

UNIVERSITY OF CAPE TOWN



**Environmental Concern, Knowledge, and the
Enactment of Environmental Citizenship in a Retail
Food Environment: An Investigation into the
Perceptions and Behaviours of Cape Town Consumers**

MPhil specializing in Climate Change and Sustainable Development

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Minor dissertation presented for the approval of Senate in partial fulfilment of the requirements for the MPhil specializing in Climate Change and Sustainable Development in approved courses and a minor dissertation.

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ABBREVIATIONS

DEFRA	Department for Environment, Food and Rural Affairs
DESD	Decade of Education for Sustainable Development
FAO	Food and Agriculture Organisation
IUCN	International Union for the Conservation of Nature
NEP	New Environmental Paradigm
OECD	Organisation for Economic Co-operation and Development
SCP	Sustainable Consumption and Production
SDB	Social Desirability Bias
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Conference on Sustainable Development
UNDESA	United Nations Department of Economic and Social Affairs
UNEP	United Nations Environmental Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCED	World Commission on Environment and Development
WCS	World Conservation Strategy
WSSD	World Summit on Sustainability Development

ABSTRACT

Sustainable consumption has long been recognised as essential for the achievement of sustainable development. Whilst early efforts to achieve sustainable consumption focused on using technological innovation and process efficiencies to reduce the resource intensity of products, create new, less toxic, more environmentally friendly products, and/or improve the efficiency of production processes, the inadequacy of production-based approaches alone has been widely accepted. More recent efforts to achieve sustainable consumption have highlighted that a change in the behaviour of individuals is a prerequisite for its achievement. A significant body of research has focusing on trying to understand the determinants of pro-environmental behaviour and specifically the intersection of environmental concern and environmental knowledge in the manifestation in pro-environmental behaviour. The relatively recent concept of environmental citizenship, premised on the existence of concern and knowledge, and rooted in issues of environmental and social justice, has gained traction as an alternative means by which to achieve both sustainable development and sustainable consumption.

This dissertation presents research findings from a mixed-method empirical study of the food consumption behaviour of a purposive sample of upper middle income South African retail food consumers. Applying the notion of environmental citizenship, it considers the influence of critical variables widely identified as key to the expression of pro-environmental behaviour, viz. desire to act, knowledge to act, and ability to act. Specifically it considers the relationship between environmental knowledge, environmental concern and pro-environmental behaviour, as well as the barriers and situational factors in the food retail environment which are reported to inhibit the practice of sustainable consumption behaviour. It then considers whether improvements in objective knowledge have an impact on the enactment of environmental citizenship through an increase in pro-environmental behaviour practices.

The main conclusion drawn from the findings of this dissertation is that environmental concern and knowledge are positive predictors of pro-environmental behaviour. However, a low incidence of pro-environmental behaviour was evident in the study sample overall. This is most likely as a result of low levels of environmental concern and general lack of objective knowledge although a significant additional barrier could be the lack of a mature market for sustainable food in South Africa. In keeping with international studies, health concerns appear to be both most prevalent and most influential in determining the practice of pro-environmental behaviours. The study also suggests that efforts to increase levels of objective knowledge may have an impact on the practice of sustainable food consumption behaviours.

Keywords: sustainable consumption; environmental citizenship; environmental concern; pro-environmental behaviour; Cape Town

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1. INTRODUCTION

The secret of happiness, you see, is not found in seeking more, but in developing the capacity to enjoy less (Socrates)¹

Unsustainable consumption and production has been recognised as one of the most significant threats to the achievement of sustainable development; a concern repeatedly expressed at multinational gatherings on development and the environment both before (UNESCO, 1977) and since (UNEP, 2012, 2011, 1992a, 1992b; UN, 2002; UNCSD, 2012) the Brundtland Commission² (UN, 1987). The global response, evidenced in commitments made at the 1992 Earth Summit, emphasises the imperative to pursue and promote national and international policies and strategies to accelerate more sustainable consumption and production practices (UNEP, 1992a, 1992b). Central to this was argued to be the creation of a new generation of *environmentally astute, knowledgeable citizens* able to contribute to a future world based on principles of sustainability (UNCSD, 2012; UN, 2002, 1987, 1972; UNEP, 1992a, 1992b).

Since Agenda 21 was adopted (UNEP, 1992b), “reduce, re-use, recycle” has become an oft-recited mantra for transformation in production and consumption practices. It has spurred the design of innovative, less resource-intensive products; the development of new and more efficient production processes; and the implementation of a more circular supply chain, one that uses outputs from one production process as inputs for another (Jackson, 2005a). These process improvements and eco-efficiencies have enabled significant reductions in the consumptive use of material resources, thereby contributing to more sustainable consumption in and of themselves (Stø et al., 2008; Jackson, 2005a).

Notwithstanding this success, it is widely conceded that equating production with consumption and focusing simply on improving production efficiencies is a strategy that can ever only hope to achieve “weak sustainable consumption” (Hobson, 2003; Huesemann, 2003; Hediger, 1999; Cabeza Gutés, 1996). Increasingly, sustainable consumption is recognised to be more than a purely technical problem to be solved by simply “producing more with less” (UN, 1987). This view sees technology alone as incapable of resolving problems that emanate from human behaviour. Instead, it argues that strong sustainable consumption demands a change in human values, ideas of morality and, ultimately, in the behaviour of people (Hardin, 1968).

¹ <http://aboutsocrates.com/>

² Formally established by the United Nations as the World Commission on Environment and Development (WCED) in 1983, the Commission was chaired by Gro Harlem Brundtland, former Prime Minister of Norway; thus also referred to as “The Brundtland Commission”. Its report “Our Common Future” published in 1987 is also known as “The Brundtland Report”.

Alongside recognition of the inadequacy of sustainable production as a means by which to achieve sustainable consumption, however, is an “implementation gap”; a discrepancy between “proclamations ... [and] actual initiatives to cultivate more sustainable modes of consumption” (Tukker et al., 2006). Central to this disparity are hypothesised to be issues arising from, or embedded in the “politics of consumption”; socio-economic and political drivers that compel current patterns of consumption in support of an economic growth model based on maintaining high levels of consumption in society (Dauvergne, 2010).

The limitations posed by the focus on production based approaches to sustainable consumption and the difficulties related to overcoming the structural or systemic drivers of consumption, has resulted in policy and research efforts designed to identify how to drive change at the level of the individual consumer. Consequently, significant research into human motivation, household consumption patterns, habits, intentions and everyday behaviour practices has sought to identify ways in which to encourage consumer driven pro-environmental behaviour (Stø et al, 2008; Tukker et al., 2006; Jackson, 2005a; Fuchs and Lorek, 2004; OECD, 2002, 1999; Heap, 2000; Myers, 2000).

This research has, however, also recorded a widely observed “value-action” or “attitude-behaviour” gap: an incongruence between individual expressions (proclamations) of pro-environmental values and their actual or reported consumption behaviours (Southerton, 2013; Carrington et al., 2010; Kollmuss and Agyeman, 2002; Bartiaux, 2008; Barr, 2006; Vermeir and Verbeke, 2006; Barr, Gilg and Ford, 2005; Padel and Foster, 2005; Blake, 1999). Notwithstanding, there remains consensus that sustainable consumption will only succeed “if individuals are mobilised in their roles as both consumers and voters [i.e. citizens] in a bottom-up approach” (Stø et al., 2008).

The notion of individuals as planetary or environmental citizens, citizens who have a right to a sustainable planet and an obligation, in turn, to support and practice sustainable consumption behaviours, is not new; it dates at least as far back as the United Nations (UN) Conference on the Human Environment in 1972 (UN, 1972). However, the idea that environmental citizenship may serve as an agent for behaviour change remains a significantly under-researched area (Seyfang, 2006). This has changed in recent years with efforts focused on understanding the potential of environmental citizenship to serve “as an innovative motivational force for behaviour change for sustainable consumption” (Seyfang, 2006). Accordingly, a growing body of work has explored notions of environmental citizenship and its relationship to pro-environmental behaviour (Middlemiss, 2010; Wolf et al., 2009; Melo-Escrihuela, 2008; Dobson, 2007, 2006, 2004, 2003, 1999; Connelly, 2006; Dobson and Bell, 2006; Nash and Lewis, 2006; Seyfang, 2006; Bell; 2005; Hailwood, 2005; Jelin, 2000; Alabaster and Hawthorne, 1999; Hawthorne and Alabaster, 1999).

In South Africa, some attention has focused on understanding attitudes and behaviours with respect to more sustainable consumption of energy for domestic use (Paul, 2013; Adams, 2011; Hardie, 2011; Swanepoel, 2010; Ravens, 2008). However, there remains a paucity of research into individual and/or domestic sustainable consumption practices broadly or food consumption practices specifically. Furthermore, a general understanding of public conceptualisations of sustainable consumption amongst South African consumers appears absent in academic literature. Specific to the present study, there is no research into how – or even whether – sustainable consumption is understood among South African consumers and whether – or what – sustainable consumption behaviours may already be in evidence. Most critically, the variables that may be fuelling or inhibiting sustainable consumption behaviours do not appear to have been explored.

Specific to the topic of this study, food consumption and production is believed to account for 20% to 30% of total household environmental impacts (Tukker et al., 2008a; Owen et al., 2007). Furthermore, an estimated 33% of food produced globally is lost or wasted annually (FAO, 2013), rendering the impacts of unsustainable food consumption patterns even more costly in terms of the absolute loss of benefits associated with the environmental cost of production.

That unsustainable food consumption practices are widespread in South Africa appears evident from some first studies of the country's level of household food waste (Nahman and de Lange, 2013; Oelofse and Nahman, 2013; Nahman, de Lange, Oelofse and Godfrey, 2012). These studies suggest that some R61.5 billion in edible food waste occurs every year; an amount equivalent to approximately 2.1% of South African GDP (ibid.)³. Of this, an estimated one-third stems from household practices, with the most common reasons being “buying more food than what is going to be eaten ... food is left un-used or ... too much has been cooked or prepared” (ibid.). These findings alone suggest that deeper understanding of consumer behaviour with respect to sustainable food consumption and the barriers to its effective practice is warranted.

This study seeks to contribute further to this research by investigating conceptualisations and patterns of sustainable food consumption and exploring the interactions between environmental concern, knowledge, situational influences in the retail food shopping environment and pro-environmental behaviour amongst middle- to upper-income consumers of five Woolworths⁴ stores in Cape Town, South Africa.

³ Based on 2010 figures, Canada wastes approximately 40% of all the food produced which amounts similarly to around 2% of Canada's GDP (Gooch et al., 2010). <http://vcm-international.com/wp-content/uploads/2013/04/Food-Waste-in-Canada-112410.pdf>

⁴ Woolworths is a South African chain of retail stores and one of the largest in the country, modelled on Marks & Spencer of the United Kingdom.

2. RESEARCH AIMS AND OBJECTIVES

The aim of this study is to explore the intersection of individual levels of concern for the environmental impacts of food products, individual levels of environmental knowledge about sustainable food, and observed or reported sustainable food purchase behaviour amongst middle- to upper-income consumers from five Woolworths stores in Cape Town, South Africa in order to deepen understanding of whether and how environmental citizenship may be enacted in a retail food environment.

2.1 Research objectives and targeted outcomes

In order to address the overall aim of this research, the specific objectives of this study are to:

1. Investigate existing levels of environmental concern and knowledge of what comprises sustainable food produce in the target audience;
2. Explore whether sustainable food consumption behaviours are currently being practiced by the target audience;
3. Establish whether targeted information (knowledge) on the environmental impacts of food production has an impact on subsequent reported food purchase behaviours in the target audience; and
4. Identify barriers to more sustainable food consumption behaviours among the target audience.

Based on these objectives, the research will then:

5. Analyse the findings of objectives 1 to 4 above in order to deepen understanding of the relationship between knowledge, concern and the enactment of environmental citizenship in the retail food environment.

3. LITERATURE REVIEW

3.1 Introduction and chapter overview

Sustainable consumption and sustainable development are inextricably linked. Indeed it is argued that the latter depends upon the former (UNEP, 2012). This chapter will explore notions of sustainable development and sustainable consumption as well as the policy objectives of global efforts towards their achievement. It will then review the academic literature to understand better the factors believed to influence the expression (or not) of behaviours that promote the objectives of sustainable development and consumption i.e. pro-environmental behaviours. Subsequently the notion of environmental citizenship and the features deemed important for its enactment will be discussed. Finally the chapter will explore the nature of the sustainable consumer and present the definition of sustainable food consumption that applies to this study's empirical research.

3.2 Sustainable Development and Consumption

3.2.1 Sustainable Development: Concepts and Principles

Confronting consumption, seeking to influence consumer behaviour, and understanding the [necessary] process of lifestyle change are increasingly important topics for sustainable development (UK SDC, 2003)

The International Union for Conservation of Nature's (1980) World Conservation Strategy is widely credited with first use (though no specific definition) of the term 'sustainable development' as it sought to integrate conservation principles with development practice. Perhaps prescient of a fundamental flaw in subsequent efforts to operationalise the concept of sustainable development (in general) and sustainable consumption (in particular), critics argued that the strategy "assumed the level and structure of demand to be independent and autonomous, [ignoring the fact that] if a sustainable style of development is to be pursued *both the level and particularly the structure of demand must be fundamentally changed*" (Sunkel, 1987, emphasis mine).

Contemporary notions of sustainable development are, however, largely attributed to the efforts of the World Commission on the Environment and Development (WCED) (Redclift, 2005; Mebratu, 1998; Lele, 1991). Many believe that it was through the publication of the report "Our Common Future" (UN, 1987)⁵ that the concept of sustainable development ascended into global policy circles and became the focus of collective international action (ibid.).

⁵ Also known as the Brundtland Report

Defining sustainable development most famously as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”, the Brundtland Report (UN, 1987) reflects an effort to balance three interdependent dimensions viz. people (social), planet (environmental) and profit (economic) (Vermeir and Verbeke, 2006). Whilst some argue that “the environmental dimension is ‘more equal than the others’” (Tukker, 2008), there are those who point instead to the indisputable commitment to, if not imperative for, economic growth (Bell, 2004) evidenced in statements such as “what is needed now is a new era of economic growth – growth that is forceful” (UN, 1987).

Although it neither defines, nor specifically uses the term ‘sustainable consumption’, the Brundtland Report acknowledges that, as a practice, sustainable consumption is inextricably bound with sustainable development, and declares that “sustainable development requires the promotion of values that encourage consumption ... *within the bounds of the ecologically possible*” (UN, 1987). In essence, the Report makes an appeal for a change in both the nature (level) and the structure of demand, (thereby overcoming Sunkel’s (1987) criticism of the 1980 World Conservation Strategy discussed above). However, it also suggests that “the bounds of the ecologically possible” are fluid, that limits can be overcome because they are “imposed by the state of technology” (UN, 1987). By implication, the Report suggests that continuing economic growth is sustainable, indeed desirable to overcome challenges of development and poverty.

It is because of statements such as those highlighted above that the Report is argued to be vague, ambiguous, un-implementable and, perhaps most critically, reinforcing of the prevailing socio-cultural context of consumerism (Redclift 2005; Kirkby et al. 1995 in Mebratu, 1998). Undoubtedly, the Brundtland Commission’s conceptualisation of sustainable development, and its emphasis on the potential of technology to overcome environmental limits, has had significant ramifications both for the definition of sustainable consumption and for the nature and focus of intervention strategies.

Indeed, taking the lead from the Report’s emphasis on the potential for technological innovation to overcome environmental limits, the focus of sustainable consumption intervention strategies to date has largely resided with such innovations; efforts designed to enhance production process efficiencies and so “do more with less” (UN, 1987). In consequence, little energy has focused on the need for fundamental change in the structure of demand. The implications this has had for efforts to define and address sustainable consumption will be discussed later in Section 3.2.3. In advance of that, however, a review of the policy definitions and objectives of sustainable consumption efforts arising out of the Brundtland Report (UN, 1987) is useful.

3.2.2 Sustainable Consumption: Early Definitions

In searching for sustainable development the term 'sustainable consumption' has arisen. It reflects the realisation that all environmental and resource problems caused by humans are ultimately the result of consumption and lifestyles (van den Bergh and Ferrer-i-Carbonell, 2000)

The first working definition of sustainable consumption was established by the Oslo Ministerial Roundtable in 1994 (IISD, 1994.). This defined sustainable consumption as “the use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations”. Perhaps unsurprisingly, echoes of the Brundtland Commission’s definition of sustainable development resound in this statement. Equally unsurprisingly, this definition has encountered markedly similar criticisms to that sustained by the definition of sustainable development.

Conceivably, however, and following Daly (1996, in Mebratu, 1998), vagueness may be precisely what enabled both of these notions to gain wide acceptance. Proponents of this view believe that “having consensus on a vague concept rather than disagreement over a tightly defined one was a good political strategy” (ibid.). Indeed, maintaining a vague concept may have expediently brought together irreconcilable positions and enabled common ground to be found. As Wilbanks (1994) suggests, ambiguity had the “virtue of versatility” in shaping global consensus, essential for a concept that at its core demands a radical structural change counter to the dominant socio-economic and political paradigm. Sneddon et al. (2006) warn, however, that ultimately cooperative action will be necessary for the effective implementation of programmes designed to achieve sustainability; cooperation that risks being thwarted by “interpretative conflict” as specific calls to action highlight fundamental contradictions in meaning and import (Tukker, 2008).

Perhaps a more fundamental criticism of both concepts is that neither elaborate on the notion of “basic needs” nor define terms such as “better” or “quality of life” (Redclift 2005; Mebratu, 1998). Whilst the Brundtland report emphasises the need for a “five- to tenfold increase in output” to raise developing world consumption (presumably a proxy for “quality of life”) to industrialised world levels (UN, 1987), it does not sufficiently address the fact that the already unsustainable levels of consumption in the developed world cannot conceivably be replicated within a scenario that will also achieve sustainability. Thus the call to raise consumption in the developing world to developed-world-equivalents presents a fundamental stumbling block to the achievement of sustainable consumption. Fundamentally it calls for a clearer definition of sustainable consumption, one which addresses the need for a structural change in consumption globally.

3.2.3 Sustainable Consumption as Sustainable Production

Consumption is the reason why anything gets produced, and consumption and production are together the source of all man-made stress on the natural environment (Heiskanen and Pantzar, 1997).

Challenges facing the design and implementation of strategies to achieve sustainable consumption as first defined were undoubtedly instrumental in the evolution of sustainable consumption over time. In response to many of these early criticisms, a broader term, “sustainable consumption *and* production” (SCP) emerged out of the World Summit on Sustainable Development held in Johannesburg in 2002 (the “Earth Summit”). Arguably semantics as no definitional change between SCP and sustainable consumption is evident, SCP attempted to more explicitly couple the related activities of consumption and production in a product and/or process lifecycle approach.

According to UNEP (2001), SCP still sought “to ‘do more and better with less’ by reducing resource use, degradation and pollution along the life cycle of goods and services”. Theoretically at least, it was argued that adopting a more inclusive production-consumption life cycle view enabled SCP to concern itself with both the sustainable consumption of resources in the process of production of goods and services (the supply side), and the sustainable consumption of produced goods and services by end users (the demand side) (ibid.). Renewed efforts to achieve SCP followed the Earth Summit in 2002. Unsurprisingly these mostly followed a sustainable production route (Connolly and Prothero, 2003). By all accounts technological and ecological innovations as well as improved process efficiencies, helped SCP efforts make significant advances in reducing the resource intensity of products and/or creating new, less toxic, more environmentally friendly products (Fuchs and Lorek, 2005).

