Ynte K. van Dam

Sustainable Consumption And Marketing

Sustainable Consumption And Marketing

Ynte K. van Dam

Thesis committee

Promotor
Prof. Dr J.C.M. van Trijp
Professor of Marketing and Consumer Behaviour
Wageningen University

Other members
Prof. Dr G. Antonides, Wageningen University
Prof. Dr P. McDonagh, University of Bath, UK
Prof. Dr G. Spaargaren, Wageningen University
Prof. Dr W. Verbeke, Ghent University, Belgium

This research was conducted under the auspices of the Wageningen School of Social Sciences (WASS)

Sustainable Consumption And Marketing

Ynte K. van Dam

Thesis
submitted in fulfilment of the requirements for the degree of doctor
at Wageningen University
by the authority of the Rector Magnificus
Prof. Dr A. Mol,
in the presence of the
Thesis Committee appointed by the Academic Board
to be defended in public
on Monday 7 March 2016
at 4 p.m. in the Aula.

Ynte K. van Dam
Sustainable Consumption And Marketing
176 pages

PhD thesis, Wageningen University, Wageningen, NL (2016)
With references, with summary in English

ISBN 978-94-6257-649-0
DOI: http://dx.doi.org/10.18174/370623

Propositions

1. The ideal market of neo-classical economics never can be sustainable because sustainable choice is not economic-rational behaviour.
   (this thesis)

2. Sustainable development is an emergent system outcome that cannot be reduced adequately to individual products, processes or output parameters.
   (this thesis)

3. A stable environment that favours efficiency selects against the robustness that is required to survive in an unpredictable environment.

4. The ultimate goal of science is not to find the truth but to expose falsehoods.

5. The dominant focus on efficiency and cost reduction renders one blind to the difference between investments, payments, and squander.

6. Those who care for an organisation are subordinated to those who care primarily for themselves.

7. Research in the domain of sustainable development by definition cannot be apolitical.

8. The stipulation that two propositions are required on a socially relevant topic does not imply that the other propositions are socially irrelevant.

Propositions belonging to the thesis, entitled

'Sustainable Consumption And Marketing'

Ynte Karel van Dam
Wageningen, 7 March 2016.

Contents

1. GENERAL INTRODUCTION: SUSTAINABLE CONSUMPTION

"The fact that more and more people are choosing to buy environmentally friendly products encourages companies, in turn, to make more improvements". (European Commission, n.d.)

Problem statement

The overall policy aim with respect to global food production is food security, which is defined in terms of access to food, availability of food, and stability of food supply (FAO, 2006). Since the 1960s this aim has been pursued by economic optimisation and by intensification of production in the 'green revolution' (Evenson & Gollin, 2003; Khush, 2001). The green revolution marks a period of consecutive innovations in breeding, production techniques, processing, and farm management that have boosted agricultural output. The successes of the green revolution have resulted in decades of increased per capita food production despite a rapidly growing world population (Tilman, 1998).

Over time the social, economic, and environmental limitations of agricultural intensification have become increasingly visible (Evenson & Gollin, 2003; Pearse, 1980; Tilman, 1998). In response the United Nations in their 'Agenda 21' as well as 'Millennium Development Goals' have set challenging targets to the sustainable development of food production (Clark, 2007; United Nations, 1992, 2012). At the same time the demand for

agricultural products keeps growing and keeps challenging the quantities that can and must be supplied (Dunn, 2003; Van Latesteijn & Andeweg, 2011). Food production therefore finds itself challenged by sustainability goals that in the current system of provision appear to be incompatible with food security goals, because over the past decades increased supply has invariably implied decreased sustainability.

Since the early 1970s marketing literature has shown awareness of the need to respond to the impending environmental and social crises (Fisk, 1973, 1974; Henion, 1976; Kassarjian, 1971; Meadows, Meadows, & Randers, 1972). Nevertheless the changes in producer and consumer behaviour have made a negligible contribution to the actual sustainability of economic development (KPMG, 2012; Meadows & Randers, 2004; Turner, 2008). Awareness of the need for sustainable development has triggered changes in attitudes (Pelletier, Dion, Tuson, & Green-Demers, 1999; Roberts, 1996; Uusitalo, 1990), but not necessarily in behaviour (Boulstridge & Carrigan, 2000; Claudy, Peterson, & O'Driscoll, 2013; De Barcellos, Krystallis, de Melo Saab, Kügler, & Grunert, 2011; Moraes, Carrigan, & Szmigin, 2012; Papaoikonomou, Ryan, & Ginieis, 2011; Vermeir & Verbeke, 2006). The resulting gap between sustainable attitudes and actual behaviour shows that behaviour is the outcome of multiple and potentially conflicting attitudes and/or goals (Laran & Janiszewski, 2009). Sustainable development is not the only and apparently not the most important goal that is pursued by market actors.

Sustainable development is "a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations" (WCED, 1987). In line with this general formulation sustainable development in global food production can be defined as a process of change towards global food markets in which the human needs and aspirations of food security are met without exceeding the limits that are imposed by economic, ecological and social systems. Sustainable development in food production therefore implies a permanent focus on how food is produced next to what is produced and how much is produced (Garnett, 2013). The food production system therefore is challenged to find a balance between the potentially conflicting goals of economic sustainability, social sustainability, ecological sustainability, and

increased supply. Within the global food system firms must find their balance between sustainable development and profitability (Figge & Hahn, 2012; Menzel, Smagin, & David, 2010; Wu & Pagell, 2011), and therefore sustainable consumption is considered a prerequisite for sustainable development (Ölander & Thøgersen, 1995; United Nations, 2012; Young, Hwang, McDonald, & Oates, 2010).

Increased sustainable consumption requires major changes in consumer behaviour, as currently only a minority of 'heavy user' consumers is consistently responsible for the majority of sustainable consumption (Denver, Christensen, Jensen, & Jensen, 2012; Midmore, Francois, & Ness, 2011; Rex & Baumann, 2007). Research into the motives for the consumption of sustainable food products has focused on these heavy users and on how these heavy users integrate sustainable development goals into their consumption patterns (Brown, Dury, & Holdsworth, 2009; De Ferran & Grunert, 2007; Fotopoulos, Krystallis, & Ness, 2003; Zander & Hamm, 2010). Studying heavy users to increase consumer demand has its limitations. Apart from being only a minority of consumers these heavy users already maintain high levels of sustainable consumption that they are unlikely to increase much further. Contrary to these heavy users the vast majority of consumers consists of light users of sustainable products who only incidentally, or sometimes accidentally, choose sustainably (Eckhardt, Belk, & Devinney, 2010). Compared to heavy users those light users are likely to differ in their motives for sustainable consumption (De Ferran & Grunert, 2007; Lind, 2007). The current thesis therefore focuses on light users of sustainable food products to identify motives and strategies that facilitate sustainable consumption among this wider group of consumers.

An early study into sustainable marketing has suggested that informational ambiguity and socio-temporal dilemmas are key barriers that hinder sustainable development of global food markets (Van Dam & Apeldoorn, 1996). Construal level theory has proposed since that these barriers are different indicators of psychological distance (Liberman, Trope, & Wakslak, 2007; Trope & Liberman, 2010). Originating from research into temporal discounting and other time-dependent changes in values and expectancies (Liberman & Trope, 1998), construal level theory has evolved into a general framework that forges relations between psychological distance, perception,

abstraction, language, and evaluation (Fiedler, Jung, Wänke, Alexopoulos, & de Molière, 2015). At least some studies suggest that effects of psychological distance only manifest themselves at low levels of personal involvement (Park & Morton, 2015; Wang & Lee, 2006). Assuming that light users of sustainable products are not highly involved in sustainable development and/or sustainable consumption, the framework of construal level theory could be used to investigate the barriers that light users of sustainable food products face in their consumption choice.

Construal level theory of psychological distance

People can experience directly only what is immediately present. Thinking and feeling beyond the immediately present reality is possible by construing and maintaining a mental image of reality (Trope & Liberman, 2010). The capacity for mental construal develops in early childhood and serves to transcend the actual perceptual context, thus allowing among others the emergence of object permanence and playing hide-and-seek (Bergman, 1993; Dumas & Doré, 1991; Lillard & Woolley, 2015; Peskin & Ardino, 2003). The function of mental construal is the creation of a mental substitute to the lack of immediate perception of a person or an object, which is central to human social, emotional, and cognitive development. Once this function is established mental construal develops by including higher levels of abstraction into cognitive reasoning, thus allowing belief formation, categorisation, and the development of abstract, counterfactual, and moral reasoning (Fischer, 1980; Kato, Kamii, Ozaki, & Nagahiro, 2002; Marini & Case, 1994; Perry, Samuelson, Malloy, & Schiffer, 2010; Von Helversen, Mata, & Olsson, 2010). Mental construal therefore allows one to transcend the actual situation and to manipulate concepts rather than objects. Thus, people can remember the past and make predictions about the future, people can expect the actions of others and speculate how things might have been and – though none of these actually can be perceived – people can discuss such psychologically distant events.

Psychological distance is the subjective experience that something is in one's proximity (proximal) or far removed (distal). Psychological distance is therefore egocentric in the most literal sense: the reference point of

psychological distance is the actual self and the individual 'here and now' (Trope, Liberman, & Wakslak, 2007). Psychological distance relative to this central self is experienced along several different dimensions (Fujita, Henderson, Eng, Trope, & Liberman, 2006; Nussbaum, Liberman, & Trope, 2006; Trope & Liberman, 2000). Something or someone can be proximal or distal in a spatial, temporal, social, or certainty dimension (Todorov, Goren, & Trope, 2007; Wakslak, Trope, Liberman, & Alony, 2006). These different dimensions of psychological distance have highly similar effects on mental construal. As psychological distance increases construal becomes more abstract or high-level, and conversely more abstract or high-level construal increases the experienced psychological distance. Therefore psychological distance tends to spill-over into other dimensions and when distance on one dimension increases the perceived distance on the other dimensions also increases (Bar-Anan, Liberman, & Trope, 2006; Trope & Liberman, 2010).

The verbal construct 'sustainable development' is a floating signifier (Lévi-Strauss, 1950) that means different things to different people (Bolis, Morioka, & Sznelwar, 2014; Cairncross, 1991; Mebratu, 1998). This allows discussion of, and even reaching agreements on, sustainable development without first reaching an agreement on an unambiguous definition of the signified concept. This also makes sustainable development a highly abstract and elusive concept, which increases its psychological distance and raises the construal level of its mental representation. The informational ambiguity and the socio-temporal dilemmas that are inherent to sustainable development (Hilpert, Kranz, & Schumann, 2013; Van Dam & Apeldoorn, 1996) in terms of construal level theory cover at least three of the four dimensions of psychological distance, as they refer to uncertainty respectively to social and temporal distance (Trope & Liberman, 2010; Trope et al., 2007). Sustainable development refers to uncertain consequences that may impact all of humanity sometime in the future, which reinforces the psychological distance and the high construal level. All these factors contribute to the perception of sustainability as something that is unlikely to happen and then only far away, in the remote future and to unfamiliar people, something closer to the absurd than to the daily reality (Proulx, 2013).

Construal level and preference reversal

Mental construal is instrumental to individual reasoning and therefore implies a functional, goal congruent process of abstraction (Trope & Liberman, 2010). In this process of abstraction those features that are essential to the goal are stressed, whereas features that are incidental or irrelevant to the goal are ignored. Mental construal determines how reality is experienced and therefore determines how someone cognitively understands and motivationally reacts to this reality.

Proximal phenomena are represented at a low level of construal in terms of idiosyncratic features and narrow, situational goal-derived, categories (Dhar & Kim, 2007; Förster, Liberman, & Shapira, 2009; Pfeiffer et al.). What is proximal is construed as more concrete and what is more concrete is perceived to be more proximal (Carnevale, Fujita, Han, & Amit, 2015; Pizzi, Scarpi, & Marzocchi, 2014). Distal phenomena are represented at high levels of construal in terms of general attributes and broad, personal goal-derived, categories (Förster et al., 2009; Pfeiffer et al.). What is distal is mentally construed as more abstract and what is more abstract is experienced as being more distal (Liberman, Sagristano, & Trope, 2002). High levels of mental construal represent a phenomenon as a categorical exemplar (Ratneshwar, Barsalou, Pechmann, & Moore, 2001) and augment it with stereotypical general characteristics belonging to that category (Ratneshwar, Pechmann, & Shocker, 1996; Rosenberg, 1956; Trope & Liberman, 2010). This process of prototyping and stereotyping changes one's relation to the phenomenon, by rendering the high level construal of a phenomenon more simple and more coherent than the low level construal (Trope & Liberman, 2010). The different types of abstraction in high or low construal serve different goals and result in different evaluations of proximal versus distal outcomes and of the actions that are required to achieve them (Liberman & Trope, 1998). At high construal level the evaluation of outcomes is more idealistic in terms of desirability (or undesirability) and reasons why actions should (or should not) be performed (Fujita, Eyal, Chaiken, Trope, & Liberman, 2008; Irmak, Wakslak, & Trope, 2013; Sen, 2013). At low construal level the evaluation of outcomes is more pragmatic in terms of feasibility (or infeasibility) and in terms of how actions

could (or could not) be performed (Fujita et al., 2008; Irmak et al., 2013; Ledgerwood, Trope, & Chaiken, 2010; Papaoikonomou et al., 2011).

Table 1.1: Reported differences between low and high construal level

Construct	Low construal	High construal	Selected source
Psychological distance	Proximal	Distal	Trope & Liberman 2010
Temporal distance	Present	Remote past or future	
Hypothetical distance	Certain	Possible	
Social distance	Family and friends	Strangers	
Physical distance	Here	Far away	
Cognitive Factors			
Representation	Concrete, detailed, complex	Abstract, simple, coherent	Bar-Anan et al 2006
	Idiosyncratic	Prototype and/or Stereotype	Pfeiffer et al 2014
Reasoning	Pragmatic	Idealistic	Irmak et al 2013
Classification focus	Differences	Commonalities	Lee et al 2010
Categorisation	Narrow	Broad	Förster et al 2009
Evaluation of outcomes	Feasibility	Desirability	Fujita et al 2008
Evaluation of actions	Process focus (How)	Outcome focus (Why)	Freitas et al 2004
Motivational Factors			
Goal focus	Situational, context-based, means	General, primary, ends	Fujita et al 2008
Goal pursuit	Loss oriented, prevention	Gain oriented, promotion	Lee et al 2010
Motivation	Intrinsic	Extrinsic	Freund et al 2010

The focus on processes and feasibility at a low construal level triggers a situational goal motivation and a focus on how the actual context may facilitate or hamper one's actions. The focus on outcomes and desirability at a high construal level triggers a general goal motivation and a focus on the primary goals that give meaning to one's actions (Fujita & Roberts, 2010). Low construal level motivates one to focus on the means whereas high construal level motivates one to focus on the ends (Fujita et al., 2008). Similarly intrinsic motivation (enjoyment of the activity) fosters a process focus and a low construal level, whereas extrinsic motivation (performance for rewards) fosters an outcome focus and a high construal level (Freund, Hennecke, & Riediger, 2010; Polman & Emich, 2011; Trope & Liberman, 2003). Furthermore high level construal is congruent to achievement goals and a promotion orientation, whereas low construal is congruent with safety goals and a prevention orientation (Lee, Keller, & Sternthal, 2010). The differences between high and low level construal (Table 1.1) contribute to the reversal of preferences from

support for a (distal, high construal) goal to lack of goal-congruent behaviour in a specific (proximal, low construal) situation.

The differences between high and low level construal and the related preference reversal have direct implications for consumer behaviour in relation to sustainable development. Sustainable development often is explained in terms of abstract consequences and future generations. As such it will be represented by a high level construal. At this high construal level sustainable development is experienced as a distal, simple and coherent concept that is evaluated in terms of desirability or undesirability. The paradigmatic definition 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' depicts a simple scenario in which distal sustainability (taking care of future generations) can be added to the presently existing way of life (Milne, Kearins, & Walton, 2006). In this scenario sustainable development is an extension and enrichment of the current patterns of consumption. Sustainable development as an abstract construct therefore is most likely to be seen as a desirable but distal goal. At this high level of abstraction it is easy to agree on why sustainable development should be supported (Azapagic & Perdan, 2000; DeShon & Gillespie, 2005; Ludwig, Mangel, & Haddad, 2001).

When sustainable development is to be implemented in terms of concrete choices in actual consumption, it is represented by a low level construal. At this low construal level sustainable development is experienced as a proximal, complex and situational choice that is evaluated in terms of feasibility or infeasibility (Evans & Abrahamse, 2009). At this low level of abstraction the pursuit of sustainable development more often than not conflicts with the existing way of life (Hobson, 2002; Lorenzen, 2012; Thøgersen, 2005) and therefore is less feasible and less immediately rewarding than business as usual. The difference between the high construal level representation of 'sustainable development as a distal concept' and the low construal level representation of 'sustainable consumption as an actual choice' causes a discrepancy between sustainable attitudes and actual behaviour. People may hold positive attitudes towards the distal desirable goal of sustainable development at high construal level and seriously intend to act sustainably in general, while being deterred from any specific sustainable choice by the proximal less feasible implications at low construal level.

Coping with construal conflicts

The difference in evaluations between abstract sustainable development and concrete sustainable choices result in different motivations towards abstract sustainable development and proximal concrete sustainable choices. This discrepancy between a desirable distal goal and its less desirable or less feasible proximal implications is not unique for sustainable development. Most goals that people want to achieve or avoid are distal goals. Those distal goals require consistent choices and actions, though the proximal reward structure of these choices might favour a conflicting course of action (Dawes & Messick, 2000; Fujita & Carnevale, 2012; Messick & Brewer, 1983; Platt, 1973; Van Dam & Apeldoorn, 1996).

In a conflict between distal goals and proximal outcomes the concrete pragmatic concerns with the proximal outcomes tend to outweigh abstract idealistic concerns with the distal goal (Gul & Pesendorfer, 2001; Kim, Schnall, & White, 2013), and good intentions more often than not end up as unfulfilled resolutions. When distal benefits only can be reached by accepting proximal costs (or foregoing proximal benefits) people may keep refraining from actually doing what they sincerely intend to do in general. Conversely, when proximal benefits incur distal costs (or prevent distal benefits) people may find themselves actually doing what they intend to avoid in general. In such situations people not only refrain from doing what they should do but also engage in doing what they should not do and by their actual behaviour make the distal goal less attainable. In this context it may be noticed that the lack of sustainable consumption may be a minor problem compared to the persistence and growth of non-sustainable consumption patterns (Daigger, 2009; Mont & Power, 2010).

Construal level theory proposes that the reversal between distal and proximal cost/benefit evaluations is not caused by the difference in psychological distance but by the difference in construal level. High construal, idealistic, reasoning tends to focus on the desirability of the benefits while underestimating or ignoring pragmatic considerations of feasibility and costs. Low construal, pragmatic, reasoning tends to focus on these pragmatic considerations while undervaluing or ignoring the idealistic considerations of

desirability and benefits (Fiedler, 2007). The difference in construal level may be triggered by psychological distance, but it may be triggered by other factors as well (Freitas, Gollwitzer, & Trope, 2004). The overview of Table 1.1 shows how a range of cognitive and motivational constructs co-varies with construal level. For example, manipulation of action evaluation as either 'how to do' or 'why to do' changes construal level in experimental settings (Freitas et al., 2004), and this manipulation is commonly used to test the effect of construal level on other constructs.

Based on construal level theory two approaches can resolve the conflict between desirable distal goals and feasible proximal goal-incongruent choices (Ülkümen & Cheema, 2011). These two approaches partly coincide with distinctions in explicit versus implicit self-control, low construal versus high construal self-control, or behavioural versus cognitive coping (Fishbach & Shah, 2006; Fujita & Han, 2009; O'Connell, Hosein, & Schwartz, 2006).

One approach is raising the construal level of the proximal choice to induce less pragmatic and more idealistic reasoning about a concrete issue (Freund et al., 2010; Malkoc & Zauberman, 2006; Polman & Emich, 2011). In line with this approach cognitive interventions aim at inducing abstraction and mindfulness to raise the construal level of the proximal choice and thus enhance the motivation for distal-goal-congruent behaviour, or to raise the self-control to resist goal-incongruent temptations (Amel, Manning, & Scott, 2009; Fujita & Roberts, 2010; Jenkins & Tapper, 2014; Mantzios & Wilson, 2014). A major drawback of these cognitive interventions is that they require effort and energy of the actor that are subject to depletion (Agrawal & Wan, 2009; Gino, Schweitzer, Mead, & Ariely, 2011; Imhoff, Schmidt, & Gerstenberg, 2015; Muraven & Baumeister, 2000). Another drawback is that most of these cognitive interventions are not suited for in-store consumer choice environments.

The other approach is lowering the construal level of the distal goal to induce pragmatic reasoning about an abstract issue (Malkoc & Zauberman, 2006; Malkoc, Zauberman, & Bettman, 2010). This approach would consist of interventions aimed at inducing low construal motivational factors that support the desirable distal goal. Low construal motivation for the goal 'sustainable development' could imply a focus on the situational and context-based means to contribute to sustainable consumption. Low construal motivation could

imply triggering the consumption of sustainable products by prevention of losses rather than promotion of gains. Low construal motivation could imply stimulating sustainable consumption by intrinsic motives rather than extrinsic motives. Among consumers who are low involved with sustainable development low construal motivation should be more predictive for actual choices than high construal motivation.

Contrary to raising the construal level of ongoing choices, a low construal motivational approach should be less subject to depletion of effort and energy. Many activities of business-to-consumer marketing are implicitly or explicitly aimed at inducing low-construal level motivational factors to influence consumer demand conform corporate interests. Even when people may grow tired of marketing (Luoma-Aho, 2013), they hardly seem to grow tired of buying the products that are marketed. Assuming that the attitude-to-behaviour gap in sustainable consumption can be explained in terms of construal level theory, appealing to low construal motivational factors therefore will be explored as an effective way to increase sustainable consumption among light users of sustainable products.

