrier to you buying recycled paper products every time you go to purchase paper based products such as kitchen towel or toilet paper? *(Prompts – price, availability)*

Section three – Competition – household and shopping

9. Would you consider your household an environmentally friendly one?

If yes, why? What do you do which is good for the environment?

(E.g. waste management and recycling, food waste, energy, water conservation and transport)

If no, why not? How do you think you might change to improve your behaviour?

10. When you go shopping do you do any of the following?

	Yes	No
Use reusable shopping bags		
Shop local		
Buy refills for products		
Buy recycled		
Buy organic		

Any other behaviours? Fair trade products, buy locally made, shop online?

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11. Imagine you are doing your grocery shop, would you ever stop and consider the effect of what you buy might have on the environment?

(E.g. single serving versus large packaging, can the packaging be recycled?)

Prompts – less packaging, reusable shopping bags, shop local, buy recycled

12. When it comes to your grocery shopping what do you think is the most important influence on your decision to buy a product?

E.g. a food product? A cleaning product? A paper based product?

For example is your decision influenced by any of the following, price, value for money, brands, Irish made, convenience, environmentally friendly

13. Do you think you could name an eco-friendly product (or brand) on the market?
Are there any products or brands that you consider eco-friendly or environmentally friendly?
14. When you purchase paper products such as kitchen towel or toilet paper, are there particular brands you would purchase regularly?
Can you identify the brands you would usually buy?
Would you consider yourself brand loyal in other areas such as food? Cleaning products?

Section four – Demographics

15. Age Group

18 - 24	
25 - 34	
35 - 44	
45 – 54	
55 - 64	
65+	

16. What is your occupation?

17. Gender

Male	Female
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18. Where do you live?

19. Household size

Adults	Children

Please suggest someone you know who might be interested in taking part in this study

Name: _____

Contact: _____

Key informant Interview schedule (Sample)

Interview Schedule for Key Informant Interviews

Introduction

Thank you for agreeing to take part in this study. The interview should last no more than 40 minutes. The purpose of this research is to explore industry expert's views on the recycled paper products industry and consumer behaviour around these products and as a stakeholder in the industry I am interested in your opinions on this topic.

If you are agreeable, I would like to record this interview to use for reference afterwards. I will take a few notes as we chat. There are no right or wrong answers; I am simply collecting your views on the subject. Please know that you may stop the interview at any stage.

All information collected during the interview is confidential and your name and what you say will be kept confidential and password protected. My records will indicate your responses by pseudo name only and all data will be stored separately.

Maeve McArdle
PhD researcher
Dundalk Institute of Technology
Or by email at
Maeve.mcardle@dkit.ie
Tel: 086 3160391

Interview details

Name	
Organisation	
Position	
Date, time and place of interview	
Type of interview	

Section one –introductory questions

1. Tell me about your job role and responsibilities with _____?
How would you describe the core values of _____?

Section two – Key stakeholder activity (Purchasing manager)

2. Can you explain **the process of choosing** products to buy for _____?
Do you have an all-Ireland purchasing policy?
Do you have a policy of buying locally sourced products?
Does store type influence range of products chosen?
Are your buying decisions influenced by core values of the company?
Or are they driven on consumer demand, availability and price?
If and when you are sourcing suppliers do you source internally in Ireland first or do you go straight to the brand leaders?
In terms of own brand, do you let a concept run with a brand leader and then run with a “me too” product?
3. How do you decide **which paper product brands** to sell?
Who and what influences this decision?
Do you change out brands available in store and is this influenced by consumers?
How often would you change brands?
4. What **recycled paper products** if any you supply in store?
Do you sell any 100% recycled paper products in the store?
If yes, what brands and if not, why not?
5. Is **shelf placement** part of your responsibilities?
How do you decide on shelf placement of paper products in different stores?
Where are the eco-friendly and recycled paper products usually displayed in stores and why?

Could you tell me about the history of eco-friendly products on the shelves? Does it have a separate section? Or is it integrated?

6. Are there any **government led or regulatory factors** that you are aware of that might be driving change in the paper product category?