However, whilst adapting product compositions or production processes has improved the sustainability of consumption within certain areas, it has not changed either the structural nature of market economies or the culture of consumerism which continues to drive unsustainable levels of demand driven consumption (Heiskanen and Pantzar, 1997). Indeed, ironically, process efficiencies may actually be driving unsustainable consumption further in what’s termed a “rebound effect” also known as Jevon’s paradox (Brown, 2009; Clark, 2007; Throne-Holst, Stø and Strandbakken, 2007; Greening, Greene and Dfiglio, 2000). The rebound effect refers to changes in either (or both) consumer behaviour or production patterns that emerge as a result of the environmental gains achieved through increased eco-efficiency; changes that negate the benefits achieved (Brown, 2009). For example, increasing the fuel efficiency of motor vehicles could potentially increase consumption of fuel because driving becomes affordable for a greater number of people. Accordingly, the level of demand (and, therefore of consumption) actually increases.

Under the rebound effect initial gains achieved through efficiencies or reduced resource use are diminished (rebound) or negated (backfire) as a result of new consumer expectations and/or increased product demand (Brown, 2009; Stø et al., 2008; Throne-Holst et al., 2007; Hofstetter, Madjar and Ozawa, 2006; Hertwich, 2005a; Jackson, 2005a; Takase, Kondo and Washizu, 2005; Huesemann, 2003; Binswanger, 2001; Greening et al., 2000). Observation of the rebound effect is widely considered to support the view that eco-efficiency in production processes alone is not sufficient to achieve sustainable consumption (Tukker, 2008; Clark, 2007; Hofstetter, Madjar and Ozawa, 2006; Hertwich, 2005a; Jackson, 2005a; Takase, Kondo and Washizu, 2005; Huesemann, 2003; Binswanger, 2001). In this regard, Stø et al. (2008) coherently argue that “the rebound effect illustrates that the main challenge in the future will ... be on the consumption side”.

It is increasingly apparent that without fundamentally challenging and changing the structural dynamics of the socio-political and economic system within which unsustainable consumption patterns continue to exist, no real gains may be achieved (Dauvergne, 2010; Charter et al., 2008; Tukker, 2008a; Jackson, 2005a, 2005b; Cogoy, 1999; Rothman, 1998; Jacobs, 1997). Evidence of this is apparent in the observation that environmental impacts measured in carbon emissions, ecosystem failures and continued biodiversity and species loss have increased over the period that SCP strategies have been pursued; this despite the extensive global effort on achieving sustainability or the realised gains in sustainable production practices (ibid.).

Conceivably, then, defining SCP as a single life cycle outcome, while principally correct, has maintained a false consensus that the objectives of, and route by which to achieve, sustainable consumption is through improved technology and production process efficiencies. Perhaps more importantly, a focus on SCP appears to have enabled a shift in attention from interventions that address the need for structural change to reduce unsustainable demand side consumption to the relatively more simple effort of increasing efficiency to reduce consumptive use of material resources in the production of goods.

This blurring of the boundaries of production and consumption is not surprising given the ambiguity of the Brundtland Report. Indeed, the implication, so subtly encapsulated within that report, is that limitations are largely a function of the state of technology, and that growth need not be compromised even while sustainable development is to be achieved. However, this strategy highlights the fundamentally political nature of consumption, the structural dependence that nation states have on an economic growth model and the lack of leadership will to address the politics of consumption overall (Dauvergne, 2010). This issue will now be discussed in more detail.

3.2.4 The politics of (unsustainable) consumption

Most politicians (and many economists) still regard consumption as sacrosanct, as a cure-all for economic growth, and vital to their re-election (Drew and Lorimer, 2011)

As discussed above, definitions of SCP have been applied, for the most part, to activities focused on the production component of a product lifecycle. While token reference to end user consumption is implied in phrases such as the use of products “to meet basic needs”, the fuzziness of the definition overall and the lack of specificity as to what basic needs are means there is no definitive call to address the level of consumption by individual consumers (or consumers in aggregate). This inhibits the manifestation of a change in the structure of demand; a change for which the political will is lacking as mentioned above.

This is clearly apparent in the primary commitment to business and growth evidenced in the Organisation for Economic Cooperation and Development (OECD) positioning of sustainable consumption and production as “important aspects of sustainable development ... [*dependent*] on achieving long-term economic growth” (OECD, 2008, emphasis mine). Furthermore the OECD states that “promoting sustainable consumption is ... important to limit negative environmental and social externalities as well as *to provide markets for sustainable products*” (ibid.). Nothing in this definition suggests that a change in the level of demand is imperative: on the contrary. Justified by these definitions, it is no surprise that institutionally driven SCP intervention programmes have primarily focused on addressing production efficiencies as the means by which to achieve sustainable consumption.

There are many who argue that the problem of sustainable consumption (or the lack thereof) stems from the inability, or perhaps more bluntly, the lack of political will, to alter the drivers of consumption (Dauvergne, 2010; Charter et al., 2008; Jacobs, 1997). Focusing on production efficiencies fits the dominant socio-economic and political paradigm. It does not change the level of what is consumed – on the contrary, this continues to rise exponentially. It also does not challenge the politics of consumption, or the very nature of contemporary consumer society; one within which unsustainable consumption behaviour practices prevail and maintain – or worse, reinforce – the status quo (Dauvergne, 2010; Jackson, 2005a, 2005b; Cogoy, 1999; Rothman, 1998; Jacobs, 1997). Perhaps most alarmingly, by broadening the range of options to producers and creating greater product marketing opportunities for corporations, efficient production programmes may actually fuel consumption masked as “sustainable” or “green”. As Marchand and Walker (2008) point out “marketers respond not with worry but appreciation ... consumer culture seems endlessly capable of turning critique into a marketing hook”.

This is not to imply that production efficiencies achieved through technological innovation are not an essential contributor to the achievement of sustainable consumption (Lorek and Fuchs, 2013; UNEP, 2011, Jackson, 2008, 2007, 2005a, 2005b; OECD, 2008; Tukker, 2008; Tukker et al., 2008a; Clark, 2007; Fuchs and Lorek, 2005, 2004;). Such efficiencies “mean a reduction in resource consumption, per consumption unit” and so make an important contribution towards sustainable consumption (Fuchs and Lorek, 2005). However, notwithstanding the benefits, Lorek and Fuchs (2013) argue that this approach reflects “weak sustainable consumption”, noting, like Dauvergne (2010) that it is “rooted in market approaches and technological optimism” and avoidant of encouraging structural changes that will act to affect (reduce) both the aggregate and the individual level of consumption or demand.

Fuchs and Lorek (2005) go on to argue that it is essential to identify what additional interventions are necessary in order to establish a condition sufficient for “strong sustainable consumption” to be achieved. This is widely accepted to be a reduction in both the *level* of consumption (and a concomitant reduction in the level and structure of demand) as well as a reduction in the *pattern* of consumption (Tukker, 2008; Fuchs and Lorek, 2005, 2004). In other words, the quantum of what is consumed as well as the speed of replacement, use, and disposal governing how it is consumed (the *pattern of consumption*), must change if we are to achieve sustainable consumption. This requires changes in individual consumption behaviour; but it also *necessitates* decisive structural changes in the nature of the global economy, structural changes that remain politically unpalatable in the near term (ibid.).

Recognising that structural changes are less likely to be forthcoming, it is evident that interest in whether and how consumers can be motivated to take a more active role in promoting sustainable consumption has increased in the last few decades. Indeed, a significant body of research has sought to understand and explain individual consumer behaviour generally and pro-environmental behaviour in particular as part of an effort to identify the ways in which greater individual engagement in sustainable consumption behaviours can be facilitated. The following section seeks to explore this literature further.

3.3 Determinants of Pro-environmental Behaviour

A plethora of theoretical models spanning multiple disciplines and considering a wide variety of factors has been developed in an attempt to explain the practice of individual pro-environmental consumer behaviour and the incongruity frequently observed between expressed environmental attitudes and observed behaviour practices i.e. the value-action gap referred to earlier (Southerton, 2013; Kennedy et al., 2009; Jackson 2005a, 2005b; Bamberg, 2003; Hobson, 2003; Sanne, 2002;

Stern, 2000; Blake, 1999; Røpke 1999; Hines et al., 1987). These models have progressed from early, relatively simple notions of an “information deficit” or a lack of knowledge to inform pro-environmental behaviour, to more complex representations of behaviour that consider the influence of social-psychological factors such as values, attitudes, social norms as well as contextual and situational factors such as habits, routines and social practices which are believed to mediate between attitudes, intentions and behaviours (Southerton, 2013; Buenstorf and Cordes, 2008; Stø et al., 2008; Barr and Gilg, 2007; Jackson, 2005a, 2005b; Schor, 2005; Burgess et al., 2003; Kollmuss and Agyeman, 2002; Stern, 2000, 1999; Stern et al., 1995; Terry et al., 1999; Heiskanen and Pantzar, 1997).

Unfortunately, none of these models are yet able to fully explain what drives “insatiable human desires” (Buenstorf and Cordes, 2008) and concomitant “voracious consumption” (UNEP, 2011)⁶. Equally these models appear limited in their ability to predict pro-environmental behaviour or provide definitive explanations for why people do not evidence such behaviour even when they reportedly hold pro-environmental attitudes and experience or report high levels of environmental concern. Perhaps most importantly, none of these models are able to provide clarity as to how reductions in unsustainable patterns or levels of consumption might be achieved.

Recognition of the increasingly urgent need for a “bottom-up” citizen-consumer movement to achieve more sustainable consumption resulted in a trend towards the application of more integrative approaches to behaviour analysis. These included consideration of the role of identity theory and of citizenship in determining pro-environmental behaviour (Stø et al, 2008; Tukker, 2008; Dobson, 2007; Tukker et al., 2006; Bell, 2005; Jackson, 2005b; Seyfang, 2005; Fuchs and Lorek, 2004; Stets and Biga, 2003; Stern, 2000, 1999; Stern et al., 1995). In particular, the last two or three decades has seen a growing focus centred on the notion of environmental citizenship as a potentially “innovative motivational force for behaviour change” (Seyfang, 2005).

This discussion will not cover in any great detail all of the models developed to date. For this, the reader is referred to Jackson (2005b) where an exhaustive exposition and analysis is usefully presented in the order of their developmental progression over time. However, this discussion will consider the relatively universal role that both environmental knowledge and concern are hypothesised to play in determining pro-environmental behaviour before turning to explore the notion of environmental citizenship as a lens through which to view the practice of pro-environmental behaviour.

⁶ <http://www.un.org/apps/news/story.asp?NewsID=38366#.VLuZ60eUeIk>

3.3.1 Knowledge and the ability to act pro-environmentally

One of the earliest models attempting to explain consumer behaviour was the “information deficit / rational choice” model. This proposed that, equipped with sufficient information, consumers would demonstrate “appropriate” i.e. rational or pro-environmental, sustainable consumption behaviours (Jackson, 2005b). Under this model, policy interventions would simply need to ensure consumers were sufficiently educated to be able to make informed choices and the use of related fiscal measures would support the drive towards pro-environmental behaviour (Dobson, 2007).

In consequence, calls for environmental education of “the ordinary citizen” to enable him/her to follow “the simple steps ... to manage and control [their impact on] the environment” were repeated many times at various forums (UNESCO 1988; UN, 1987, 1972, UNEP, 1992a; 1992b). These forums emphasised that “education in environmental matters ... is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment” (UN, 1972). They highlighted that the primary objective of environmental education was to “foster a sense of responsibility and involve people in the search for solutions” (Hawthorne and Alabaster, 1999). Agenda 21 (UNEP, 1992b) similarly identified citizen education as central to an effective response to the global concern about the state of the environment and, following the Earth Summit in 2002, the UN declared a Decade of Education for Sustainable Development, the primary aim of which was to educate, and thereby empower, citizens to make relevant (behavioural) decisions for a viable world.

There is much consensus for the view that “responsible environmental behaviour is a learned response” (Sia et al., 1985/6) and that environmental knowledge is “a pre-requisite to action” (Hawthorne and Alabaster, 1999). Indeed, a meta-analysis of 128 research studies of the determinants of pro-environmental behaviour by Hines et al. (1987), found that knowledge of issues, as well as knowledge of, and skill in using, action strategies, were core to observations of pro-environmental behaviour: a finding supported by independent research undertaken by Sia et al. (1985/6). Along a similar vein, multiple studies demonstrate that product knowledge is undoubtedly an important factor influencing consumer purchasing behaviour (Pieniak et al., 2010; Verbeke, 2008; Park et al., 1994; Brucks, 1985).

However, studies also highlight that knowledge, as a construct, is multifaceted, and that its influence on behaviour depends on the nature of the knowledge held (c.f. Pieniak et al., 2010; Verbeke, 2008; Park et al., 1994; Alba and Hutchinson, 1987). In this regard, Alba and Hutchinson (1987) propose that knowledge, including product knowledge, comprises two components which are conceptually distinct viz. familiarity and expertise. Whilst typically a greater degree of

familiarity is related to a greater level of expertise, expertise also depends upon accurate factual knowledge (ibid.). Pieniak et al. (2010), Verbeke (2008) and by Park et al., (1994) all make a similar distinction although they refer to subjective, “self-perceived” or “self-assessed” knowledge instead of familiarity, and to objective or factual knowledge instead of expertise. According to them, whereas subjective knowledge is believed to refer to “perceptions of what or how much [people] know about (how familiar they are with) a product”, objective knowledge is defined as “the accurate information about the product stored in ... memory” (Pieniak et al., 2010).

Schahn and Holzer (1990, in Tanner and Kast, 2003) further distinguish between “*factual knowledge* ... [being] ... knowledge about definitions and causes/consequences of environmental problems [and] ...*action-related knowledge* [being] information about possible actions [to mediate environmental harm]”. Not unlike Sia et al. (1985/6) who found pro-environmental behaviour was strongly predicted by knowledge of, and skill in using environmental action strategies, Schahn and Holzer (1990) argue that action-related knowledge is a more significant determinant of behaviour than simple factual knowledge. This aligns with Hawthorne and Alabaster’s observation (1999) that although “all types of knowledge are strongly related to [pro-environmental] behaviour, ...the strongest correlations are those involving concrete knowledge” and with Radecki and Jaccard (1995) who point out that accurate information is necessary to direct pro-environmental behaviour.

However, Radecki and Jaccard (1995) also argue that an individual’s subjective knowledge about a product should reflect, at least to some extent, their actual or factual knowledge. Despite this theory, empirical studies reveal a “miscalibration” or low level of correspondence between objective and subjective knowledge (Verbeke, 2008; Alba and Hutchinson, 2000; Radecki and Jaccard, 1995; Park et al., 1994). Perhaps more importantly, studies have found that subjective knowledge not only plays a more central role in decision-making, but that overconfidence in subjective knowledge, a commonly observed phenomenon, is associated with little inclination to seek out more accurate or factual knowledge to guide behaviour (Radecki and Jaccard, 1995). Consequently consumers reportedly use “simplistic decision rules” in guiding their behaviour; rules that result in observed behaviour that is not reflective of either subjective environmental concern or pro-environmental behavioural intention (ibid.). The implication of these findings is relevant to the observed value-action gap. However, discussion of these issues seems absent from the literature on the role of knowledge in determining pro-environmental behaviour.

Notwithstanding the importance of knowledge suggested by these findings, some studies have found the relationship between knowledge and pro-environmental behaviour to be “weak at best” (Kollmuss and Agyeman, 2002). Furthermore, an established body of research has highlighted

significant flaws in the information deficit model (Jackson, 2005b). In this regard, Hines et al.'s (1987) likewise note that while knowledge and “skill in the application of action strategies” is necessary to direct pro-environmental behaviour, it is not sufficient in and of itself to lead to action. Newhouse (1990) concurs and contends that environmental attitude “is one of the most important influences of behaviour”. It is to understanding the role of environmental attitude – or environmental concern – therefore that we now turn.

3.3.2 Environmental concern and the desire to act pro-environmentally

The question of sustainable behaviour cannot be reduced to a discussion about balancing carrots and sticks. The citizen that sorts her garbage or that prefers ecological goods will often do this because she feels committed to ecological values and ends. The citizen may not, that is, act in sustainable ways solely out of economic or practical incentives: people sometimes choose to do good for other reasons than fear (of punishment or loss) or desire (for economic rewards or social status). (Beckman, 2001 in Dobson, 2007).

Hines et al.'s (1987) meta-analysis highlights that it is not only cognitive factors such as knowledge of the environment or knowledge of action strategies that are positively correlated with pro-environmental behaviour. Pro-environmental attitudinal variables, i.e. feelings for or concern about the environment, are equally found to be positively correlated with pro-environmental behaviour (Hines et al., 1987). The definition of environmental concern evident in the literature (Bamberg and Möser, 2007; Bamberg, 2003; Schultz, 2001; Fransson and Gärling, 1999; Hines et al., 1987; Dunlap and Van Liere, 1978, Weigel and Weigel, 1978; Maloney and Ward, 1973) suggests that it refers to “a general attitude [relating] to consumers’ cognitive and affective evaluation of ... [and] the extent to which consumers [are] worried about threats to the environment, the consequences of such threats ... [and/or] the lack of human action to protect the environment” (Abdul-Muhmin, 2007).

Hines et al. (1987) assert that in order for pro-environmental behaviour to manifest, “an individual must possess a desire to act”. This is reflected in a positive attitude to the environment and a compelling level of concern coupled with a sense of personal responsibility and obligation to act accordingly (ibid.). Fransson and Gärling (1999) similarly reveal that “a necessary condition for [pro-environmental behaviour] ... is an increase in environmental concern and knowledge about the effects and consequences of ongoing environmental deterioration”. These findings are supported by a similar meta-analysis undertaken by Bamberg and Möser (2007) and by Hawthorne and Alabaster (1999) who posit that, whilst “knowledge is a pre-requisite to action”, pro-environmental behaviour will manifest when knowledge is combined with both a *desire to act* (believed to stem from personal characteristics such as, environmental attitude or concern, a sense of responsibility and an internal locus of control), and an *ability to act* (which depends upon a range of

sociodemographic and societal factors). Fransson and Gärling (1999) further maintain that “lack of knowledge ... can explain the weak relationship between environmental concern and environmentally responsible behaviour” (ibid.), pointing to an indirect relationship between knowledge and concern that can influence the nature of behaviour practice.

Thus it would seem that environmental concern and environmental knowledge are together essential determinants of pro-environmental behaviour, contributing the desire to act and knowledge to act respectively (Kollmuss and Agyeman, 2002; Kennedy et al., 2009; Hawthorne and Alabaster, 1999; Alabaster and Hawthorne, 1999; Hines et al., 1987). It seems evident that without desire to act, knowledge has no catalyst. However, without knowledge to act, concern has no executive power or focus. In both instances a lack of action is likely to manifest. Accordingly both appear necessary to enable the enactment of pro-environmental behaviour.

That knowledge and concern are imperative for the enactment of environmental citizenship is evident in Dobson’s (2007) view that “the environmental citizen’s behaviour will be influenced by *an attitude... informed by knowledge* that what is good for me as an individual is not necessarily good for me as a member of a social collective”. The following section will consider the notion of environmental citizenship further with a view to understanding the factors influencing its enactment in a consumer context.

3.3.3 Environmental Citizenship

The environmental citizen’s life may be rather different from that of the average citizen. For example, she will turn off the tap when brushing her teeth or washing her face; walk, ride her bike, carpool or use public transport when possible; shop at second-hand stores and garage sales instead of purchasing brand new items, help protect and conserve that part of the local ecosystem where she belongs and participate actively in local environmental affairs in cooperation with government and others (Bell, 2005)

Although “there is no determinate thing called ‘environmental citizenship’” (Dobson, 2007), it is evident that the concept has “something to do with the relationship between individuals and the common good” (ibid.). Defining it more specifically, Dobson (2007) proposes that environmental citizenship is based on the recognition that (i) every individual has a right to the same ecological footprint and no more, which means the specific responsibility of each (environmental) citizen is to only occupy and/or draw from a fair amount of environmental space; (ii) there may be no specific personal gain for the individual who displays pro-environmental behaviour *but* self-interested behaviour is understood as potentially counter-productive for the environment; (iii) there is a moral obligation to do the right (environmental) thing as a matter of justice (as opposed to charity), and

this obligation extends globally; (iv) the obligation to do the right thing refers to both public and private activities, including consumption patterns.