Aim and outline of the thesis

From a marketing perspective the key barriers to sustainable development are assumed to arise from the difference in psychological distance between remote sustainable outcomes and proximal economic outcomes. Both in consumer behaviour and in marketing action (Assael, 1992) the discrepancy between attitudes and behaviour in sustainable development is assumed to arise from the difference between certain and/or immediate outcomes and uncertain and/or remote outcomes of economic transactions. The aim of this thesis is to show that the various manifestations of the discrepancy between sustainable development goals and actual behaviour in consumer behaviour and marketing can be explained by the overarching difference in construal level of sustainable development as an abstract construct and sustainable behaviour as concrete actions. Over the years this discrepancy between sustainable development goals and actual behaviour has been explained in terms of social dilemmas (Gupta & Ogden, 2009; Shultz & Holbrook, 1999), temporal discounting

(Hardisty & Weber, 2009; Shultz & Holbrook, 1999), place attachment and NIMBY-ism (Devine-Wright, 2013; Feitelson, 1991), or information processing (Laureati, Jabes, Russo, & Pagliarini, 2013; Trumbo & O'Keefe, 2005). These different explanations neatly follow the dimensionality of psychological distance, which supports an overarching explanation in terms of construal level theory of psychological distance. In this thesis the explanation by construal level theory of psychological distance of economic behaviour relative to sustainable development is tested among consumers. Studying consumers preliminary to studying producers is considered legitimate because the roles of producer and consumers are to a large degree interchangeable in the market (Cova & Dalli, 2009; Kozinets et al., 2004; Layton, 2009; Smith, 1784; Vargo & Lusch, 2004), as both are economic actors within the same system. In this way the thesis contributes through consumer research to the explanation of the perceived dilemma between economic and sustainable outcomes that hampers sustainable marketing.

The organisation of this thesis follows the empirical cycle, or the simplified 'wheel of science' (Babbie, 2010; De Groot, 1969). The first two empirical chapters of this thesis are inductive and provide support for the application of construal level theory to the study of the attitude-to-behaviour gap in sustainable consumption, whereas the remaining two empirical chapters are deductive and test hypotheses that are derived from construal level theory (Bourgeois, 1979). The final chapter provides the overall discussion and concludes by extending the results of the consumer research in this thesis into a research agenda for sustainable marketing.

In the *second* chapter the dimensionality of sustainability among light users is explored. A distinction is made between the cognitive and the motivational understanding of sustainable development (Cartwright, 1949; Förster, 2009; Grunert & Grunert, 1995). The cognitive meaning structure of sustainable development reflects the taxonomic or functional classification of products. The motivational structure reflects the goal derived classification of products. The cognitive structure of sustainability may predict the accuracy of product perception without necessarily influencing the outcome of consumer choice. Conversely the motivational structure of sustainability may predict the outcome of consumer choices without necessarily reflecting the perceptual

accuracy. Two empirical studies reveal that among light users of sustainable products the dimensions of sustainable development that may be distinguished in the cognitive structure are merged into a simple homogeneous construct at a higher construal level in the motivational structure. This is congruent with the impression that among light users sustainable development or 'sustainability' is a distal phenomenon.

In the *third* chapter different meanings of 'importance of sustainability' are investigated. Following Myers & Alpert (1977) a distinction is made between importance at high levels of abstraction, i.e. relevance, and importance at low levels of abstraction, i.e. determinance. For most light users sustainable development appears to be relevant without being determinant, which suggests that relevance and determinance of sustainability may have a set of non-overlapping predictors. Therefore a scale for à priori attribute determinance is developed and tested. In a large sample survey it is shown that (1) for product attributes that offer sustainability related benefits the correlation between relevance and determinance is weaker than for product attributes that offer personal benefits, (2) a priori determinance of sustainability related attributes is a better predictor of sustainable consumer choice than a priori relevance of sustainability related attributes, and (3) a priori determinance of sustainability related attributes can be predicted or explained by future temporal orientation immediately, without mediation by relevance.

Jointly these two chapters support an explanation of the attitude-to-behaviour gap in terms of construal level theory. For light users sustainability is a phenomenon at high psychological distance, which results in an abstract and simple representation based on broad commonalities among sustainable attributes. The desirability of the distal goal 'sustainable development' provides a mismatch to the feasibility considerations of actual choices. The remaining two empirical chapters are devoted to testing whether low construal motivation is more predictive for sustainable choices than high construal motivation. Two observations have guided selection of the low construal motivations that are tested in these deductive chapters. The first is the observation that intrinsic motivation operates at lower construal levels than extrinsic motivation by focusing attention on the task at hand rather than on the expected rewards after completion of the task (Deci & Ryan, 2000; Freund et al., 2010). The

second is the observation that a prevention focused and loss avoidance oriented goal pursuit operates at a lower construal level than a promotion focused and gain oriented goal pursuit (Freitas et al., 2004; Lee et al., 2010).

In the *fourth* chapter it is argued that proximal identity goals focus the attention of light users to intrinsic self-confirmation motives for consumption at low construal level. Sustainable identity is therefore assumed to offer an intrinsic motivation for sustainable consumption. In two studies it is confirmed that sustainable identity indeed triggers self-confirmation motives for sustainable consumption. As a consequence (1) higher sustainable identity promotes sustainable choice in a social dilemma between personal benefits and sustainability benefits, and (2) in a choice between a sustainable and a non-sustainable alternative, proximal goals for sustainable choice are enhanced by sustainable identity. The effect of sustainable identity on sustainable choice is additive to (and therefore independent of) the effect of other individual characteristics.

In the *fifth* chapter it is argued that low construal motives in proximal choice are focused on the prevention of losses rather than on the promotion of gains. The prevailing loss orientation in proximal choice can be exploited by signaling the undesirable (non-sustainable) consequences of the more feasible alternative. In three experiments it is shown that among light users increasing the salience of non-sustainable consequences by negative labelling changes the preference for proximal choices towards more sustainable. This effect of negative labelling is enhanced by loss oriented goal pursuit or prevention focus. Furthermore negative labelling is shown to activate personal (intrinsic) norms that motivate sustainable choice.

In the *sixth* and final chapter implications of this thesis for sustainable consumption and marketing are discussed. Consumer behaviour and marketing both study economic transactions within a market system. The insights that have emerged when studying the consumer behaviour among light users from a construal level theory perspective therefore should be applicable to marketing behaviour of companies that are reluctant to commit themselves fully to sustainable development. Drawing from the insights in (sustainable) consumer behaviour implications for (sustainable) market orientation are derived. The

marketing behaviour of companies is embedded in institutional and governance systems and therefore this chapter concludes with suggestions for research into institutional arrangements that would stimulate market systems to be supportive to sustainable economic development.

2. THE MEANING OF SUSTAINABILITY

'we do not merely live in the world,
we live in the world as we view it'
(Hayes, Strosahl, & Wilson, 1999)

This chapter is published as:
Ynte K. van Dam & Hans C.M. van Trijp (2011) Cognitive and motivational structure of sustainability. *Journal of Economic Psychology 32* (10) 726–741

Introduction

The importance of sustainable production and consumption is widely acknowledged (Clark, 2007; Mont, 2007; Nash, 2009; Tukker, Sto, & Vezzoli, 2008; Wells & Seitz, 2005). At the same time, there is a remarkable lack of clarity about what this concept actually means (e.g. Cornelissen, van den Berg, Koops, Grossman, & Udo, 2001; Hobson, 2002; Jepson, 2001; Nansai, Kagawa, & Moriguchi, 2007; Sarang, Vahedi, & Shamsai, 2008; Sutcliffe, Hooper, & Howell, 2008). Both at the policy level and the business level it is assumed that the concept of sustainability is multidimensional. Governments and NGO's follow the World Commission on Environmental Development's (WCED, 1987) definition of balancing the needs of current consumers and future generations. This implies two dimensions in sustainability. Sustainability has a temporal dimension because sustainable benefits are a trade-off between the present and the future, and social dimension because sustainable benefits are a trade-off between the consumer and unknown others (Beckman, 2008; Gosseries, 2008; Hammond, 2006; Long, 2008; Peeters, 2003). Companies

implement sustainable development around the triple bottom line of People, Planet and Prosperity. The triple bottom line implies three dimensions in sustainability. 'People' refers to a social dimension of human wellbeing. 'Planet' refers to an ecological dimension. 'Prosperity' refers to an economic dimension of human welfare (e.g. Hammond, 2006; Zwetsloot, 2003). These articulated perceptions of sustainability in policy and management literature are contrasted by a general lack of insight in consumer perceptions of sustainability. Nevertheless, understanding how consumers structure information in general is a topic of enduring interest in marketing and consumer behaviour (Carrillat, Riggle, Locander, Gebhardt, & Lee, 2009; Christensen & Olson, 2002; Cowley & Mitchell, 2003; Ng & Houston, 2009).

Further progress towards sustainable development could benefit from understanding how consumers structure the concept of sustainability. Up to now the perceptual structure of sustainability mainly has been studied for those consumers who regularly engage in organic and/or fair trade purchases (Brown et al., 2009; De Ferran & Grunert, 2007; Fotopoulos et al., 2003; Zander & Hamm, 2010). Heavy users of organic or fair trade products show complex and differentiated motives for consuming sustainable products (for an overview see e.g., Fotopoulos et al., 2003). Implicit in these studies is the assumption that understanding the cognitive or motivational structure of heavy users contributes to the understanding of light users. There is however ample evidence that attitudes and motives differ between light and heavy users of products (Brunsø, Verbeke, Olsen, & Jeppesen, 2009; Jewell & Unnava, 2004; Stafford, 2008), and some studies suggest that also light users and heavy users of sustainable products differ in their motivational structure (De Ferran & Grunert, 2007; Fotopoulos et al., 2003; Lind, 2007).

If only a small minority of consumers are heavy users of sustainable products, and if motives of light users are different from those of heavy users, it is conceivable that policy based on understanding heavy users fails to motivate light users or non-users to purchase sustainable products. The current study contributes to the understanding of light users by focusing on the cognitive and motivational structure of sustainability for consumers that occasionally purchase sustainable products.

After a review of the literature the first study shows experimentally that light users' cognitive structure of sustainability could accommodate the

dominant dimensionalities found in sustainability literature. Having established this cognitive potential the second study empirically shows that the motivational structure of sustainability for light users is in fact one-dimensional. It is shown that for light users various ethical motives for food choice cluster on a single sustainable dimension. It is shown that this one-dimensional motive parsimoniously explains different sustainable purchases by light users. Also it is shown that for light users this sustainability motive is explained by a concise set of psychographic variables. These results suggest that focusing information on separate sustainable issues may result in cognitive understanding by light users while failing to change their motivation to purchase these products. Focusing information on a single sustainable (or ethical) meta-construct may be more effective in influencing the sustainable purchase behaviour of light users.

Review of literature

Cognitive and motivational structure

Most dominant consumer behaviour theories consider consumers' preference formation and actual choice behaviour for products as being guided by a decision process based on attribute perceptions and attribute importance (Chernev, 1997; Goldstein, 1990; Lancaster, 1966, 1971; Rosen, 1974). These multi-attribute models of product preference and product choice assume a (differential) weighting of product attributes, with the weights being dependent on how these attributes are integrated in the cognitive structure (Fishbein & Ajzen, 1975; Rosenberg, 1956), or the motivational structure (Gutman, 1982; Nunes, 2002) of consumer perceptions. In line with this Lancaster-Rosen model sustainability can be viewed as a bundle of sustainable attributes that deliver benefits to people, planet, prosperity and/or posterity. The cognitive and motivational structure shows the dimensionality of this bundle of attributes in perceptual space.

'Sustainability' is an abstract verbal construct with no objective meaning. The meaning of the construct 'sustainability' is derived from its associations to other verbal constructs, like e.g. environmental impact and organic production

or social impact and fair trade. Organic and fair trade, but also local production are examples of sustainable attributes that deliver sustainable benefits. The web of associations that meaningfully relates these constructs to each other can be denoted as the perceptual structure (Förster, 2009) or the subjective meaning structure (Grunert & Grunert, 1995). Within this structure a distinction can be made between cognitive structure and motivational structure (Cartwright, 1949; Grunert & Grunert, 1995).

Differences between cognitive and motivational structure

Cognitive structure refers to understanding the semantic meaning of constructs relative to each other. The cognitive structure of sustainability focuses on the objective meaning of sustainability as implied by its relation to other words, like e.g. organic or fair trade or local production (cf. Cacioppo, Von Hippel, & Ernst, 1997; Ni, 1998; Preece, 1976). Research into the cognitive structure of sustainability aims at discovering the structural relations between those words (Carrillat et al., 2009; Wilson, 1980), and the description, the classification and the generalisation of sustainability in terms of objects and attributes. These three properties (description, classification and generalisation) are summarised in the dimensionality of cognitive structure (Scott, Osgood, & Peterson, 1979). The dimensionality of cognitive structure reflects the number of taxonomic categorisations used to create a cognitive map of sustainable constructs (cf. Felcher, Malaviya, & McGill, 2001; Gentner, 1983; Neisser, 1976). The cognitive map is used to describe and classify known objects and to generalise this description and this classification to new objects. In this cognitive structure organic could be linked to other environmental (but not social) attributes, fair trade could be linked to global equity (but not environmental) attributes, whereas local production could be linked to environmental and socio-economic (but not global equity) attributes. A complex structure could acknowledge derived benefits and conflicts between benefits and make a distinction between e.g. local organic and non-local organic products. A simple structure could group all ethical benefits together. Cognitive structure is assumed to be context independent and abstracted from personal experience (Grunert & Grunert, 1995; Ng & Houston, 2009). Cognitive structure is made

salient by accuracy goals (Kunda, 1990) that prompt declarative knowledge of individual entities (Carlston & Eliot, 1996).

Motivational structure refers to understanding the functional meaning of constructs relative to oneself. The motivational structure of sustainability focuses on the personal and subjective meaning of sustainability relative to personal goals and values (cf. Claeys, Swinnen, & Vanden Abeele, 1995; Grunert & Grunert, 1995; Gutman, 1982). In a motivational structure organic and local production could be related to environmental motives, while fair trade and local production could be related to social motives.

Research into the motivational structure of sustainability aims at discovering the functional relations between those words. Motivational structure specifies the common relations between objects and personal benefits (Olds, 1956). The dimensionality of motivational structure reflects the number of goal-directed categorisations used to create a mental schema of sustainable constructs (cf. Barsalou, 1983; Neisser, 1976; Ratneshwar et al., 2001; Ratneshwar et al., 1996). Motivational structure is assumed to be context dependent and purchase specific (Carrillat et al., 2009; Grunert & Grunert, 1995; Ng & Houston, 2009). Motivational structure is made salient by directional goals (Kunda, 1990), that prompt stereotyped categorisation (Carlston & Eliot, 1996) into functionally relevant groups.

Cognitive understanding and motivational understanding place different constraints on consumer reasoning. Cognitive structure is related to the need to achieve accurate judgments, whereas motivational structure is related to the need to make personally relevant decisions (Kruglanski, 1999). Cognitive understanding of sustainable issues is assumed to focus on issue specific elements, which stresses taxonomic dissimilarities between products and issues. Motivational understanding of sustainable issues focuses on situational or personal relevance, which stresses functional similarities of products and issues (Gentner & Markman, 1997; Liberman & Förster, 2009; Navon, 1977). The processing focus and the level of processing may cause the cognitive structure and the motivational structure to differ from each other. A person may acknowledge cognitive complexity in one context, but still use a more simple motivational structure in a different context (Zinkhan & Braunsberger, 2004).

Understanding the cognitive and motivational structure of sustainability as used by consumers serves two distinct functions. Understanding the cognitive

structure explains whether consumers can differentiate between different aspects of sustainability in information processing and product perception, but it does not explain whether consumers use this differentiation in preference formation or choice. Understanding the motivational structure explains how consumers accommodate those aspects in preference formation and choice. To consumers, and especially to light users, the cognitive structure of sustainability may predict the accuracy of judgments without necessarily influencing the outcome of decisions. Conversely the motivational structure of sustainability may predict the outcome of decisions without necessarily improving the accuracy of judgements.

Determinants of sustainable motives

Sustainable behaviour implies acting on behalf of long term collective beneficial outcomes. Acting sustainably therefore is a moral rather than a rational decision. One of the most coherent and empirically supported models of sustainable, or moral motivations, is the extended norm activation model (Stern, Dietz, & Kalof, 1993; Turaga, Howarth, & Borsuk, 2010). Norms evolve in social life, when individual actions cause negative side-effects to others (Biel & Thøgersen, 2007; Coleman, 1990). Norms therefore are social in origin, and restrict individual egoist impulses in favour of collective outcomes. Violation of norms is met by sanctions, that can be imposed by others or can be self-imposed. Personal norms are internalised norms with self-imposed sanctions. Given the lack of social sanctions sustainable consumer behaviour is assumed to be dependent on personal norms. The activation of personal norms is modelled in the extended norm activation model (Stern, Dietz, Abel, Guagnano, & Kalof, 1999). In the extended norm activation model altruistic, biospheric and egoistic values and adherence to the New Environmental Paradigm perspective (Dunlap, Van Liere, Mertig, & Jones, 2000) are the main precursors to the activation of personal norms that guide sustainable behaviour.

Based on the theoretical overlap between norm-activation models and social dilemma models, the extended norm activation model has been expanded further. Incorporating 'concern for future consequences' and 'social value orientation' into the model adds to the prediction of a range of sustainable

behaviours (Joireman, Lasane, Bennett, Richards, & Solaimani, 2001). Expanding norm activation with social value orientation and concern for future consequences link the extended norm activation model to the social and the temporal dimensions that are implicit in the WECD definition of sustainability.

A subset of personal norms are benevolence norms (Biel & Thøgersen, 2007; Kerr, 1995). Benevolence norms are private prescriptive norms that are closely related to self-transcendent values. These private prescriptive norms are activated when important values are threatened. Various identity based determinants for the activation private norms in relation to sustainable behaviour have been tested successfully. Ethical orientation is a proxy for social identity and the activation of equity norms that predict e.g. fair trade purchases (Ozcaglar-Toulouse, Shiu, & Shaw, 2006). Connectedness to nature is a proxy for environmental identity and the activation of environmental conservation norms that predict 'green' purchases (Clayton, 2003; Mayer & Frantz, 2004). Apart from these self-transcendent predictors there is consistent evidence that especially organic purchases are not driven by benevolence norms at all, but by perceived personal health benefits which are dependent on health orientation. Ethical orientation, environmental identity and health orientation link norm activation to the Triple-P bottom line of people and prosperity (ethical), and planet (environmental) as opposed to personal benefits (health).

The extended norm activation model thus can be further expanded by constructs that explain the social and temporal dimensions of WCED sustainability, as well as the people, planet, prosperity and profit dimensions of Triple-P sustainability. If either set of dimensions is reflected in the motivational structure of sustainability, the expanded norm activation model should contribute differentially to the prediction of motivational dimensions. Therefore this expanded norm activation model will be tested to predict sustainable motivations in the second study.

Study 1: Cognitive structure of sustainability

The first study tests whether light users' cognitive structure of sustainability could accommodate the dimensionality that was found in sustainability literature. Cognitive structure is assumed to be related to detailed processing, and dissimilarity focus. Cognitive structure is either context independent (Grunert & Grunert, 1995) or dependent on a context that requires accuracy and declarative knowledge (Carlston & Eliot, 1996; Kunda, 1990). Therefore a simple experiment was designed in which respondents were asked to rate product attributes directly on different, and possibly conflicting, sustainability dimensions (cf. Molden & Higgins, 2004).

If the WCED dimensions or the Triple-P dimensions are compatible with the cognitive structure of consumers, at least some sustainable attributes should be scored differentially on different dimensions, implying attribute scores should vary both within and across dimensions. If sustainable attribute scores fail to vary significantly within a dimension this suggests that the dimension is cognitively meaningless to consumers. If sustainable attribute scores fail to vary significantly across dimensions this suggests that the distinction between these dimensions is cognitively redundant to consumers. If the dimensions are cognitively relevant structures of a broader sustainability construct positive correlations between the different dimensions are expected. In order for the dimensions to be potentially relevant it is not necessary that all sustainable attribute scores differ within and between dimensions, because some attributes could be cognitively less elaborated.

Design

WCED and Triple-P dimensions were rated for 10 product attributes. These attributes were selected to represent sustainable aspects of food products that cover all WCED and Triple-P dimensions, as well as some utilitarian attributes. Three utilitarian attributes were included (taste, low price and convenience) and six sustainability-related attributes (environment friendly, animal friendly, locally produced, fair trade, natural, and waste prevention. Healthiness was added as in important attribute, with long term personal benefits. The attributes were selected after discussion with 14 major stakeholders from the

food chain in order to cover a wide range of aspects that are related to sustainability. Stakeholders represented agricultural production, processing industry and retail, as well as (semi)government organisations. The attributes that were agreed upon by the stakeholders cover the ethical motives and major utilitarian dimensions of the 'food choice questionnaire' (Lindeman & Väänänen, 2000; Steptoe, Pollard, & Wardle, 1995), which supports their use in this study.

If I only buy food products that [have low price] this will have								
Mainly positive consequences to myself	1	2	3	4	5	6	7	Mainly positive consequences to other people
Immediate positive consequences	1	2	3	4	5	6	7	positive consequences at the long term

Figure 2.1: Example of scales to measure social and temporal dimension of attributes. The part between square brackets is substituted in subsequent items

Cognitive structure was measured by asking respondents to rate the attributes on different dimensions. Social and temporal dimensions of attributes were measured by sequentially scoring two items on seven point scales. The top scale contained end poles that denote social distance of consequences, ranging from 'myself' to 'other people'. The bottom scale contained end poles that denote temporal distance of consequences, ranging from 'immediate' to 'the long term'. Examples of the scales, with the measured attribute in square brackets, are reproduced in Figure 2.1. A statement denoting the attribute and both items measuring the social and temporal distance were projected on screen. After ticking a score in each scale the respondents could proceed to the next screen with a statement denoting the next attribute. The two items were repeated for each of the ten product attributes included in this survey. The attributes appeared in random order.