Section three – Reasons for and against

7. Is the **demand for eco-friendly products or recycled paper products** is increasing/decreasing?

8. Do you think **customers are interested** in buying eco-friendly products or recycled paper products?

Why do you think that? What effect has this had on your product selection?

9. What do you think are **the reasons why some customers buy** recycled paper products?

(Personal values, quality, to feel good)

10. What do you think are **the reasons why some customers do not buy** recycled paper products?

(Price, quality, availability)

11. What do you think might be **a barrier for customers to buying** recycled paper products?

Is availability an issue? Price and quality?

Do you think it is easy for customers to buy eco-friendly or recycled paper products today?

Section four – Competition

12. Do you think customers are more conscious of the environmentally? Do you think your customers think about the effect their product purchases might have on the environment?

If so, what evidence have you seen of this?

13. What would you consider to be a sustainable shopping behaviour?

Could you name a behaviour that you consider to be a sustainable behaviour?

What is _____ doing to promote this behaviour?

Examples; Bag for life, refills, buying organic, fair trade, buying eco-friendly or recycled products.

14. What do you think are the biggest influences on a customer's decision to buy paper based products?

Need, convenience, brand, price, quality?

15. Are there paper based product **brands** which are more popular in the Irish market? *Why? Brands.*

Section five – Role of the stakeholder

16. What do you think could be done by _____ to encourage customers to buy recycled paper products?

Display, promotion?

Do you think there is a demand for this?

Closing

Thank you very much for your time today. The information you have provided will be beneficial to better understanding the industry.

National Survey

In line with GDPR, please confirm that you understand the following;

- That taking part in this survey is voluntary and you are free to withdraw at any time
- The information you provide in this survey will be archived and will only be available to the researcher.
- That all responses are confidential

If you are happy to take part, please tick select I Agree and proceed to the survey.

If you do not wish to take part, please select I Don't Agree and the survey will close.”

For more information on this research follow the link to the Participants Information Sheet (see Appendix 1)

Thank you for agreeing to take part in this survey into consumer behaviour and paper products. In the survey you will be asked a series of questions relating to **grocery shopping behaviour**, **buying paper products** and **green household and shopping behaviour**. The survey should take no more than 10 minutes to complete. Please be assured all your responses are anonymous and will be treated in the strictest confidence.

Q1 What is your gender?

Female	
Male	
Other	

Q2 What is your age? (Please write your age as a number e.g. 43)

Q3 In which County do you live?

Drop down menu (32 counties)

Antrim		Leitrim	
Armagh		Limerick	
Carlow		Longford	
Cavan		Louth	
Clare		Mayo	
Cork		Meath	
Derry		Monaghan	
Donegal		Offaly	

Down		Roscommon	
Dublin		Sligo	
Fermanagh		Tipperary	
Galway		Tyrone	
Kerry		Waterford	
Kildare		Westmeath	
Kilkenny		Wexford	
Laois		Wicklow	

Please tell us about grocery shopping behaviour in your household

Q4 Please indicate which of the following best describes your role in grocery shopping?

1. I am the primary grocery shopper in my home	
2. I share responsibility for the household shop	
3. I am not responsible for the grocery shop	Exit survey

Q5. On average, how often is grocery shopping done in your household?

1. Daily	
2. Three or more times a week	
3. Twice a week	
4. Once a week	
5. Less than once a week	

Q6. On average, what would you estimate is your weekly spend on grocery shopping?

1. Less than €50	
2. €50 - €99.99	
3. €100 - €149.99	
4. €150 - €199.99	
5. More than €200	

Q7 How do you do your shopping?

Shop online	
Shop in store	

Q8. In general, where do you do the majority of your grocery shopping and any top up shopping? Please choose one in each row.

	Aldi	Asda	Centra/Mace/Londis	Dunnes	Lidl	Sainsburys	Supervalu	Tesco	Independent stores	Other or not applicable
Main shop										

Top up shop										
-------------------	--	--	--	--	--	--	--	--	--	--

Thank you for telling us about your household shopping behaviour. In the next section you will be asked questions about your environmental values and your views on green household and shopping behaviours.