This last characteristic of environmental citizenship is of significance when considering strategies for “strong” sustainable consumption based on “downscaling consumption and pursuing quality of life rather than economic growth” (Seyfang, 2006). If citizenship is about behaviour and activity, including behaviour in the private domain as is suggested (Dobson, 2007, 2003; Seyfang, 2006), then the notion of environmental citizenship creates new opportunities for addressing sustainable consumption. Indeed, as Seyfang (2006) reasons, “ecological citizenship⁷ could be a driving force for sustainable consumption via expression [of ecological citizenship values] through consumer behaviour such as purchasing local organic food”. More categorically perhaps, Bell (2005) stipulates that the notion of environmental citizenship can be understood to place “demands on people to act differently for the sake of the environment”.

Although environmental citizenship and its enactment in a meaningful social context is believed to be an under-researched area (Seyfang, 2006), Hawthorne and Alabaster (1999) and Alabaster and Hawthorne (1999) have made an important contribution to mapping the complexity of interactions that contribute to environmental citizenship and that enable the practice of pro-environmental behaviour. They argue that “environmental citizenship can be viewed as the ultimate outcome of ... a process which is all about changing people’s attitudes, providing access to knowledge and developing skills which combine to influence behaviour” (ibid.). Environmental concern, awareness, knowledge, values and attitude thus all combine to create an environmental citizen (ibid.).

Evidently the notion of environmental citizenship goes beyond that of simply environmentally educated citizens. As Dobson (2007) highlights, the belief that knowledge alone will change attitudes and behaviours, is a manifest fallacy. Hawthorne and Alabaster (1999) likewise emphasise that “environmental citizens are not produced merely by programmes of education, but by a whole range of factors with which education may interact”. Their model of environmental citizenship proposes that alongside knowledge (environmental literacy), environmental concern, environmental responsibility and the ability to take action feature as important elements determining the expression of pro-environmental behaviour.

⁷ In the context of this dissertation the terms ecological citizenship and environmental citizenship are interchangeable, as they were at first for Dobson. More recently, however, Dobson (2007) suggests that ecological citizenship is more all-encompassing of social and environmental factors including issues of justice and equality.

Synthesising existing research, Hawthorne and Alabaster (ibid.) define the component attributes of the “environmental citizen” and distil these into three core components viz. (i) a *desire to act* that stems from positive environmental values, a level of environmental concern and a sense of personal and social responsibility for the environment; (ii) the *knowledge to act*, including environmental literacy, awareness, knowledge *and* skills; and (iii) the *ability to act*, arising out of knowledge as well as situational, institutional and socio-demographic factors. Together these components arguably enable the enactment of environmental citizenship. Accordingly it is likely that they will be evidenced in pro-environmental behaviour including sustainable food consumption practices.

Given this framework, it is perhaps useful to consider how the literature has sought to define the “sustainable consumer” so as to arrive at a definition of sustainable food consumption that will inform the present study.

3.4 Strong Sustainable Consumption: Defining the sustainable consumer

Such is the availability of food, energy and manufactured goods in many Western countries that for the first time in history we are faced with a multitude of consumer products and a deficiency of mechanisms to defend against excessive consumption (Heap, 2000)

Meulenberg (2003, in Vermeir and Verbeke, 2006) proposes that sustainable consumption is based on “a decision-making process that takes ... social responsibility into account, in addition to individual needs and wants”. Brohmann and Eberle (2006, in Brohmann et al., 2008) similarly define sustainable consumption “as a more ecological but ... socially premised way of buying and using goods and services as compared to conventional consumption decisions”. Both of these definitions seem to suggest that a pro-social, pro-environmental attitude and/or value system impacts upon the consumption decision-making process. Furthermore both appear to align positively with notions of environmental citizenship which suggest that the enactment of environmental citizenship results from “demands on people [specifically environmental citizens] to act differently for the sake of the environment” (Bell, 2005).

For completeness, the definitions of green and ethical consumption should be contemplated along with their potential substitutability for the term “sustainable consumption”. Both green and ethical consumption are considered to evince varying degrees and kinds of pro-social and/or pro-environmental behaviour that point to social consciousness and environmental concern (Shaw, Shiu and Clarke, 2000; Moisander, 2007; Shaw and Clarke, 1999; Strong, 1997; Scheffer, 1991, 2007; Henion, 1976).

Although Gilg et al. (2005) suggest that “green consumption” is interpreted today to mean “all things to all people”, Moisander (2007), drawing widely on the literature, highlights research

indicating that the green consumer is typically an individual who “characteristically takes into account the public consequences of his or her private consumption and attempts to use his or her purchasing power to bring about social change” (Webster, 1975). Importantly, green consumer behaviour is said to involve “an environmentalist perspective” (Scheffer, 1991), and green consumers are said to be “people whose behaviour exhibits and reflects a relatively consistent and conscious concern for the environmental consequences related to the purpose, ownership, use or disposal of particular products or services” (Henion, 1976).

Ethical consumers are similarly defined as those whose consumption is guided by concern for “a certain ethical issue (human rights, labour conditions, animal well-being, environment etc.)” (De Pelsmacker, Driesen and Rayp, 2005). This expanded range of issues suggests that an ethical consumer could be related to the broader concept of ecological citizens as opposed to only (or exclusively) environmental citizens. Finally, a third category of “fair trade consumers” is identified in the literature (Doran, 2009; Nicholls and Lee, 2006; De Pelsmacker, Driesen and Rayp, 2005; Strong, 1997). Fair trade consumers typically seeks to minimise exploitation of developing world producers by ensuring that fair prices are paid for goods and services (Strong, 1997). Accordingly they can be understood to be a variation of ethical consumer or displaying ecological citizenship more broadly. Indeed, the literature suggests that ethical consumption reflects a broadening of the principles associated with green consumerism to incorporate issues beyond environmental concern such as issues of a social justice nature (Newholm and Shaw, 2007; De Pelsmacker et al., 2005; Strong, 1997).

Overall, both green and ethical consumption can be understood to lie within the ambit of scope of sustainable consumption or environmental and ecological citizenship. Accordingly, evidence of the practice of green and ethical consumption behaviours might be interpreted to reflect some form of sustainable consumption behaviour. In fact, Gilg et al. (2005) suggest that it is time for “a realigning of the language of consumption, away from ‘green’ and towards ‘sustainable’, so as to incorporate activities that do not necessarily have green credentials [but which are] engaging in a varied way in sustainability”.

However, whilst ethical, fair-trade and social justice issues are as important as environmental issues, this study is more narrowly focused on environmental impacts only and the nature of consumption patterns specifically intended to address environmental impacts and concern.

Accordingly the definition of sustainable consumption will focus on environmental qualities as outlined in the following section.

3.5 Sustainable Consumption: a definition for this study

Consumption is a social act as much as it is an economic one. Consumption bestows identity, self-perspective, status and the admiration of peers. For sustainable consumption to gain hold, sustainability as an ideal will have to be universally valued in society, and in the image of social responsibility (Jordan and O’Riordan, 2000 in Hobson, 2002)

The definition of sustainable consumption informing this research can be understood as inclusive of a wide range of consumer behaviours that seek overall to reduce the environmental impact of everyday food consumption.

Evident from the discussion above, sustainable consumption may be achieved by changing the level of demand (i.e. the quantum of what is consumed even if this is a result of eco-efficiencies in production) or by changing the patterns of consumption (the nature of what is consumed including when and how it is consumed). Furthermore, as discussed above, strong sustainable consumption is considered to involve changes to both the pattern and the level of consumption and consumption-related behaviours. Accordingly, and drawing on Owen et al., (2007) sustainable food consumption practices can be understood as inclusive of the following:

- Pursuing a diet that has lower environmental and social impacts, including eating
 - less meat and dairy (reducing the significant rate of emissions associated with the raising/caring/feeding of livestock)
 - more seasonal and locally produced food (reducing emissions associated with transportation of foods that are imported)
 - more organic or certified assured food including GM, antibiotic and/or hormone free (to reduce soil / water pollution and related impacts of chemical pesticides and/or fertilisers on biodiversity and ecosystems)
 - free range, free roaming or grass/pasture fed beef, poultry, eggs (grass or pasture fed livestock reduces emissions related to consumption of livestock feeds)
 - certified fish / fish products or purchasing those that are sustainably sourced or farmed (avoids overfishing/ ensures the sustainability of fish stocks for the future);
- Wasting less food in the home (i.e. buying less; planning better; composting) (reduces emissions related to all aspects of wasted food production and/or captures some value from waste instead of just contributing to landfill and methane production); and
- Growing own (ideally organic) e.g. household production of salads, herbs, vegetables etc. (reduces emissions related to foods that are produced and consumed at home).

4. METHODOLOGY

To understand well any phenomenon, it is necessary to start by looking at it in broad, non-specialized terms (Stebbins, 2001).

4.1 Introduction and chapter overview

This research attempts to contribute to sustainable consumption research in South Africa by understanding how sustainable food is conceptualised and whether there is a relationship between knowledge of sustainable food, levels of environmental concern, and pro-environmental behaviour as evidenced by sustainable food consumption patterns or practices. Given the objectives of the study, and most particularly the desire for a qualitative understanding of perceptions and behaviours of consumers, a multi-stage, mixed-methods approach was deemed most appropriate. This chapter provides details of the research design, research methods and sampling procedures adopted at each stage. It also considers potential limitations arising out of the methods and sampling procedures used and indicates how these might affect the generalisability of findings. Finally, consideration is given to issues of bias and ethics in the context of this research.

4.2 Research design

This study made use of representative design as a means of maximising what Brewer (2000) terms “ecological validity” i.e. validity related to real-world environment. This was achieved by ensuring that the setting of the study approximated real-world conditions (in terms of the environment, context or stimuli inherent in the research setting) within which the variables being measured relate, so that the behaviours observed could be considered accurate reflections of “normal” behaviour (Araujo et al., 2007; Schmuckler, 2001; Brewer, 2000; Hammond, 1998).

The primary investigative tool was a retail intercept survey (see Appendix 1, p.69) conducted with all respondents (n = 125) during Phase 1 of research. However, additional investigative tools included focus group discussions conducted during Phase 2 (see Appendices 2, p.72; 3, p.75; 4, p.80; and 5 p.81) and telephonic interviews (see Appendix 6, p.84) conducted during Phase 3.

The environment within which this study took place was the retail food environment; specifically that presented by Woolworths, a South African retailer targeting consumers in the higher socio-economic bracket and known for its commitment to sustainability⁸ (Woolworths, 2014). The target group were consumers shopping for food at one of five Woolworths Stores located in the City of

⁸ <http://www.woolworthsholdings.co.za/corporate/sustainability.asp>

Cape Town. By virtue of the Woolworths customer demographic, the target audience of this study is believed to reflect relatively more affluent consumers in Cape Town, an assumption supported by data collected regarding the monthly food expenditure budget of participants (see Section 5.2 and Figure 2).

The research methodologies and design format used draw heavily from international studies; one undertaken in the United Kingdom (Owen et al., 2007) and two undertaken in Canada (My Sustainable Canada, 2011, 2009). These studies addressed similar aspects of the present study to varying degrees. Notwithstanding possible differences between these contexts (for example, the presence of a legislated definition of “organic food” in both Canada and the UK and the absence of such legislation in South Africa which renders the term “organic” somewhat less meaningful), these studies all reflect similar and original efforts to explore levels of environmental concern, perceptions of sustainability and related pro-environmental consumption behaviours in consumers. Furthermore, the present study targets a similar socio-economic demographic of consumer, viz. relatively affluent consumers. Accordingly, it is believed that the adaptation of these studies is not irrelevant to the South African context.

The strategy employed in this study was intended to provide multiple opportunities for engagement with consumers over a relatively short period of time in order to gain more profound insight into the determinants of, and barriers to individual behaviours with respect to sustainable food consumption. The intention was to enable an iterative deepening of understanding, supported by the use of multiple data collection tools at different time periods. Importantly, a repeated measure of environmental concern was taken at each phase of the research. This was done so as to ascertain whether environmental concern changed in the face of additional knowledge accrued in the focus group session. Qualitative and quantitative results from the use of the various research tools in all three phases were integrated to meet the objectives of the research.

The research phases are defined as:

- (i) Phase 1 (n = 125): Consumer retail intercepts involving the use of a structured survey delivered immediately after the point of food purchase in a retail setting. The survey sought to investigate reported levels of environmental concern, determine the level of knowledge of sustainable foods, identify behaviours that may demonstrate a commitment to sustainable food consumption (environmental citizenship), and explore what situational or other factors are perceived to inhibit or enable behaviour in this regard.
- (ii) Phase 2 (n = 11): Focus group sessions structured to explore recent shopping behaviour and food purchase choices, including the reported reasons that may have influenced purchasing

decisions. Participants were asked to maintain a seven-day food purchases diary in advance of the workshop in order to provide a record upon which to reflect in the sessions. Sessions included a presentation on the lifecycle impacts of four food products (milk, meat, eggs and potatoes) prior to their reaching retail outlets in order to provide consumers with insight into, and knowledge of, the environmental impacts of commonly purchased food products.

- (iii) Phase 3 (n = 9): “Blind” telephone interviews – i.e. unexpected and unscheduled follow up calls – were made four weeks after the focus groups to all of the participants in Phase 2. These interviews were designed to assess whether participants had retained information presented during the focus group sessions, and whether their increased understanding of the environmental impacts of food production, or any other knowledge gained through the sessions, resulted in any change in reported food consumption behaviours.

The research was assisted by Woolworths, a national retailer with a significant interest in, and commitment to, sustainability and sustainable food production through its “Good Food Journey” initiative (Woolworths, 2014). The Good Food Journey is a component of the company’s “Good Business Journey”, which reflects the company’s commitment to more sustainable production of healthy food. The Good Business Journey provides customers with the opportunity to consume products that have a lower environmental impact, such as organically or ethically farmed produce or products manufactured with reduced energy and/or water consumption (ibid.).

Five retail stores were selected as sites for consumer intercepts and one central Woolworths store was selected as the site for the focus group sessions. The focus group sessions included a product lifecycle presentation for four products delivered by the Woolworths Head Office Good Business Journey Brand Manager. Beyond this assistance, Woolworths did not determine, limit or impact upon the research design or the research tools in any way.

4.3 Phase 1 Research Method: Retail Intercept Surveys

The analytic survey method “designed to explore the relations among variables” (Rosenthal and Rosnow, 1991) was chosen because it provides an efficient means of measuring multiple variables and finding associations and explanations for the relationships between them. As an example of “naturalistic observation i.e. observation of behaviour in the ‘real world’ as compared with observation of it in the more tightly controlled situation of the ... laboratory” (Rosenthal and Rosnow, 1991), representative design does not seek to achieve statistical representativeness. The preponderance of open-ended questions similarly is a useful tool enabling the elicitation of rich data on topics about which there is little broad knowledge. Overall this facilitates the achievement of a high level of understanding based upon participant interaction (Visser, Krosnick and Lavrakas, 2000).

The consumer intercept survey method was selected because of its ability to engage respondents at a time when the behaviour being explored, as well as related thought processes, is present in the foreground. Retail intercepts take place in the retail setting directly after completion of a purchase. Thus they provide a useful means of data collection at a moment in time when consumers are “in the act” of making purchase choices. The strength of this method is that it narrows the gap between reported and actual observed or verifiable behaviour. The immediacy of the act of purchasing means that the experience of, and rationale for purchase choice is typically top of the respondent’s mind. Accordingly, recall of purchasing behaviour and motivation, including the purchase of sustainable food products, is likely to be accurate. Furthermore, purchasing behaviour is evident in tangible form and difficult to misrepresent in response to biases such as the desire to appear more socially responsible.

4.3.1 Questionnaire design

The retail intercept survey questionnaire utilised in this study (see Appendix 1) was a structured questionnaire designed to provide a mix of both qualitative and quantitative data. Open-ended survey questions sought qualitative data and provided unguided opportunities for respondents to report their individual perceptions, experience and behaviour. Interview questions were largely adapted from Owen et al. (2007) and My Sustainable Canada (2011); some questions were replaced with ones that were more appropriate and relevant to a South African consumer.

Questions were ordered to progressively assess knowledge and behaviour without pre-empting desirable responses or giving clues to definitions. Questions that did provide possible definitions or rationale for behaviour that might have influenced responses were posed later in the questionnaire. They were also phrased in such a way as to allow for third-party attributions to be made by respondents to explain understanding and behaviour; for example: “some people say that ...”. This was hoped to provide a means of overcoming social desirability bias (SDB), generally defined as “providing responses that are perceived as more acceptable than the response that the participant would have made under neutral conditions” (Matthews, Baker and Spillers, 2003).

The use of open-ended questions also sought to mitigate against SDB. By design, open-ended questions seek to uncover thought processes, attitudes or beliefs that respondents may not wish to have directly attributed to themselves but which are clearly part of their conscious thought. Though many questions were closed-ended, almost all included an open-ended request for qualifying information designed to provide uninhibited and unprompted explanations to enable respondents to provide additional insights into their behaviour or understanding.

Individual questions were clustered into broad categories, which included (i) evidence of environmental awareness and concern; (ii) understanding of the notion of sustainable foods; (iii) behaviours and motivations with respect to sustainable food consumption; (iv) third-party attributions of motivations and understanding; (v) evidence of other pro-environmental behaviours such as recycling behaviour; and (vi) suggestions for policies or strategies to facilitate more sustainable consumption behaviours.

Opening questions sought to build rapport, position the research within the field of sustainability and locate the consumer within the retailer's customer base. An early question asked participants to rate their environmental concern on a scale of 1 to 10. This question was included at all stages of research in order to obtain a consistent measure of concern and determine whether it changed over time as a result of information shared during the research process, specifically knowledge shared in the focus group sessions.

The survey questionnaire was peer reviewed by three independent researchers associated professionally with the researcher, circulated to the study's supervisors for comment, and tested on four associates known to be Woolworths consumers before being finalised. Finally, it was piloted on 12 consumers at the Constantia Village Woolworths store, after which final amendments were made to reduce the number (length) and adjust the flow of questions.

4.3.2 Study site selection

A purposive sampling technique was used to identify the five Woolworths stores selected as sites for the retail intercept surveys. These included Woolworths stores at Hout Bay's Mainstream Shopping Centre, Constantia Village, Cavendish Square, Canal Walk and Tygervalley, all falling within the Cape Town metropolitan area. These stores were chosen because they have high levels of food sales and a significant consumer base (in number of customers) active within their food departments.

Stores reported that the majority of their customers occupy the higher socio-economic demographic, with market segmentation reports developed by Woolworths suggesting they are predominantly from segments 8 to 10 of the Living Standards Measure (LSM), a measure of relative wealth and disposable income used by retailers to define their target market (McLaughlin, 2014, *pers. comm*). This targeting fits the study's objectives in terms of understanding sustainable consumption behaviours within the more affluent segment of the population. It also reinforces the belief that the consumer demographic targeted in this study is comparable with that of international studies from which the methodology has largely been drawn.

4.3.3 Sample size and selection

Phase 1 used a cross-sectional sampling technique to target 25 consumers at each of the five Woolworths stores (n = 125). The sample was not randomly drawn and therefore does not represent probability sampling of the target group. Instead, two additional filters, beyond that of the study site selection mentioned above, were applied. In the first instance, the choice of days and times for survey administration was determined primarily by convenience for Woolworths Store Managers who believed that having a researcher in store over busy weekends would have been more disruptive for consumers. Store Managers also believed that the known Woolworths consumer demographic of consumers in LSM8 to 10 was best represented in weekday shoppers as the weekends do see stores attracting customers from a much wider geographic area with the result being that the demographic composition of customers is significantly different and more diverse over weekends. Whilst it might have enabled a more representative sample of consumers from a variety of LSM groups to be represented in this study, convenience for store managers was key to selection and, as a result, Tuesday to Thursday were selected as days for research. This likely strengthened the assumption of the target population of this study being primarily representative of LSM8 to 10 category consumers.