Triple-P dimensions of attributes were measured by three items, rating the perceived consequences of the ten attributes The Triple-P items were preceded by one item rating the perceived consequences to oneself and one's family. This first question, shown in Figure 2.2, was inserted to induce respondents to exclude themselves and their families from 'people in general' in the

subsequent questions. After ticking a score on each of the ten attributes the respondents proceeded to the next screen. This question was followed by questions in the same format asking to rate the consequences for 'the natural environment', for 'the wellbeing of people in general', and for 'the welfare of people in general' respectively.

According to you, how are the consequences [for yourself and those close to you]							
	negative	neutral					Positive
If you buy [animal friendly] food products	-1	0	1	2	3	4	5
If you buy [locally produced] food products	-1	0	1	2	3	4	5
If you buy [.....] food products	-1	0	1	2	3	4	5

Figure 2.2: Sample question for Triple-P dimensions. The part between square brackets is substituted in subsequent items

Procedure

A computerised questionnaire was filled in by 109 university students. Data were collected as part of a series of unrelated experiments. Respondents were briefed to participate in a study that measures the consequences of food consumption. Respondents were instructed to rate the items according to their personal opinion. First respondents passed through ten screens in which social and temporal distance was measured (Figure 2.1). Each screen mentioned one attribute, and attributes were presented in random order. Next followed a screen in which ten attributes were rated on consequences for oneself (Figure 2.2). The last three screens contained a rating of ten attributes on the Triple-p dimensions. These last three screens again were presented in random order.

The questionnaire effectively is an experiment with a within subjects doubly multivariate repeated measure design. The respondents each scored all attributes on all six dimensions. The effect of the two WCED dimensions (social and temporal) and the three Triple-P dimensions (people, planet, prosperity) on attribute score are analysed separately, while the profit (consequences for self) dimension was excluded from the analysis. The first analysis is a repeated measure ANOVA with a single within subject factor of two levels (social distance, temporal distance). These levels reflect sustainability

according to the WCED model. The second analysis is a repeated measures ANOVA with a single within subject factor of three levels (environment, wellbeing and welfare) measured across ten attributes. These levels are related to sustainability according to the Triple-P model. The dependent variables in both analyses are the attribute scores measured across ten attributes.

Results

Respondents were 72% female, with an age ranging from 18 to 29 years. Gender distribution reflects a deliberate oversampling of female respondents in order to be comparable to the gender composition of the panel data used in the other studies. Both the sample of this study and the panel composition in the second study reflect the fact that majority of food purchases is still done by females. All respondents purchase organic or fair trade products once a month or less, and therefore are considered light users.

Table 2.1a-c: Mean attribute scores (and standard deviations) within and between WCED dimensions

Attribute	Social
Price	1.47[a] (.75)
Taste	1.61[a] (.91)
Health	1.61[a] .77)
Convenience	1.90[a] (1.11)
Natural	3.20[b] (1.64)
Animal welfare	4.68[c] (1.63)
Waste prevention	4.82[c,d] (1.41)
Environment	5.32[d,e] (1.20)
Local production	5.54[e] (1.26)
Fair trade	6.36[f] (.94)

Table 2.1a: within social

Attribute	Temporal
Taste	1.64[a] (1.25)
Price	1.90[a] (.99)
Convenience	2.09[a] (1.90)
Local production	4.07[b] (1.28)
Health	4.09[b] (1.66)
Waste prevention	4.47[b,c] (1.61)
Natural	4.67[b,c,d] (1.85)
Animal welfare	4.91[c,d] (1.35)
Fair trade	5.17[d,e] (1.61)
Environment	5.77[e] (1.35)

Table 2.1b: within temporal

Attribute	$F_{1,108}$ (p)
Health	191.50 (< .001)
Local production	63.87 (< .001)
Fair trade	57.16 (< .001)
Natural	52.07 (< .001)
Price	14.33 (< .001)
Environment	9.33 (.003)
Waste prevention	3.57 (.06)
Convenience	3.10 (.08)
Animal welfare	1.51 (.22)
Taste	0.07 (.79)

Table 2.1c: between dimensions

a-f: Different superscripts denote significant differences within dimensions ($p < .05$)

In the two dimensional (WCED) model (Table 2.1) the scores of attributes differ significantly within both the social and the temporal dimensions ($F_{(10,99)}$ = 31.173; p < .001). Differences within dimensions are further analysed by ONEWAY ANOVA (Table 2.1a and 2.1b). All utilitarian attributes score low on both dimensions, and both dimensions differentiate between sustainable attributes. Differences across dimensions are further analysed by univariate tests (Table 2.1c). The social and temporal scores differ significantly for six out of ten attributes (p < .01), and for five out of seven sustainable attributes. Across attributes the scores on both dimensions show a correlation of .56.

Table 2.2a-c: Mean attribute scores (and standard deviations) within Triple-P dimensions

Attribute	Planet (environment)
Price	-0.43[a] (.79)
Convenience	-0.19[a] (.74)
Taste	0.55[b] (1.15)
Health	1.53[c] (1.65)
Fair trade	2.99[d] (1.74)
Local production	3.05[d] (1.81)
Animal welfare	3.66[e] (1.67)
Natural	4.07[e,f] (1.37)
Waste prevention	4.33[f,g] (1.20)
Environment	4.77[g] (.74)

Table 2.2a: within planet

Attribute	People (wellbeing)
Price	1.08[a] (1.73)
Convenience	1.54[a,b] (1.76)
Animal welfare	1.91[b,c] (1.84)
Taste	2.22[b,c,d] (1.71)
Local production	2.62[c,d,e] (1.73)
Natural	2.81[d,e,f] (1.51)
Environment	3.02[e,f,g] (1.68)
Waste prevention	3.10[e,f,g] (1.60)
Health	3.49[f,g] (1.71)
Fair trade	3.54[g] (1.63)

Table 2.2b: within people

Attribute	Prosperity (welfare)
Animal welfare	1.06[a] (1.85)
Convenience	1.60[a,b] (1.69)
Taste	1.66[a,b] (1.79)
Natural	1.76[a,b,c] (1.69)
Environment	1.79[a,b,c] (1.87)
Price	2.06[b,c,d] (2.05)
Waste prevention	2.31[b,c,d] (1.85)
Health	2.54[c,d,e] (1.81)
Local production	2.58[d,e] (1.79)
Fair trade	3.10[e] (1.91)

Table 2.2c: within prosperity

a-g: Different superscripts denote significant differences within dimensions p < .05

In the three dimensional (Triple-P) model scores of attributes (Table 2.2) also differ significantly between dimensions ($F_{(20,\ 89)}$ = 26.218; p < .001). Environmental friendliness scores highest on environmental benefits, differing significantly from all other attributes except waste prevention. Fair trade scores highest on both wellbeing and welfare, as does health. Nevertheless, the scores

of e.g. environment, natural, and local show no significant difference on wellbeing, while local differs significantly from environment and natural on welfare. This suggests that wellbeing and welfare carry different implications. (Table 2.2b and 2.2c).

In the three dimensional model all attributes show at least one significant difference between the three sustainable dimensions (Table 2.3). Planet and people ratings are significantly different for all attributes. Planet and prosperity ratings are not significantly different for fair trade only. People and prosperity ratings are not significantly different for animal welfare, and local production, as well as for convenience.

As is to be expected the three Triple-P dimensions also are correlated, with correlations of .34 between planet and people to .38 between people and prosperity. Planet and prosperity show a small but significant correlation of only .08.

Table 2.3: Mean attribute scores (and standard deviations) between Triple-P dimensions

Attribute	Planet	People	Prosperity	$F_{2,216}$ (p)
Animal welfare	3.66[b] (1.67)	1.91[a] (1.84)	1.06[a] (1.85)	91.51 (< .001)
Convenience	-.19[a] (.74)	1.54[b] (1.76)	1.60[b] (1.69)	63.92 (< .001)
Environment	4.77[c] (.74)	3.02[b] (1.68)	1.79[a] (1.87)	130.26 (< .001)
Fair trade	2.99[a] (1.74)	3.54[b] (1.63)	3.10[a] (1.91)	3.20 (< .05)
Health	1.53[a] (1.65)	3.49[c] (1.71)	2.54[b] (1.81)	50.66 (< .001)
Local production	3.05[b] (1.81)	2.62[a] (1.73)	2.58[a] (1.79)	3.53 (< .05)
Naturalness	4.07[c] (1.37)	2.81[b] (1.51)	1.76[a] (1.69)	79.99 (< .001)
Price	-0.43[a] (.79)	1.08[b] (1.73)	2.06[c] (1.85)	79.03 (< .001)
Taste	0.55[a] (1.15)	2.22[c] (1.71)	1.66[b] (1.79)	41.96 (< .001)
Waste prevention	4.33[c] (1.20)	3.10[b] (1.60)	2.31[a] (1.85)	59.93 (< .001)

a,b,c: Different superscripts denote significant differences between dimensions

Discussion to study 1

The results show that consumers can cognitively differentiate between differences in temporal and social effects of food attributes, and that they can cognitively differentiate between ecological, wellbeing, and welfare benefits of sustainable food attributes.

In the two dimensional model four out of six sustainable attributes (not counting health) differ between dimensions. Within dimensions the social dimension shows a fine grained distribution with six groups, of which only one overlaps both adjacent groups. The temporal dimension shows a more fuzzy grouping of attributes, and is less convincing. With the exception of the attributes 'animal friendly' and 'waste prevention' all sustainable attributes are distributed differently on the two dimensions. In the three dimensional model all attributes differ between at least two dimensions. The planet dimension shows a fine grained and clear distinction between attributes. The two social dimensions show a fuzzy distribution reflecting a high variance in scores across respondents. Also in the three dimensional model waste prevention and animal welfare are the two attributes that are grouped together in all three dimensions. The welfare and wellbeing dimensions also show more overlap in the grouping of sustainable attributes. This may indicate that these two dimensions are cognitively less elaborated than the planet dimension.

Both within and between dimensions there is sufficient significant variation of attribute scores to indicate that the various sub-dimensions of the different working definitions of sustainable development can be used cognitively to evaluate the sustainability of food product attributes. The results also show convergent validity between the social and temporal effects as well as the planet, people, and prosperity dimensions.

Study 2: Motivational structure of sustainability

The second study investigated whether consumer's motivational structure of sustainability matches the dimensionality found in the literature and the first study. This study consists of three stages. In the first stage motivational structure was determined by Confirmatory Factor Analysis. Motivational structure is assumed to be related to global processing, and similarity focus.

Motivational structure is dependent on a context that requires decision making relative to personal or situational goals (Kruglanski, 1999; Kunda, 1990). Therefore motivational structure was measured by the food choice questionnaire (Kornelis, van Herpen, van der Lans, & Aramyan, 2010; Lindeman & Väänänen, 2000; Steptoe et al., 1995), which measures consumer motives in the context of food purchase. Confirmatory factor analysis can show whether the WCED dimensions or the Triple-P dimensions are compatible to the motivational structure of consumers. In the second stage the motivational structure was determined in relation to psychographic predictors by redundancy analysis. In the third stage the motivational structure was tested in the prediction of actual purchase behaviour.

Design

Consumer motivation for sustainability in food choice was investigated by two surveys among members of the GfK household panel in The Netherlands. The GfK panel consists of a representative sample of 6000 households that daily register all purchases by EAN-barcode registration. Apart from this daily registration of food products panel-members are periodically approached for additional data collection by surveys, that can be paper-and-pencil or on-line.

For the first analysis five different paper-and-pencil versions of the food choice questionnaire were prepared, with the order of items randomised in each version. A total of 4857 households completed the questionnaire, resulting in a response rate of 81%. Respondents were 87% female, and the age of respondents ranged from 19 to 92, with an average age of 50. Though this makes respondents not representative for the Dutch population, the sample is representative for purchasers of food products. For the second analysis an on-line survey was conducted on a smaller sample of panel members, five months after the food choice questionnaire. Out of 1100 households contacted 851 completed this survey, resulting in a response rate of 77%. Respondents were 85% female, and age varied from 21 to 84 with a mean age of 47 years. Like in the previous study this sample is not representative of the population, but it is representative of food purchasers. For the third analysis food purchase data were analysed for the respondents of the second analysis. Data were screened for completeness and validated, resulting in purchase data for a subsample of

570 respondents (67%) across 29 food product categories over a twelve week period starting six weeks after the psychographic data were collected. Full socio-demographic profiles of the three samples are reported in Table 2.4.

Table 2.4: Comparison of survey samples from household panel for studies into motivational structure

Demographics	Food Choice Questionnaire Analysis 1	Psychographics Data Analysis 2	Purchase Data Analysis 3
N	4857	851	570
Female	86.7%	85.0%	85.1%
Male	13.3%	15.0%	14.9%
Lower education	32.7%	27.5%	28.8%
Average education	35.8%	37.0%	36.8%
High education	31.5%	35.5%	34.4%
Age Under 35	16.4%	20.0%	16.1%
35-44	21.8%	29.5%	28.4%
45-54	23.0%	24.6%	26.7%
55-64	20.6%	15.7%	18.1%
over 65	18.3%	10.2%	10.7%
Randstad Conurbunation	12.3%	13.0%	11.8%
West	29.5%	27.1%	29.1%
North	11.7%	11.2%	10.4%
East	21.7%	22.8%	22.8%
South	24.8%	25.9%	26.0%
Net income under 1300/month	18.2%	14.3%	13.3%
1300 – 1900	28.1%	25.6%	26.8%
1900 – 2700	26.7%	30.0%	29.6%
Net income over 2700/month	18.7%	23.1%	24.4%
Missing	8.4%	6.9%	5.8%
Single household	25.2%	24.2%	24.2%
2 persons	37.5%	33.1%	34.9%
3 persons	14.5%	15.9%	14.7%
4persons	15.5%	17.7%	16.5%
5+ persons	7.3%	9.0%	9.6%

Analysis 1: Confirmation of motivational structure

In the first analysis the structure of sustainable motivations is tested on a previously validated scale for food motivations by confirmatory factor analysis. This scale contains a mixture of short term personal benefits, health benefits, and ethical (general non-personal) motives. It is assumed that short term personal motives load on a single dimension, whereas long term and non-personal motives could be distributed over two or three dimensions, following the results of the previous study.

Measures

Respondents completed a Dutch version of the expanded food choice questionnaire (FCQ; Kornelis et al., 2010; Lindeman & Väänänen, 2000). This scale contains 14 subscales with a total of 43 items. Six of the subscales of the FCQ were a priori classified (see Table 2.5) as being related to direct personal benefits, six as related to general non-personal benefits, and two as related to long term personal benefits. The general non-personal benefits cover various components of sustainability and social and environmental effects that may accrue at some temporal distance.

Table 2.5: Subscales of Food Choice Questionnaire and reliabilities

Benefits	Subscale	# items	Reliability (α)
Short term personal	Attractiveness	4	.757
	Availability	3	.702
	Convenience	3	.848
	Familiarity	3	.780
	Mood	3	.831
	Price	3	.765
Long term personal	Health	3	.773
	Weight control	3	.828
General non-personal	Animal welfare	3	.904
	Authenticity	3	.723
	Fair trade	3	.857
	Natural environment	3	.866
	Natural ingredients	3	.857
	Political value	3	.818

Data analysis

To validate whether the data supported categorisation in three or in two sustainable components a confirmatory factor analysis (CFA) was used. The method chosen is the oblique multiple group (OMG) method (De Groot & Steg, 2007; Nunnally, 1978; Stuive, 2007). OMG is a deceptively simple method for CFA that consists of calculating sum-scores on attributes allocated to predefined dimensions and computing the corrected correlations between items and dimension sum-scores. Items are classified correctly if corrected correlation to the predefined dimension exceeds correlation to other dimensions, where differences in correlations are of secondary importance. The method is originally described by Thurstone (1945; 1949) and Harman (1954), and has been revived in empirical research (Burger, Yonker, Calsyn,

Morse, & Klinkenberg, 2003; Schaub-De Jong, Schönrock-Adema, Dekker, Verkerk, & Cohen-Schotanus, 2011). Recently the method has been reappraised as a powerful alternative to structural equation modelling (SEM) based CFA. The advantage of OMG for this study is that contrary to SEM it is highly sensitive to incorrect classification of items to dimensions, while being as sensitive as SEM to correct classifications provided the sample is sufficiently large, as shown by Stuive et al (2007; 2009).

Table 2.6: Confirmatory OMG of three dimensions in FCQ

Motive	Dimension 1	Dimension 2	Dimension 3
Healthiness	.674	.607	.360
Attractiveness	.603	.470	.436
Weight control	.562	.532	.402
Price	.498	.340	.495
Natural Environment	.536	.849	.270
Fair Trade	.538	.841	.277
Political Value	.487	.794	.316
Natural Ingredients	.577	.751	.329
Animal Welfare	.474	.750	.234
Authenticity	.451	.682	.453
Mood	.500	.509	.476
Convenience	.384	.219	.605
Familiarity	.398	.433	.501
Availability	.569	.360	.575
Correlations between dimensions			
Dimension 1		.627	.545
Dimension 2			.416

Results

The OMG converges on a three dimensional structure of FCQ subscales. Starting with two sustainable dimensions (social and environment) and one utilitarian dimension, the method eventually converges on two utilitarian and one sustainable dimension (Table 2.6). Utilitarian motives, including health and weight control, load on different dimensions compared to the sustainability related motives. It can be noticed that the assignment of healthiness and weight control to the first dimension and the assignment of mood to the second dimension are tenuous, as the differences in correlations to both

dimensions are very small indeed. Comparable small differences are found between the first and the third dimension for other attributes. This however does not diminish the result that six non-personal motives unambiguously load on the second dimension.

If only the non-personal non-direct attributes are analysed, any dimensionality that is imposed on the data is rejected and they rapidly converge to a single dimension. This implies that the single motivational sustainable dimension is not an effect of the contrast with utilitarian or personally relevant attributes, but an intrinsic structure of these sustainable attributes.

Analysis 2: Prediction of motivational structure

The second analysis tests the motivational structure in relation to psychographic variables and purchase behaviour. Finding a common regression equation that explains a single dimension of sustainable attributes corroborates the motivational structure of these attributes.

Measures

The food choice questionnaire measures motivation as importance of food attributes. Following this approach motives were approximated as the importance of selected attributes, measured by single statements. Respondents rated the item "*How important do you consider ….. when purchasing food products*", for ten food attributes. These ten attributes were the same as the attributes used in the first study. Three utilitarian attributes were taste, price and convenience, and six sustainability related attributes were environmental friendliness, animal friendliness, local production, fair trade, naturalness, and waste. Healthiness was added as an important motivator, but is acknowledged to contain both utilitarian and sustainable aspects. The order of the items was random for each respondent.

The various components of the extended norm activation model and its expansions were measured by existing scales. Values were measured by the short Schwartz value survey (De Groot & Steg, 2007); Beliefs were measured by the NEP-scale (Dunlap et al., 2000). For the social/temporal expansion of norm activation CFC and SVO (Joireman et al., 2001) were measured by scales developed by the cited authors; For the Triple-P expansion people-orientation

was measured as ethical orientation (Ozcaglar-Toulouse et al., 2006); planet orientation was measured by the connectedness to nature scale (Mayer & Frantz, 2004). As discussed before health motives are acknowledged to play a role in the prediction of organic products as well, and therefore health orientation (Moorman, 1990) was measured.

Data analysis

Redundancy analysis (Bakalian, Ritchie, Thompson, & Merryfield, 2010; Fortier, 1966; Israëls, 1986; Lambert, Wildt, & Durand, 1988; Takane & Hwang, 2005; Van den Wollenberg, 1977) was employed to find a common regression equation that explains the importance of the subset of sustainable attributes in food choice. Redundancy analysis can be likened to canonical correlation analysis, in that it finds an optimal relation between two sets of variables. Contrary to canonical correlation analysis however, redundancy analysis maximises the explained variance in a set of criterion variables by a parsimonious set of common regression equations, also called components (Van den Wollenberg, 1977). For the procedure see e.g. Van den Wollenberg (1977), Lambert et al. (1988) and Bakalian et al. (2010). Components from the redundancy analysis were subjected to a VARIMAX rotation to facilitate interpretation (Israëls, 1986; Takane & Hwang, 2005).

Results

The results of the redundancy analysis confirm the one dimensional motivational structure of sustainability with respect to food found in study 2 (Table 2.7). The variance accounted for by the first two components is 25% and 3,6 %, compared to 0.7% of the third component. The third and further components therefore can be ignored. The component loadings of the attributes are reported in the second and third column in the top half of Table 2.7. The bottom half of Table 2.7 reports the contributions of the predictor variables to the components, which can be interpreted as standardised regression weights (Fortier, 1966; Van den Wollenberg, 1977).

The variances accounted for in the attribute importance ratings by the two redundancy-analysis components (column 4 and 5), are comparable to the variances accounted for in multiple regressions for each attribute separately

(column 6). Only the importance of health is accounted for far less by the first redundancy component than by a separate multiple regression. This is due to the fact that health loads moderately high on both components. The first VARIMAX-rotated component contains all sustainable attributes, whereas the second VARIMAX-rotated component contains the utilitarian attributes. Health loads both on the sustainable and the utilitarian component (loadings of .777 and .536 respectively), and therefore should be excluded from a composite measure of sustainable motivation.