Environmental Values

Q9. Below you will find brief descriptions of different people. Please read each description carefully and indicate on the scale how much this person is like you, where 1 is not at all like you and 7 is very much like you. The higher the score, the more the person is like you.

<i>Place an 'X' to mark your choice next to each item</i>	Totally not like me 1	2	3	4	5	6	Totally like me 7
that every person has equal opportunities							
to work hard and be ambitious							
to be influential							
that there is no war or conflict							
to protect the environment							
to have fun							
to respect nature							
to have authority over others							
to do things this person enjoys							
to have money and possessions							
to prevent environmental pollution							
that every person is treated justly							
to enjoy life's pleasures							
to take care of those that are worse off							
to have control over others' actions							
to be in unity with nature							
to be helpful to others							

Q10. Below is a list of SIX green household behaviours, please rank these behaviours in order of importance from 1 to 6 (1 being the most important)

Reduce food waste	
Conserve energy (i.e. switch off lights, reduce the heating)	
Manage household waste (separate and recycle)	
Conserve water (i.e. turn off taps when brushing teeth, take showers instead of baths)	
Donate unwanted items (i.e. clothes, toys)	
Use public transport, car-pool, walk or cycle (instead of using own vehicle)	

Q11. Below is a list of common shopping behaviours, please indicate how often you do each of the following (if at all).

Please tick (✓) the appropriate box.	Never	Not very often	Quite often	Very often	Always
Buy Irish made products					
Choose products with low air miles					
Buy fair trade products					
Buy organic products					
Choose products with reduced packaging or plastic					
Buy refills for products e.g. coffee, sugar or spices					
Buy paper products with recycled content					
Use reusable shopping bags					
Buy local, seasonal products					

Q12. Which of the following paper products do you buy on a regular basis (i.e. at least once a month?) Please tick all that apply

Facial tissues	
Paper towels (i.e. kitchen towels)	
Toilet paper	
Paper tableware (i.e. napkins, tablecloths)	
Newspapers	
Stationery (wrapping paper, copies, printing paper)	
Other (please specify)	

Q13. Thinking about the last time you purchased a paper product such as kitchen towels, tissues or toilet paper, which (if any) of the following factors influenced your choice?

Please indicate your level of agreement with these factors.

<i>The following factor(s) influenced my choice of paper product</i>	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Manufacturers promotions (e.g. 25% extra free)					
Brand name					
Product display					
Supermarket offers and promotions					
Product quality					
Pack size (e.g. family pack, single size)					
Price					
Environmentally friendly					
Product packaging					
Product features (e.g. scented, designs)					
Advertising (e.g. television, print, radio and social media)					

Q14. How important is buying paper products? Read the following statements and indicate your level of agreement

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Buying paper products requires a lot of thought					
Choosing paper products is a very important decision					
It is not a big deal if the wrong brand of paper products is chosen					

In this next section, we are going to ask some questions about paper products made with recycled paper i.e. recycled paper products.

Recycled Paper Products are paper based products which contain some recycled content e.g. kitchen towels, toilet paper and facial tissues.

Q15. Do you buy recycled paper products?

Yes (go to Q16)	
No (go to Q22)	
Not sure (go to Q22)	

You have indicated that you purchase recycled paper products, now we would like to ask your views on these products.

Q16. In general, how often do you buy recycled paper products?

Every week	
Every 2 weeks	
Every month	
Less than once a month	

Q17

(a) Below is a list of reasons why consumers buy recycled paper products, please indicate your level of agreement with these statements.

<i>Recycled paper products...</i>	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
are good for the environment					
help reduce waste					
are safer for me to use (i.e. fewer chemicals, perfumes)					
perform as well as regular paper products					

(b) Below is a list of reasons why consumers do not buy recycled paper products, please indicate your level of agreement with these statements

<i>Recycled paper products...</i>	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
are more expensive than regular paper products					
are difficult to find in the supermarket					
are of inferior quality					
are not available in the supermarket					
are not as appealing as other brands					
do not interest some shoppers					

Q18. Please indicate whether you agree or disagree with the following statements.