A second sample selection filter was used, viz. whether consumers used trolleys in the fulfilment of their shopping. The rationale for targeting trolley

shoppers is based on the assumption that they will have a greater number of purchases, thus presenting a potentially more significant opportunity to observe purchase choices and understand consumption behaviour. This resulted in further purposive sampling for the study's target population. After these filters were applied, however, customers were randomly drawn from those completing their purchases during the hours the researcher was present to engage with them. Thus the researcher would take the first exiting trolley and on completion of the intercept stop the next exiting trolley, thereby allowing an element of randomness to influence selection. The filtering process can be understood as illustrated in Figure 1 above. Of the total sample of 125 respondents, only 4% (n = 5) were men; 2 of whom identified themselves as the primary decision makers in food shopping and 3 of whom were shopping with their wives.

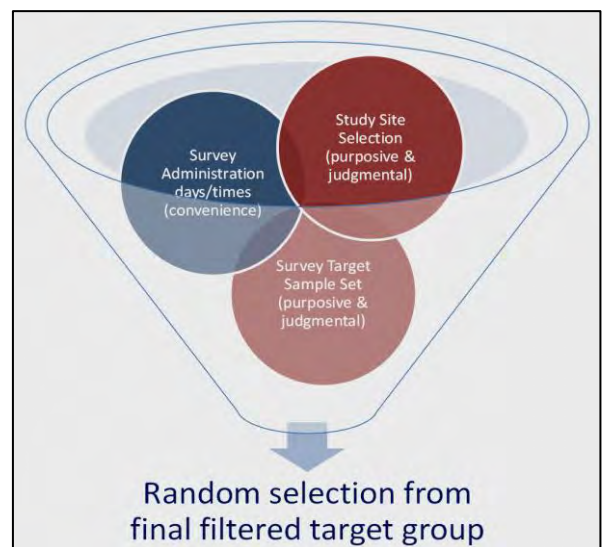


Figure 1: Filtering in selection of study sites and study sample population reflecting the use of purposive sampling (red) and convenience sampling (blue) techniques. Random selection of consumers emerging from the filter was used for the final selection of study respondents.

4.3.4 Data collection

The survey questionnaire was administered in face-to-face interviews, all undertaken by the same researcher, who also acted as the only enumerator, so as to minimise variability in participant experience of the interview and control for interviewer bias. The open-ended questionnaire format is believed to limit interference by the researcher in determining the agenda and/or influencing the responses, thereby reducing the potential for both interviewer bias. Questionnaires were administered in English. It is noted that this might have raised problems of interpretation at the Tygervalley store, one that serves a predominantly Afrikaans-speaking⁹ customer base.

A standard introductory text was used. This provided information regarding the nature and purpose of the research, the fact that it was independent of, albeit supported by, Woolworths, the anticipated duration of the interview, and the invitation to participate in the focus group sessions. Importantly, the introduction assured respondents of confidentiality, anonymity, the lack of any requirement to provide identifying or personal information and the right to withdraw from the survey at any point.

4.4 Phase 2 Research Method: Focus Group Sessions

Phase 2 of the study was designed to provide opportunities to deepen engagement and elicit more substantive information from that obtained through the retail intercept surveys. As Kitzinger (2004, 1994) points out, focus groups are “invaluable” for their ability to assist in the generation of theoretical models of explanation. They enable more detailed examination of issues and a means of exploring the underlying assumptions that give rise to particular views, opinions (or behaviours). This is important given the study’s objective of investigating the link between environmental concern, knowledge and pro-environmental behaviour and exploring the nature of barriers to behaviour.

As an “in-depth, open-ended group discussion of 1 to 2 hours in duration that explores a specific set of issues on a predefined and limited topic” (Robinson, 1999), focus groups are typically kept small (varying between 3 and 10 participants) (Smithson, 2000; Robinson, 1999; Morgan, 1996; Kitzinger, 2004, 1994). They are facilitated according to a structured guideline designed to elicit information in response to the study’s defined research objectives. The open-ended discussion and group format is intended to facilitate meaningful exchange between participants and is believed to be a strength of the method. Indeed it is argued that “focus groups reach the parts that other methods cannot reach, revealing dimensions of understanding that often remain untapped by the more conventional one-to-one interview or questionnaire” (Kitzinger, 2004, 1994).

⁹ One of South Africa’s official languages

4.4.1 Focus group sessions: format design

Two focus group sessions, hosting 7 and 4 participants respectively ($n = 11$) and lasting 120 minutes (2 hours) were held in October 2014 at Woolworths Cavendish Square. The format of the focus group was, once again, adapted from that employed by Owen et al. (2007) in their study of the public understanding of sustainable food consumption in the United Kingdom. A detailed protocol and discussion guide was developed (see Appendix 2), which included information on the time allotted to each part of the group session and guided questions to focus the discussion. Despite this protocol, the aim was to create as natural a discussion as possible and spontaneous conversation was allowed to flow within the boundaries of the research aim. The session included individual and group exercises designed to establish a relaxed environment conducive to open and frank discussion. It was facilitated by an experienced independent moderator, with the researcher present as note-taker.

The session included a presentation by a Woolworths Senior Executive of the lifecycle analysis of four food products (milk, meat, eggs, and potatoes) based on formal studies of the impacts of these foods on the environment that were conducted and/or commissioned by Woolworths. A life cycle analysis seeks to understand the environmental impacts of products by accounting for all inputs and outputs that arise from production of a product (Hertwich, 2005b). The presentation was intended to provide participants with insight into (knowledge of) the environmental impacts of products they consume, so educating them further with regard to the food choices they make. The four food products were chosen by Woolworths based on the fact that they are common staples in the shopping baskets of the majority of consumers. At the end of the focus group session, participants were asked to complete a postcard recording what they learned, whether and how their perceptions about food may have changed, whether they believed they would change any food purchasing or consumption behaviours following the session, and what two specific things they might try to change in the future.

A broad understanding of the research purpose and objectives was given at the start of the session. A standard introductory text for this purpose was developed for the focus group sessions and is included in the protocol and discussion guide (See Appendix 2). This confirmed rules of confidentiality with respect to all information shared, anonymity and the non-identification of individuals in the research process, and use of first names only in the focus group session. All participants in the focus group workshop were promised a token “thank you” gift (which comprised three Woolworths reusable fabric bags) and the added incentive of a lucky draw to win a Woolworths gift hamper worth R500. Bags and hampers were sponsored by Woolworths.

4.4.2 Sample size, selection and data collection

All respondents in the retail intercept were invited to participate in the focus group sessions. A total of 43 respondents (34% of the total sample; 36 female; 2 male) indicated their willingness to do so. At the time of confirmation of workshop sessions, however, only 13 respondents (10% of the total sample; all female) actually committed to attending. It is believed that the pre-workshop task of maintaining a food purchase diary may have contributed to the sharp drop off between those indicating initial willingness and those subsequently confirming attendance. In retrospect a simpler version of the food purchase diary might have been sufficient for the purposes of having participants arrive at the focus group with a relatively present awareness of what their most recent food consumption behaviour had been.

Finally, from the 13 confirmed attendees, 11 (8.8% of the total sample population) actually attended the sessions. The reasons for cancellation by the remaining two participants included that one broke her ankle and the second had to travel unexpectedly for business. No external participants were invited to the focus group session. All participants were unknown to Woolworths and the researcher, having met initially only at the time of the retail intercept.

Following Owen et al. (ibid.), participants were asked to complete a food purchase diary for the seven-day period ahead of the focus group session so that behavioural information and food choices were top of mind in the discussion. The food purchase diary (See Appendix 4) not only recorded what food was purchased but also behaviour around the purchases made, such as travel to and from shops, reasons for product selection etc.

On arrival at the focus group sessions, participants completed a registration form (See Appendix 5) providing certain demographic information (age, gender and suburb of residence). All participants were again asked to rate their subjective level of environmental concern on a scale of 1 to 10 as they had done at the time of the retail intercept. In addition, the registration form included the revised New Environmental Paradigm (NEP) Scale (Dunlap, Van Liere, Mertig, and Jones, 2000). The NEP is designed to assess pro-environmental attitudes and orientation and is, according to Stern et al. (1995), “the most frequently used measure of environmental concern”. The maximum score on the NEP scale is 75 and the minimum 15 with a mean of 53.3. Scores above 53.3 indicate a more pro-environmental attitude than that of the average person. It should be noted that the intended purpose of the NEP was to provide a comparative measure for environmental concern. However, perhaps as a result of the small sample size, no correlation between NEP scores and participant ratings of environmental concern or between NEP scores and behaviour was observed and no further analysis of the NEP was therefore undertaken.

Focus group sessions were hosted by Woolworths at Cavendish Square, including participants invited from Constantia Village, Hout Bay, Canal Walk and Tygervalley. This store was selected for its boardroom facilities and ability to host participants in the sessions. Sessions were recorded, and transcribed, and the content was subsequently clustered into themes for the purpose of analysis. Additional data and documentation collected included the workshop registration form, NEP questionnaire, and postcards.

4.5 Phase 3 Research Method: Telephonic interviews

In keeping with the format of Owen et al. (2007), a blind (unanticipated and unscheduled) follow up telephone call was conducted four weeks after the focus group session. This sought to determine the extent to which participants retained information presented in the sessions, whether this information had resulted in any changes in behaviours, and what additional barriers to more sustainable consumption might have been identified. It again took a measure of participants' reported level of environmental concern to have a "time 3" reading. In addition, and importantly, participants were reminded of their intended "new" behaviour commitments as noted on their postcards and asked to what extent these had been practiced as well as what difficulties had inhibited their successful accomplishment. Telephonic interviews were conducted by the researcher using a structured questionnaire that again sought both quantitative and qualitative information in both closed and open-ended questions. As previously, the interview included a repeated measure of rated environmental concern (see Appendix 6). Of the 11 participants in the focus group sessions, 2 were unreachable for the final interview. This analysis is therefore based on the 9 participants who participated in both the focus group and subsequent interview.

4.6 Operationalisation of the variables concern, knowledge and behaviour

Although the three variables pertinent to this study (environmental concern, environmental knowledge and pro-environmental behaviour) will be discussed in more detail in the Results and Discussion section that follows, it is useful to preface the discussion with a summary of how each variable was operationalised.

In an effort to manage social desirability bias, environmental concern was measured in two ways. In the first instance, respondents were asked to simply rate their level of environmental concern on a scale of 1 to 10. Responses were allocated to one of five categories (never = 1-2; seldom = 3-4; sometimes = 5-6; often = 7-8, always = 9-10) to establish the variable "*rated concern*". In addition, respondents were asked to identify the issues they were specifically concerned about. These issues were analysed qualitatively by theme. Subsequently, following Schultz's (2001) notion of the

existence of three factors of concern¹⁰, themes were allocated appropriately and valued on the basis of 1 for self; 2 for others, 3 for the biosphere. A total score was calculated by adding the values for each item in responses in order to arrive at the variable named “*measured concern*”. A correlational analysis of the variables “rated concern” and “measured concern” subsequently showed a significant positive relationship ($r = 0.588$; $p < 0.01$, two-tailed test), supporting the view that measured concern provided a valid alternative measure of environmental concern in the sample population. Coupled with the belief that the derived measure was likely to reflect a more realistic (or at least substantiated) measure concern, this high correlation justified use of measured concern as the more prudent measure of “environmental concern” for the purposes of analysis of the results in this study. Notwithstanding, both are considered in the discussion that follows for comparative purposes.

Environmental knowledge was determined by asking respondents whether they could, and how they would, define sustainable food. Responses to the request to define sustainable food were qualitatively analysed into themes and categorised similarly to that explained above (knowledge of factors affecting the self which scored 1; knowledge of issues affecting others which scored 2 and knowledge of issues affecting the biosphere which scored 3). The level of environmental knowledge as it pertains to sustainable food products was then calculated by adding all scores resulting from the identified characteristic each respondent included in their definition.

This study sought to avoid the well-documented discrepancy between self-reported and actual behaviour (Hines et al., 1987) which may skew results towards more socially desirable outcomes. Accordingly, the measure of pro-environmental behaviour used in the analysis of the full sample was based on the actual, observed purchase of sustainable food as defined that was evident in the shopping trolley of respondents. For the purposes of the impact of information on behaviour, however, reported behaviour was the only measure available. The potential limitation this raises is discussed further in the section on limitations below.

4.7 Data analysis and Statistics

A database of documentation sourced during each phase and across all three time periods, including intercept surveys, Focus Group registration information, NEP questionnaires, postcards and follow up interview responses was created. In addition, focus group session discussions were transcribed in full. The NEP Questionnaire was scored through the online tool developed for that purposes, and the score, a numeric value, formed part of the participant’s profile data, though this was

¹⁰ Schultz (2001) proposed that three factors of concern were discernible based on the relative importance a person places on themselves, on other people and on the biosphere.

subsequently excluded from analysis based on no observable relationship between NEP scores and any of the other variables. Key phrases emerging from responses to qualitative questions in the surveys, as well as from the focus group discussions, were extracted and clustered into themes. Themes were subsequently coded and used in both quantitative and qualitative analysis. Excel was used for initial basic data analysis (frequency distributions, means analysis) to describe findings overall whilst higher order analysis (correlations, regressions, ANOVA and t-tests) were performed and data analysed using the statistical package SPSS in order to investigate the relations between key values viz. environmental concern, knowledge and sustainable food purchases.

4.8 Limitations

4.8.1 Site and Sample representativeness

A clear limitation of this study arises as a result of the non-probability, purposive sampling of both study sites and respondents. The lack of randomisation, in both the selection of study sites and in the selection of the target population, means that representativeness of the sample cannot be assumed. Thus no broad generalisations of findings to the behaviour or perceptions of the South African public can be made outside of the public typically frequenting the five Woolworths stores forming part of this study.

Notwithstanding limitations on generalisability and representativeness, the sampling method was still deemed suitable for this study. Specifically, this study seeks to gain initial insight and understanding of the relationship between the variables environmental concern, knowledge and pro-environmental behaviour in the context of a “real world” retail setting, including the factors that impact upon them. This will enable further theorising as to how these variables intersect and enable or disable the enactment of environmental citizenship in consumer practice. Accordingly, a representative design was deemed more important than representative sampling of the population as it increases ecological validity (Brewer, 2000) and generalisability to the real world experience of similar consumers in these specific retail settings.

4.8.2 Social Desirability Bias

A further limitation of the study resides in the potential impact of social desirability bias (SDB). As defined earlier, social desirability bias may emerge when respondents want to create a favourable impression of themselves, their attitudes or their behaviour. As a result they give responses that are in keeping with being a “good” person rather than truthful responses. Social desirability bias has the potential to produce a systematic error in the results of either the survey, the focus group sessions or both, which in turn could alter or misrepresent the nature and/or

strength of the findings in this study. Ultimately, if significant, this could lead to false conclusions being drawn about consumer understanding of, or behaviours with respect to, food consumption.

The potential for SDB in this study is significant, most especially as consumers are likely to want to portray themselves as knowledgeable, good environmental citizens who practice these values through their behaviour. It is believed that SDB of respondents in the intercept survey was controlled, to a significant extent, as the survey focused specifically on actual behaviour that had just occurred in the setting of the retail environment, and the “evidence” of that behaviour was visible in the respondent’s (present) shopping trolley. This means that untruthful responses about their actual behaviour are less likely in the face of the observable results of their (most recent) behaviour. Notwithstanding, ratings of environmental concern are not verifiable and may well have been inflated. Similarly, the focus group sessions may have suffered from SDB as these are set in a group context and the presence of more people, whose positive regard participants might actively seek, might have increased the incidence of socially desirable, as opposed to truthful, responses.

There are a number of scales that seek to ascertain the existence and potential of social desirability (Rosenthal and Rosnow, 1999); however, these are reportedly equivocal in their effectiveness (ibid.). One method that has been suggested is to use interviewers “who have a friendly but professional demeanour rather than ones who are overly solicitous” (ibid.). Being aware of potential SDB in this study, the researcher made every attempt to appear professional, non-judgemental and understanding of responses that may have encouraged SDB. Most particularly, in the case of respondent ratings of their level of environmental concern, having a follow up question that inquired into the substance of issues around which concern revolved provided an important additional measure of concern which was perhaps less vulnerable to SDB.

Nevertheless, it is unlikely that social desirability bias has been fully controlled in this study. Thus, the fact that SDB may have affected responses was accounted for when performing the analysis and drawing relevant conclusions.

4.8.3 Behaviour measurement limitations

One of the strengths of this study was the retail intercept format that enabled direct observation of actual behaviour to inform the measurement of whether respondents had purchased sustainable foods or not. However, when ascertaining the impact of information on behaviour, telephonic interviews conducted after the focus group sessions were not able to benefit from direct observation of behaviour. Instead behaviour as reported by participants was used to determine whether there had been a behavioural change. This obviously could be influenced by social desirability bias,

memory or other factors that could render the data inaccurate and/or misleading. However, it was anticipated that sufficient rapport and understanding between the researcher and participants, and sufficient levels of trust had been developed in the course of the focus group sessions for participants to feel safe enough to be honest and transparent, thereby minimising this impact.

4.8.4 Researcher bias / positionality

The concept of positionality is based on acceptance of the fact that all researchers have a particular set of values, attitudes or beliefs i.e. a “position”, which may affect or “colour” their view of subjects and/or their responses to questions. While positionality may affect both quantitative and qualitative research, it is argued to more significantly affect qualitative data collection given the closer nature of the “conversation” between researcher and participant (Ganga and Scott, 2006). It is therefore important that the researcher’s position is clear, or sufficiently concealed so as to not colour the responses or interpretation of the participants, in order to avoid bias from affecting the collection and/or interpretation of findings. As Griffith (1998) states “bias comes not from having ethical and political positions – this is inevitable – but from not acknowledging them. Not only does such acknowledgment help to unmask any bias that is implicit in those views, but it helps to provide a way of responding critically and sensitively to the research”. The researcher’s possible bias in this work is based on a high level of environmental concern and a commitment to maximising the sustainability of personal consumption patterns. To guard against bias affecting the focus group sessions, an independent facilitator was used to minimise engagement of the researcher with participations. To guard against bias impacting analysis of data, independent verification of the categorisation and scoring of a sub-set of data was sought. This involved a randomly selected sample of 25 respondent records (20% of the total sample population) which was determined by using a Google random number generator. These records were checked independently based on the general rationale and analysis format set for the research. Results were subsequently compared against those of the researcher. Of the 750 data points scored independently, 14 differed (less than 2%), suggesting researcher bias was minimised – or at least significantly contained – in this study.

4.8.5 Stakeholder Influence

Due consideration of the potential influence of Woolworths in the design and execution of this study should be noted. However, it should equally be emphasised that, throughout, Woolworths were supportive of the research even while recognising the bounds of their role as a national retailer whose business is the sale of food products to consumers and not necessarily the minimisation of consumption patterns. At no point was this influence experienced as restricting or controlling the design, process or analysis of findings of this study.

4.8.6 Language

Whilst for the most part use of English as the medium of interview raised no expressed concerns or apparent problems, there were some instances, specifically at the Tygervalley store that serves a primarily Afrikaans speaking community, where language appears to have been a barrier to participation. Three consumers at this store declined to undertake the survey as the researcher could not administer it in Afrikaans. Furthermore, two respondents who did participate in the survey indicated that Afrikaans was their first language and that they felt limited in their ability to fully explain their positions in the absence of speaking this language. A further two respondents at Hout Bay were foreigners whose home language was not English and, whilst they indicated no problems in understanding or answering the questions, they did decline to participate in the focus group session because they believed their English was not sufficiently fluent to engage in a debate.

4.9 Ethical Considerations

All participants were asked whether they were willing to participate in the research and assured of the right to decline to participate and/or withdraw at any point. Participants were informed that the focus group sessions would include other members of the “general public” but that identifying features beyond first names would not be shared in these sessions, or at any other time before or after the study was concluded. Assurance of anonymity, both during the research process and in the publication of the findings, was also given.