Table 2.7: Dimensionality of stated attribute importance in redundancy analysis

	Component 1	Component 2	Redundancy Analysis		Regression
Criterion Variables	loading	loading	R^2	R^2	R^2
ENVIRONMENT	.988	-.012	.462		.473
WASTE	.977	.043	.310		.325
NATURAL	.975	.154	.353		.371
LOCAL	.972	.013	.332		.351
ANIMAL	.967	.160	.342		.366
FAIRTRADE	.960	.154	.423		.459
HEALTH	.777	.536	.185		.306
PRICE	.148	.917		.104	.138
TASTE	.403	.845		.116	.145
CONVENIENCE	-.224	.842		.083	.117
Predictor Variables					
Ethical orientation	.530	-.535			
Biospheric value	.375	-.545			
Connectedness to nature	.216	.134			
Egoistic value	-.120	.136			
Health prevention	.099	.577			
Competitive SVO	.037	.054			
NEP scale	.034	.213			
Concern future consequences	-.034	-.296			
Social SVO	.030	.048			
Health promotion	.023	-.153			
Individual SVO	-.016	.118			
Altruistic value	.002	.802			

Ethical orientation, biospheric value, and connectedness to nature contribute most to the sustainable component. The contributions to the utilitarian component are ignored in this study, because the predictors were

selected to explain sustainable attribute importance and because the model explains on average less than 10% of the variance in the utilitarian component.

Analysis 3: Explanation of purchases by sustainable motives

The third analysis explains purchase behaviour by sustainable motives. Finding that a single motivational dimension explains actual behaviour equally well as its individual components shows it to be parsimonious and therefore conceptually more appealing.

Measures

Panel members daily register all purchases by EAN-barcode registration on a home scanner. For fresh products a codebook has been developed with ad hoc barcodes. Twice a week data are transferred from the scanner to the panel agency where they are validated and processed. Purchases were coded as organic and/or fair trade according to existing product certification.

Data Analysis

Different food products are typically purchased in different frequencies and different quantities, which precludes simple adding or averaging of purchases. In the current analysis the number of product categories with sustainable purchases is used as a proxy for sustainable purchase behaviour, assuming that highly sustainable households will purchase a wider range of sustainable food products compared to less sustainable households. Across the sample the number of product categories with organic purchases ranges from 0 to 22 and the number of categories with ethical (organic + fair trade) purchases range from 0 to 24. Both organic and ethical purchases have a modus of 0.

The analysis should test whether a single sustainable dimension outperforms a multidimensional model for light users of sustainable products. Therefore the sample was screened for 'heavy users'. Heavy users are defined as households with ethical purchases in 5 or more product categories. Only a small number of heavy users (N = 28) was observed and excluded from the analysis.

Results

Two measures for purchase behaviour are obtained. Purchase behaviour is defined as the number of product categories in which (1) organic and (2) ethical (= organic or fair trade) purchases are registered. The resulting measure contains count data, and therefore was tested by a Poisson regression model in SPSS. Poisson regression is a type of generalized linear modelling in which frequency of occurrences (purchases) is explained by a set of predictors, while allowing for non-occurrence (non-purchase). Both for organic purchases (Table 2.8) and for ethical purchases (Table 2.9) two models were tested.

Table 2.8: Poisson regression of organic purchases on importance of sustainable attributes

Parameters	Model 1	Model 2
CAIC	1321.284	1295.958
B Environmental friendliness	0.072	
B Animal friendliness	0.051	
B Naturalness	0.105	
B Fair trade	-0.028	
B Local production	0.040	
B Waste reduction	-0.119*	
B Sustainability		0.117*

* $p < .05$

Table 2.9: Poisson regression of ethical purchases on importance of sustainable attributes

Parameters	Model 1	Model 2
CAIC	1424.686	1398.894
B Environmental friendliness	0.057	
B Animal friendliness	0.025	
B Naturalness	0.128*	
B Fair trade	-0.042	
B Local production	0.053	
B Waste reduction	-0.083	
B Sustainability		0.134**

* $p < .05$; ** $p < .01$

The first model incorporates individual importance measures for 6 attributes (environmental friendliness, animal friendliness, naturalness, fair trade, local production, waste reduction) as predictors. The second model contains the average importance across those attributes as predictor. Comparison of both models shows that for organic purchases as well as for ethical purchases the second model, containing a single aggregate sustainable motive, has the lower CAIC and the better fit ($p < .001$). Combined with the

increased parsimoniousness this result supports an aggregated sustainability motive underlying ethical purchases by light users of these products.

Discussion to study 2

In the first analysis the motivational structure of sustainability was investigated by confirmatory factor analysis of sustainability related motives embedded within a larger set of food choice motives. The motives of the food choice questionnaire show a clear pattern. General non personal motives, which are considered to be sustainable motives, are separated from motives that provide personal benefits, and subsumed under a single sustainability dimension. In their motivational structure consumers make a simple distinction between non-personal and personal motives in food choice. Within personal motives a further distinction is made between convenience motives (including availability and familiarity) and health related motives (including weight control and attractiveness). This distinction between 'easy to buy' and 'good to buy', which becomes even more manifest if the 'sustainable' attributes are excluded from the analysis, is beyond the scope of the current study. Conversely, if the non-sustainable motives are excluded from the analysis the sustainable motives still converge on a single motivational dimension.

Several motives have comparably high loadings on two (and mood even on three) dimensions. These loadings appear to reflect an understandable motivational dilemma in consumption. Healthiness and weight control may contain personal and long term benefits. Mood, or feeling good, may be related to either of these benefits.

In the second analysis a common set of explanatory variables was found for sustainable motives. These results confirm the results of the first analysis that sustainable motives are grouped into a single motivational dimension. The redundancy analysis also confirms that health loads both on the sustainable and the utilitarian component.

In the third analysis the importance of this one-dimensional sustainability motive is explained by a single set of psychographic predictors, which most notably contain biospheric value orientation, ethical orientation and connectedness to nature. These latter two constructs are identity based determinants of the activation of private norms. This suggests that sustainable

motives are related to personal identity and self-transcendental value orientation. Finally it was found in the third analysis that a single motivational dimension is more parsimonious than separate motives in explaining sustainable purchases among light users of sustainable products.

Overall discussion

Sustainability is a loosely defined construct, which is heralded both as its strength and its weakness. Policy makers, be it governmental or corporate, generally employ one of two working definitions of sustainability. One is the WCED definition that implicitly uses a temporal and a social dimension to qualify sustainability. The other is the Triple-P definition that uses one environmental (planet) and two social (people, prosperity) dimensions to qualify sustainability. The first study reported in this chapter shows that light users of sustainable products may be able to use both the WCED and the Triple-P dimensionality to evaluate sustainable food attributes cognitively, when they are prompted to do so. The cognitive distinction between various dimensions of sustainability is not reflected in the motivational structure of sustainability. This may reflect a lack of involvement with either food purchases or sustainability, in which cognitive processes do not reflect actual food purchasing behaviour (Tarkiainen & Sundqvist, 2009). The distinction between self-oriented (utilitarian) and other oriented (sustainable) is a more important motivational distinction compared to different sustainability dimensions.

Existing studies have found diverse and complex motives for different sustainable products among heavy users (De Ferran & Grunert, 2007; Fotopoulos et al., 2003; Naspetti & Zanoli, 2009). In this study this complexity was not replicated for light users, and various motives seem to collapse into a single abstract motive, which allows for simple decision making (cf. Hamlin, 2010; Hoyer, 1984). Further research on sustainable motivation in light users may further our understanding of the persistent attitude-behaviour gap in sustainable consumption.

The importance of this one-dimensional sustainability motive for light users can be explained by a single parsimonious set of variables. The variables

contributing most to the prediction of the relevance of sustainability are derived from the identity based norm activation model. Also it was shown that this one-dimensional motivation explains ethical purchases by light users more parsimoniously than a multi-dimensional model. In the context of consumer motivation different sustainable attributes of products can be considered as equivalent indicators of a meta-attribute that is explained by ethical and ecological aspects of the consumer identity.

The position of health in the motivational structure is rather ambiguous. In CFA the health and weight related motives form a dimension that is separate from either sustainable or convenience motives. In redundancy analysis health is the single attribute that does not fit unambiguously in either the sustainable or the utilitarian dimension. The results suggest that health contains both a component of direct and personal benefit, which sets it apart from sustainable attributes, and a component of delayed benefit, which sets it apart from utilitarian attributes.

Conclusion

Apparently the past decades of consumer education and information on sustainability have resulted in cognitive understanding of the multidimensional complexity of sustainability. Consumers are faced with organic products, fair trade products, animal friendly products, local products, packaging issues on a daily basis. Media attention to sustainability has covered an even wider array of separate issues (De Koning, 1998). For light users this may have resulted in a cognitive complexity that does not match their motivational structure. The more the cognitive and motivational structure differ from each other, the more cognitive understanding may become irrelevant for motivation because the accuracy of understanding is dissociated from the personal relevance. The single motivational dimension found in light users suggests that emphasising 'sustainability' and 'sustainable development' as container constructs, rather than focusing on the complexity of the different issues within sustainable development, could be a way to provide light users with information that is motivationally relevant.

Emphasising 'sustainable development' as a fuzzy construct assumes that stakeholders can select multiple routes towards a more sustainable market, by focusing on one or more issues within the overall sustainability construct in their decision making. For light users of sustainable products it might be most important to unambiguously distinguish between products that do and products that do not contribute to sustainable development, rather than distinguishing between the differences among products that contribute to sustainable development. The diversity of routes to sustainable development implies that it is easier to find a common denominator in products that do not contribute to sustainable development than finding commonalities in sustainable products.

3. THE MEANING OF IMPORTANCE IN SUSTAINABLE FOOD CONSUMPTION

This chapter is published as:
Ynte K. van Dam & Hans C.M. van Trijp (2013) Relevant or determinant: Importance in certified sustainable food consumption. *Food Quality and Preference* 30 (2) 93-101

Introduction

In food choice, as in many other product categories, most consumers claim to consider sustainability issues generally important and desirable, but this does not necessarily translate into manifest sustainable consumer behaviour (cf. Hussain, 2000). Apparently, which attributes most consumers say to be important to them is not always a good predictor of which attributes really determine their food choice (Mueller, Lockshin, & Louviere, 2010). This discrepancy between attitude and behaviour is one of the persistent problems in the area of consumer behaviour for sustainable development (Ritchie, McDougall, & Claxton, 1981; Roberts & Bacon, 1997; Stewart & Craig, 2000; Uusitalo, 1990; Verhallen & Van Raaij, 1981; Webster, 1975). Apparently stated importance and explicit attitudes are not the most valid method to predict sustainable consumption, and measures that are more closely related to actual purchase behaviour are called for (De Pelsmacker, Driesen, & Rayp, 2005).

Finding measures that are more closely related to actual purchase suggests a re-appraisal of the meaning of 'importance of sustainability' in relation to

consumer purchase behaviour. In the preceding studies it has been shown that among light users of sustainable products the motivational importance of sustainability related attributes is represented at a high level of abstraction (*chapter 2*). Based on construal level theory (Trope & Liberman, 2010) it can therefore be hypothesised that the discrepancy between stated importance and actual behaviour among light users is at least partly based on differences in the meaning of importance at different levels of abstraction (Myers & Alpert, 1977). The aim of the present chapter is to develop a measure of attribute importance that offers a better prediction of actual sustainable behaviour and that can be collected independent of actual behaviour. Based on a review of the literature a forced choice measure for attribute determinance is developed. It is hypothesised that (1) relevance and determinance of sustainability related attributes have weaker interrelations compared to relevance and determinance of non-sustainability related attributes; that (2) determinance of sustainability related attributes is a better predictor of actual behaviour compared to relevance of these attributes, and that (3) determinance of sustainability related attributes can be predicted directly and independent of the relevance of these attributes. Based on data collected in a national survey (N=1453) all hypotheses are accepted.

Review of literature

Construal level theory and sustainable choice

Construal level theory proposes that objects and events are mentally construed at different levels of abstraction, which influences the type of reasoning and choice of action (Kardes, Cronley, & Kim, 2006; Liberman & Förster, 2009; Liberman et al., 2002; Liberman & Trope, 1998; Nussbaum, Trope, & Liberman, 2003; Trope & Liberman, 2003). High-level construals apply to psychologically distant choices or outcomes, and to abstract representations of these choices and outcomes. Conversely low-level construals apply to psychologically near choices and outcomes, and to concrete representations of these choices and outcomes (Bar-Anan et al., 2006; Fujita et al., 2006; Liberman et al., 2007; Todorov et al., 2007; Trope & Liberman, 2010).

Psychological distance has several interrelated dimensions, scil. hypotheticality, spatial distance, temporal distance, and social distance (Trope & Liberman, 2010). So high-level construals typically are related to choices or outcomes that may (hypothetically) occur at a distal place, in the future, and/or to other people. Low-level construals are related to choices and outcomes that with high certainty will occur, here, now, and to the actor self. Psychological distance and level of abstraction mutually influence each other, and thus abstract representation of choices induces thinking of these choices in psychologically distant terms and psychologically distant representation of choices induces thinking of these choices in more abstract terms (Bar-Anan et al., 2006; Trope & Liberman, 2010).

High-level construals are represented in terms of desirability, whereas low-level construals are represented in terms of feasibility (Liberman & Förster, 2009; Liberman & Trope, 1998). High-level construals also are more likely to increase the salience of arguments in favour of the desirable action, whereas low-level construals are more likely to increase the salience of arguments against the action (Eyal, Liberman, Trope, & Walther, 2004; Trope & Liberman, 2010). Consequently, a product or a choice that seems desirable in the future may be infeasible in the present (Kardes et al., 2006).

Sustainable choices typically refer to socially or temporally distant outcomes, up to the point that sustainability as an outcome may be beyond human reach. Therefore sustainable choices and outcomes are assumedly represented as high-level construals. This should imply that sustainable outcomes are predominantly represented in terms of desirability with a high salience of arguments in favour, leading to a high intention to make sustainable choices in the future. Conversely actual purchasing typically concerns immediate personal outcomes. Therefore actual choices are assumedly represented as low-level construals. This implies that actual sustainable choice at purchasing predominantly is represented in terms of feasibility, with a high salience of arguments against, leading to a low probability to make sustainable choices in the present. So to the individual sustainability may be relevant in general, but not determinant in any specific situational context (Van Dam, 1991). The consumer may sincerely prefer to choose sustainable products in the future, while never actually choosing a sustainable product in any present. This preference reversal means that attribute importance carries different

meanings that are dependent on psychological distance and mental construal. To consumers high importance of sustainability related product attributes may reflect a general and abstract acknowledgment of the social relevance or general desirability of sustainability, rather than a personal and concrete commitment that determines or influences the outcome of the choice between two products (Barlas, 2003; Goldstein & Mitzel, 1992; Reilly & Doherty, 1989). These different meanings of 'attribute importance' are covered by the distinction between 'attribute relevance' and 'attribute determinance'.

Relevance and determinance

Relevance and determinance are different concepts of importance that serve different goals (Myers & Alpert, 1977; Van Ittersum, Pennings, Wansink, & van Trijp, 2007). Relevance of product attributes refers to the consequences of product attributes relative to the personal values and desires of people (Ares, Giménez, Barreiro, & Gámbaro, 2010; Carlson & Bond, 2006; Dagupen, Tagarino, Gumihid, Gellynck, & Viaene, 2009; Van Ittersum et al., 2007; Yagci, Biswas, & Dutta, 2009). Determinance of product attributes refers to the role of product attributes in product judgment in actual choice situations (Crouch, 2011; Taylor & Capella, 1996; Tubillejas, Cuadrado, & Frasquet, 2011; Van Ittersum et al., 2007).

Attribute relevance typically is measured à priori with self-report measures, whereas attribute determinance typically is derived post hoc by preference regression or conjoint methods (Van Ittersum et al., 2007). Based on the differences in measurement, the two types of attribute importance are also referred to as direct versus indirect or explicit versus implicit (Abalo, Varela, & Manzano, 2007; Smith & Deppa, 2009; Van Ittersum et al., 2007). However, referring to the different types of importance by measurement method ignores the conceptual difference between relevance and determinance.

Attribute relevance tends to be judged at a more abstract level in terms of overall benefits, whereas attribute determinance is mostly judged at the concrete level in terms of costs (Horsky, Nelson, & Posavac, 2004; Kray, 2000). In terms of construal level theory this suggests that attribute relevance is a high-level construal, whereas attribute determinance is a low-level construal (Eyal et al., 2004). Stated importance of attributes, measured at whichever level

of specificity, measures the relevance, but not the determinance, of those attributes (Van Ittersum et al., 2007). This may explain why most studies that are based on direct, explicit a priori measures of stated importance of sustainability fail to predict the sustainability of actual consumer behaviour.

Divergence between relevance and determinance

In many instances attribute relevance and attribute determinance will be highly related to each other. When personal and situational goals coincide, when the choice context is familiar and when the decision maker has sufficient experience, the same attributes tend to be both determinant and relevant (Anderson & Potter, 1998; Harte & Koele, 1995; Harte, Koele, & Van Engelenburg, 1996; Wedel, Vriens, Bijmolt, Krijnen, & Leeflang, 1998). In many instances the semantic and conceptual confusion in attitude measurement (Myers & Alpert, 1977) has no practical consequences, and stated attribute relevance may explain consumer choice satisfactorily.

The difference between attribute relevance and attribute determinance becomes especially manifest when the available attributes lead to a conflict in valued goals. This conflict may occur because two equally desirable goals are incompatible in the choice between available alternatives (Laran & Janiszewski, 2009; Luce, 1998; Poynor & Haws, 2009), or because the available alternatives result in a conflict between desirability goals and feasibility goals (Dholakia, Gopinath, Bagozzi, & Nataraajan, 2006; Liu, 2008). A conflict between desirability goals and feasibility goals implies a conflict between general (context independent) relevance of the ends, and actual (context dependent) determinance of the means to those ends. This type of conflict is typical for the choice between sustainable and mainstream products among light users: sustainable products are more desirable in general terms, but mainstream products are more feasible in practical terms.

A conflict between desirability goals and feasibility goals (Dholakia et al., 2006; Liu, 2008) in the choice between sustainability related and instrumental attributes would imply that high relevance of sustainability related attributes does not necessarily lead to high determinance of sustainability related attributes. Conversely non-sustainability related (e.g. instrumental or hedonic) product attributes offer a feasible way to reach personal benefits, which would

imply that high relevance of non-sustainability related (instrumental or hedonic) attributes will lead to high determinance of these attributes. Therefore it is hypothesised that among light users of sustainable products:

H3.1 For product attributes that offer sustainability related benefits the correlation between relevance and determinance is less than for product attributes that offer personal benefits.

It should be noted that low relevance of sustainability related product attributes should lead to low determinance of these attributes, so even for sustainability related attributes moderate correlations between relevance and determinance are to be expected.

Studies into mindset specificity indicate that a determinance focus ('how to act') directly influences behaviour, whereas a relevance focus ('why to act') indirectly influences behaviour, and has to be translated into specific goals in order to guide behaviour (Rabinovich, Morton, Postmes, & Verplanken, 2009). Therefore it is hypothesised that among light users of sustainable products:

H3.2 A priori determinance of sustainability related attributes is a better predictor of sustainable consumer choice than a priori relevance of sustainability related attributes

A conjecture on determinants of high-construal acting

Construal level theory suggests that relevance and desirability may predict the intentions for future choices, but not the actual choices that are made in the present (Liberman et al., 2002; Liberman & Trope, 1998; Trope & Liberman, 2003). Empirical evidence shows that experimentally induced high construal levels lead people to act generally cooperatively in social dilemmas (Agerström & Björklund, 2009; Henderson, Trope, & Carnevale, 2006). This might imply that high construal levels increase the determinance of (relevant but less feasible) desirable attributes. Therefore it is useful to look for psychological constructs that may be indicative of structural higher levels of construal in individuals. Empirical evidence in social dilemma research shows that the personality traits of cooperative social value orientation and concern for future

consequences increase the tendency to act cooperatively in social dilemmas (Joireman et al., 2001; Joireman, Van Lange, & Van Vugt, 2004).

Both cooperative social value orientation and future temporal orientation imply taking distance from the present self. Cooperative social value orientation implies incorporating others in thinking about consequences and choices, and thus taking some social distance from the egoistic self. Future temporal orientation implies incorporating a future perspective in thinking about choices and outcomes and thus taking some temporal distance from the present self. By taking distance from the self, people are more likely to engage in somewhat higher-level construal processing which should increase the determinance of (relevant but less feasible) desirable attributes. Thus it is hypothesised that among light users of sustainable products:

H3.3a Cooperative social value orientation increases the determinance of sustainability related product attributes

H3.3b Concern for future consequences increases the determinance of sustainability related product attributes

Study: Relevance, determinance, and consumption

In order to compare the predictive validity of relevance and determinance of sustainability related food attributes, both have to be measured independent of actual choice. For attribute relevance this measurement is unproblematic. Relevance is the personal importance of product attributes in general terms, devoid of a situational context. A direct rating scale, which measures the context-free importance of product attributes on a range (e.g. 1 = 'unimportant' to 7 = 'important') measures the relevance of those attributes in terms of the desirability of valued outcomes (Mueller et al., 2010; Van Ittersum et al., 2007).

Attribute determinance is a reflection of importance as manifest in a specific choice context. A common method to derive attribute determinance is post-hoc regression of preferences or choices on attribute scores (Harte & Koele, 1995; Louviere & Islam, 2008; Van Ittersum et al., 2007). In the literature there is no evidence of determinance being measured independent of

actual choice in large sample surveys. Existing a priori measurements of attribute determinance, like 'trade-off method' and 'swing-weight method' (Van Ittersum et al., 2007), are especially suited for small samples in experimental settings (Adelman, Sticha, & Donnell, 1984; Akaah & Korgaonkar, 1983; Pöyhönen & Hämäläinen, 2001; Schoemaker & Waid, 1982; Srivastava, Connolly, & Beach, 1995). A common element of these measures is that attribute determinance is judged by a zero-sum method, in which increased value of one attribute can only be achieved by reduced value of other attributes. The perceived benefit of one attribute is judged relative to the opportunity cost of foregoing other attributes. The trade-off inherent in attribute determinance suggests a priori measurement can be established by forced choices between attributes. A forced choice between attributes focuses the respondent on the value of attributes relative to each other. Forced choices have been successfully applied in large scale survey studies to measure Social Value Orientation (Joireman et al., 2004).