<i>When I buy recycled paper products,</i>	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I know it is better for the environment than non-recycled paper					
It means less paper waste in the system					
I feel I am doing my bit for the environment					
I believe It's more expensive than buying non-recycled paper products					
It means compromising on quality					

Q19. Please indicate whether you agree or disagree with the following statements.

<i>When it comes to recycled paper products</i>	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
It's easy for me to buy them					
It is difficult to buy recycled paper products					
I can buy them whenever I want					

Q20. Please indicate whether you agree or disagree with the following statements about recycled paper products.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Most people's opinion I value believe that I should buy them					
My family think it is important that I do buy them					
People of my own generation believe that I should buy them					

Q21. Please indicate your intentions regarding recycled paper products.

<i>When it comes to recycled paper products,</i>	Very unlikely	Unlikely	Neither likely nor unlikely	Likely	Very likely
I intend to buy them when I next buy paper products					
I want to buy them when I next buy paper products					

I do not intend to buy them when I next buy paper products					
--	--	--	--	--	--

Go to Q27

You have indicated that you do not or are not sure if you buy recycled paper products. We would still like your opinion on these products.

Q22

- (a) Below is a list of reasons given why people buy recycled paper products, what are your views on this subject? Please indicate your level of agreement with these statements.

<i>Recycled paper products...</i>	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
are good for the environment					
help reduce waste					
are safer to use (i.e. fewer chemicals, perfumes)					
perform as well as regular paper products					

- (b) Below is a list of reasons why people do not buy recycled paper products, please indicate your level of agreement with these statements

<i>Recycled paper products...</i>	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
are more expensive than regular paper products					
are difficult to find in the supermarket					
are of inferior quality					
are not available in the supermarket					
are not as appealing as my usual brand					
do not interest me					

Q23. Please indicate whether you agree or disagree with the following statements.

<i>If I were to buy recycled paper products,</i>	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
It would be better for the environment					
It would mean less waste in the system					
I would feel I am doing my bit for the environment					
It would be more expensive to buy than non-recycled paper products					
It would mean compromising on quality					

Q24. Please indicate whether you agree or disagree with the following statements.

<i>When it comes to recycled paper products</i>	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
It would be easy for me to buy them					
It would be difficult for me to buy recycled paper products					
I could buy recycled paper products if I wanted to					

Q25. Please indicate whether you agree or disagree with the following statements about recycled paper products.

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Most people's opinion I value believe that I should buy them					
My family think it is important that I do buy them					
People of my own generation believe that I should buy them					

Q26. Please indicate your purchase intentions regarding recycled paper products.

<i>When it comes to recycled paper products,</i>	Very unlikely	Unlikely	Neither likely nor unlikely	Likely	Very likely
I intend to buy them when I next buy paper products					
I want to buy them when I next buy paper products					

I do not intend to buy when I next buy paper products					
--	--	--	--	--	--

GO TO Q27.

In this final section, we would like to know a little bit more about you

Q27. Including yourself, how many people currently live in your household?

1	
2	
3	
4	
5	
6	
7+	

Q28. How would you describe your stage in life?

Single	
Couple	
Full nest (with children aged under 18)	
Full nest (adult children)	
Empty nest	
Senior	

Q29. In what type of community do you live?

City or urban community	
Rural community	

Q30. What is the highest level of education which you have completed to date?