Permission to use specific information provided during the course of engagement, including direct quotes, comments or insights, was expressly sought on the basis of identification by participant number only. In this way, the strictest levels of privacy have been maintained. Thus although participants may have been asked to disclose some personal information, such as their age, gender, monthly food budget, and suburb of residence, this simply formed part of a general numbered participant record and was used only for analysis purposes. Ethical approval was given to this study by the Science Faculty of the University of Cape Town.

5. RESULTS AND DISCUSSION

5.1 Introduction and chapter overview

Following from the study's objectives (see Section 2) this chapter presents a brief overview of the characteristics of the study's participants before discussing its findings and the implications they have for understanding the relationship between knowledge, concern and the enactment of environmental citizenship. Consideration of the nature and extent of environmental knowledge and reported experiences of environmental concern in the sample population will be followed by presentation of the data evincing a relationship between environmental knowledge, concern and observed pro-environmental behaviour. This will be followed by consideration of the impact of targeted information on reported pro-environmental behaviours of a sub-sample of respondents, viz. those who participated in the focus group sessions. Finally, the barriers identified as inhibiting more sustainable food consumption practices will be presented.

5.2 Participant Characteristics

Reported monthly household food expenditure budgets, assumed as a proxy for monthly household income, supports the view that the respondents in this study are drawn from a more affluent than average sector of the population. This conclusion is based on a comparison of monthly household food expenditure as reported with (i) average banked salary in South Africa's formal economy, reported by BankServ Africa (2014) as R12,542 per month, and (ii) with Statistics SA (2014) data that indicates that the average household spend on food in non-poor households constitutes just 10% of total expenditure¹¹. Figure 2 illustrates that the majority of the study sample (91%, n =

114) report spending more than R5,000 per month on food alone.

Based on the figures given by BankServ Africa and Statistics SA above, this implies a monthly banked household salary of R50,000 (almost four times the average banked salary) for the majority of the sample population.

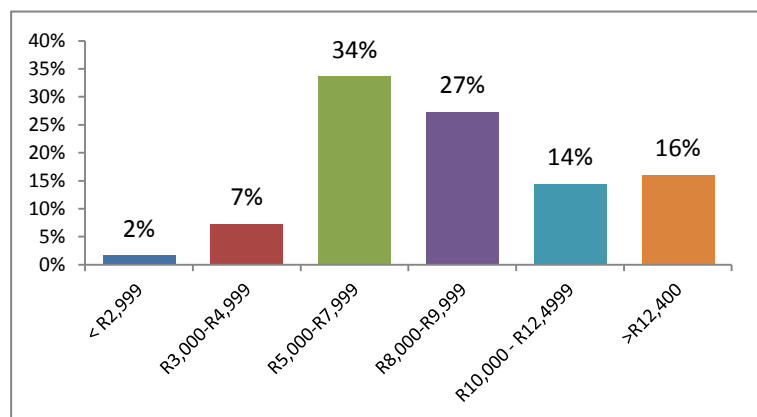


Figure 2: Monthly household food expenditure budgets as reported by retail intercept respondents (n = 125).

¹¹ Although non-poor may be variously defined, it is assumed that the target audience of this study (believed to represent more affluent LSM 8 to 10 consumers) qualifies as non-poor.

The average household size for most respondents was four people or less (82%, n = 103) although a small number of respondents (11%, n = 14) reported living in extended family situations that included up to eight members. Most respondents report shopping on a weekly (47%, n = 59) or even daily (48%, n = 60) basis with just 5% (n = 6) indicating they prefer to shop monthly.

Notably in terms of the definition of sustainable food consumption used in this study, the general motivation for frequent shopping (71%, n = 89) was said to be a reduction in food waste as a result of better meal planning. However, despite frequent shopping being identified as a means by which to better manage food purchase behaviour (and so achieve more sustainable food consumption), 62% (n = 77) of respondents admitted to frequently buying more than they needed.

A number of respondents (25%; n = 31) reported shopping for sustainable food at retail outlets other than Woolworths. However, almost one-quarter of these (23%, n = 7) had not purchased sustainable foods at the time of the retail intercept and there is no way to verify whether reported use of alternative retail outlets for sustainable food shopping is true. Notwithstanding, the most common alternative sustainable food shopping venues were reported to be local farmers markets (55%; n = 17) as well as specialist health and wellness stores (35%, n = 44).

Finally, the majority of respondents (75%, n = 94) report that they recycle although only 29% (n = 36) report that they recycle surplus food or food waste through composting (n = 23) or donating it to domestic staff (n = 13). The rate of recycling differed by area (see Figure 3 below), with

significantly higher rates recorded amongst respondents from Hout Bay and TygerValley (92% in each). This is likely to relate to the fact that these areas have weekly municipal recycling collections. Despite this, a significant number of those who recycle (44%; n = 55) report delivering their recycling to a local depot. Just 5% (n = 6) of the sample group report paying independent service providers to collect their recycling. It

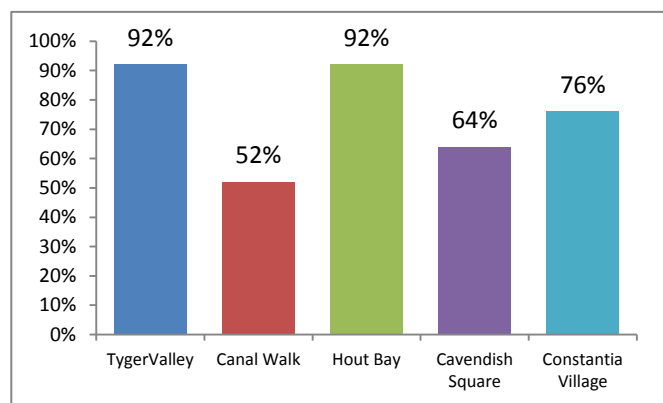


Figure 3: Recycling rates by intercept Store area as reported by retail intercept respondents (n = 125).

It should be noted that social desirability bias may well have affected this reported rate of recycling behaviour. In particular, there were indications from a number of participants that their recycling was “sporadic” as a result of the lack of convenience of service or the lack of a locally situated recycling depot. The overwhelming consensus amongst those who don’t have municipal services to collect recycling was that the lack of service made it difficult to commit to as a standard practice.

5.3 The nature of environmental concern

5.3.1 Worried or not?

Environmental concern was determined by asking respondents to rate how worried they were about the environmental impact of their household’s daily food choices. The distribution of responses, illustrated in Figure 4, reflects that more than three-quarters of respondents to the retail intercept survey (78%; n = 97) report feeling sometimes, often or always concerned. Almost one-third of these (30%; n = 37) are often or always concerned about the environmental impact of their food choices.

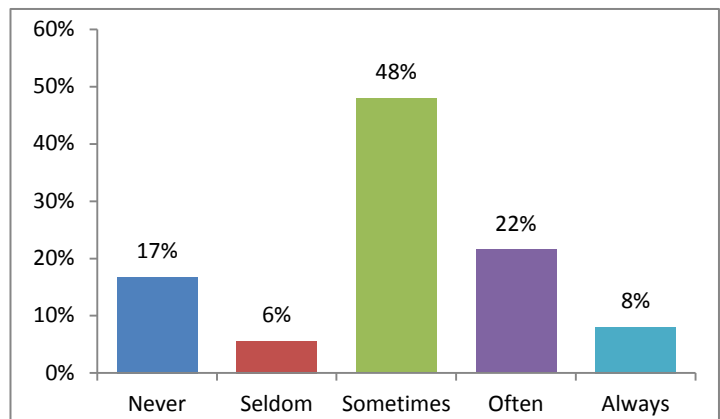


Figure 4: Distribution of the ratings of the level of concern for the environmental impact of food choices as reported by retail intercept respondents (n = 125). Respondent ratings on a scale of 1 (never) to 10 (always) were subsequently categorized into five groupings (never = 1-2; seldom = 3-4; sometimes = 5-6; often = 7-8, and always = 9-10).

Taking cognisance of the fact that self-reported measures are open to social desirability bias, a follow on question in the retail intercept survey sought to disambiguate – or validate – ratings by asking respondents to specify the issues that formed the substance of their concern. A theme analysis of responses was followed by categorisation of items into one of three groups following Schultz’s (2001) model of the structure of environmental concern. Issues were scored by assigning a value¹² to each and the variable “measured concern” was subsequently calculated by adding the scores of all issues forming the basis of respondents’ concern. Figure 5 presents the distribution of measured concern calculated in this way. This illustrates that approximately one-third of the sample population (32%, n = 40) experience a substantiated level of concern; closely aligned to the almost one-third of respondents rating concern as “often” or “always” in Figure 4 above.

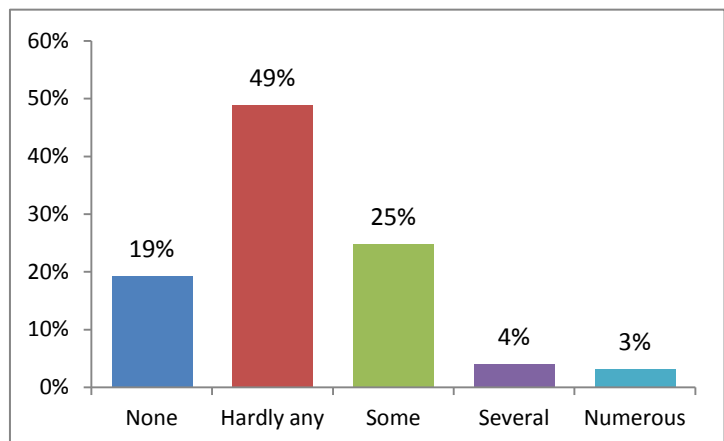


Figure 5: Distribution of the level of measured concern for the environmental impact of food choices based on the substantive issues of concern reported by retail intercept respondents as contributing to their subjective rating of environmental concern (n = 125).

¹² Scores were assigned as follows: issues pertaining to the self scored 1; issues pertaining to others scored 2 and issues pertaining to the biosphere scored 3.

Determining “measured concern” was important in order to gain an understanding of whether social desirability bias had inflated self-reported ratings of concern. That inflation was likely to have occurred was suggested by the comments of some respondents when asked to elaborate on the issues that they were specifically concerned about. In this regard, one respondent who rated her concern at the level of “often” said: *“I don’t really know what I am concerned about. I don’t really know too much about it”*. Another with a similar reported rating of concern responded by saying: *“What am I specifically concern about? I’m not sure – it’s a tricky question”*. A comparison of Figures 4 and 5 above reveals a shift to the left (downwards) of values of measured concern, supporting the view that subjective ratings of concern appear to be higher than seems justifiable by the substantive issues identified as informing them. Notwithstanding any real or potential elevation of reported ratings of concern, however, the data does provide support for the conclusion that a level of environmental concern does exist in the sample population.

Before turning to explore the level of environmental knowledge in the sample, Section 5.3.2 that follows will consider the nature of the issues giving rise to reported levels of environmental concerns. Understanding what concern stems from, and how it both informs, and is informed by, knowledge in order to manifest in observed behaviour, could provide valuable insights into whether and what behaviours consumers are adopting to manage their concern.

5.3.2 Concern has a personal health bias

A deeper analysis of themes in the responses given to Question 3a of the intercept survey¹³ provides valuable insight into the composition of environmental concern. Figure 6 below illustrates the relative frequency of key elements identified in the makeup of concern as articulated by respondents. Apparent from this distribution is the fact that, central to the experience of environmental concern for the majority of respondents, are issues of a personal and/or family health nature. Indeed, by far the greatest number of responses, together comprising 70% (n = 88), relate to health concerns associated with the use of pesticides (n = 28), hormones and/or antibiotics (n = 19), chemicals (n = 11), fertilisers (n = 8), genetically modified (GM) products (n = 7) and preservatives (N = 7) in the process of food production. Interestingly, although respondents expressed concern at the “environmental impact” of these substances, concern appears to be centred more on the impact these have on personal health and not on the environment per se. Just 18% of the total sample of respondents (n = 22) specifically included mention of the broader negative impact these substances have on the environment.

¹³ Questions 3a: “What are the specific concerns you have with respect to the environmental impact of your food choices?”

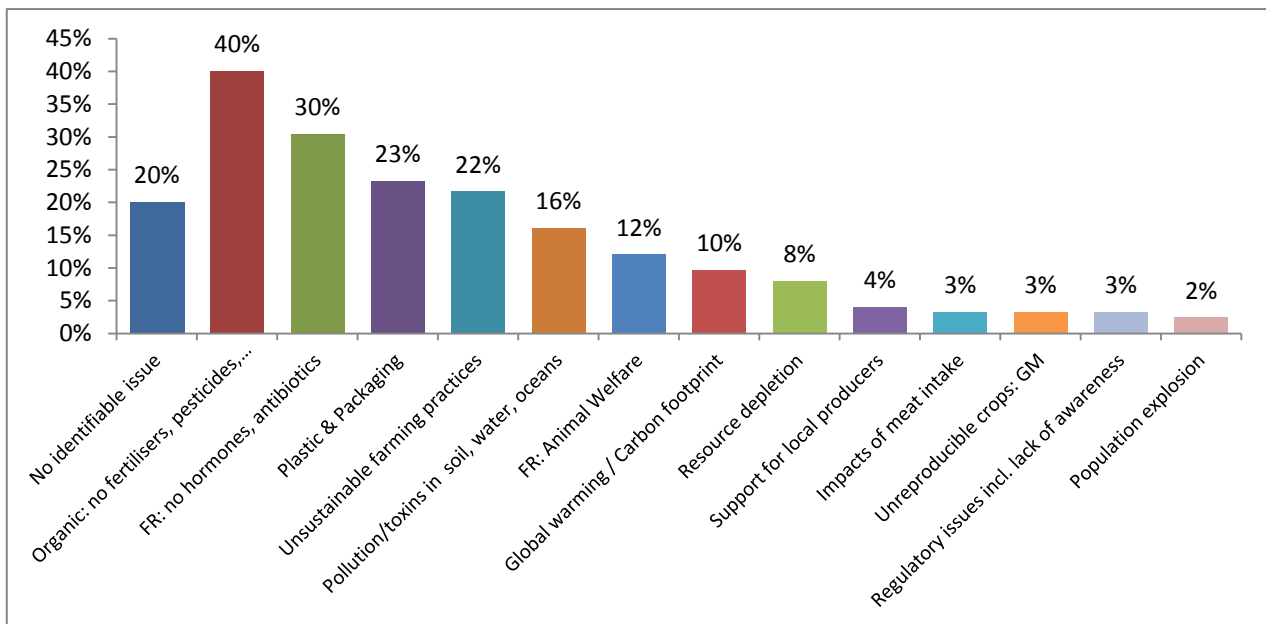


Figure 6: Distribution of the relative frequency of issues identified by retail intercept respondents as contributing to their concern for the environmental impact of their food choices (n = 125). Respondents were asked to elaborate on all issues of concern and were thus able to identify more than one issue.

The concern for personal health as a result of food production practices was evident in many respondent comments during the intercept surveys. This was perhaps most clearly summarised in the comments made by respondents detailed below:

“How food is produced is of huge concern not only for the environment but for our health. Foods like berries and lettuce absorb so many pesticides and insecticides. These enter our bodies and affect our health, but they are also toxic to the ground and to water and they destroy ecosystems” (Retail intercept respondent CS5, Cavendish Square).

“I worry first about health and nutrition and then about the environment. I am mostly worried about the impact of pesticides, hormones and antibiotics on our health long term, especially my kids. But then the impact these things have on soil and water pollution and ultimately on the oceans really worries me too” (Retail intercept respondent CV19, Constantia Village).

These quotes underscore the primacy given to health as the core element of concern, with concern for the environment clearly allocated second place. Given the priority to manage health concerns for these respondents, it is unsurprising to find that both purchased organic food because it was better for their personal and family health. This finding aligns to that widely reported in the literature (Aertsens et al., 2009; Arvola et al., 2008; Vermeir and Verbeke, 2007; Honkanen et al., 2006; Magnusson et al., 2003; Schifferstein and Oude Ophuis, 1998), viz. that personal health

concerns are significant determinants of the purchase of organic food even though studies into the health benefits associated with organically produce foods are ambiguous and inconclusive (c.f. Honkanen et al., 2006). Although Baker et al. (2004) do find a connection between environmental concern and organic food consumption in German consumers, they also find that German consumers nevertheless believe in the greater nutritional, health and taste qualities of organic products. Ultimately they conclude that, notwithstanding a level of environmental concern, food safety and healthiness are the primary drivers behind the growth in demand for organic food in *both* British and German consumers (ibid.).

5.3.3 Concerns reflect issues in the media

Contemplating the issues giving substance to the experience of environmental concern in respondents, it is apparent that a significant number of the elements identified reflect issues that are prevalent in contemporary discourse (see Figure 6 above). These issues are prominently displayed in the Woolworths food environment and in its related marketing materials (Woolworths, 2014). They include issues related to (i) the need to reduce the use of plastic packaging and associated waste (n = 29); (ii) the need to ensure that farming practices are “sustainable” (n = 22); (iii) the focus on ensuring animal welfare through free range farming (as distinct from the health benefits of free range farming resulting from the absence of hormones and antibiotics in the feed of free range animals) (n = 15); and lastly, (iv) the issue of resource depletion through overgrazing, overfarming or overfishing, most conspicuous in the promotion of responsibly sourced or sustainably farmed fish using the WWF-South African Sustainable Seafood Initiative’s traffic light guide to inform fish purchase choices (n = 10).

It is apparent from comments made by respondents that greater understanding of environmental issues (knowledge) as a result of media coverage does have a direct impact on levels of concern and, ultimately, on food purchasing behaviour. This augurs well for knowledge based interventions and suggests that increasing awareness and knowledge could also increase levels of concern and shift behaviour towards greater levels of responsibility for issues of sustainability.

Section 5.4 that follows will explore more fully conceptualisations of sustainable food and the level of knowledge of the environmental impacts of food in the sample population in an effort to understand the nature of the relationship between knowledge, environmental concern and observed sustainable food consumption behaviours.

5.4 Environmental knowledge and public conceptualisations of sustainable food

5.4.1 Sustainable food is conceptualised as healthy food

Almost two-thirds of respondents in the retail intercepts (64%; n = 80) offered an environmentally-related definition of sustainable food. A thematic analysis of responses identified sixteen themes and the relative frequency of their occurrence in definitions given is illustrated in Figure 7 below.

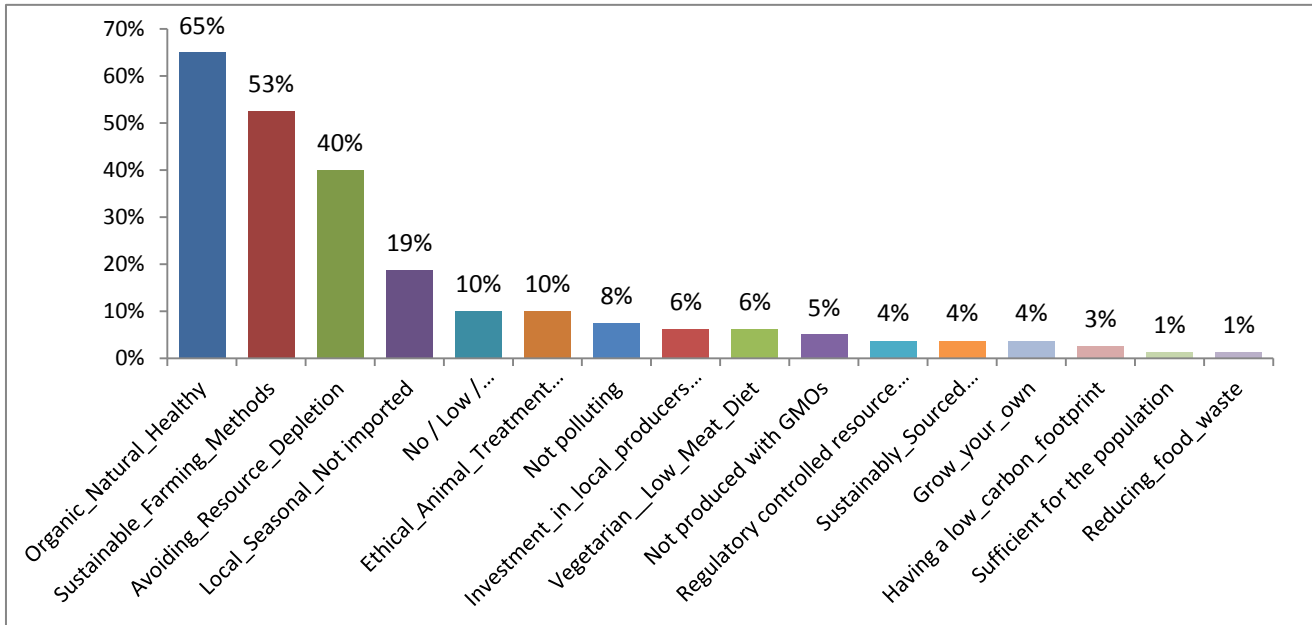


Figure 7: Distribution of the relative frequency of occurrence of characteristics identified by retail intercept respondents as determining whether a food is a sustainable food (n = 80).