In the present study determinance is measured by a series of forced choices between food attributes, and relevance is measured by a direct rating scale. The first analysis tests whether the correlation between relevance and determinance for sustainability related attributes is weaker than for non-sustainability related attributes among light users. The second analysis tests whether attribute determinance outperforms attribute relevance in the prediction of sustainable consumer behaviour among light users. The third analysis tests the whether determinance of sustainability related attributes among light users is positively influenced by cooperative social value orientation and future temporal orientation.

Design

Sample and procedure

Data were collected on a sample of 1453 respondents from a commercial market research (GfK) household panel in The Netherlands. The GfK panel consists of a representative sample of 6000 households that daily register all purchases by EAN-barcode registration. Apart from this daily registration of food products, panel-members are periodically approached for additional data collection by surveys that can be paper-and-pencil or on-line. Data were

collected in two stages. The first stage contained an online survey on a sample of 1453 members of the panel. Of this sample 85% was female. Age ranged from 22 to 84 with a mean age of 48 years. The second stage of data collection consisted of registration of purchase data over a twelve week period starting one month after the first wave. Due to panel maintenance and mortality, after screening the purchase data a net sample of 1112 members was available for linking survey data to purchase data. Of this sample 86% were female. Age ranged from 22 to 84 with a mean age of 49 years.

The household panel is targeted to the member of the household who is most responsible for food purchases. Despite, or more likely due to, the skewed gender distribution the sample can be considered a valid reflection of food purchase in The Netherlands.

Measures

Two importance measures were taken for the same 10 food attributes as used in the previous chapter. Six attributes were considered sustainability related, being 'naturalness', 'environmental friendliness', 'animal welfare', 'waste', 'fair trade', and 'local production'. A seventh attribute, 'health', often is considered to be related to sustainability, though it contains a strong utilitarian component as well (Schultz, 2001). Three attributes were considered exclusively utilitarian, being 'price', 'convenience', and 'taste'.

Relevance. Attribute relevance is measured as a direct rating of the importance of the attribute (Van Ittersum et al., 2007). Respondents rated 10 items "*How important do you consider <attribute> when purchasing food products*" on a 7-point rating scale with anchoring on the end poles ranging from 1 (not at all important) to 7 (highly important). This question was asked for each of the 10 food attributes listed.

Determinance. Attribute determinance is measured as the outcome of a series of forced choices between the ten attributes. Respondents scored 15 forced choice items. In each item four attributes were presented in a two by two matrix, and the respondent was to select the one attribute that was considered most important when purchasing food products. The items were balanced such that all attributes appeared six times, and that all possible pairs of attributes appeared 2 times. Also position of attributes in the two by two matrix was varied across items. Attribute determinance is calculated as the

number of times each attribute was chosen, ranging from 0 (never chosen) to 6 (chosen at each occurrence).

Purchase data. Panel members daily register all purchases by EAN-barcode registration on a home scanner. For fresh products a codebook has been developed with ad hoc barcodes. Twice a week data are transferred from the scanner to the panel agency where they are validated and processed. Purchases were coded as organic and/or fair trade according to existing product certification. Purchase data were collected over a 12 week period. All individual purchases of all participating households were scanned. Purchase data are available on 29 product categories. Individual products within each product category are coded as organic, and/or fair trade according to their certified labels. Organic purchases are recorded in 19 product categories. Fair trade purchases are recorded in 7 product categories. In 5 of these categories fair trade products are purchased incidentally (i.e. by less than 15 out of over 1100 households).

Concern for future consequences. Future temporal orientation was measured by 6 items of the Consideration of Future Consequences scale (CFC) of Strathman et al (Strathman, Gleicher, Boninger, & Edwards, 1994). Use of the CFC scale is suggested by Joireman (Joireman et al., 2001; Joireman, Sprott, & Spangenberg, 2005; Joireman et al., 2004).

Social value orientation. Other-directed social orientation was measured by Social Value Orientation (SVO), suggested by Van Lange (Van Lange, Liebrand, Messick, & Wilke, 1992). Social Value Orientation was measured by 9 forced choice items. Van Lange et al. (1992) suggest to classify respondents as competitive, individualistic or cooperative if six out of nine choices are consistently in one of these categories. Respondents who do not show at least six consistent choices are not classified. For use in a regression model competitive and individualistic respondents are joined into a single category of non-cooperative respondents, resulting in a dummy variable (Joireman et al., 2001; Joireman et al., 2004).

Step 1: Relation between relevance and determinance

The first analysis tested the relation between relevance and determinance across sustainability related and non-sustainability related food attributes.

Measures in this analysis are attribute relevance and attribute determinance across ten product attributes as explained in the general section on methods. Both the difference and the correlation between determinance and relevance was tested for sustainability related and non-sustainability related attributes. Data were analysed on the full sample of 1453 respondents.

Table 3.1: Relation between standardised relevance and determinance across 10 food attributes (N=1417)

Attribute	Mean relevance (Standard Error)	Mean determinance (Standard Error)	Correlation	Difference (SE) $t_{(det-rel)}$
Waste	-.27 (.022)	-.62 (.010)	.238***	-.355 (.022) -16.288***
Animal welfare	-.21 (.021)	-.52 (.016)	.415***	-.307 (.021) -14.850***
Fair trade	-.31 (.021)	-.58 (.013)	.283***	-.267 (.021) -12.698***
Environment	-.24 (.017)	-.33 (.016)	.313***	-.091 (.019) -4.667***
Natural	-.21 (.018)	-.08 (..017)	.298***	.133 (.021) 6.338***
Local	-.83 (.022)	-.53 (.014)	.341***	.296 (.022) 9.560***
Health	.72 (.017)	.81 (.025)	.349***	.085 (.025) 3.418***
Taste	.91 (.018)	.99 (.023)	.461***	.084 (.022 3.816***
Convenience	-.16 (.027)	-.04 (.020)	.519***	.117 (.024) 4.951***
Price	.60 (.025)	.90 (.028)	.568***	.304 (.025) 12.234***

*** $p < .001$

Data preparation

Relevance and determinance scores were standardised per individual across the ten attributes by subtracting the individual mean score across 10 attribute ratings and dividing the result by the individual standard deviation across these 10 ratings. Respondents who scored all attributes equally relevant are excluded, resulting in 1417 out of 1453 respondents for this analysis. Mean standardised scores and standard errors of the mean across 1417 respondents are reported in Table 3.1. Difference in standardised relevance and determinance scores are tested by paired-samples t-tests for each attribute. Mean difference, standard error and t-value are reported in Table 3.1.

The correlation between relevance and determinance is calculated across respondents for each attribute (Table 3.1) as well as aggregated across (sub)

groups of attributes (Table 3.2). To prepare for Fisher's z-test (Fisher, 1915) the correlation coefficients across attributes were transformed to z scores as well (Table 3.2).

Results

The paired-samples t-tests on standardised relevance and determinance scores show that price, convenience, taste, health, as well as local production and naturalness are more determinant than relevant, whereas environment, fair trade, animal welfare and waste are less determinant than relevant (Table 3.1, last column). All differences are significant ($p < .001$) with absolute t-values ranging between 3.418 and 16.288. The sustainability related attributes all show low correlations between determinance and relevance, compared to the non-sustainability related attributes (Table 3.1, fourth column).

Taste, health, and price are the most relevant and most determinant product attributes. These three attributes also are significantly more determinant than relevant, with the largest difference in price (D = .30; SE = .025). Furthermore convenience, the least important non-sustainability related attribute, is still more relevant (.16) and determinant (-.04) than the most important sustainability related attributes (naturalness: -.21 vs. -.08). It thus seems that sustainability related attributes suffer from a disadvantage in terms of relevance and particularly in terms of determinance in driving product choices. Specifically four out of six attributes that offer sustainability related benefits are on average less determinant than relevant. Apart from natural (-.21; -.08) only local (-.81; -.53) is more determinant than relevant.

Table 3.2: Correlations between determinance and relevance across attributes

Aggregated across attributes	$R_{relevance,\ determinance}$	z
3 Utilitarian attributes	.59	.678
All attributes	.57	.648
6 Sustainability related attributes + health	.47	.510
6 Sustainability related attributes	.32	.332

The divergence between relevance and determinance for sustainability related versus non-sustainability related attributes is further analysed on the aggregated correlations (Table 3.2). Across respondents and across all

attributes the correlation between attribute relevance and attribute determinance is moderately strong ($r = .57$), indicating convergent validity but not redundancy of the relevance and the determinance measures. Based on Fisher's z test (Fisher, 1921) it is concluded that the correlation between relevance and determinance across the aggregated non-sustainable attributes ($r = .59$) is higher ($z' = 3.46$; $p < .001$) than across health and the sustainability related attributes ($r = .47$), which in turn is higher ($z' = 3.67$; $p < .001$) than across the sustainability related attributes (excluding health) ($r = .32$). This result supports Hypothesis 3.1, that relevance and determinance of sustainability related attributes are significantly less related to each other compared to relevance and determinance of non-sustainability related attributes.

These results show the value of making a distinction between relevance and determinance of sustainability related attributes. Sustainability may be as relevant as convenience to consumers, but in actual choice non-sustainability related attributes are more determinant than sustainability related attributes. Measuring and predicting the determinance of sustainability related product attributes rather than the relevance of these attributes may improve the prediction of sustainable consumption.

Step 2: Predicting sustainable purchases from relevance and determinance

The results from the first analysis provide evidence that attribute relevance (measured by importance rating) and attribute determinance (measured by forced choice rating) are distinct measures of a priori attribute importance. The next step is to test whether a priori determinance proves a better predictor for actual consumer purchases. This analysis is performed on a net sample of 1112 panel members for whom both survey data and purchase data were available.

The effect of relevance and determinance of sustainability related attributes on purchases is first analysed for separate product categories. Next for each household the sustainable purchases are pooled across product categories, and the effect of relevance and determinance is analysed across product categories.

Data analysis per product category

The analysis reported per product category is focused on organic purchases. The prediction of behaviour was limited by the fact that distribution of purchases are highly skewed, with the majority of respondents making no sustainable purchases. In all but three of these product categories the absolute number of households making any organic purchases ranges between 1% and 9% of the total sample of households. Reducing the data to dichotomous coding of the occurrence of at least one purchase allows for logistic regression of 'occurrence of purchase' on relevance and determinance of sustainability related attributes. The analysis thus was limited to predicting the probability that a household did purchase at least one organic product during the twelve weeks of behaviour registration. For each of the product categories a logistic regression was performed of 'occurrence of organic purchases' on relevance of sustainability related attributes and one on determinance of the same sustainability related attributes. The difference in explanation of behaviour between relevance and determinance was tested as the difference in goodness of fit between the two models over all product categories.

Data analysis across product categories

Different product categories are purchased in different volumes, rendering volumes purchased incomparable across product categories. In order to be able to aggregate sustainable purchases across product categories, for each respondent and each product category the occurrence of organic purchases is binary coded as 0 = (no purchases in this domain) and 1 = (at least one purchase in this domain). The resulting scores are summed over product categories.

The summation over product categories present count data that are left skewed, with the majority of households scoring zero product categories, and only a single household scoring all 19 product categories. The relation between the number of product categories with organic purchases and on the one hand relevance and on the other hand determinance therefore was tested each with a negative binomial regression (Cameron & Trivedi, 1998).

Results

Predicting sustainable purchase behaviour per product category

The Loglikelihood and Nagelkerke R^2 are tabulated for 19 out of 29 product groups that contain organic products (Table 3.3). The relevance based model is significant ($p < .10$) in 17 product categories. The determinance based model is significant ($p < .01$) in 19 product categories. Evaluation of the two models is based on paired comparisons between goodness of fit of both models across the 17 product categories in which both models show a significant fit.

Table 3.3: Logistic regression of organic purchase on relevance and on determinance of six sustainability related attributes [N = 1112]

			Relevance		Determinance		Comparison
Product	N	n_org	-2Loglikelihood	R^2	-2loglikelihood	R^2	Δ AIC
Greeneries	1109	429	1442,964	.045***	1437,656	.051***	-5.308^{+}
Spreads	1108	77	540,795	.041**	537,501	.049**	-3.294
Dairy	1108	132	731,058	.132***	710,189	.165***	-20.869***
Soups	1095	27	226,060	.119***	218,301	.152***	-7.759*
Chicken	1094	64	463,004	.062***	454,945	.082***	-8.059*
Delicacies	1094	48	382,121	.036^{+}	361,962	.095***	-20.159***
Juices	1093	15		N.S.	127,980	.204***	
Coffee	1093	59	444,408	.039*	438,956	.054***	-5.452^{+}
Preserves	1090	20	168,075	.170***	148,453	.274***	-19.622***
Meat	1087	93	606,508	.059***	590,937	.090***	-15.571***
Meals	1066	36	297,149	.064**	290,800	.087**	-6.349*
Cheese	1026	42	338,144	.042^{+}	325,641	.083**	-12.503**
Bread	1005	35	281,517	.084**	268,745	.131***	-12.772**
Eggs	996	59	404,174	.119***	360,294	.233***	-43.880***
Sauces	961	36	285,251	.082**	257,416	.184***	-27.835***
Biscuits	959	30		N.S.	247,186	.084**	
Baking	923	23	195,852	.100**	195,016	.104**	-0.836
Cereals	539	14	110,572	.164**	103,224	.225***	-7.348*
Mockmeat	184	72	232,859	.096*	221,131	.173**	-11.728**

N = number of households making any purchase in each product category;
n_org = number of households making at least one organic purchase in the product category;
*** $p < .001$; ** $p < .01$; * $p < .05$; $^{+}$ $p < .075$

Table 3.3 shows that the determinance based model has a better fit and higher explained variance for all product categories. Akaike information criterion (AIC) is a conventional entropy based measure to compare models on fit and parsimony. For a formal test of both models across product categories,

the likelihood ratios are converted into AIC values. For 13 product categories the determinance based model has a significant better fit compared to the relevance based model ($p < .05$). Two more product categories show marginally significant differences ($p < .10$) and two product categories show no significant difference.

Formally a non-parametric signed-rank test is recommended to support the choice between two models across such a small number of paired estimations (Franses & Kleibergen, 1996; Kornelis, Dekimpe, & Leeflang, 2008). With all determinance based models having equal or better fit compared to the relevance based models Wilcoxon's signed-rank test shows a significant difference ($Z = -3.621$; $p < .001$) between goodness-of-fit statistics of both models. These results show that determinance of sustainability related attributes fits the occurrence of organic purchases significantly better than does relevance of sustainability related attributes.

Predicting sustainable purchase behaviour across product categories

Five nested models are tested in negative binomial regression of the number of product categories in which organic and/or fair trade purchases are made. CAIC or Consistent Akaike Information Criterion is a conventional entropy based measure to compare models on fit and parsimony. Like AIC the CAIC takes lower value with better fit. In contrast to AIC the CAIC corrects for the number of predictors. The CAIC and AIC of the different models across categories are presented in Table 3.4.

Results show that a model that predicts purchases by only the determinance of sustainability related attributes is the most parsimonious among this set of models. The CAIC of this model is significantly lower than the other models ($p < .001$). Comparison of uncorrected AIC shows that the three models that incorporate determinance have a comparable fit, which significantly exceeds the fit of the models that only contain relevance measures. Adding relevance to determinance in the prediction of sustainable purchases leads to negligible increases in goodness of fit, while increasing the number of parameters. Conversely removing determinance from the model leads to significant decreases in goodness of fit. Jointly these results support hypothesis 3.2, that determinance of sustainability related attributes is a better predictor of sustainable consumer choice compared to relevance of these attributes.

Table 3.4: Goodness of Fit of 5 nested models of binomial regression of sustainable product purchases on relevance and determinance

Predictors in the model	# Pred.	Consistent AIC (CAIC)	AIC
Determinance of 6 sustainability related attributes	6	4681.951	4639.853
Relevance of 6 sustainability related attributes	6	4709.094	4666.996
Relevance + determinance of 6 sustainability related attributes	12	4719.580	4641.400
Relevance of 6 sustainability related attributes + 4 instrumental attributes	10	4721.659	4655.506
Relevance of 6 sustainability related attributes + 4 instrumental attributes + determinance of 6 sustainability related attributes	16	4743.283	4641.046

Step 3: Explaining determinance by SVO and CFC

The results from the first two analyses provide evidence that relevance of sustainability related attributes is not a good predictor of determinance of sustainability related attributes, and that determinance outperforms relevance in the prediction of sustainable purchase behaviour.

The goal of the third analysis is to show that determinance of sustainability related attributes can be directly explained by psychographic constructs, without mediation by relevance. Prediction of determinance and mediation by relevance are tested by a linear regression (Baron & Kenny, 1986). Mediation by relevance requires the fulfilment of three necessary conditions. Relevance should (1) be significantly predicted by one or more predictor variables, relevance should (2) significantly predict determinance, and (3) adding relevance to the regression of determinance should significantly decrease the effect of the independent predictors on determinance. This procedure is prone to overestimation of mediation effects (Bullock, Green, & Ha, 2010), which makes it a conservative test for the absence of mediation.

Data Analysis

In order to have a single dependent variable in regression relevance and determinance are summed across sustainability related attributes (environment, natural, local, fair trade, animal friendly, waste) into a single measure denoting relevance of sustainability and determinance of sustainability (*chapter 2*). Cronbach's reliability of the sustainable relevance items is .875. Both relevance

and determinance are regressed on social value orientation and concern for future consequences (Joireman et al., 2001; Joireman et al., 2004). the concern for future consequences scale showed acceptable reliability (.627). The determinance items and the social value orientation items constitute zero-sum scales, making them unsuitable for conventional analyses of internal consistency (Neff & Cohen, 1967). Because respondents who are not classified as either cooperative or non-cooperative are excluded, the analysis is performed on a sample of 1305 out of 1453 respondents.

Results

The first condition for mediation requires that relevance of sustainability related attributes is significantly predicted by social value orientation and/or concern for future consequences. A linear regression (Table 3.5) shows a significant model ($F_{(2,1302)} = 4.989$; $P = .007$), with only social value orientation having a significant regression weight ($p = .002$). This implies that especially social value orientation may be mediated by relevance.

The second condition for mediation requires that relevance of sustainability related attributes significantly predicts determinance. Linear regression of determinance of sustainability on relevance of sustainability explains 30.5 % of variance ($F_{(1,1303)} = 574.506$; $p < .001$). This means that the second condition for mediation is fulfilled.

Table 3.5: Regression of relevance and determinance on Concern for Future Consequences (CFC) and Social Value Orientation (SVO)

Dependent	Relevance Sustainability			Determinance Sustainability		
Criterion	ß	t	p	ß	t	p
CFC	n.s.	n.s.	n.s.	.119	4.342	< .001
Cooperative SVO	.087	3.149	.002	.085	3.113	.002
Model parameters	$R^2 = .008$; $F_{(2,1302)} = 4.989$; $p = .007$			$R^2 = .023$; $F_{(2,1302)} = 15.114$; $p < .001$		
Relevance sustainbility				.551	24.068	< .001
CFC				.126	5.512	< .001
Cooperative SVO				n.s.	n.s.	n.s.
Model parameters				$R^2 = .301$; $F_{(3,1301)} = 207.673$; $p = < .001$		

The third condition for mediation requires that adding relevance to the regression of determinance should significantly decrease the effect of the independent variables on determinance. Adding relevance to the explanation

renders the effect of social value orientation on determinance of sustainability related attributes non-significant (Table 3.5). This suggests that the influence of social value orientation on determinance of sustainability related attributes is fully mediated by relevance. Social value orientation directly influences the relevance of sustainability related attributes, and through relevance indirectly influences the determinance of those attributes. Hypothesis 3.3A therefore is partly rejected, as social value orientation only indirectly influences the determinance of sustainability related attributes. Concern for future consequences has a small but significant direct positive effect on determinance of sustainability related attributes, that is not mediated by relevance of these attributes.

Adding concern for future consequences to relevance in a stepwise regression of determinance shows a significant increase in explained variance (F_{change}= 29.010; $p < .001$). This confirms that concern for future consequences significantly contributes as a direct effect to the effect of relevance on determinance of sustainability related attributes. This result shows that a future time perspective directly increases the determinance of sustainability related attributes. More in general this result shows that the determinance of sustainability related attributes can be affected directly and independently of the relevance of these attributes.

Further analysis reveals a small but significant interaction effect (ß = .07; p = .003) between concern for future consequences and relevance of sustainability related items, which suggests that concern for future consequences also moderates the influence of relevance on the determinance of sustainability related attributes. This supports hypothesis 3.3B, that concern for future consequences increases the determinance of sustainability related attributes.

Discussion

In the interpretation of the present research several considerations have to be taken into account. In order to account for the limited number of households making organic purchases and in order to aggregate across product categories, the purchase data were dichotomised and only the occurrence of organic

purchases was used as dependent variable. This precludes analyses on the amount of sustainable products that are purchased. Because the current study is focused on light users this is considered unproblematic, as the relative quantity of sustainable products purchased by light users tends to be very small.

Secondly the influence of contextual predictors, like e.g. the availability and accessibility of organic products, is ignored in this study. Therefore the influence of these predictors is subsumed under error variance. Despite this limitation the present study shows that the prediction of actual purchase behaviour is significantly improved by using a determinance measure rather than a relevance measure.

Relevance and determinance are related but distinct measurements of attribute importance (Myers & Alpert, 1977; Van Ittersum et al., 2007). The present study shows that determinance can be measured independently of actual choice by a series of forced choices between attributes. It also shows that among light users the correlation between relevance and determinance among sustainability related attributes is significantly lower than among non-sustainability related attributes. The determinance of sustainability related attributes outperforms relevance in explaining organic purchases across different product categories. Jointly these results confirm that prediction of sustainable behaviour is enhanced by measuring determinance rather than relevance of sustainability related attributes as predictor. Attribute determinance, as measured by a forced choice between attributes, therefore maybe an answer to the call for 'a measure that is more closely related to actual behaviour than measuring explicit attitudes' (De Pelsmacker et al., 2005).