Primary education	
Lower secondary level (Junior/Inter/Group cert)	
Upper secondary level (Leaving cert/applied or vocational)	
Technical or vocational (level 6)	
Third level (Level 7-8)	
Post graduate degree (Masters)	
PhD or higher (Level 10)	
No formal education/training	
Other (Please specify)	

Appendix C

Focus group participants matrix

Participants Code	Place of residence	Age	Gender	Size of household
FG1	R	45 - 54	F	4
FG2	R	55 - 65	M	2
FG3	R	45-54	M	4
FG4	R	65+	F	5
FG5	R	65+	F	2
FG6	U	55-65	F	1
FG7	R	65+	F	1

In-depth interviews participants matrix

Participant Code	Age	Gender	Occupation	Residence	Size of Household	
Adults Children						
Pilot						
PMU01	45-54	M	Teacher	Urban	3	2
PFU01	45-54	F	House wife/Carer	Urban	2	3
PFU02	55-65	F	Secretary	Urban	3	
Study						
FU01	45-54	F	Public servant	Urban	1	
FU02	65+	F	Retired	Urban	2	
FU03	35-44	F	Clerical Officer	Urban	1	
FU04	25-34	F	Nurse	Rural	1	
MU05	65+	M	Retired	Urban	1	
FU06	65+	F	Retired	Urban	1	
FU07	35-44	F	Stay at home mum/ part time worker	Urban	2	3
MU08	35-44	M	IT specialist	Urban	2	2
FR09	65+	F	Retired	Rural	2	
FU10	35 - 44	F	Stay at home mum/ self employed	Urban	2	2
FU11	55-64	F	Retail assistant	Urban	4	
MR12	45-54	M	Chef	Rural	2	2
FR13	45-54	F	Administrative assistant	Rural	3	3
FR14	45-54	F	Tour operator	Rural	2	
FU15	65+	F	Retired	Urban	3	
FU16	25-34	F	Teacher	Urban	1	
MU17	45-54	M	Secondary school teacher	Urban	2	2
FU18	65	F	Lecturer	Urban	2	
FR19	35-44	F	Teacher	Rural	1	

Key informant interviews participants matrix

Participants Code		Primary/ Secondary stakeholder
KS1	Retailer/buyer	Primary
KS2	Specialist retailer	Primary
KS3	Supplier	Primary
KS4	NGO	Secondary
KS5	Government agency	Secondary
KS6	Manufacturer	Primary
KS7	Supplier	Primary
KS8	Waste management	Secondary
KS9	Special interest group	Secondary
KS10	Retailer/buyer	Primary

Appendix D

Reasons Codebook (excerpt)

Name	Description	Sources	References
Reasons against		18	192
Can't find them	Any reference to a lack of display of products or promotion or labelling. This node includes any mention of information or lack thereof and also any mention of labelling or what recycled products or EF labels might look like.	12	26
Cost or price of product	This node includes all references made by respondents to price or cost of the product as a reason for non-purchase. There are also comments referring to budget or how some households might not be able to afford these products.	16	50
Lack of availability and choice	Any reference to EF product availability or choice	10	22
Lack of interest	This node reflects the reasons against which mention a lack of interest	4	7
Lack of trust	Any reference to a lack of trust in the products being eco-friendly	3	3
Never thought about it	No engagement with the product or issue a complete lack of awareness. Might be described as oblivious to this	8	21
No reason		4	4
Poor quality	Any mention of quality as a reason for not purchasing	10	29
Unsuitable for some people		2	2
Traditional or habitual purchases	Any mention of non-purchase because of traditional purchases made or habitual purchases. Also any mention of convenience or lack of time available to consider the options available. Also any reference to purchase preference i.e. Irish made, European	7	14
Reasons for		17	74
Future generations	Any mention of the benefit for future generations	2	3
Good for me	Any reference to the impact on personal health as a reason for choosing certain products, i.e. skin, allergies and perfumes	11	20

Feel good factor	Any mention of the reason of feeling good for doing their bit	3	3
Good for the environment	Any reference to low impact on the environment, the planet, sustainability, climate change and reducing waste	15	40
Reduce waste		10	12
Societal impact	Any reference to the advantage on social and economic impacts	1	2
Product features	This node relates to product features mentioned as a reason for buying recycled paper products or EF products	6	11
Competitively priced	Any reference to price and how it might encourage purchase	2	6
Product quality	Any reference to the quality of EF or RPP products as a reason to purchase	4	5

Competition Codebook (excerpt)