As with environmental concern, the dominant characteristic of sustainable food evident in respondent definitions is related to health. Indeed, by far the largest majority (65%; n = 52) believe sustainable food is “healthy and nutritious”, a characterisation that includes its being organic, unprocessed, preservative, hormone and/or antibiotic free and not produced using genetically modified products. Following this definition, just over half of respondents (53%; n = 42) defined sustainable food somewhat vaguely as food produced using sustainable farming practices to protect the environment from negative impacts. Food produced without depleting the earth’s resources (40%; n = 32) and food that is locally and seasonally available without being imported (19%; n = 15) also formed part of the primary themes identified. Particularly relevant given the definition of sustainable food applied in this study, is the fact that just 6% (n = 5) of respondents identified a vegetarian diet as being more sustainable; 4% (n = 3) pointed to home grown produce and only 1% (n = 1) pointed to the avoidance of food waste as a more sustainable food consumption practice. Perhaps most notably, the features of sustainable food identified here closely mirror issues of concern raised by respondents. Furthermore, they reflect, once again, characteristics that are highly visible in marketing materials in Woolworths stores.

5.4.2 Knowledge does not run deep

For the purposes of this analysis, the depth of knowledge was measured by considering the number of features included by respondents in their definition of sustainable food as discussed in Section 4.6. The frequency distribution of depth of knowledge measured in this way is presented in Figure 8 below.

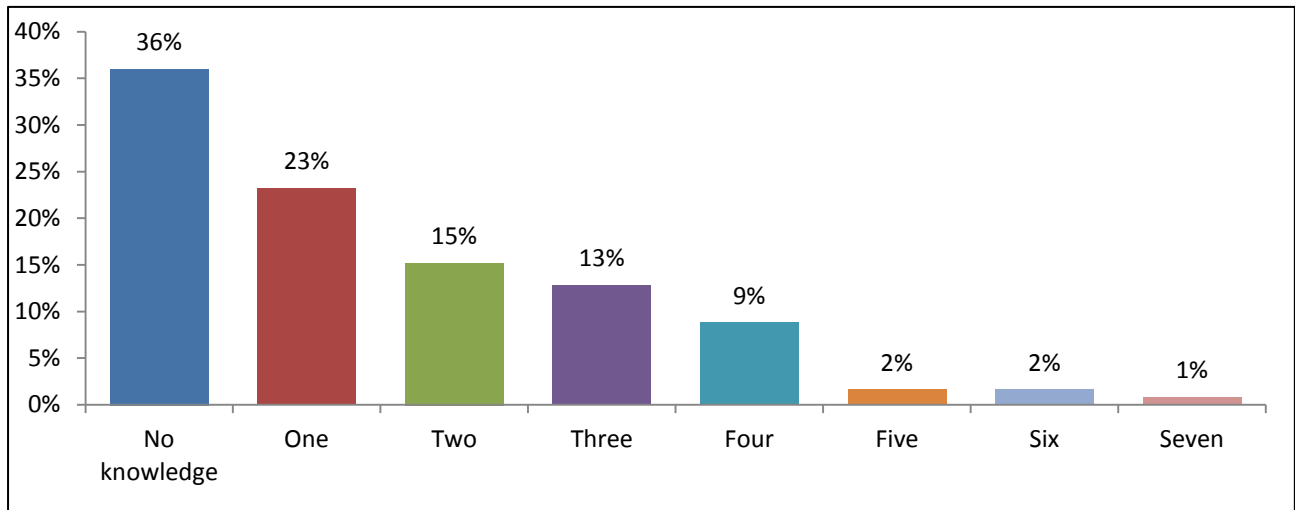


Figure 8: Distribution of the level of knowledge of respondents in the retail intercept calculated by giving a nominal value to each defining theme evident in their definitions of sustainable food (n = 125).

Apparent from this distribution is the fact that the large majority of the sample population falls at the lower end of the distribution curve reflecting both a low and a shallow level of understanding (knowledge) overall. Indeed more than one-third of all respondents (36%, n = 45) could not define the concept of sustainable food. Furthermore, whilst 38% (n = 48) were able to identify two or less of a total of sixteen features across all definitions, three-quarters of these (75%, n = 36) were limited to health related features. No respondents identified more than seven features associated with sustainable food even though a total of sixteen features across all definitions was apparent. As indicated above, health related features were most commonly included across all definitions by a significant majority (61% of the sample able to define sustainable food, n = 49) suggesting that environmental knowledge, like concern, is centred on issues that affect individuals at a personal or family health level.

The finding that there is a general lack of knowledge in the sample population is supported by the identification of knowledge as a barrier by a majority of respondents in the retail intercepts (57%, n = 71). Various articulated as a lack of awareness, education, understanding or information about sustainable food products and/or the environmental impacts of food production practices, the lack of knowledge as a barrier to sustainable food consumption practices is discussed in Section 5.6. In this regard, respondents pointed out that they “don't know what contributes to sustainability”, they “don't understand the term” even though they “see sustainability in the news all the time” and “they

cannot discern what the truth is or what they should do” from amongst the multiple messages they receive about food, nutrition, health and sustainability.

A deeper analysis of responses, most especially those emerging from the focus group discussions, provides evidence in support of the research findings discussed previously in Section 3.3.1 regarding the nature of knowledge and its influence on consumer behaviour (Verbeke, 2008; Alba and Hutchinson, 2000; Radecki and Jaccard, 1995; Park et al., 1994). Indeed, evidence of (i) a level of overconfidence in perceived (subjective) knowledge; (ii) a clear and acknowledged lack of objective knowledge to support subjective beliefs; and, most critically in terms of promoting behaviour change, (iii) a lack of knowledge of action strategies to implement (newly acquired) knowledge, are all apparent in comments made by respondents in each phase of the research.

One focus group participant summarised her overconfidence in perceived knowledge and her lack of objective knowledge by reporting in the follow up telephonic interview that she “*was humbled in the session. My take was mainly on my health and I thought if that was right it would be better for the environment. I didn't really know much about the environmental impact of foods though*”. Another focus group participant illustrated a similar point in her telephonic interview and also pointed out that the lack of action strategies was a significant barrier to behaviour change by saying: “As a vegetarian I thought I knew a lot ... but there is so much more than just meat. Waste is a huge thing ... I do think [the focus group session information] has changed the way I think when I shop but *I need to find ways in which I can action this understanding better*. I think you need to work out what to replace foods with. I haven't worked out what the possible substitutes are and it is a hassle then to shop. ... and I haven't had time to plan how life can be different”.

Following the distinction between objective and subjective knowledge discussed previously (see Section 3.3.1), it seems apparent from the above that a lack of objective environmental knowledge, including knowledge of *how* to act, poses an important barrier to pro-environmental behaviour in practice. Equally apparent from focus group participant feedback given in the telephonic interviews is the fact that an increase in objective knowledge can influence the desire to, and practice of pro-environmental behaviour. Indeed, more than half of focus group participants (55%, n = 5) reported varying levels of food consumption behaviour change based on their new knowledge in the telephonic interviews conducted four weeks after the knowledge sessions. This included both definite and quite dramatic change: for example, one respondent n = had entirely abstained from red meat in the four weeks following the focus group sessions; as well as small but meaningful changes such as eating less red meat each week, buying more organic products or selecting more local, seasonal foods (n = 4).

It seems reasonable to conclude from these findings that a lack of objective environmental knowledge and a lack of what, Schahn and Holzer (1990) term, action-related knowledge, i.e. knowledge of what action strategies can be employed to act more sustainably, are significant barriers to the enactment of environmental citizenship. Equally it seems reasonable to conclude that increasing levels of objective knowledge does have the effect of increasing at least the reported practice of pro-environmental behaviour in a significant proportion of the population. This latter conclusion, however, is limited by the fact that (i) behaviour is reported and not observed as discussed earlier (see Section 4.8.3) making it significantly more open to SDB and impossible to verify, and (ii) that interventions such as the focus group session do commonly have the effect of changing behaviour directly after the intervention but that this change may not be sustained. These factors weaken the strength of this conclusion. Notwithstanding, the fact that behaviour change was not reported unilaterally suggests the possibility that focus group participants may have been sufficiently engaged to be transparent and honest about their behaviour.

Importantly, however, findings here support the literature by indicating that having knowledge is not sufficient in and of itself to result in pro-environmental behaviour. This was apparent in follow up telephonic interviews with focus group participants who commented that they were unlikely to change their food consumption patterns even with the new knowledge they had acquired. It was also evident in comments from respondents in the retail intercept, most definitively illustrated in the comment of one respondent who stated: *“Being brutally honest I don't think anything will change me. Education won't work with me. I shop here for what I want and what I need and I don't want to think or do more than that”*. This comment specifically suggests that lack of concern in this respondent is the primary barrier to pro-environmental concern – a conclusion supported by the fact that she rated her level of environmental concern as 1 or “never concerned”).

Beyond a lack of knowledge, there are a number of other identified obstacles constraining pro-environmental behaviour which will be discussed in Section 5.6. Before turning to consider the barriers reported to inhibit sustainable food consumption, however, it is useful to consider more specifically whether knowledge in the presence of concern would be a predictor of the practice of pro-environmental behaviour as measured by the purchase of sustainable food products. The following section will consider the intersection of these three variables.

5.5 Sustainable food consumption: The enactment of environmental citizenship

Just over one-third of respondents in the retail intercepts (38%, n = 47) had purchased sustainable food products at the time of the survey. These included products labelled as organic, free-range, fair-trade as well as Ayrshire milk and butter (hormone and antibiotic free) and foods marketed as

“local, in season”. Four respondents (3%) pointed out that they had specifically *not* purchased meat and that, as vegetarians, their diet already reflected sustainable food consumption practices. Two of these reported that they had specifically stopped eating meat for environmental reasons.

Notwithstanding the low proportion of the sample who had actually purchased sustainable food, a correlational analysis between each of the variables environmental concern, knowledge and pro-environmental behaviour indicates a significant ($p < 0.01$) positive relationship for each combination as illustrated in Table 1a and 1b below.

Table 1a: Correlations between the variables for (i) environmental concern (using measured concern); (ii) knowledge and (iii) pro-environmental behaviour (n = 125).

		Environmental Concern (measured)	Knowledge	Pro-environmental Behaviour
Environmental Concern (measured concern)	Pearson Correlation	1	.389**	.273**
	Sig. (2-tailed)		.000	.002
Knowledge	Pearson Correlation	.389**	1	.275**
	Sig. (2-tailed)	.000		.002
Pro-environmental behaviour	Pearson Correlation	.273**	.275**	1
	Sig. (2-tailed)	.002	.002	

** . Correlation is significant at the 0.01 level (2-tailed). N = 125.

Table 1b: Correlations between the variables for (i) environmental concern (using rated concern); (ii) knowledge and (iii) pro-environmental behaviour (n = 125).

		Environmental Concern (rated)	Knowledge	Pro-environmental Behaviour
Environmental Concern (rated concern)	Pearson Correlation	1	.256**	.349**
	Sig. (2-tailed)		.004	.000
Knowledge	Pearson Correlation	.256**	1	.275**
	Sig. (2-tailed)	.004		.002
Pro-environmental behaviour	Pearson Correlation	.349**	.275**	1
	Sig. (2-tailed)	.000	.002	

** . Correlation is significant at the 0.01 level (2-tailed). N = 125

Evident from the results detailed above is the fact that self-reported ratings of concern (Table 1b) are more strongly correlated to pro-environmental behaviour ($r = .349$ as opposed to $r = .273$) but more weakly correlated to knowledge ($r = .256$ as opposed to $r = .389$). This suggests that self-reported ratings of concern are not as well supported by knowledge, supporting earlier findings that SDB was likely to have inflated levels of. That self-reported ratings of concern are not supported by substantive issues was apparent in the results discussed earlier (see Section 5.3.1). However, the variable measured concern seems to have provided some control for this.

A logistical regression with the two independent variables (concern and knowledge) does reflect that in each case both variables resolve a statistically significant ($p < 0.05$) amount of unique variance i.e. they are independently effective in predicting the outcome measure: pro-environmental behaviour (see Table 2a and 2b below). As would be expected from the correlational analysis above and earlier discussions of the variables used, the relationship is more significant when using the variable *rated* concern (Table 2b) as opposed to the more robust and substantiated variable *measured* concern (Table 2a).

Table 2a: Regression analysis between the independent variable (observed pro-environmental behaviour) and the variables knowledge and environmental concern (using measured concern) (n = 125). Nagelkerke R Square = .141

Independent Variable: Observed pro-environmental behaviour		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Knowledge	.268	.132	4.148	1	.042	1.307
	Environmental Concern (measured)	.480	.239	4.037	1	.045	1.615
	Constant	-2.019	.556	13.173	1	.000	.133

a. Variable(s) entered on step 1: Measured_Concern.

Table 2b: Regression analysis between the independent variable (observed pro-environmental behaviour) and the variables knowledge and environmental concern (using rated concern) (n = 125). Nagelkerke R Square = .216

Independent Variable: Observed pro-environmental behaviour		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Knowledge	.286	.130	4.828	1	.028	1.331
	Environmental Concern (rated)	.685	.215	10.198	1	.001	1.984
	Constant	-3.089	.730	17.911	1	.000	.046

a. Variable(s) entered on step 1: Rated_Concern.

The results above point to a manifest relationship between environmental concern, knowledge and pro-environmental behaviours (specifically the purchase of sustainable foods) and suggest that pro-environmental behaviour can indeed be predicted by both environmental concern and environmental knowledge.

This observation is supported by multiple studies of the determinants of pro-environmental behaviour discussed in the literature review earlier (Bamberg and Möser, 2007; Jensen, 2002; Fransson and Gärling, 1999; Hawthorne and Alabaster, 1999; Hines et al., 1987) and of the factors influencing the purchase of sustainable (organic) foods (Aertsens et al., 2009; Zander and Hamm, 2010; Magnusson et al., 2003; Tanner and Kast, 2003; Baker et al., 2004).

Notwithstanding the significance of this result, this study also sought to identify the barriers to pro-environmental behaviour in the sample population in order to determine what factors may increase the practice of pro-environmental behaviour. The following section will consider the findings in this regard.

5.6 Barriers reported to inhibit sustainable food consumption

Multiple barriers were reported by respondents as inhibiting their ability to engage in more sustainable food consumption behaviours. Whilst space constraints limit a detailed discussion of all the issues emerging from the surveys, a qualitative thematic analysis of responses to the open-ended question seeking to determine the broad barriers believed to constrain behaviour resulted in identification of the broad themes illustrated, with their frequency of occurrence, in Figure 9.

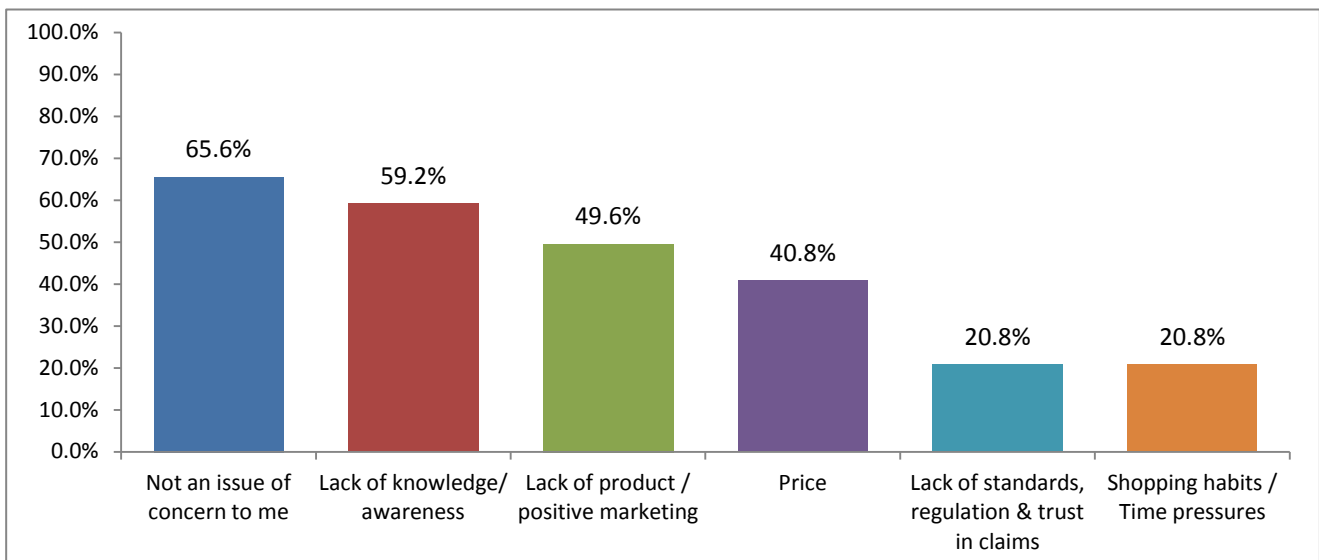


Figure 9: Distribution of the relative frequency of themes emerging from responses to open-ended survey questions designed to identify the barriers to the practice of pro-environmental behaviour (i.e. the consumption of sustainable food) as reported by respondents in the retail intercept (n = 125).

From this analysis, the following key observations can be made, each of which will be discussed in more detail below:

- i. Lack of a mature market for sustainable food is a significant barrier to the practice of sustainable food consumption
- ii. Price is considered a barrier, though not the most significant one for this sample
- iii. Habits, time and automatic everyday shopping behaviours act against the development of new pro-environmental behaviour patterns
- iv. Low levels of environmental concern and a general lack of knowledge are reported to be the most fundamental limiting factors affecting the enactment of environmental citizenship

5.6.1 A significant barrier is posed by the lack of a mature market for sustainable food

Together just over 70% of respondents (n = 88) cited some aspect of the immaturity of the sustainable food market as being a barrier to the enactment of environmental citizenship including a lack of standards and regulatory controls, a lack of trust in product claims and/or the lack of depth and breadth in product offerings resulting from limited demand and supply. This finding is shared in international research as illustrated by Thogerson (2010) who states that “organic food’s share of total food consumption depends heavily on political regulation, including legal definitions and standards, financial support to farmers, and a national labeling system”.

Some respondents suggest that organic food is not marketed with a real commitment to increase its market share and that its presentation sends contradictory messages about its desirability as a valued and necessary lifestyle product choice that will increase sustainability. Importantly, this lack of conviction in marketing is believed to be responsible for maintaining it as a niche commodity, further limiting its uptake by consumers. This is perhaps best exemplified in the following two comments made by retail intercept respondents:

“I think [the organic food] is all hidden in one place and its always looks so small and insignificant. I think that stigmatises it too much. And it is packaged differently, not with as much beauty and not for ease or convenience. So it kind of doesn't ask to be sold. It isn't really being marketed with any real commitment”
(Retail intercept respondent, CV2 at Constantia Village)

[Woolworths] may market sustainability but it is done in such a sophisticated way ...that frankly it doesn't seem like sustainability is an issue you have to worry about. But the glitz doesn't translate into the product or the packaging. There is such a small organic range and no prepared organic foods or prepacked veges. If organics are better there is no clear commitment form the retailer to increase their share of the shopping basket (Retail intercept respondent, CV25 at Constantia Village).