Further, the present study shows that determinance can be influenced independent of relevance, which supports the view that determinance and relevance are conceptually different measures of attribute importance. In order to be more closely related to behaviour a measure not only has to be specific, but also conceptually different from stated relevance measures, focusing more on feasibility than on desirability (Liberman & Trope, 1998; Van Ittersum et al., 2007).

Future time perspective has a direct effect on determinance of sustainability related attributes that is not mediated by the relevance of these attributes. Use of the Zimbardo temporal perspective inventory has shown a similar effect on

behaviour with explained variances just under 10% (Milfont & Gouveia, 2006). Building on construal level theory these results may indicate that future time perspective causes a structurally higher construal level in decision making and choice. Deeper understanding of time perspective and improved measures for future temporal orientation could further our understanding of determinance of and choice for sustainability.

The effect of social value orientation on the determinance of sustainability related attributes is mediated by relevance. This may indicate that social distance has no direct impact on determinance of sustainability, or it may imply that a cooperative social value orientation does not cover social distance sufficiently. There is evidence that social value orientation is related to sustainability concerns (Kaiser & Byrka, 2011), which explains the effect on relevance of sustainability. There also is evidence that cooperative social value orientation mainly influences in-group behaviour rather than out-group behaviour (De Dreu, 2010). Because sustainable choices benefit out-groups at least as much as in-groups, this may explain why a pro-social orientation does not influence the determinance of sustainability other than through increased relevance.

These results suggest a need for further research into individual characteristics that may cause abstraction from the present context in consumer choice and directly increase the determinance of sustainability related attributes.

Conclusions

The mechanisms behind the attitude to behaviour gap in sustainable consumption can be understood in terms of construal level theory and psychological distance. Collective and future benefits are psychologically distant outcomes, which are represented at an abstract level. Immediate personal benefits are psychologically near outcomes, which are represented at a concrete level. Abstract outcomes are represented in terms of relevance and desirability, whereas concrete attributes are represented in terms of feasibility. The distinction between attribute relevance and attribute determinance (Myers

& Alpert, 1968; Van Ittersum et al., 2007) offers a way to measure à priori attribute importance at different levels of abstraction.

By operationalizing attribute determinance as a forced choice between attributes a survey measure is developed. Forced choice measurement of attribute determinance provides a better explanation of behaviour than does explicit measurement of stated attribute relevance. The main implication of this study is for studies in which it is not feasible or possible to measure actual behaviour. In the absence of actual behaviour, determinance measured by a forced choice between attributes may be a better proxy of sustainable product choice than relevance measured by stated importance of attributes.

Future time perspective explains determinance of sustainable attributes without having an effect on their relevance. Construal level theory distinguishes temporal, social, and spatial distance as well as hypotheticality, as different dimensions of abstraction of the present context. The present study focused on the temporal and social dimension in concern for future consequences and social value orientation. Likewise the hypotheticality dimension could be operationalized as tolerance for ambiguity (Furnham & Ribchester, 1995) or need for closure (Roets & Van Hiel, 2007). Future research should identify whether other dimensions of psychological distance (spatial distance and hypotheticality) influence the determinance of sustainability, as this might contribute to bridging the attitude behaviour gap in sustainable consumption.

4. INTERNAL DETERMINANTS OF PRO-SUSTAINABLE BEHAVIOUR

"It is not that humanity is trying to sustain the natural world, but rather that humanity is trying to sustain itself" (Sen, 2013)

This chapter is published as:
Ynte K. van Dam & Arnout R.H. Fischer (2015) Buying Green without being Seen. *Environment and Behavior 47* (3) 328-356

Introduction

Most consumers claim to consider sustainability issues important and desirable, but this does not necessarily translate into manifest sustainable consumer behaviour (cf. Hussain, 2000). The lack of consistency between on the one hand positive attitude or stated importance and on the other hand actual behaviour is often explained in terms of a social dilemma (Cornelissen, Dewitte, Warlop, & Yzerbyt, 2007; Gupta & Ogden, 2009). Sustainable consumption can be considered to be a social dilemma, as it often implies a trade-off between immediate personal benefits and delayed collective benefits (Dawes & Messick, 2000; Messick & Brewer, 1983; Van Lange et al., 1992). In a social dilemma, individual rational choices lead to collectively undesirable outcomes (Dawes & Messick, 2000). Because in social dilemmas the undesirable collective outcome follows from rational choice, and the desirable collective outcome does not, rational actor models would typically predict collectively undesirable behaviour (Bamberg & Möser, 2007; Corbett, 2005; Spash, 2006).

Review of literature

The psychological mechanism behind choice behaviour in social dilemmas can be understood in terms of construal level theory (Bar-Anan et al., 2006; Liberman et al., 2007). Construal level theory proposes that objects and events are mentally represented at different levels of abstraction, which influences the type of reasoning and choice of action. Mental representation (construal) is dependent on psychological distance which is determined by spatial, temporal, and social distance as well as by hypotheticality (Trope & Liberman, 2010). High-level construal applies to psychologically distant choices or outcomes, and to abstract representations of these choices and outcomes. Conversely low-level construal applies to psychologically proximate choices and outcomes, and to concrete representations of these choices and outcomes. The delayed collective benefits of a sustainable choice, are typically represented as high-level construal in terms of desirability, with increased salience of arguments in favour of the more desirable action, albeit with little regard of feasibility. Actual choices, are typically represented as low-level construal in terms of feasibility, with increased salience of arguments against the less feasible action, with little regard of desirability (Liberman & Förster, 2009; Liberman & Trope, 1998). As a consequence, construal level theory implies that the actual meaning of importance depends on the level of construal. Consumers may sincerely consider sustainability to be relevant in general, without letting sustainability being determinant for their choice in an actual context (*chapter 3*).

In practice, it is nevertheless observed that in social dilemmas individuals often do exhibit cooperative behaviour (Gong, Baron, & Kunreuther, 2009; Jones, 2008; Simpson, 2004; Tabellini, 2008). This non-selfish behaviour suggests that the rational actor model, and assumed high construal level for cooperative behaviour does not fully explain consumer choices. Likewise people sometimes do choose sustainable alternatives. To investigate why sustainable consumer choice occurs, it is important to focus on the properties of the benefits of sustainable product choice. Sustainable behaviour typically has benefits that are socially and temporally distant (i.e. for others and in the future). Therefore the evaluation of these benefits should be centred on

reasons why people let future and socially distant consequences prevail in their consumption (Böhm & Pfister, 2005).

Norm activation in social dilemmas

One explanation of cooperative behaviour is found in individual characteristics. People who, in general, take the long-term consequences of their behaviour into account, are more likely to engage in sustainable behaviour, because their current behaviour is more guided by temporally distant goals (Joireman et al., 2004; Kortenkamp & Moore, 2006; Milfont & Gouveia, 2006; Strathman et al., 1994), similarly people with a pro-environmental orientation tend to exhibit more sustainable behaviour (Cordano, Welcomer, & Scherer, 2003; Dunlap, 2008).

Another explanation is found in moral considerations. When individuals are conscious that their behaviours affect other people, norms arise (Biel & Thøgersen, 2007; Schwartz, 1973, 1977). Salient norms allow for collectively beneficial outcomes by restraining egoistic behaviour in social dilemmas. Normative behaviour is influenced by individual values, as demonstrated by the influence of altruistic or social values on salient norms and the willingness to cooperate rather than to defect in prisoner's dilemma or public goods experiments (Biel & Thøgersen, 2007; De Cremer & Van Vugt, 1998; Gärling, 1999; Jackson, 2008; Simpson, 2006; Van Vugt, 2002).

The generalised value-belief-norm theory posits that norm based behaviour is based on three factors. First is the acceptance of specific personal values. Second is the belief that the focus-objects of these values are being threatened. Third is the belief that one is capable to alleviate these threats. The combination of these three implies a moral obligation to act in order to protect the valued object (Stern et al., 1999). In this way personal values direct attention to value-congruent attributes in choice alternatives, thus promoting value-congruent behaviour (Steg, Dreijerink, & Abrahamse, 2005), and restraining value-incongruent behaviour (Snelgar, 2006; Stern, 2000; Stern et al., 1999). Sustainable behaviour can thus be understood not as a mere consequence of relevant personal values, but more specifically in relation to any motives that are activated by perceived behaviour-value (in)congruence (Stern, 2000). For a consumer, being faced with the choice between a

sustainable and a non-sustainable alternative may activate sustainable motives. These motives therefore are assumedly stronger after, compared to before, the choice (Van Dam, 1997).

The value-belief-norm theory is consistent with the idea that people who more strongly adhere to biospheric values are supposed to be more likely to engage in environmentally beneficial behaviour, as deviation from environmentally beneficial behaviour would threaten those biospheric values. Research on value related norm activation shows negligible effects of self-transcendent altruistic values on sacrificing personal benefits for the benefit of the environment (De Groot & Steg, 2007; Joireman et al., 2001; Joireman et al., 2004; Kaiser & Byrka, 2011; Simpson, 2006), possibly since behaviour that negatively affects the environment does not necessarily threaten altruistic values. In specific instances even an egoistic value orientation may support environmentally beneficial behaviour. This would occur in those situations where pro-environmental behaviour is perceived as congruent with achieving personal (egoistic) benefits. This effect has been demonstrated in cases where people believe that conspicuous sustainable behaviour enhances one's image and earns social approval (Griskevicius, Tybur, & Van den Bergh, 2010). In less conspicuous cases however, acting in order to gain social approval has limited predictive validity for pro-environmental behaviour (De Groot & Steg, 2010).

Although personal characteristics focussing on the long term consequence perspective and holding biospheric values may be sufficient motivation for some users of sustainable products, these explanations would only apply to people that consistently show sustainable behaviour, i.e. heavy users. The majority of sustainable consumers are light users (Bartels & van den Berg, 2011) who are more likely to be motivated by goals that are psychologically closer to themselves.

Identity in social dilemmas

Identity theory suggests that self-motives can be positive motivations to exhibit sustainable behaviour (Leary, 2007). Self-motives are self-enforced mechanisms to protect one's self-esteem and to confirm one's identity, both of

which assumedly are highly valued by people. Self-motives thus provide intrinsic motivation towards acting pro-environmentally, which is related to more frequent performance of a wider range of pro-environmental behaviours, compared to internalised social motivation towards acting pro-environmentally (De Groot & Steg, 2010; Tabernero & Hernandez, 2011). For consumers with a sustainable self-concept, self-confirmation may offer sufficient reasons to exhibit normative sustainable behaviour and to reject justifications for inactivity, even when the behaviour is not socially enforced and sustainable outcomes are not visible, because protecting one's self-concept is more proximate than protecting the planet.

In consumer behaviour self-confirming mechanisms become apparent by people choosing specific products that are 'linked to' their identities (Ward & Broniarczyk, 2011) and engaging in consumption behaviour to construct their self-concept and to create their personal identity, as well as to express their identity (Escalas & Bettman, 2003, 2005). Sustainable motives that are based on self-motives or 'internal self-concept motives' (Barbuto Jr & Scholl, 1998) are intrinsic motives which do not depend on external pressure or expected rewards. Explaining sustainable behaviour by sustainable identity combines insights from construal level theory and norm activation. Sustainable identity brings sustainable outcomes at a low construal level, because acting sustainably is intrinsically motivated by self-confirmation, and immediately rewarding for the self-esteem. Sustainable identity also implies norm activation and a moral obligation to act sustainably, because non-sustainable behaviour threatens a valued self-concept and self-esteem.

The contribution of identity to consumer research has been observed in the context of different behaviours that can be classified as sustainable. In the context of environmental behaviour and organic consumption this contribution has been confirmed using an individual self-concept that is variously labelled green identity (Whitmarsh & O'Neill, 2010), environmental identity (Clayton & Opotow, 2003; Stets & Biga, 2003) or ethical identity (Michaelidou & Hassan, 2008; Shaw & Shiu, 2003).

While the multitude of labels assigned to sustainable identities seems to imply that the sustainable self-concept is very specific (either green or environmental or ethical or natural), it has already been established that among light-users the various sustainability related attributes can be represented as a

single sustainable meta-construct that motivates sustainable purchases (*chapter 2*). The studies in *chapter 2* also suggest that components of the ethical, green and environmental identity constructs that are related to sustainable motivations may be united in a single sustainable self-concept, which is distinct from values or individual characteristics leading to the following proposition:
Proposition: Multiple sustainable identity components can be grouped into one overarching sustainable identity, distinct from other personality constructs
This overarching sustainable identity makes sustainable behaviour personally rewarding, and thus it is hypothesised that:

H4.1: Higher sustainable identity promotes sustainable choice in a social dilemma between personal benefits and sustainability benefits.

This implies that intrinsic motivations for sustainable consumption focus attention to psychologically proximate identity goals, thus it is hypothesised that:

H4.2: In a choice between a sustainable and a non-sustainable alternative, psychologically proximate goals for sustainable choice are enhanced by sustainable identity

Sustainable identity is assumed to offer a direct and personal driver for sustainable consumption, that operates independently of established individual characteristics, like attitude, stated importance, or concern for future consequences. Thus it is hypothesised that:

H4.3: Sustainable Identity affects sustainable behaviour, additive to the effect of other (non-identity) individual characteristics

These hypotheses are tested in two studies.

Study 1: Sustainable identity, relevance, and determinance

In the first study measurements of the constructs and effects on sustainable choice are investigated. First of all potential components of sustainable identity are investigated. Key components of sustainable identity are supposedly feeling

connected to the natural environment and a commitment to ethics and justice (Clayton, 2003; Mayer & Frantz, 2004; Ozcaglar-Toulouse et al., 2006; Shaw & Shiu, 2003; Stets & Biga, 2003; Whitmarsh & O'Neill, 2010). Values are sometimes considered part of identity as well (Hitlin, 2003), though more often they are considered a closely related but separate construct (Stets & Biga, 2003; Stryker, 2007; Whitmarsh & O'Neill, 2010). Previous studies operationalize pro-environmental and sustainable values by Schwartz's short value survey (De Groot & Steg, 2007; Stern et al., 1999) or by the new ecological paradigm (NEP) scale (Dunlap, 2008; Whitmarsh & O'Neill, 2010), though the latter is more commonly employed to measure general sustainable concern as an individual characteristic (Dunlap, 2008; Stets & Biga, 2003). Following the proposition that multiple sustainable identity components can be grouped into one overarching sustainable identity, the discriminant validity of the assumed core elements of identity 'connectedness to nature' and 'ethical orientation' relative to values and NEP is determined empirically.

Next the first two hypotheses are tested. The social dilemma between personal interest and collective interest is created by introducing a price premium for sustainable products. Psychological distance is operationalized as difference in motives. Self-confirmation motives are psychologically more proximate, because they are aimed at directly preserving one's personal identity. Internalised sustainability motives are more distant, because they are aimed at preserving the planet for future generations.

Mediation of the effect of sustainable identity on preference by intrinsic motives is tested in a moderated regression analyses (Hayes, 2013), with price premium as moderator. This shows that identity and intrinsic motives only contribute to the explanation of choice when the consumer faces a dilemma between personal and collective interests. In the absence of this price premium only internalised motives explain choice.

Enhancement of intrinsic motives is tested in two ways. Because sustainable motives may be activated by the choice between a sustainable and a non-sustainable alternative these are compared both before and after the dependent measure by a repeated measures general linear model. Intrinsic motives are shown to increase proportional to sustainable identity, whereas internalised motives increase with choice and decrease with the price premium. Because intrinsic motives may be activated by sustainable identity a moderated

mediation model is tested as well. Mediation through intrinsic motives is shown to increase and mediation through internalised goals is shown to decrease with sustainable identity strength.

An on-line survey was designed in which choice for sustainable versus non-sustainable clothing products was simulated. Social media were used to distribute a link to the on-line survey. The snow-balling through social media is a cost-effective way to reach a varied sample.

Design

Data were collected on a sample of 229 Dutch respondents, during August and September 2011. One third of respondents were male and two-thirds female. Age of respondents varied from 17 to 72 with a mean age of 26. After submitting their age and their gender, respondents were asked to select three garments (either male or female clothing, depending on their gender). After respondents made their selection they were informed that they had (unintentionally) chosen a garment of organic cotton, to prime a latent sustainable identity. Next followed a series of Likert-type scales in which the key measures (Values, NEP, sustainable identity, and motives) were collected. Then respondents were asked to state their preference for either an organic or a non-organic garment. In order to control for the effect of a social dilemma, for half of the respondents (N=110) the garments were priced equally (no dilemma), for half of the respondents (N = 119) the organic garment was priced at a 20% premium (dilemma). After a second measurement of motives respondents were thanked for their participation.

Measures

Preference: As dependent variable preference for a sustainable product was measured on a 7 point scale. One end was labelled with a picture of non-organic regular priced product. The other end was labelled with a picture of an organic labelled product, premium or regular priced according to the condition.

Values: Values were measured by the short Schwartz value questionnaire (De Groot & Steg, 2007), containing 13 items that measure biospheric (4), altruistic (4), and egoistic (5) values.

Individual characteristics: Sustainable orientation was measured by the 15 item NEP-scale (Dunlap et al., 2000).
Sustainable identity: Sustainable identity was operationalized by two subscales. connectedness to nature (9 items; Mayer & Frantz, 2004), and ethical orientation (6 items; Ozcaglar-Toulouse et al., 2006; chapter 2). A sustainable identity score was calculated as the mean across the two scale-scores.
A priori motives: Based on measures of attribution three types of motives were measured. Intrinsic sustainable motives, internalised sustainable motives, and extrinsic non-sustainable motives. Sample items are *"I would choose a sustainable product because it suits my personality [matches who I am]"* (intrinsic)*; "…. because it is good for the environment [better for the environment]"* (internalised)*; "…..because it is good quality [the quality is good]"* (extrinsic). The extrinsic motives (price, quality, fashionably) were added to avoid a singular priming on sustainability, but the items were not used in analysis.
A posteriori motives: After the preference rating the three motives were measured again with three items each. The wording of the questions was similar though not identical to the a priori motives. For example 'suits my personality' was replaced with 'matches who I am'. Further examples of the slightly rephrased a posteriori items are shown between square brackets with the a priori sample items.

Results

First, to confirm that values, NEP and identity are indeed different constructs (discriminant validity) the three values, NEP, connectedness to nature, and ethical orientation were plotted in two dimensional space to inspect the distances between the constructs. Multidimensional scaling of the measured constructs reveals that ethical orientation and connectedness to nature are grouped close to each other in a single quadrant, which suggests the relatedness of both constructs confirming them as sustainable identity components (Figure 4.1).

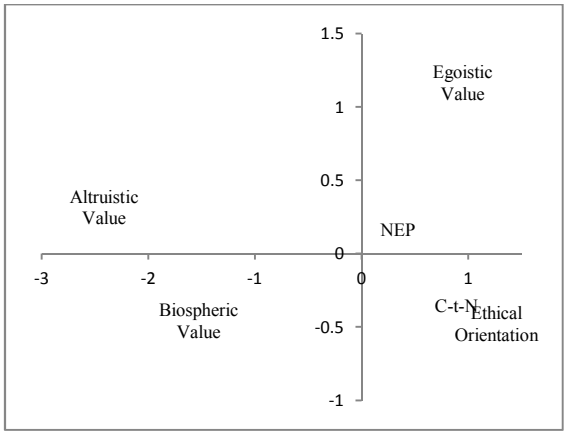

Figure 4.1: Multi-Dimensional Scaling of measured constructs

Therefore sustainable identity was measured as the unweighted average of the scale scores for 'ethical orientation' and 'connectedness to nature'. All constructs showed acceptable reliability (Table 4.1).

Table 4.1: Reliability of constructs

Construct (# items)	Cronbach's α
A priori intrinsic motives (3)	.859
A priori internalised motives (3)	.858
A posteriori intrinsic motives (3)	.776
A posteriori internalised motives (3)	.883
Biospheric values (4)	.874
Altruistic values (4)	.712
Egoistic values (5)	.695
NEP-scale (15)	.806
Connectedness to nature (9)*	.921
Ethical orientation (6)*	.908
Sustainable identity (composite of 2 subscales)	.797
Sustainable identity (composite of all 15 items)	.925

* scales combined into meta-construct 'sustainable identity'

Secondly, to test hypothesis 4.2 that psychologically proximal goals are enhanced by sustainable identity, a regression of intrinsic motives and internalised motives both on sustainable identity only, and on sustainable identity, NEP and values was conducted. Egoistic values have no significant effect on motives ($p > .25$), and only significant predictors are evaluated in the final equations (Table 4.2). This confirms that intrinsic motives are only explained by sustainable identity ($ß = .387$; $t_{(227)} = 6.317$; $p < .001$), whereas internalised motives are explained bivariate by sustainable identity ($ß = .521$;

$t_{(227)} = 9.200$; $p < .001$), but also jointly by biospheric values, altruistic values and NEP.

There is no theoretical evidence to support mediation, and this is most likely due to collinearity between these three predictors ($r_{(identity,\ biospheric)} = .634$; $r_{(identity,\ NEP)} = .333$; $r_{(identity,\ altruistic)} = .310$). This provides further support for the proposition that sustainable identity, values and NEP are separate constructs, that differentially influence purchase motives for sustainable consumption.

Table 4.2: Regression of motives on sustainable identity, NEP and values

	Intrinsic motives			Internalised motives		
predictor	ß	t	p	ß	t	p
Sustainable identity	.387	6.317	< .001	.207	3.098	.002
Biospheric values			n.s.	.426	6.317	< .001
Altruistic values			n.s.	.144	2.551	.01
Egoistic values			n.s.			n.s.
NEP			n.s.	.131	2.368	.01
	$R^2 = .146$; $F_{(1,227)} = 39.900$; $p < .001$			$R^2 = .418$; $F_{(4,224)} = 41.919$; $p < .001$		

To test hypothesis 4.1 we distinguish between sustainable preferences in cases with social dilemma (price premium) and without social dilemma (no price premium). In a social dilemma sustainable identity is hypothesised to influence sustainable choice by activating intrinsic motives. This is tested by adding social dilemma as moderator of the effects of sustainability, intrinsic motives and internalised motives on sustainable preference. The subsequent moderated multiple regression analysis (Hayes, 2013; Preacher, Rucker, & Hayes, 2007) significantly explains sustainable preference ($R^2_{(adj)} = .516$; $F_{(7,221)} = 35.753$; $p < .001$). The results show significant main effects of internalised motives and social dilemma, and of the interactions of social dilemma with intrinsic motives and sustainable identity (Table 4.3). This confirms that sustainable identity and the psychologically close intrinsic motives are activated (moderated) by social dilemma.