Name	Description	Sources	References
1. Generic level competition	Any force that deters you from your broad topic area" These include unrelated issues that compete for the targets limited time and attention. This is broadly anything that keeps the target population from addressing sustainable shopping behaviour. Such as the economy, health and the environment in general.	11	26
Entity based	An organisation - purposeful competition - an organisation with purposes at odds to those of the social marketing campaign	6	13
Non-entity based - Internal to the individual or part of the environment	Inertial elements that are internal to the individual as well as elements from the general environment that are unrelated to a specific entity. General elements include elements such as peer pressure or lack of a supportive culture	10	20
2. Household level Competition	Within the broad topic area (sustainability & the environment) forces that deter the target from addressing the issue. The focus here is narrower. Anything that keeps the target from sustainable shopping would be enterprise level competition such as zero waste, recycling, sustainable household behaviours, non-consumption, travel, energy (see EPA website for listing)	17	128
Entity based	An organisation - purposeful competition - an organisation with purposes at odds to those of the social marketing campaign	17	92
Non-entity based - Internal to the individual or part of the environment	Inertial elements that are internal to the individual as well as elements from the general environment that are unrelated to a specific entity. General elements include elements such as peer pressure or lack of a supportive culture	15	49
3. Shopping level Competition	Within the issue of sustainable shopping, any force that deters the	17	370

	target from addressing your specific topic (i.e. choosing recycled paper products)		
Entity based	An organisation - purposeful competition - an organisation with purposes at odds to those of the social marketing campaign	17	106
Non-entity based - Internal to the individual or part of the environment	Inertial elements that are internal to the individual as well as elements from the general environment that are unrelated to a specific entity. General elements include elements such as peer pressure or lack of a supportive culture	16	65
4. Brand level Competition	Within sustainable shopping behaviour, forces that deter the target from adopting your intervention. This is the most narrow, specific level of analysis. For example alternative products or alternative brands. At brand level does this also include Indirect factors?	17	180
Entity based	An organisation - purposeful competition - an organisation with purposes at odds to those of the social marketing campaign	17	100
Non-entity based - Internal to the individual or part of the environment	Inertial elements that are internal to the individual as well as elements from the general environment that are unrelated to a specific entity. General elements include elements such as peer pressure or lack of a supportive culture	17	68

Screenshots of competition coding in NVivo 11

Competition			
Name	Sources	References	
2. Household level Competition		17	128
Entity based		17	92
Energy awareness		15	32
Waste management and Recycling		14	30
Food Waste		7	9
Water conservation		7	8
Clothes donation		3	3
Climate change		2	2
Transport		1	1
Non-entity based - Internal to the individual or		15	49

Competition			
Name	Sources	References	
4. Brand level Competition		17	180
Entity based		17	100
Retailers role		14	43
Range of products		7	12
Display		8	10
Promotion at POS		3	3
Product availability		1	2
Price as a competitor		12	28
Past product performance		8	24
Brand preferences and loyalty		11	20
Competing brands		6	12
Product preference		6	12
Point of sale competition		9	12
Labelling		7	8
Product appearance		2	3
Design preference		1	1
Product ingredients or chemicals		4	5
Family influence		1	1

Appendix E

Expert panel members

Construct	Panel Members
Reasons	Dr. Marius Claudy Associate Professor & Academic Director MSc in Marketing University College Dublin College of Business Carysfort Avenue Blackrock, Co. Dublin
	Dr. Paul Norman Professor of Health Psychology Department of Psychology University of Sheffield Sheffield, S1 2LT UK
	Dr. Anil Gupta, Ph.D. Senior Assistant Professor School of Hospitality and Tourism Management Faculty of Business Studies University of Jammu Jammu (J&K) 180 006, India
Competition	Professor Sharyn Rundle-Thiele Department of Marketing, Nathan campus, Griffith University, QLD 4111, Australia
	Associate Professor Gary Noble Associate Dean International and Accreditation Faculty of Business University of Wollongong NSW 2522 Australia
	Dr Sinead Duane HRB TMRN Postdoctoral Researcher Research Suite 2 RM 235 College of Medicine, Nursing and Health Sciences Aras Moyola NUI Galway
	Scales review panel - Seven experienced PhD researchers

Expert review panel guidelines (excerpt)

The purpose of this review is to test the face and content validity of each measure. These items will also be tested by non-experts to assess the face validity.