On a related note, respondents indicated that the lack of range of products, most especially the lack of conveniently prepared and/or precooked products added to the unattractiveness of sustainable food. This finding compares with similar findings internationally as reported by Shepherd et al., (2005) and is clearly illustrated in the comments of one retail intercept respondent who stated:

“There is not a good variety really. There are no prepacked foods like lettuce. In the organics section the food is unwrapped and there is sand all over it. It isn't attractive to even pick up. You have to wash it all and it takes time. I would like

more organic prepared meals and also in the café they don't offer organic options. Why don't they use organic everywhere if it is better" (Retail intercept respondent, HB2, Hout Bay store).

The lack of a mature sustainable food market is argued to directly impact levels of pro-environmental behaviour by making it difficult for respondents to engage in the kinds of behaviour that would be deemed to support the environment. Furthermore, limitations in the range of products and the size of the market trigger other barriers such as time pressures, convenience and/or pricing. As one respondent argued, a niche market will not generate or benefit from economies of scale or bring prices down to affordable levels.

More knowledgeable consumers highlighted South Africa's lack of a regulatory framework governing the standards for, or control of compliance with, an organic food label as key to unlocking the market for organic food. It was suggested that a legal framework should be established to provide clear guidelines against which retailers could be judged and that an independent body similar to the Ombudsman for banking or insurance, or to Fairtrade Labelling South Africa should be set up to govern, control and market sustainable and/or organic food products generally. Increasing visible standards as well as societal understanding of the nature and benefits of sustainable food products through advocacy and awareness campaigns, including the use of social media, was thought to be a crucial part of increasing knowledge and awareness, awareness that would potentially be effective in increasing knowledge of the need to act more sustainably and of the means by which this might be achieved.

5.6.2 Price as a barrier

In keeping with many international studies (Aertsens et al., 2009; Hughner et al., 2007; Padel and Foster, 2005, Shepherd et al., 2005; Lea and Worsley, 2005, 2008; Fotopoulos and Krystallis, 2002; Lockie et al., 2002; Vindigni et al., 2002), price emerged as a barrier for 40.8% (n = 51)¹⁴ of respondents in the retail intercept. Of note, however, is that almost one-third of these respondents (29%) indicated that, whilst price was a barrier for some people, especially the poor, it was not a barrier for respondents themselves.

Aertsens et al. (2009) report that evidence suggests purchasing power and "differences in abilities such as financial resources" play a strong role in influencing consumer behaviour. This is clearly demonstrated by the fact that 97% of consumer demand for organic food is reported to be

¹⁴ Includes those who seek cheaper prices through purchase of price specials when making food choices. These specials are not typically inclusive of organic food thus respondents who identified the need to shop for specials (6.4%, n = 8) were included in the category with those who indicated price was a barrier to organic food purchase.

concentrated in North America and Europe (Sahota, 2009 in Aertsens et al., 2009). Since the sample population of this study comprises consumers believed to be more affluent than average, it is likely that this different ability is reflected in the view of price as a barrier for some, not for all.

Notable is the fact that just over one-quarter of respondents (25.5%) believe price is only a perceived barrier and that the actual price of sustainable (organic) food is mostly on a par with food produced using conventional farming practices. In this regard, one participant argued that the spatial separation of organic food from mainstream products in stores impacted on both the ability to perform price comparisons and the opportunity to present organic as equally mainstream in the market stating that “often the prices are actually cheaper but you don’t know because they are so far apart. Most people just go straight to the main counters with all the variety and just skip over the organic section. They should combine it so people can compare more easily”. Hughner et al., (2007) report on similar findings internationally that show that when presented with comparative information on conventionally produced food prices, consumers are willing to pay the premium (if any) on organic foods.

However, there were those respondents (20%, n = 10) who stated that they are already paying a premium (perceived or otherwise) for good food from Woolworths stores (typically considered to be a premium brand store) and that the additional premium for organic or sustainable foods made the cost of good food just that more expensive. Ultimately it was not something that these respondents felt was necessary or that they could – or wanted to – afford. In contrast, 30% of those respondents who considered price to be a barrier to some (though not to themselves) argued that the relatively small premium to be paid for organic food produce is offset by the health and environmental benefits that they believe accrued from it.

5.6.3 Barriers are presented by the habits of the everyday

The issue of habits, the intractability of preferences and the time-pressured automatic nature of everyday food consumption and shopping behaviours were reported to present a significant barrier to change for one in five respondents in the retail intercept survey (20.8%). Furthermore, as “observable performances of stable practices” or “automated responses to contextual stimuli” (Southerton, 2013), these routine or automated behaviours are considered unlikely to be subject to reflexivity and so are difficult to change (Evans et al., 2012).

The challenges posed by habits and the time influenced automatic nature of shopping are all well documented in the literature (Southerton, 2013; Evans et al., 2012; Evans, 2011; Kennedy et al., 2009; Jackson 2005a, 2005b; Hobson, 2003; Blake, 1999) and were discussed earlier in seeking to understand factors contributing to the observed value-action gap (see Section 3.3). Force of habit

as a barrier was discussed in more detail by focus group participants who generally agreed that “habits and culture determine what you do. The way you grew up and what you were used to eating becomes what you do yourself ... [you] just continue to do what [your] parents did”.

The very real difficulty that changing habits posed was evident in follow up telephonic interviews with those focus group participants who were trying to introduce food consumption changes after the information sessions. Though only reflecting a very small sample of the total sample population, 44% of focus group participants (n = 4) stated that the greatest barrier to their achieving behaviour change following the focus group session was related to food preferences and eating habits. As one participant stated “I am feeding a family of four and they are all big meat eaters¹⁵. They still have the same appetites and preferences and are not ready to give up meat. They largely dictate what I buy. So it isn’t just a matter of changing what I buy, I have to change their preferences and that is not easy. I am trying to get them to eat more fish instead to reduce their meat but it is a long process”. Variations of this theme were echoed by the other three focus group participants.

For many the challenge of preferences and the automatic nature of shopping habits is exacerbated by the pressure of multiple roles and responsibilities and the limitations that these impose on the availability of time including time “to shop consciously and to read the labels”. As one respondent in the retail intercept stated “the problem is time – time to shop and time to cook – Woolworths is so easy and convenient and the habit is just to rush in and buy what you know and rush out again”. As is evident from this comment, habit and time pressure also demands convenience and it is apparent (as discussed above) that convenience is considered to be equally a barrier to the purchase of more sustainable food because of a lack of prepared and/or precooked food options.

5.6.4 Levels of concern and knowledge limit the enactment of environmental citizenship

Almost two-thirds of respondents (65.6%) cited a lack of environmental concern for, or care about, the environment as being a key barrier to the practice of sustainable food consumption. At the same time, more than half of respondents (59.2%) indicated that a lack of knowledge¹⁶ was responsible both for their not knowing enough about sustainability issues in general and for their not knowing what they could do to make better food purchase choices in particular.

¹⁵ Focus group participants were particularly concerned about the environmental impact of meat consumption following the knowledge sessions hence the focus in these comments on changing meat consumption in particular.

¹⁶ It is assumed that this refers to knowledge in general, therefore inclusive of subjective, objective and action-related knowledge

Based on the model of environmental citizenship proposed by Hawthorne and Alabaster (1999), the presence of a desire to act (which stems from a compelling level of environmental concern and a pro-environmental attitude), and the knowledge to act (that includes having both an understanding of the nature and cause of environmental damage and knowledge of behaviour strategies that will mitigate against that damage), are central to the enactment of environmental citizenship.

Knowledge is also believed to have the effect of contributing to the development of concern though not in all cases as was discussed earlier. The importance of both knowledge and concern in determining the practice of pro-environmental action is widely shared in the literature (Kollmuss and Agyeman, 2002; Kennedy et al., 2009; Dobson, 2007; Fransson and Gärling, 1999), as discussed above. The absence, therefore, of either and/or both of these factors would seem to be crucial barriers to the practice of pro-environmental behaviour.

5.7 Discussion summary

Evident from the findings of this study is a significant interaction between environmental concern, knowledge and the enactment of environmental citizenship viewed as the consumption of sustainable food products. Notwithstanding the significance of this result, there is, however, an observable, progressive decline in the number of respondents who express concern for the environmental impact of their food choices (78%), who indicate they have knowledge of what sustainable food products are (64%) and who engage in pro-environmental behaviour to address these concerns (38%).

Furthermore, a clarifying question to those who had purchased sustainable food (Question 6A) found that by far the largest majority of those who had purchased sustainable food (70%) did so for reasons of personal or family health and not for sustainability per se. Although healthiness is a frequently documented motivator of sustainable food consumption in numerous empirical studies (c.f. Aertsens et al., 2009; Vermeir and Verbeke, 2007; Honkanen et al., 2006; Shepherd et al., 2005; Magnusson et al., 2003; Schifferstein and Oude Ophuis, 1998), this finding implies that just 11% of all respondents based their food purchase behaviour on environmental criteria despite the widespread reported levels of concern for the environment in the sample population.

The gap between the expression of environmental concern and the practice of pro-environmental behaviour evidenced in this study is unsurprising: it has been widely reported internationally and a significant body of work has sought to identify explanations for it (Southerton, 2013; Carrington et al., 2010; Kollmuss and Agyeman, 2002; Kennedy et al., 2009; Vermeir and Verbeke, 2006; Jackson 2005a, 2005b; Padel and Foster, 2005; Bamberg, 2003; Hobson, 2003; Wall, 1995; Mainieri et al., 1997; Blake, 1999).

Two broad approaches to understanding this gap are evident (Carrington, 2010, Newholm and Shaw, 2007). On the one hand shortcomings of the methodology used to assess environmental concern have been the focus of attention. On the other hand, situational and/or psychological factors believed to impact upon the translation of concern to behaviour are deemed to be of more weight. In this regard, Roberts and Bacon (1997) suggest that environmental concern may be multifaceted and that it may have a greater impact on some behaviours than others, most especially those that do not have a real cost to the individual performing them.

In the context of the present study it appears that both of these issues may have bearing on the results and so are worthy of consideration. Turning to the first of these – methodological issues pertaining to the measurement of concern, it has been acknowledged that a limitation of this study was the potential of SDB to arise in the self-reported ratings of concern. If SDB is accepted to have significantly affected the self-reported ratings made by respondents, the variable “measured concern” has been presented as a means by which to provide a more realistic and/or robust measure of concern in this sample population. As a measure of concern it controls for SDB, at least to some extent, by looking at the underlying substance to the ratings made by respondents. Based on this measure, just 32% of respondents emerge as concerned about environmental impacts of their food choices. Of note is the fact that this figure is significantly more closely aligned to the 38% of respondents who actually purchased sustainable food products (though not to the 11% who bought sustainable foods for environmental reasons).

Turning to the second approach to understanding the value-action gap, it is evident that a number of situational and socio-psychological factors are reported to impact upon both the desire to take action, and the ability of respondents to take action in this study. Whilst various real and perceived barriers are evident in the results discussed above, the most significant barriers by percentage pertain to a lack of concern (as illustrated above) and to a low level of knowledge in the sample population overall. Given that concern has been dealt with above, it is perhaps worthwhile to look more deeply at the results of this study insofar as they speak to the level of knowledge in the sample population.

It is widely theorised that knowledge of environmental issues and their causal factors, and knowledge of behavioural strategies capable of reducing impacts on the environment, are both essential enablers of pro-environmental behaviour (Kollmus and Agyeman, 2002; Kennedy et al., 2009; Bamberg and Möser, 2007; Wall, 1995; Hines et al., 1986-1987). As a modifier of attitudes and values, including the experience and extent of environmental concern, knowledge also has an indirect impact upon behaviour (Kollmuss and Agyeman, 2002).

However, despite the fact that 64% of respondents in the retail intercept claim to be able to define sustainable food, the findings of this study suggest that knowledge levels are limited and shallow. Indeed, if the baseline of attributing knowledge to respondents had required that they identify at least three features of sustainable food¹⁷, the percentage of knowledgeable respondents would fall to just 40% of the sample population. This is, again, more closely aligned to the 38% who actually purchased sustainable food.

Overall, therefore, it is reasonable to conclude that the lack of knowledge in this sample population creates a fundamental constraint to the practice of pro-environmental behaviour by virtue of its indirect impact (or lack thereof) on the experience of environmental concern, and as a result of the subsequent lack of awareness of environmental issues and understanding of what behaviours should be practiced to mitigate and/or reduce the impact of everyday food choices on the environment. It does not go unnoticed that both of these adjusted figures – 32% evidencing concern and 40% evidencing knowledge – balance with the number of respondents who state that a lack of concern (66%) and a lack of knowledge (59%) are the most significant inhibitors of pro-environmental behaviour (together adding up to almost 100% i.e. inclusive of almost all of the sample population).

That said, it is evident in the data that knowledge may exist without concern, resulting in no proclivity to action. This was very apparent in the comments made by one retail intercept respondent reported earlier. Understanding more about the circumstances under which knowledge can exist without any associated level of concern would seem to be important. Indeed, if a pro-environmental attitude is the foundation of expressions of environmental citizenship but knowledge may exist without concern, seeking greater appreciation of how concern develops would seem to be essential to future efforts intended to establish more positive pro-environmental attitudes.

Related to the above, it is apparent that despite the barriers posed by the immaturity of the market for sustainable food in South Africa, there are a number of respondents who are overcoming these to pursue pro-environmental behaviours in various ways. This implies that differences in the nature or experience of concern will manifest in a different commitment to take action. Understanding more about how concern might translate to behaviours willing to go “beyond the call of duty”, might provide important insights for efforts designed to motivate the uptake of environmental citizenship.

¹⁷ Three features would mean that at least one feature would pertain to issues other than health

In this regard, it is clear that personal and family health related concerns, prevalent in the sample population, are matched by knowledge of health related impacts of food products. Importantly, this concern and knowledge also seems to manifest in health-related food consumption behaviours. Whilst this may reflect a broader contemporary movement towards holistic health and wellness, the extent of its uptake might provide clues for efforts to increase sustainable food consumption behaviours. Indeed, finding ways to align personal health and wellness objectives with environmental imperatives more closely might well help to integrate and increase sustainable food consumption behaviours in the future. Marketing foods produced in such a way that the dual benefit of enhanced health coupled with a demonstrably reduced environmental impact is achieved, could present an important opportunity to promote sustainable consumption behaviour from the perspective of the primary (health) concern of consumers, so achieving a double dividend.

6. CONCLUSION

The primary aim of this study was to deepen understanding of whether and how environmental citizenship might be enacted by Cape Town consumers in a Woolworths retail food environment. Specifically it sought to explore the intersection of personal concern for the environmental impact of everyday food choices, environmental knowledge about sustainable food, and sustainable food consumption behaviour in order to determine whether these variables were related and what barriers might impact to inhibit pro-environmental behaviour in consumers.

The study findings support similar international studies illustrating that environmental concern and environmental knowledge are positively related to the practice of pro-environmental behaviour. Furthermore, the observed progressive decline in the number of respondents who expressed concern for the environmental impact of their daily food choices, who demonstrated knowledge of how to act to reduce these impacts, and who actually took action, provides compelling evidence of the much documented attitude-behaviour or value-behaviour gap in the context of this study. Finally, results of this study show that, notwithstanding the differences between international contexts and South Africa's nascent sustainable foods market, one as yet not regulated by standards of labelling of organic products, many of the determinants of sustainable (organic) food consumption as well as the barriers to consumption mirror those reported internationally.

Since this study specifically targeted a sample population that was believed to be similar to international consumers, the comparability of these findings is not particularly surprising. However, further analysis of the data, points to an appreciable lack of substance informing consumers' subjective ratings of concern and a patently superficial understanding of sustainable food in the vast majority of the sample. It is possible that social desirability bias acted to inflate ratings of concern as substantiated measures of concern support the conclusion that the overall experience of environmental concern is significantly lower than stated.

Results also point to a low level of objective knowledge in the sample population. This finding is not evident in the reported findings or discussion of international studies reviewed here. However, it is believed to be significant in terms of the influence that knowledge has, jointly and severally, on both concern and behaviour. Overall it is concluded that it is both a lack of concern and a low level of knowledge in the sample population that has served to significantly constrain both an appreciation of the need to, and knowledge of the means by which to effectively engage in behaviours that are pro-environmental in nature. Notwithstanding that the findings demonstrate a clear relationship between knowledge, concern and behaviour, it is impossible to determine

whether any one particular variable has priority of influence and/or whether variables are linked in a direct or indirect relationship (or both). Further research into the nature of the relationship between these three variables, and particularly of the role of knowledge in translating concern to behaviour would be illuminating.

It should be emphasised that the primarily qualitative nature of the methodology used and the small, purposive sample size does render results limited in their applicability outside of the study setting. Thus whilst this study may have begun to fill a gap as yet unaddressed in research in South Africa, caution should be exercised when drawing inferences from these results to the broader population of Cape Town consumers or even to Woolworths Cape Town customers overall. Further research to understand and compare levels of environmental concern, knowledge and pro-environmental behaviour in other demographics, as well as to establish the barriers to action for a less affluent, emerging market context, is likely to prove insightful and valuable. Ideally such a study should engage a significant sample of randomly drawn consumers, employ a methodology able to overcome social desirability bias and ensure comparative operationalisation of variables in order to derive results comparable to international empirical studies.

Of greater relevance to the field overall perhaps, future research focused on understanding how concern renders behaviour that is (or is not) pro-environmental in nature and what role or relationship knowledge has with both concern and behaviour would be enlightening. Such research would benefit from focusing less on the level of concern and more on questioning the assumption that concern is “a direct determinant” of behaviour (Bamberg, 2003). Expanding research focus to include deeper consideration of the nature of the relationship between concern and knowledge, whether different levels of either of these variables have different implications for the practice of pro-environmental behaviour and under which conditions concern and/or knowledge will manifest in pro-environmental behaviours may progress efforts intended to predict pro-environmental behaviour and therefore design efforts capable of overcoming – or at least reducing – the value-action gap.

7. APPENDICES

- Appendix 1 Retail intercept survey questionnaire
- Appendix 2 Focus group discussion guide and handouts
- Appendix 3 Focus group handouts
- Appendix 4 Food purchase diary
- Appendix 5 Focus group registration form
- Appendix 6 Focus group follow-up telephonic interview questionnaire

Appendix 1: Retail Intercept Survey

Public understanding of sustainable consumption in South Africa: Consumer Survey Questionnaire

I am a UCT Masters researcher looking at issues of sustainability, sustainable development and the impacts of global environmental change. I wondered whether I could have 5 or so minutes of your time to ask some questions. There is no need to give any personal data that identifies you and the information you provide will be aggregated to enable deeper insight into what consumers understand by sustainability and whether or how business or government can support behaviour in this regard.

Separately I will be holding focus group sessions that will have an expert present more information on the life cycle of foods to enable greater understanding of food production process and the impacts this has for the foods we can select. If you are interested in attending one of these, I can give you further details at the end of this interview.

Are you willing to participate? Yes

1. Is this your local grocery store? Yes No **If no**, where else do you shop? _____

2. What do you understand by the phrase *The Good Food Journey*? Don't know

3. Do you worry about your household's environmental impact when making your daily food and meal choices? Where would you put yourself on a scale of 1 to 10 (with 1 being never and 10 being always)?

1 2 3 4 5 6 7 8 9 10

What are the specific concerns you have with respect to the environmental impact of your food choices?

4. Who may be best placed to address this concern? Government Business

You the consumer Civil Society Organisations / NPOs All of the above

5. How would you describe food defined as "sustainable food"? prompt if asked¹⁸ Don't know

6. From the food items that you purchased today, would you describe any as sustainable foods?

If yes: why would you describe these products as sustainable?