To further test hypothesis 4.2, that psychologically close goals are enhanced by sustainable identity, in case of social dilemma, we should not only consider the levels of these motives and goals (as we did in the analyses above) but also their weighing towards sustainable preference, in statistical terms the interaction between sustainable identity and motives on preference. For a more detailed analysis of the mediation the social dilemma condition and the non-social dilemma, simple effects analyses were conducted.

Table 4.3: Test of moderation by social dilemma

Predictor	B	SE(B)	t	p
Sustainable identity	-0.045	.127	-0.351	.73
Intrinsic motives	-0.108	.097	-1.110	.27
Internalised motives	0.248	.102	2.434	.016
Dilemma (dummy)	-1.919	.166	-11.591	< .001
Intrinsic motives * Dilemma	0.496	.129	3.837	< .001
Sustainable identity * Dilemma	0.449	.181	2.485	.014
Internalised motives * Dilemma	0.162	.149	1.087	.28

In the condition without social dilemma the model is barely significant ($R^2_{(adj.)}$= .056; $F_{(3,106)}$= 3.137; p= .029), with only internalised motives significant and with no evidence of mediation of sustainable identity. In the absence of a social dilemma, choice is predicted most efficiently by internalised motives (ß = .247; $R^2_{(adj)}$ = .049; $F_{(1,108)}$ = 6.993; p = .009).

Table 4.4: Effects of low and high sustainable identity mediated by motives (spotlight analysis)

Moderated mediation	Low sustainable identity*			High sustainable identity*		
through:	Effect (SE)	Sobel z	p	Effect (SE)	Sobel z	p
Intrinsic motives	.131 (.0936)	1.4028	.16	.237 (.1031)	2.2939	.024
Internalised motives	.371 (.1193)	3.1106	.002	.124 (.1469)	0.8455	.40

*) one standard deviation from the mean

In the social dilemma condition the model is highly significant ($R^2_{(adj)}$ = .418; $F_{(3,115)}$ = 29.209; p < .001). There is a significant indirect effect through intrinsic motives (B = 0.200; CI [.070, .394]), which is confirmed by the Sobel test (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Sobel, 1982; Sobel's z = 2.919; p = .004) and a significant indirect effect through internalised motives (B = 0.261; CI [.074, .458]; Sobel's z = 2.963; p = .003), alongside a significant direct effect of sustainable identity (B = 0.404; SE(B) = .145; $t_{(117)}$ = 2.779; p < .001). Closer inspection of the mediation model reveals that besides the direct effect of sustainable identity (B = 0.433, $t_{(117)}$ =3.003,p=.003) the mediation through internalised motives is negatively moderated by sustainable identity (B = -0.179; $t_{(117)}$ = -2.0231; p = .045). Spotlight analysis at one standard deviation from the mean of sustainable identity shows that with increasing sustainable identity the mediation of effect shifts from internalised motives to intrinsic motives (Table 4.4). This confirms that the mediating effect of intrinsic motivation is enhanced by sustainable identity.

Because in real life consumption is a continuous process, motives that are measured 'in the field' are often used to predict past consumption at least as often as future consumption. Typical field research contains questions about motives that are used to explain a self-report of recent consumption. Using those motives as an exogenous variable assumes that they are not affected by consumer choices. It may however be assumed that a posteriori motives are realigned with the preceding choice. In order to investigate to what degree stating a preference influences the strength of the motives a repeated measure ANOVA was performed, with 'price condition'(equal price vs. price premium) as between subjects factor, and sustainable identity as covariate (Table 4.5). The within subjects factor, indicating measurement before or after the choice experiment, is designated as 'pre/post'. It is known from Table 4.2 that sustainable identity has an effect on both intrinsic motives and internalised motives. The current analysis therefore focuses on the interaction effects.

Table 4.5: GLM Repeated Measures

	Dependent: Intrinsic motives			Dependent: Internalised motives		
Source	M Sqr	$F_{(1,226)}$	p	M Sqr	$F_{(1,226)}$	p
Sustainable identity	168.672	60.792	< .001	221.450	102.031	<.001
Price premium	1.692	0.610	.44	1.265	0.583	.45
Pre/post	0.177	1.268	.261	4.391	32.822	< .001
Pre/post * Price premium	0	0.000	.996	1.097	8.200	.005
Pre/post * Sustainable identity	1.381	9.868	.002	0	0.001	.976

The results show a significant interaction between pre/post measurement and sustainable identity on intrinsic motives, but not on internalised motives (Table 4.5, left column). A spotlight analysis at one standard deviation above the mean of sustainable identity shows a significant effect of pre/post measurement ($p = .01$) on intrinsic motives. A similar spotlight analysis at one standard deviation below the mean of sustainable identity shows no significant effect of pre/post measurement ($p = .15$). A regression of the individual difference between post-measure and pre-measure of intrinsic motives on sustainable identity confirms that sustainable identity leads to increased intrinsic motivation after being presented with a choice involving a sustainable product ($ß = .255$; $t_{(117)} = 2.852$; $p = .005$). The actual choice has a non-significant effect on the change of intrinsic motivation. The results (Table 4.5; right column) also show that internalised motives are changed after the

preference measure. Closer inspection reveals that is only due to an increase of these motives in the no-dilemma condition (mean difference = 0.294; SE = .052; $t_{(109)}$ = 5.656; p < .001). This effect is not moderated by sustainable identity and therefore beyond the scope of this study.

The strength of both the intrinsic motives and the internalised motives increases during the experiment, which suggests that motives are endogenous variables that are influenced by the choices people make. Next the explanation of choice by a posteriori motives was compared to a priori motives (Steiger, 1980; Tabachnick & Fidell, 1989). The comparison of regression of choice on a priori and a posteriori motives (in the social dilemma condition) shows that also with price premium a posteriori measured internalised motives contribute more than a priori to the explanation of sustainable choice (Table 4.6). The a posteriori model significantly outperforms the a priori model in predicting choice (Steiger's Z* = 3.648; p < .001). The regression weight of both intrinsic motives ($t_{(117)}$ = 1.758; p = .04) and internalised motives ($t_{(117)}$ = 1.943; p = .03) are higher when a posteriori motives are used as independent compared to a priori motives. The indirect effects through either mediator do not differ significantly between the a priori and the a posteriori models (p = .38), but the a posteriori model suggests full mediation of sustainable identity by motives, whereas the a priori model only suggests partial mediation.

Table 4.6: Comparison of regression of choice on identity models mediated through a priori and a posteriori motives

	a priori (before choice)			a posteriori (after choice)		
predictor	ß	t	p	ß	t	p
Sustainable identity	.238	2.779	.006	.023	0.255	n.s.
Intrinsic motives	.313	4.008	< .001	.393	4.977	< .001
Internalised motives	.284	3.309	.001	.421	4.826	< .001
	R^2 = .418; $F_{(3,115)}$ = 29.203; p < .001			R^2 = .510; $F_{(3.115)}$ = 42.001; p < .001		
Sobel tests	ß*	z	p	ß*	z	p
Intrinsic motives	.200	3.833	< .001	.207	4.387	< .001
Internalised motives	.261	4.127	< .001	.268	4.353	< .001

ß* is the net effect of sustainable identity through mediator on choice

Discussion of study 1

The multi-dimensional scaling (Figure 4.1) suggests that sustainable identity can be viewed as a combination of self-transcendence and psychological proximity. The horizontal axis appears to reflect construal level theory (Trope

& Liberman, 2010), with biospheric and altruistic values representing psychological distance and high level construal, and sustainable identity (and egoistic values) representing psychological proximity and low level construal. The vertical axis appears to reflect Schwartz value theory (Schwartz, 1992; Stern et al., 1993), with egoistic values representing self-enhancement, and sustainable identity representing self-transcendence. This supports the notion that sustainable identity creates a psychologically proximate motivation for sustainable behaviour. New ecological paradigm (NEP) scores are located somewhat between values and identity, which considering the constructs captured in that scale may make it somewhat difficult to interpret this scale as a pure individual characteristic. The lack of loading of values and NEP on intrinsic motivations makes it clear, however, that these constructs are different from identity.

In addition this study provides partial support for hypothesis 4.1, by showing that sustainable identity leads to a higher preference for sustainable products in a social dilemma. As predicted in hypothesis 4.2 the effect of sustainable identity on preference is partially mediated by intrinsic (psychologically proximal self-concept) motives. Mediation of sustainable identity occurs also through internalised (psychologically distant goal) motives, but with increasing identity strength this mediation shifts from internalised to intrinsic motives. Both intrinsic motives and internalised motives are explained by sustainable identity, and only the internalised motives are also affected by biospheric values and to a minor extent by altruistic values and NEP.

Furthermore the results suggest that after choice the strength of intrinsic motives increases proportionally to the strength of sustainable identity, irrespective the price. A different effect is observed for internalised motives, the strength of which increases after choice, but only when one is not faced with a price premium for sustainable products. This suggests that choosing sustainable products is not only driven by intrinsic and internalised motives, but in turn acts to reinforce both motives. Comparison of the post-choice and pre-choice motives also suggests that post-choice measurement of internalised motives overestimates the effect of these motives on choice compared to pre-choice measurement. This suggests that especially in on-going behaviour, like daily consumption, measured motives may indicate how consumers explain their behaviour, but not necessarily what predicts their behaviour (Van Dam,

1997). A major limitation of the first study is that the dependent variable is not actual choice, but stated preference, which is construed at a more distant level than choice. Another limitation is that the online survey may suffer from uncontrolled biases.

Study 2: Sustainable identity and sustainable consumption

The second study attempts to replicate the effect of sustainable identity in actual product choice measured by a continuous panel survey. In the first study the distinction between psychologically proximate intrinsic motivations, compared to the more distant internalised motives, may be in part due to different targets for the motivations, which differentially affect choice. Therefore in the second study the effect of sustainable identity on perceived psychological distance is tested in by employing measures of importance aimed at the same target yet at different levels of construal. Importance at high level construal is measured as relevance with a rating scale. Importance at low level construal is measured as determinance in a set of forced choice items (see: c*hapter 3*). Furthermore, some doubt on whether NEP actually influences sustainable behaviour emerged from study 1, and therefore concern for future consequences (Strathman et al., 1994), generally accepted as a personality trait that does affect sustainable behaviour, was used in this study to investigate individual characteristics. The relations among the independent variables are analysed by path analysis. The prediction of actual purchase is tested by negative binomial regression.

Ten food attributes were used to survey participants on the importance of sustainability, six attributes were considered sustainability related, being 'naturalness', 'environmental friendliness', 'animal welfare', 'waste', 'fair trade', and 'local production'; with a seventh attribute, 'health', often considered to be related to sustainability, though it contains a strong utilitarian component as well (Schultz, 2001). Three attributes were considered exclusively utilitarian, being 'price', 'convenience', and 'taste'. The attributes were selected after discussion with 14 major stakeholders from the food chain in order to cover a wide range of aspects that are related to sustainability. Stakeholders represented agricultural production, processing industry and retail, as well as (semi)-

government organisations. The attributes that were agreed upon by the stakeholders cover the ethical motives and major utilitarian dimensions of the food choice questionnaire (Lindeman & Väänänen, 2000; Steptoe et al., 1995). For each of these attributes relevance and determinance were surveyed (see: *chapter 3*).

Design

Data were collected on a sample of 1453 respondents from a commercial market research agency (GfK The Netherlands). GfK maintains a representative participant panel of household members primarily responsible for food purchases that daily register all purchases using EAN-barcode registration. Panel-members also periodically participate in surveys, allowing comparison of psychometric data, with real purchase data. For this study, data were collected in two stages. The first stage was an online survey to 1453 members of the panel. The second stage of data collection consisted of the purchase data over a twelve week period starting one month after the survey. Due to panel maintenance and mortality, a net sample of 1112 members was available for linking survey data to purchase data. Of this sample 86% were female. Age ranged from 22 to 84 with a mean age of 49 years. The gender distribution is due to the still existing gender distinction in food purchasing responsibility in The Netherlands, making this sample relevant for estimating representative food purchasing.

Measures

Purchase data. Purchase data consisted of EAN-barcode registration on a home scanner for participants, for products lacking EAN-barcodes participants chose a code from a provided codebook. Purchases were coded as organic and/or fair trade according to existing product certification. Purchase data were collected over a 12 week period starting 1 month after the survey. Purchase data were available on 29 product categories (e.g. dairy, meat). Individual products within each product category are coded as organic, and/or fair trade according to their certified labels. Organic purchases were recorded in 19 out of the 29 product categories. Fair trade purchases are recorded in 7

product categories, in 5 of which fair trade products are purchased incidentally (i.e. by less than 15 out of over 1100 households).

Psychologically proximate and distant motivations were operationalized as relevance (distant motivator) and determinance (proximal motivator). The relevance of each attribute was measured through a direct rating of the importance of the attribute "*How important do you consider <attribute> when purchasing food products*" on a 7-point rating scale with anchoring on the end poles ranging from 1 (not at all important) to 7 (highly important). Attribute determinance was measured as the outcome of a series of forced choices between the ten attributes. Respondents had to make 15 forced choices, across the 10 attributes. For each choice four attributes were presented in a two by two table (making up for a total of 60 shown attributes), and the respondent was to select the one attribute that was considered most important when purchasing food products (*chapter 3*). The items were balanced such that all attributes appeared six times, and that all possible pairs of attributes appeared 2 times. Also position of attributes in the two by two table was varied across items. Attribute determinance was calculated as the number of times each attribute was chosen, ranging from 0 (never chosen) to 6 (chosen at each occurrence).

Individual characteristics: Concern for consequences was measured by 6 items of the consideration of future consequences scale (CFC) of Strathman et al (Strathman et al., 1994). Use of the CFC scale is suggested by Joireman (Joireman et al., 2001; Joireman et al., 2005; Joireman et al., 2004).

Sustainable Identity. The first study has shown that the reliabilities of the two scales that measure sustainable identity exceed .90. This suggests redundancy in the items, allowing for scale reduction. Sustainable identity was therefore measured by 6 items, three items adopted from the connectedness to nature scale, and three items adopted from the ethical orientation scale.

Values: Values were measured similar to study 1, by the short Schwartz value questionnaire (De Groot & Steg, 2007).

Results

Sustainable identity was calculated as the average score across 6 items (Cronbach a=.85). Relevance of sustainability related attributes was determined as the mean across 6 attributes (naturalness, environment, fair trade, animal

welfare, local production, and waste; Cronbach a=.875). Concern for future consequences was calculated as the average score across the 6 items (Cronbach a=.63). Because determinance is based on a series of zero-sum forced choices Cronbach's α is not a relevant measure (Neff & Cohen, 1967).

Data were analysed in two steps. The first step is a path analysis (Figure 4.2) to determine the direct and indirect effect of biospheric values, concern for future consequences and sustainable identity, mediated by relevance, on determinance of sustainability related attributes. Sustainable identity and concern for future consequences are not related to each other ($r = -.03$; $p = .24$).

Regression of relevance of sustainability on the independent variables explains 52% of variance ($F_{(4,1448)} = 396.635$; $p < .001$). Both sustainable identity (ß = .544; $t_{(1452)} = 24.342$; $p < .001$) and biospheric values (ß = .258; $t_{(1452)} = 11.546$; $p < .001$) have a significant effect on the relevance of sustainability. The effect of consideration of future consequences is not significant (ß = -.02; $t_{(1452)} = -1.240$; $p = .22$). Furthermore there is a weak but significant negative moderation effect of Sustainable identity on the effect of biospheric values (ß = -.038; $t_{(1452)} = -1.993$; $p < .05$), suggesting that with increasing strength of sustainable identity the explanation of relevance shifts gradually from values to identity.

Regression of determinance of sustainability on the independent variables explains 32% of variance ($F_{(2,1450)} = 355.990$; $p < .001$). The model shows a direct effect of sustainable identity (ß = .55; $t_{(1452)} = 24.435$; $p < .001$) and a direct effect of consideration of future consequences (ß = .11; $t_{(1452)} = 4.909$; $p < .001$). Altruistic and egoistic values do not contribute significantly and are discarded from the analyses.

With relevance of sustainability attributes added as moderated mediator (Table 4.7), the model explains 39% of variance ($F_{(4,1448)} = 234.176$; $p < .001$). Consideration of future consequences has a stable effect significant effect on determinance of sustainability related attributes (ß = .105; $t_{(1452)} = 5.138$; $p < .001$). The effect of sustainable identity on determinance is partially mediated by relevance (ß* = .226; Sobel $z = 10.908$; $p < .001$), next to a direct effect (ß = .303; $t_{(1452)} = 10.657$; $p < .001$). Furthermore sustainable identity is a positive moderator to the effect of relevance (ß = .141; $t = 6.825$ $p < .001$). Thus sustainable identity is a major contributor to the explanation of determinance

of sustainability related attributes, an effect that is partially mediated by the perceived Relevance of sustainability. The effect of sustainable identity is additive to the effect of concern for future consequences.

Table 4.7: Path analysis of prediction of Determinance through Relevance

	dependent is Relevance			dependent is Determinance		
predictor	ß	t	p	ß	t	p
Biospheric values	.258	11.487	< .001	.120	4.532	< .001
Sustainable identity	.544	24.404	< .001	.483	18.333	< .001
CFC	--	--	N.S.	.101	4.656	< .001
Values * Identity	-.038	-2.074	.038			
Biospheric values				--	--	N.S.
Sustainable identity				.313	10.384	< .001
CFC				.108	5.203	< .001
Relevance of sustainability				.316	10.522	< .001
Sustainable identity				.303	10.657	< .001
CFC				.105	5.138	< .001
Relevance of sustainability				.346	12.191	< .001
Relevance * Identity				.141	6.825	< .001

The second step of the analysis adds actual purchase behaviour, by performing a regression of sustainable purchases on sustainable identity, consideration of future consequences, relevance and determinance. For this analysis sustainable purchases were registered across 19 product categories. A single variable was constructed by counting the number of product categories in which one or more sustainable purchases were made during the three months of data collection. These purchases constitute count data which are non-normal distributed. Poisson distribution is feasible for modelling count data, provided that the variance of the distribution equals the mean. Because the variance of the number of purchases (6.437) exceeds the mean (2.574), the distribution is over-dispersed and a negative binomial regression is fitted, which can estimate both the mean and the variance of the distribution based on the data.

To determine which predictors efficiently explain actual behaviour, several models were compared in which different combinations of predictors were systematically varied. Consistent Akaike information criterion (CAIC) allows

comparison of these models based on explained variance in combination with a parsimonious model[1]. The model with the lowest CAIC has the best fit, and other models are compared to this best fitting model. Comparison of the different combinations of predictors (Table 4.8) shows that three models have equivalent Goodness of Fit.

Table 4.8: Comparison of different neg. binomial regression models to predict actual purchase

Model	CAIC	Compared to lowest CAIC
Relevance + Determinance*	4256.929	
Relevance + Determinance + CFC*	4259.043	p = .35
Determinance*	4259.639	p = .26
Determinance + Sustainable identity	4262.195	p = .07
Determinance + CFC	4262.773	p = .05
Relevance + Determinance + Sustainable identity	4264.543	p = .02
Relevance + Determinance + Sustainable identity + CFC	4266.567	p = .01

* the three models marked with * have equivalent Goodness of Fit.

All these models contain determinance, and addition of a direct relation of relevance and concern for future consequences does not significantly improve the model. Therefore it could be argued that among the studied constructs determinance of sustainability is the best and only relevant proxy to actual sustainable purchase. Combined into the path model (Figure 4.2) sustainable identity directly and indirectly is the major contributor to explaining the determinance of sustainability related attributes, and through determinance explains actual sustainable purchase behaviour. A series of Sobel tests confirm that determinance mediates the effects of sustainable identity ($z = 8.441$; $p < .001$), relevance ($z = 9.121$; $p < .001$), concern for future consequences ($z = 4.846$; $p < .001$) and of the moderation of identity * relevance ($z = 6.098$; $p < .001$).

[1] Compared to the Akaike information criterion, CAIC emphasises parsimoniousness somewhat more, by putting more penalty on the estimation of additional parameters.

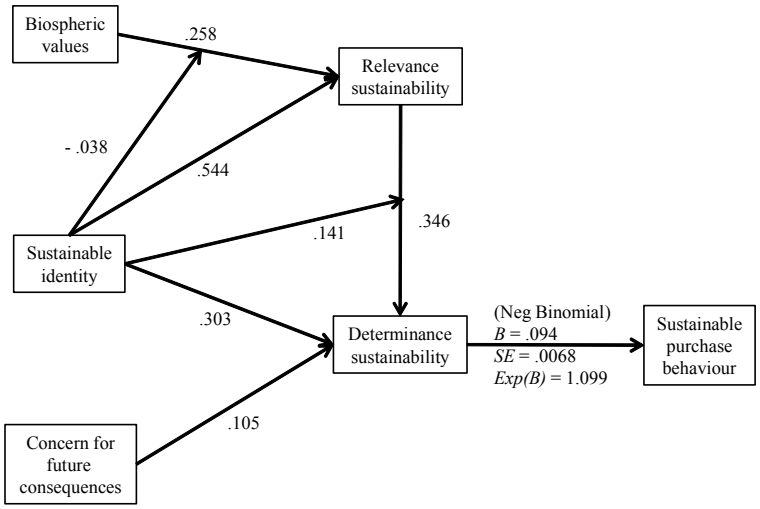

Figure 4.2: Full path model for explaining sustainable purchases (standardised regression weights)

Discussion of study 2

This second study provides further evidence for hypothesis 4.2, as a more sustainable identity leads to more sustainable purchases. Sustainable identity leads to higher stated relevance (distant) of sustainable attributes and to higher determinance (proximate) of sustainable attributes in actual choice. The effect of identity on determinance is only partially mediated by stated relevance, and conversely stated relevance contributes only 5% variance to the explanation of determinance over the unmediated effect of identity.