1. Read the definition of each measure and assign each item on the list to the appropriate measure (1 or 2).
2. Identify any items you believe are missing from each list.
3. Comment on whether you feel the measure is complete and unambiguous. Do you think it measures what it is trying to measure?
4. Read the definition of the third measure and state whether you think each item is either (a) not necessary (b) useful but not essential or (c) essential.
5. Finally please comment on whether you believe this item to be complete and unambiguous and does it measure what it is trying to measure?

<p>Measure 1: Title: Competing green household behaviours as perceived by household consumers.</p> <p>The objective of this measure is to discover what green household behaviours compete for the household consumer's time and attention. What household behaviours does the household consumer focus on?</p>	<p>Measure 2: Title: Competing green shopping behaviours as perceived by household consumers.</p> <p>The objective of this measure is to discover what green shopping behaviours compete for the household consumer's time and attention. What shopping behaviours does the household consumer focus on?</p>
<p>The conceptual definition of this measure is:</p> <p>Any green household behaviour that has the potential to act as a preferred green behaviour for the household consumer.</p>	<p>The conceptual definition of this measure is:</p> <p>Any green shopping behaviour that has the potential to act as a preferred green shopping behaviour for the household consumer.</p>
<p>Scale proposed:</p> <p>Respondents will be asked to indicate how often they perform the various activities. This item is measured on a 5 point scale; 1=never, 2= Not very often, 3= quite often, 4=Very often and 5=always.</p>	

Appendix F

List of constructs

Construct	Sources	Scale items
Pro-environmental Values	<p>Bourman, Steg & Kiers (2018)</p> <p>The Environmental Portrait Value Questionnaire (E-PVQ) provides an item scale which measures environmental values including biospheric, altruism, hedonism and egoism. (Gender neutral version, provided by the authors)</p>	<p>Respondents were asked to read each description carefully and indicate on the scale how much this person is like them, where 1 is not at all like them and 7 is very much like them (Scale 1 – 7). The higher the score, the more the person is like them.</p> <p><i>That every person has equal opportunities</i> <i>To work hard and be ambitious</i> <i>To be influential</i> <i>That there is no war or conflict</i> <i>To protect the environment</i> <i>To have fun</i> <i>To respect nature</i> <i>To have authority over others</i> <i>To do things this person enjoys</i> <i>To have money and possessions</i> <i>To prevent environmental pollution</i> <i>That every person is treated justly</i> <i>To enjoy life's pleasures</i> <i>To take care of those who are worse off</i> <i>To have control over others' actions</i> <i>To be in unity with nature</i> <i>To be helpful to others</i></p>
Competition (Enterprise level)	<p>Developed by the researcher, informed by the qualitative phase and reviewed by experts and an expert panel.</p>	<p>Respondents were asked to indicate how often (if ever) they do each of the following pro-environmental household behaviours. The scale used was a 5 point scale from <i>Always</i>, <i>Very often</i>, <i>Quite often</i>, <i>Not very often</i> and <i>Never</i>.</p> <ol style="list-style-type: none"> 1. Reduce food waste 2. Conserve energy (i.e. switch off lights, reduce the heating) 3. Manage household waste (separate and recycle) 4. Conserve water (i.e. turn off taps when brushing teeth, take showers instead of baths)