If none: Is there a reason you haven't selected any products you believe are described as sustainable?

¹⁸ **Prompt if asked:** While there is no consistent meaning that defines sustainable foods, some products carry certifications or claims including, for example:

"Recyclable packaging"; "Recycled content packaging"	"Reduced packaging materials"
"Natural" / "All-natural" / "Naturally-derived" – as in "natural ingredients"	"Free Range"
"Organic"	"Green"
"Fairtrade"	"Septic safe"
"Non-toxic"	"Planet-friendly" / "Earth-friendly"
"CFC-free"	"Biodegradable"
"Sustainably sourced"	"Locally sourced"
"Seasonal"	"Water sensitive"

7. What are the main reasons you chose these products over others?

8. Was today an example of your typical shopping day? Yes No

9. *Question removed after pilot*

10. *Question removed after pilot*

11. Do you shop anywhere else for sustainable food products? Yes No

If yes, where else might you generally shop (& for what)? _____

12. How many people in your household do you shop for? _____

13. How regularly do you shop to buy food?

Daily 3-5 x per week 1-2 x per week 3 - 4 x per month 5-6 x per month Once per month

14. What is the average monthly food budget for your household?

Below R2,999	<input type="checkbox"/>	Between R8,000 and R9,999	<input type="checkbox"/>
Between R3,000 and R4,999	<input type="checkbox"/>	Between R10,000 and R12,499	<input type="checkbox"/>
Between R5,000 and R7,999	<input type="checkbox"/>	Above R12,500	<input type="checkbox"/>

15. Do you often find you have purchased more food than you wanted / can use when you get home? Yes No Sometimes

If Yes / Sometimes – what do you think makes you purchase too much? _____

16. Do you / does anyone in your household recycle?

Glass Paper Plastic Food Cardboard Other? _____

17. Do you pay a formal recycling collection agency or deliver to a depot drop off point?

Formal with paid external agent Municipality service Drop off at a depot

18. *Question removed after pilot*

19. Some people give the following reasons for thinking the products they buy are sustainable. Do you think any of these mean a product is sustainable?

	No	Yes	Comment
Labels on packaging / shelf e.g. Fairtrade			
Ingredients used e.g. GM			
Place of production (Local)			
Animal welfare claims (free-range etc)			
Brand reputation / Retailer Trust			
Certified "green" or "organic"			
Personal research / Family & friends			
Amount of packaging used			
Length of Shelf-life / freshness			
Other, please specify:			

20. There are many reasons people give for not purchasing products that are marketed as more sustainable. Might any of these apply to your purchase choices either today or on another day?

	No	Yes	Comment
Higher price			
Availability			
Variety			
Doesn't last as long			
Other, please specify:			

21. How do you believe Woolworths could best communicate issues of sustainability to its customers and what would you like to see stores do differently to make buying or choosing sustainable food products easier?

Would you like to attend a workshop on sustainable food choices and the life cycle of food products?

Yes No Email: _____

Appendix 2: Focus Group Session Discussion Guide (120 mins)

Moderator introduction (10 mins)

- Research lead introduces facilitators / presenters, thanks Woolworths
- Explain purpose of the session: exploring the issues of sustainability, sustainable development, climate change and preferred food choices (not revealing exact purpose in order to enable spontaneous discussion)
- Inviting participants to talk about what food they buy, the choices they make and how they make those choices
- Ground rules:
 - Chatham House Rules – no notes, blogging, disclosure of information
 - Confidentiality; data aggregated; no need to share identifying information; first name basis conversation; any “quotes” attributed to participant number
 - Interested in everyone’s opinions; No ‘right’ answers
 - Disagreement acceptable BUT respect that some people may feel differently
 - Seek permission to record the group discussion

Warm up exercise: respondent introductions (5 mins)

- Participants introduce in pairs to each other (name, family, favourite food)
- In pairs introduce each other to the group

Discussion of the pre-task diaries (30 mins)

- Go around the group and review how sustainable food is defined
- Discuss purchases of the past week: what “sustainable food” was bought –
 - Flipchart responses building a list of sustainable / not sustainable food & how we can identify it
 - Identify commonalities across the group
 - Ask explicitly if they have purchased meat, fish, dairy, organic, free-range
 - Did anyone buy too much? If so what factors influenced that?
 - Note whether participants bought any of the product life cycle and/or any high impact items (milk, potatoes, eggs, meat)
- Explore general reasons behind purchases and the purchase making decision process. If not mentioned probe / explore perceived importance of
 - Cost
 - Health
 - Animal welfare
 - Taste
 - Social influences
 - Availability & Variety
 - Convenience
 - Seasonality
 - Locally produced food
 - Environmental considerations
- Explore reported experience of habit, convenience, rushing, planning (or lack of)

Introduce concept of sustainable consumption and production in food (50 mins)

Explain that as they might be aware there are lots of environmental, social and economic challenges associated with food such as; the effect that certain products have on the land, the wider effect that the way food is produced has on the environment, how animals are treated, the prices that farmers are paid for their produce, the way that we dispose of food, and where food comes from and how it gets to the supermarkets. For the rest of this session we want to talk in more detail about these sorts of issues including some of those presented on the “customer impacts” factsheet.

- Is this something they have ever thought about before in relation to food? Why / Why not?
- What do they think the areas for concern are in terms of food production and consumption?
 - Probe: where do they think the greatest impacts lie?
 - Probe: extent to which consumers engage with social, economic and environmental choices
- Do they consider sustainability at all at the moment when making their food purchases?
 - If yes, which aspects of sustainability do they think about the most? Probe on social, economic and environmental?

Go through presentation and product lifecycle impacts of milk, meat, eggs and potatoes

Discuss

- Is this something they have ever thought about before? If yes, which aspects?
- Do they think it matters? Why? Which parts?
- Do they already think about any of this when making purchasing decisions?
- Discuss whether any of this information makes them think in a different way at all about their food choices discussed earlier. How? What would they change (if anything)?
- What do they think the barriers are to buying more sustainable food?

Exploring reactions to suggested food behaviour changes (15 mins)

Explain that there are several suggestions that if all consumers adopted would significantly reduce the overall environmental impacts associated with food production and consumption.

Interested to find out what people think about these as ideas and whether they can see themselves and others adopting these behaviours (or indeed if they already act in this way).

Introduce goals:

1. Switching to a diet with lower environmental and social impacts (i.e. less meat and dairy)
2. Wasting less food in the home (i.e. buying less; planning better; cook & freeze)
3. Buy more free range beef, poultry, eggs and certified fish that is sustainably farmed (instead of non-certified)
4. Switching to more seasonal and local food – (i.e. buying food in season which is also locally produced)
5. Increase purchase of organic or certified/assured food and drink (including fair trade)
6. Growing own foods

For each, explore initial reactions and thoughts

- How do these behaviours fit with participants' current behaviour?
- Are they already doing any this? – Refer back to earlier discussions
- Can they see themselves doing this? Can they see other people doing this?
 - - Why/why not?
- What do they think are the barriers to people changing in this way?
- What would need to happen in order for people to change?

Final things (10 mins)

Each participant to write a postcard

- What have they learnt today?
- What surprised them most?
- How, if at all, have their perceptions changed?
- Do they think they will change anything about their food purchasing and consuming habits on the back of today?

Give plastic bag infographic and gift to all (reusable bags) – draw lucky prize for one

Appendix 3: Focus Group session handouts

Fast Facts on Consumer Impacts¹⁹

Transport

How you go to and from the places you buy food, and where those places are located especially relative to where food is grown has a big environmental impact. Research in Europe has found that:

- 59% of people use their car to go food shopping; 30% walk; 8% use the bus

Transporting food to shops uses 6 billion road vehicle kilometres per year,

Transporting food from shops to homes uses 10 billion car kilometres per year.

Buying more food using fewer journeys reduces the environmental impact linked to each single item of food (of course assuming that it doesn't result in increased food waste)

Storage

Storing food in fridges and freezers uses electricity and produces CO2 emissions.

Several factors determine the environmental impact of storing food:

- The size and energy efficiency of fridges and freezers are important
- The length of time that a product is stored before it is consumed also matters
- And whether the fridge or freezer is full or not also 'costs' energy

Cooking

Cooking is essential for many foods and it is a big part of the total energy associated with the entire life cycle of food products, for example, cooking spaghetti accounts for more than half of the total energy used from field to fork

Wasting food

Food that isn't used has a significant impact on the environment as all the inputs into that product (production, processing, packaging, transporting) are wasted.

- The average household buys 15.6 kg of food per week
- The average household wastes 5kg of food per week (only 1kg of this is inedible/unavoidable)
- In South Africa approx R61.5 bn is wasted annually – 1/3 by households. 80% of this is estimated to be edible

¹⁹ <http://www.mnn.com/money/sustainable-business-practices/sponsorstory/11-surprising-facts-that-will-change-your-water>; <http://www.mnn.com/money/sustainable-business-practices/sponsorstory/calculate-your-water-footprint>; <http://www.treehugger.com/green-food/vegetarian-diet-could-cut-climate-change-mitigation-costs-by-70.html>; <http://www.wfa.org.au/assets/environment-biosecurity/Public-understanding-sustainable-food.pdf>

Waste disposal

Food waste can either be:

- Composted at home
 - Recycled and composted in an industrial scale facility
 - Put in a land fill with other waste
- Landfills produce methane gas which is 23 times more harmful than carbon dioxide.
- Compost can be returned to the land as 'soil improver' which is environmentally beneficial.

Meat & dairy

According to United Nations FAO, agriculture is responsible for 18% of the total release of greenhouse gases world-wide. A large part of this comes from livestock.

Bacteria in the stomachs of cows and other ruminants (animals with chambered stomachs) like sheep produce methane in their gut which is released mostly by belching and also by flatulence.

Methane is a greenhouse gas like carbon dioxide (CO₂) but with a more powerful impact – about 23x CO₂.

An average cow releases between 70 and 120 kg of methane per year though grass fed cows produce less than those fed grains.

100kg of methane = about 2,300 kg CO₂ per year.

The same amount of carbon dioxide (CO₂) is generated by burning 1,000 litres of petrol.

At a (conservative) average of 10 litres of petrol per 100 km, you could drive 10,000 km per year on the methane equivalent of 1 cow.

World-wide, there are about 1.5 billion cows and bulls that together emit about two billion metric tons of CO₂-equivalents per year (that's not even thinking about the sheep, goats or camels). That is equivalent to driving the circumference of the world 375,000 times in a year.

The following table shows CO₂ production in CO₂ equivalents per kg of meat depending on the animal:

1 kg of meat from	produces kg CO ₂ e
Beef	34.6kg
Lamb	17.4kg
Pork	6.35kg
Chicken	4.57 kg

Source: Environmental Impacts on Food Production and Consumption.
http://www.defra.gov.uk/science/project_data/DocumentLibrary/EV02007/EV02007_4601_FRP.pdf

Livestock farming uses 30% of the earth's entire land surface, including 33% of the global arable land to produce feed for livestock

Livestock farming is a major driver of deforestation, especially in Latin America where, approximately 70% of former forests in the Amazon have been turned over to grazing.

WATER USE

Your personal water footprint is the amount of freshwater used (directly and indirectly) in everything you consume. Indirect consumption is water used to produce, grow and manufacture the items you consume.

For example:

- One “pint” beer actually needs 75 litres of water (though that is improving rapidly!)
- 1kg of beef takes +- 3,500 litres of water to produce (irrigating grains / grass for feedstock)
- A pound of chicken demands just 1,771 litres; A pound of goat requires 480 litres of water
- It takes about 140 litres of water to grow the coffee beans and process them to make one cup of coffee
- About 25,500 litres of water is required to grow a day's food for a family of four.
- It takes 200 litres of water to produce one glass of pasteurized milk.
- It takes more than 37 litres of water to produce one slice of wheat bread. If you eat the bread with a slice of cheese then you add another 49 litres.

The life cycle of a plastic bag

1. birth



Plastic bags begin their lives as crude oil. The crude oil is heated until it produces ethylene gas, and then converted to polyethylene that is forced through holes to make string. The string is cut, stretched and dyed, becoming a plastic bag. The bag is then imprinted with a company's logo and off it goes to your favourite store!

2. life span

Whether used to carry groceries or office supplies, most plastic bags are used only one time for an average of 20 minutes before being recycled or thrown away.



4. next 1 000 years



Plastic bags that aren't recycled end up in landfills or the ocean. Scientists estimate it can take up to 1,000 years for plastic bag to disintegrate completely, releasing toxins and damaging the environment as they decay. In addition, each year more than a million sea birds and 100,000 animals including whales, dolphins and seals are killed because of plastic bags.

3. intermission

Because consumers receive so many plastic bags and recycling it takes 85 times more energy than creating it more than 98% of plastic bags are discarded instead of recycled.



Source: <http://www.factorydirectpromos.com/life-cycle-of-a-plastic-bag> & <http://www.factorydirectpromos.com/reusable-bags>

5 tips to keep you happy & healthy while using reusable bags

separate meat & fish



Designate specific bags for meat and fish

colour code your bags



Pick one bag to always use for raw meat, poultry and fish, fresh or frozen food, and pick another bag for produce and ready-to-eat foods.

proper storage



When you get home from the store, let your bags air out so any moisture evaporates. Don't stuff your bags in a small confined space. Store them in a clean, dry place.

don't put them in the trunk



Do not store the reusable bags in the trunk of the car. The hot temperatures make it a great home for bacteria. A UK study found that the large numbers of bacteria that tend to live in reusable bags can increase tenfold in a trunk within only hours.

fabric bags

Toss in the washing machine with jeans. Or hand wash with hot soapy water.



plastic material bags

Soak in a bin filled with soapy water and either the juice of half a lemon or about a quarter cup of vinegar.



sanitize with regular washing

Wash and sanitize your reusable bags regularly to get rid of bacteria. It is recommended that you wash your bags about once a week, depending on how often you use them.

Source: <http://www.factorofthetwos.com/dirty-cycle-of-a-plastic-bag/> | <http://www.thetraveler.com/reusable-bags>

Appendix 4: Food purchase diary

Pre-task shopping diary: My Food Shopping Diary

As part of this research, we would like you to record what food you buy for your household in a week (7 days). This should include **any** food you buy in shops, not just the food you buy in your main shop. It should not include food you have bought in a restaurant or fast food outlet. Finally we would also like to know how far you travelled in total to do that food shopping – i.e. the total length of the round trip and how you travelled.

My food shopping diary: Day (1 to 7)

What food did you buy today? Please try to be as specific as possible e.g. loose potatoes x 6; lettuce pillow-pack; organic milk etc.	On what basis did you select the specific products you purchased?

Did you make more than one trip to the shops? Yes No

Did you make a special trip? Yes No If Yes, explain _____

Roughly how far do you travel per trip to do your food shopping?

Less than 3km 3-5 kms 5-10 kms 10-15 kms 15-20 kms More than 20 kms

How do you get to the shops? Drive Walk Bicycle Public transport Online

How many plastic bags did you use? 1 – 3 3-5 6-8 > 8 Other: _____

Appendix 5: Focus Group Session Registration Form

First Name: _____ Tel No. (feedback use only): _____

Date (today): _____ Workshop (store & time): _____

Suburb you reside in _____ # people in your home? adults ____ children ____

Adult's ages? 18-29: ____ 30-39 ____ 40-49 ____ 50-59 ____ 60-69 ____ 70-79 ____

Do you worry about your household's environmental impact when making your daily food and meal choices?
Where would you put yourself on a scale of 1 to 10 (with 1 being never and 10 being always)?

1 2 3 4 5 6 7 8 9 10

Do you have a solar water geyser in your home? Yes No

Can you give five descriptive words to define "sustainable food"?

Please indicate the degree to which you agree or disagree with the following statements. Choose the number of your response for each statement using the following scale:

5 = strongly agree, 4 = mildly agree, 3 = unsure, 2 = mildly disagree, 1 = strongly disagree.

1. We are approaching the limit of the number of people the earth can support.

1 2 3 4 5

2. Humans have the right to modify the natural environment to suit their needs.

1 2 3 4 5

3. When humans interfere with nature, it often produces disastrous consequences.

1 2 3 4 5

4. Human ingenuity will insure that we do not make the earth unliveable.

1 2 3 4 5

5. Humans are severely abusing the earth.

1 2 3 4 5

6. The earth has plenty of natural resources if we just learn how to develop them.

1 2 3 4 5

7. Plants and animals have as much right as humans to exist.

1 2 3 4 5

8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.

1 2 3 4 5

9. Despite our special abilities, humans are still subject to the laws of nature.

1 2 3 4 5

10. The so-called "ecological crisis" facing humankind has been greatly exaggerated.
- 1 2 3 4 5
11. The earth is like a spaceship with very limited room and resources.
- 1 2 3 4 5
12. Humans were meant to rule over the rest of nature.
- 1 2 3 4 5
13. The balance of nature is very delicate and easily upset.
- 1 2 3 4 5
14. Humans will eventually learn enough about how nature works to be able to control it.
- 1 2 3 4 5
15. If things continue on their present course, we will soon experience a major environmental catastrophe.
- 1 2 3 4 5
16. Lots of labelling on foods is confusing and misleading
- 1 2 3 4 5
17. The proposal to ban the advertising of junk food will help address SA's obesity problem
- 1 2 3 4 5
18. Environmental issues are important to me & something I take into account in daily life decisions
- 1 2 3 4 5
19. I don't think how much I consume is as much of an environmental issues as what I consume
- 1 2 3 4 5
20. The traffic light system is a helpful aid when choosing what foods to purchase
- 1 2 3 4 5
21. I think the environment is important but I don't really know much about it or what I should be doing
- 1 2 3 4 5
22. Government legislation is responsible for ensuring sustainable consumption patterns are practiced
- 1 2 3 4 5
23. I believe that talk about environmental damage and global warming is hyped up
- 1 2 3 4 5
24. I feel that there are too many big global issues at the moment for what I do to make much difference
- 1 2 3 4 5
25. If Government collected recycling like they do rubbish, I would definitely be happy to recycle
- 1 2 3 4 5

26. Retailers are largely responsible for manipulating people's choices so have an important impact on sustainable food consumption patterns

1 2 3 4 5

27. If Consumers were better educated on the impacts of food production / consumption they would be empowered to act better

1 2 3 4 5

28. If I worried about the environmental impact of everything I ate it would cause unnecessary stress

1 2 3 4 5

Appendix 6: Focus group follow-up telephonic interview questionnaire

Name _____

Focus Group Session & date: _____

Hello it is Tamzin from UCT / Woolworths. I am calling about the focus group you attended last month to ask a few additional closing out questions if that's okay? It will only take a few minutes. Is now a convenient time to talk?

If yes, continue;

If no, find out when might be convenient and book an appointment to call them back

Have you thought any further about the discussion at the focus group and/or about the environmental impact of your food choices Yes No

Can you tell me more about your thinking? _____

Do you worry about your household's environmental impact when making your daily food and meal choices? Where would you put yourself on a scale of 1 to 10 (with 1 being never and 10 being always)?

1 2 3 4 5 6 7 8 9 10

Would you say that you now think more about the environmental impact of your food choices than you did three months ago when you first engaged with this research? Yes No

Please tell me more about how your thinking has changed: _____

Has your food shopping behaviour changed in any way since the focus group? Yes No

If yes; what have you been doing differently?

At the end of the focus group session you attended, you were asked to fill in a postcard. In that you said that you thought you would try to [READ OUT CONTENT OF POSTCARD].

Would you say that you have been able to do these things? Yes No

If no, what has stopped you / limited your ability to achieve these goals?

What is the single most important piece of information you remember from the focus group discussion you attended that you believe has / may change your behaviour in the future?

Has this *already* changed your behaviour or do you think it will still change your behaviour in the future? Already changed
 Will change in the future Don't think it will change

Those are all the questions that I have. Thank you again so very much for your time, it has been very much appreciated.

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