		5. Donate unwanted items (i.e. clothes, toys) 6. Use public transport, car-pool, walk or cycle (instead of using own vehicle)
Competition (Product level)	Developed by the researcher, informed by the qualitative phase and reviewed by experts and an expert panel.	Respondents were asked to indicate how often (if ever) they do each of the following pro-environmental shopping behaviours. The scale used was a 5 point scale from <i>Always</i> , <i>Very often</i> , <i>Quite often</i> , <i>Not very often</i> and <i>Never</i> . 1. Buy Irish made products 2. Choose products with low air miles 3. Buy fair trade products 4. Buy organic products 5. Choose products with reduced packaging or plastic 6. Buy refills for products e.g. coffee, sugar or spices 7. Buy paper products with recycled content 8. Use reusable shopping bags 9. Buy local, seasonal products
Competition (Brand level)	Developed by the researcher, informed by the qualitative phase and reviewed by experts and an expert panel.	Respondents were asked to remember the last time they purchased a paper based product such as kitchen towels, tissues or toilet paper, then were asked to indicate which (if any) of the following factors influenced their choice? The scale used was a 5 point scale from Strongly Agree to Strongly Disagree. 1. Manufacturers promotions (e.g. 25% extra free) 2. Brand name 3. Product display 4. Supermarket offers and promotions 5. Product quality 6. Pack size (e.g. family pack, single size) 7. Price 8. Environmentally friendly 9. Product packaging 10. Product features (e.g. scented, designs) Advertising (e.g. television, print, radio and social media)

Construct	Sources	Scale items
Reasons (for and against)	<p>Scale was developed and informed by previous research testing the Behavioural Reasoning Theory (Westaby, 2005). Following an elucidation study to identify reasons, scales were developed and reviewed by an expert panel.</p>	<p>The scale measures the level of agreement with a series of statements reflecting the most common reasons cited. The phrasing varies depending on whether the respondents have indicated if they purchase recycled paper products. Measured on a 5 point scale, respondents are asked to indicate their level of agreement with each statement from Strongly Agree to Strongly Disagree..</p> <p><i>Recycled paper products...</i></p> <ul style="list-style-type: none"> <i>..are good for the environment</i> <i>..help reduce waste</i> <i>..are safer for me to use (i.e. fewer chemicals, perfumes)</i> <i>..perform as well as regular paper products</i> <i>..are more expensive than regular paper products</i> <i>..are difficult to find in the supermarket</i> <i>..are of inferior quality</i> <i>..are not available in my supermarket</i> <i>..are not as appealing as the brand I usually buy</i> <i>..are not interesting for me</i>
Global motives	<p>Global motives in the BRT include attitudes, perceived control and social norms. The scales are adapted from Ajzen, 1991, Westaby, 2005, Westaby et al., (2010) & (Francis <i>et al.</i>, 2004) The construct is measured using three separate questions in the survey.</p>	<p>Items are measured using the scale 1 – 5, from strongly disagree to strongly agree. The phrasing of the scale is also determined by whether the respondent has indicated if they purchase or do not (or are not sure) if they purchase recycled paper products. Respondents are asked to indicate whether they disagree or agree with each of the following statements.</p> <p>(a) Attitudes</p> <p><i>When I buy recycled paper products,</i></p> <ul style="list-style-type: none"> <i>..It's better for the environment</i> <i>..It means reduced waste in the system</i> <i>..I feel I am doing my bit for the environment</i> <i>..It's more expensive than buying non-recycled paper products</i> <i>..It means compromising on quality</i> <p>(b) Perceived Control</p> <p><i>When it comes to buying recycled paper products</i></p> <ul style="list-style-type: none"> <i>It's easy for me to buy them</i> <i>It is difficult to buy recycled paper products</i> <i>I can buy them whenever I want</i>

		<p>(c) Social Norms</p> <p><i>Indicate your level of agreement with the following statements.</i></p> <p>Most people's opinion I value believe that I should buy them</p> <p>My family think it is important that I do buy them</p> <p>People of my own generation believe that I should buy them</p>
Intention	Also adapted from Ajzen, 1991, Westaby, 2005, Westaby et al., (2010) & (Francis et al., 2004)	<p>Measured on a 5 point scale from <i>Very Likely</i> to <i>Very Unlikely</i>.</p> <p>(Intention to buy)</p> <p><i>When it comes to recycled paper products,</i></p> <p>I intend to buy them when I next buy paper products</p> <p>I want to buy them when I next buy paper products</p> <p>I do not intend to buy when I next buy paper products</p>