This second study also provides evidence for hypothesis 4.3, as the direct effect of sustainable identity on determinance of sustainable attributes is significant alongside the effect of concern for future consequences and stated relevance of these attributes. It should be noted that stated relevance of sustainable attributes in this study may be assumed to be a valid measurement of attitude, because the construct of attitude is akin to the perception of personal desirability (Chen, 2007). Where existing studies measure agreement with statements as 'it is essential that X has attribute Y' on a scale ranging from disagree to agree (Milfont & Gouveia, 2006), the current scale directly measures perceived importance of the attribute on a scale ranging from unimportant to important. Finally this second study confirms the effect of

sustainable identity and determinance of sustainable attributes on actual purchase behaviour. The use of actual purchase data confirms that the observed effects also occur outside controlled experimental conditions.

Overall discussion

The two studies reported in this chapter show that among light users sustainable identity is a key determinant of intrinsically motivated sustainable purchase behaviour. Based on identity theory (Barbuto Jr & Scholl, 1998; Escalas & Bettman, 2005) it was suggested that, apart from internalised sustainable goals, also self-confirmation motives are important for sustainable consumption. The results from the first study confirm that people do not only purchase sustainable products to improve the world, but also to establish and confirm their sustainable identity. Sustainable purchase therefore may be viewed (at least in part) as an act of expressive rationality (Engelen, 2006), rather than instrumental rationality. The purpose is nothing more or less than to express and confirm one's identity. The second study shows that sustainable identity contributes both to the general relevance and the choice-specific determinance (Chapter 3; Van Ittersum et al., 2007) of sustainable product attributes. Increased relevance means that those attributes are considered more desirable, which makes sustainable identity yet another trait that explains attitude towards sustainability. Increased determinance however means that those attributes are considered more feasible, which translates into actual purchase behaviour. In line with identity based consumption (Berger & Heath, 2007; Escalas & Bettman, 2003, 2005; Ward & Broniarczyk, 2011) a sustainable self-concept implies choosing products that are related to, that help construct, or that express this self-concept. The results of these two studies also support the dynamic identity model in resource economics (Bulte & Horan, 2010), by showing that sustainable identity influences the determinane of sustainable attributes in consumer choice, and that intrinsic motives for sustainable choice evolve as a result of identity based choice.

Concern for future consequences was found to influence attribute determinance and product choice, but not attitude towards, or stated importance of, sustainability. This suggests that consumer characteristics that,

independently of consumer attitudes towards sustainability or sustainable identity, increase the salience of distant goals and high level construal may additionally contribute to the explanation of sustainable consumption. Böhm and Pfister, (2005) suggested that consideration of future consequences and moral considerations may induce sustainable behaviour. The current studies did find support for consideration of future consequences inducing sustainable behaviour. The current studies also found support for an effect of moral (ethical) considerations, especially as identity based confirmation of the self-concept. Sustainable consumption is a way to confirm oneself as a sustainable, ethical, responsible person. In this way self-confirmation may be a solution to the social dilemma, because sustainable behaviour is not guided by the long term societal benefits but by immediate self-reinforcement.

The role of self-confirmation implies that sustainable consumption can be enhanced by focusing on intrinsic rather than extrinsic motives and internalised sustainability motives for sustainable choices. Contrary to intrinsic motives, the internalised motives are not enhanced by sustainable identity, but merely by the absence of a dilemma between sustainable and personal benefits in choice. Internalised motives for sustainable consumption focus attention to sustainability goals and the personal sacrifices required for attaining those goals. In this way those motives focus attention away from the self and self-concept. If no sacrifice is involved the internalised motives may be activated, but otherwise not. People are less interested to save the world than to boost their self-esteem, so if their self-esteem is boosted by sustainable behaviour they might increasingly want to confirm themselves as being sustainable consumers. Sustainable identity, through intrinsic motives, triggers sustainable choice in a social dilemma. In turn this sustainable choice in a social dilemma contributes to the enhancement of intrinsic motives. The key role of sustainable identity implies that increasing the salience of this identity may increase sustainable consumption, and future research could focus on mechanisms to enhance this salience in retail settings. In this way thee current research aligns with a recent call for research into how people acquire the motivation to carry out pro-environmental behaviour (Tabernero & Hernandez, 2011) and suggests sustainable identity as a likely candidate for intrinsic motives towards sustainable behaviour.

5. EXTERNAL DETERMINANTS OF PRO-SUSTAINABLE BEHAVIOUR

This chapter is published as:
Ynte K. van Dam & Janneke de Jonge (2015) The positive side of negative labelling. *Journal of Consumer Policy 38* (1) 19-38

Introduction

Most consumers claim to consider sustainability important, but this does not necessarily translate into systematic purchase of ethical labelled products (cf. Hussain, 2000). The contribution of a product to sustainable development can often not be determined from intrinsic product cues. Sustainability-related product attributes are credence attributes that can be made visible to consumers by the extrinsic product cue of ethical labelling. As most sustainable products are sold through regular retail channels alongside conventional mainstream products (Padel & Foster, 2005), ethical labelling is considered vital for consumers in order to correctly identify these products and to make an informed product choice.

Common examples of ethical labelling are environmental labelling (e.g. energy label, Marine Stewardship Council or Forest Stewardship Council certification), social labelling (e.g. fair trade), or organic certification. Certified ethical labelling may prevent misleading marketing claims and facilitate sustainable consumer behaviour by increasing the efficiency of information

transfer (Hussain, 2000), though the effectiveness of certified ethical labelling is still a subject of dispute (Ben Youssef & Abderrazak, 2009; Bougherara & Piguet, 2009; Buckley, 2013; Costa, Ibanez, Loureiro, & Marette, 2009; Daugbjerg, Smed, Andersen, & Schvartzman, 2014; Mason, 2009; Testa, Iraldo, Vaccari, & Ferrari, 2013).

The existing gap between stated importance of sustainability and actual purchases of certified ethical products suggests that positive ethical labelling fails to trigger consumer motivation for ethical purchases. Research into more comprehensive labelling systems suggests that negative ethical labelling could be a more effective motivator for ethical purchases (Grankvist, Dahlstrand, & Biel, 2004; Heinzle & Wüstenhagen, 2012). Differential effects of positive and negative ethical labelling can be explained by negativity bias and by differences in an individual's regulatory focus.

Review of literature

Negativity bias

The effect of negative product information on consumer preference can be explained in terms of negativity bias (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Mittal, Ross Jr, & Baldasare, 1998; Rozin & Royzman, 2001) and loss aversion in prospect theory (Kahneman & Tversky, 1979). Negativity bias and prospect theory observe that a loss carries more subjective weight (looms larger) than a gain of the same objective magnitude. Especially prospect theory notes that the perceived value of an attribute, and therefore the willingness to pay, depends on the reference point of the subject (Tversky & Kahneman, 1991). In prospect theory attribute levels can be viewed as gains or as losses relative to a subjective reference point. People generally exhibit a stronger tendency to avoid losses than to obtain gains. This means that the impact of a difference in attribute level is greater when evaluated in terms of losses (i.e. worse than the reference point) compared to gains (i.e. better than the reference point).

The reference point against which consumers evaluate attributes is likely to differ between individuals. If ethical products are the reference point, then non-certified mainstream products are perceived as a loss of ethical quality. If,

contrarily, mainstream products are the reference point, then certified ethical products provide a gain of ethical quality (cf. Tversky & Kahneman 1991, p.1045). The actual reference point of consumers with respect to ethical product performance is not known. However, it may be assumed that for the majority of consumers mainstream products are the reference point. This is because mainstream products represent the larger part of product assortments, creating an implicit norm that these kind of products are the default option. In addition, in shopping environments it is common practice only to apply ethical labelling to products with beyond average ethical performance, thereby isolating and highlighting these products from the assortment as special products.

One of the reasons that for a majority of consumers mainstream products represent the reference point may be found in labelling practices. This suggests that in a product proposition the implicit reference point can be changed by labelling a product as more ethical or as less ethical than average. Based on negativity bias and prospect theory it can then be expected that consumer willingness to avoid the loss of ethical quality should be higher than the willingness to gain ethical quality. That is, negative sustainability information should have a larger impact on attitude than positive sustainability information. This implies that consumer preferences for products with ethical attributes might be higher when mainstream products are labelled as not having ethical attributes compared to when ethical products are labelled as having ethical attributes. Similarly, when consumer attitudes towards a product with either below or above average ethical performance are compared to their attitude towards a product with average ethical performance, the negative effect of the product with below average ethical performance should be larger than the positive effect of the product with above average ethical performance.

Thus it is hypothesised that:

H5.1: Signalling less ethical quality by negative labelling leads to more ethical preference and choice than signalling more ethical quality by positive labelling

Regulatory focus and regulatory fit

Regulatory focus theory (Higgins, 1997; Higgins, Roney, Crowe, & Hymes, 1994) suggests that the effect of positive or negative ethical product information depends on the motivational aim of the consumer. Motivated behaviour can be aimed at avoiding a goal that has a negative valence, or it can be aimed at approaching a goal that has a positive valence (Carver, Reynolds, & Scheier, 1994). Regarding the motivation for ethical consumption this would imply an aim to *avoid* products that one considers unethical (e.g. produced with child labour or in sweat shops), or an aim to *approach* products that one considers ethical (e.g. fair trade, organic). Regulatory focus theory states that approach motives involve a promotion focus, whereas avoidance motives involve a prevention focus (Crowe & Higgins, 1997; Higgins, 1997). In a promotion focus the goal is presented as something that satisfies the need for accomplishment, growth and nurturance. A promotion focus is characterised by a sensitivity to the presence or absence of positive outcomes that are evaluated in terms of gain versus non-gain. In a prevention focus the goal is presented as something that satisfies the need for safety, protection, and security (Avnet & Higgins, 2006; Higgins, 1997). A prevention focus is characterised by a sensitivity to the absence or presence of negative outcomes that are evaluated in terms of loss versus non-loss (Idson, Liberman, & Higgins, 2000).

Regulatory fit occurs if the presentation of alternatives is in line with the motivational aim of the consumer. A promotion focus matches with information about positive outcomes that can be pursued, whereas a prevention focus matches with information about negative outcomes that can be avoided. The experience of regulatory fit results in increased informational effectiveness, increased motivational intensity, and an overall experience of feeling right (Higgins, 2005). In terms of regulatory focus theory promotion oriented buyers are most susceptible to positive product information that helps them to identify which (ethical) products to obtain (Chatterjee, Kang, & Mishra, 2005). Prevention oriented buyers are most susceptible to negative product information that helps them to identify which (unethical) products to avoid (Grankvist et al., 2004).

Due to the principle of regulatory fit the negative influence of negative sustainability information on product attitudes should be larger for consumers with a strong prevention focus compared to consumers with a weak prevention focus. Similarly the positive effect of positive sustainability information should be larger for consumers with a strong promotion focus compared to consumers with a weak promotion focus. This implies that the effect of negative information should be moderated by prevention focus (but not promotion focus) and the effect of positive information should be moderated by promotion focus (but not prevention focus). Thus:

H5.2a: The effect of negative ethical information on preference or choice is enhanced by prevention focus

H5.2b: The effect of positive ethical information on preference or choice is enhanced by promotion focus

Sustainable motives

Consumers who purchase certified ethical food products at a premium price are not driven by selfish motives but by altruistic motives (Bougherara & Combris, 2009). The underlying mechanism of these altruistic motives is debatable, with some authors favouring attitudinal approaches like environmental concern (Sirieix, Kledal, & Sulitang, 2011; Thøgersen, 2010), and others favouring moral approaches like personal norms (Biel & Thøgersen, 2007; Gärling, 1999; Gärling, Fujii, Gärling, & Jakobsson, 2003; Van der Iest, Dijkstra, & Stokman, 2011), while it even has been argued that complete selflessness does not exist and that choices for ethical products are at least partly guided by selfish motives, such as impression management (Griskevicius et al., 2010; White & Peloza, 2009).

It is assumed that positive eco-labels play a role in goal directed pro-environmental behaviour, and their use in consumer choice is dependent on the level of pro-environmental attitudes (Thøgersen, 2000). The effect of positive labels on preference and choice should therefore be moderated by environmental concern. It has been postulated that positive labels are more effective than negative labels at high compared to medium or low levels of environmental concern (Grankvist et al., 2004). Conversely negative labelling is

more effective than positive labelling at low or medium levels of environmental concern. This suggests

H5.3a: The effects of labelling and environmental concern on preference moderate each other

Conversely, norm activation models suggest that environmental labelling (raising awareness of consequences) plays a role by activating personal norms towards environmental action (Lindenberg & Steg, 2007; Thøgersen, 2009). The effect of labelling on preference therefore should be mediated by personal norms. Because norm-based behaviour is more in line with prevention focus than with promotion focus, it may be assumed that this effect is stronger for negative labelling compared to positive labelling, thus

H5.3b: Negative labelling activates personal norms more than positive labels
H5.3c: The effect of labelling on preference is mediated by personal norms

The combination of Hypotheses 5.3a and 5.3c suggests

H5.3d: The mediation effect of personal norms is moderated by environmental concern

Overview of the experiments

The hypotheses are tested in three computer based experiments using different designs. In the first experiment ethical product information for a single product is explicitly framed as negative, equal or positive compared to the industry average performance. This experiment has no price differences between conditions. Results are analysed in a between subjects design. In the second experiment a positive and/or negative logo provides information about the ethical product attribute and a price difference between the more and the less ethical alternative is introduced. This requires a refinement of the first hypothesis. Results are analysed in a within subjects design. The third experiment consists of a replication of the second experiment with additional

measures for environmental concern and personal norms to test all three hypotheses.

Experiment 1

The first experiment tests hypotheses 5.1 and 5.2 by presenting explicit positive or negative sustainability information relative to a neutral reference point. The differential effect of positive or negative information is tested by comparing the attitude scores between conditions.

Participants and design

Eighty-one students (57 women and 24 men; average age = 21.54, SD = 4.49) at Wageningen University participated on a voluntary basis. The research was part of a larger set of studies. Participants received a financial compensation and were invited to participate in a lottery. The study had a one factor between-subjects design with three levels (attribute valence: negative vs. neutral vs. positive). Participants were randomly assigned to an information condition. Each condition had at least 26 participants.

Measures

Regulatory focus: Regulatory focus was measured using ten items based on Lockwood et al. (2002; Van Kleef, 2006). All items were rated on 7-point scales with endpoint labels 'not at all true of me' and 'very true of me'. Principal components analysis indicated two dimensions, which reflected the promotion and prevention dimensions, and which together explained 54.83% of the variance. Mean centred composite measures for promotion focus (α = 0.80) and prevention focus (α = 0.70) were created for subsequent analyses. As in previous research (De Cremer, Mayer, van Dijke, Schouten, & Bardes, 2009; Lockwood et al., 2002), the scales did not correlate significantly (r = -0.18, p = 0.11).

Manipulation check: An external hard disk was rated on six perceptual attributes (storage capacity, weight, size, speed, warranty, and sustainability). Perceived sustainability was compared between conditions as manipulation check.

Attitude (a = .88): attitude was assessed by four 7-point semantic differential items (Barden & Petty, 2008; Fujita et al., 2008; Wheeler, Petty, & Bizer, 2005).

The scale anchors were bad-good, dislike-like, negative-positive, valueless-valuable.

Experimental procedure

Participants read the following description of the situation:

Imagine the following situation. You work a lot on the computer and you are in need of extra storage capacity for electronic files, such as pictures and music. In addition, you want to have a back-up facility, among others for your study reports. You consider purchasing an external hard disk. You come across the following offer. Have a look at the product description on the next page.

Participants were given an advertisement for an external hard disk of a fictitious brand (Figure 5.1). The layout of the advertisement was identical in the three information conditions. All attributes were identical across the information conditions, except the information on the sustainability attribute, which was provided last. In the neutral information condition, participants were provided with the following information regarding sustainability:

"Performs on the industry average regarding energy consumption. The package is partly recyclable and partly made from recycled materials".

In the negative (positive) information condition, participants read,

"Uses 40% more (less) energy than the industry average. The package is non-recyclable (fully recyclable) and not made from (made from) recycled materials".

Subsequently, participants were asked to evaluate the product (attitude toward the product). This was followed by questions on perceived and actual information processing, and a manipulation check on the attribute information. At the end of the survey, participants filled in a regulatory focus measure, as well as some background information (whether respondent had purchased an external hard disk in the last year, the perceived difficulty of the questionnaire, gender, age, etc.).

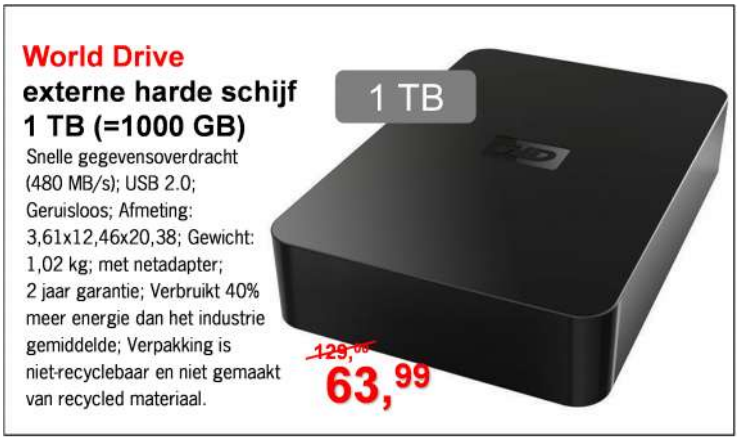

Figure 5.1: Product description in experiment 1

Results

The manipulation of attribute valence regarding the sustainability information was successful ($F_{(2,78)}$ = 61.58; p < .001; η^2 = .61). The negative sustainability information was perceived least positive, the average information intermediate and the positive information most positive (*M*s = 2.04 vs. 4.69 vs. 5.82, *SD*s = 1.34 vs. 1.44 vs. 1.09, respectively). A Bonferroni post-hoc test indicated that all means were significantly different at p < .01. The five other attributes (i.e., storage capacity, weight, size, speed of information transfer, and the warranty period) were not manipulated in the different information conditions and therefore no differences between the conditions were anticipated. Nevertheless perceived speed of information transfer was found to differ between conditions as well, ($F_{(2, 78)}$ = 4.32; p =.017; η^2 = .10).

First a GLM is performed with attitude as dependent variable, attribute valence as an effect coded between subjects factor and promotion and prevention focus as covariates. Results show a significant main effect of attribute valence ($F_{(2,71)}$ = 6.010; p = .004, η^2 = .15) and significant interaction effects of attribute valence with promotion focus ($F_{(2,71)}$ = 3.8919; p = .03; η^2 = 0.10) and prevention focus ($F_{(2,71)}$ = 4.255; p = .02; η^2 = 0.11).

Partial analysis of negative versus neutral attribute valence shows a significant main effect of attribute valence and a significant interaction of attribute valence with prevention focus but not with promotion focus. Partial

analysis of positive versus neutral attribute valence only shows a significant interaction of attribute valence with promotion focus but not with prevention focus and no significant main effect (Table 5.1). This confirms that negative valence of attributes results in a significant negative shift in attitude, whereas positive valence does not differ significantly from neutral information. These results also show that the effect of attribute valence on attitude is moderated by regulatory focus.

Table 5.1: GLM test of moderation of attribute valence by regulatory focus in explaining attitude

	Negative valence vs. neutral			Positive valence vs. neutral		
	B	F(1,64)	p	B	F(1,48)	p
Valence	-0.44	8.258	.006	0.03	0.057	.81
Promotion focus	0.25	2.564	.12	0.20	1.487	.23
Prevention focus	0.24	2.707	.11	0.10	0.516	.48
Valence * Promotion	-0.12	0.580	.45	0.33	4.119	.05
Valence * Prevention	-0.39	7.187	.01	-0.05	0.142	.71

Discussion of experiment 1

The results from experiment 1 confirm the negativity bias and loss aversion effect. Negative ethical labelling has a stronger effect on attitude than positive labelling. The results also confirm the regulatory fit hypothesis, where the effect of attribute valence labelling is moderated by regulatory focus. The effect of positive labelling on attitude is enhanced when people have a stronger promotion focus, but is not influenced by the strength of a consumer's prevention focus. The effect of negative information is enhanced when people have a stronger prevention focus, but is not influenced by the strength of a consumer's promotion focus. Jointly these results suggest that communicating positive ethical deviation from the standard (average) may lead to a small increase in consumer choices for sustainable products depending on the level of promotion focus of the consumer. Communicating negative ethical deviation from the standard will lead to a general shift of consumer choice away from the non-sustainable product that is further enhanced by prevention focus. This implies that in promoting sustainable consumption it seems to be more effective to drive people away from non-sustainable alternatives than to attract them towards sustainable alternatives.

These results should be viewed relative to several limitations of this experiment. Firstly the product used and the presentation of product information in this experiment may have triggered deliberate information processing. Information processing and reliance on the substance of a message is more typical for prevention focus (Friedman & Forster, 2000, 2001; Pham & Avnet, 2004). So the experimental design may inadvertently have provided an additional cue for prevention focus in all conditions. However many purchases are routinized with little deliberation, relying on affective or heuristic cues that are more typical for promotion focus (Friedman & Forster, 2000, 2001; Pham & Avnet, 2004). Secondly in all three conditions the product was offered at a 50% price promotion without any reference to actual market prices. Adding a price comparison between more and less ethical alternatives would make the experiment more realistic, since products that perform well on ethical attributes are often more expensive relative to mainstream products. Thirdly the experiment measures the effect of labelling on attitude, whereas the main barrier in sustainable consumption is the gap between (positive) attitudes and (lack of positive) behaviour. These issues are addressed in the second experiment.

Experiment 2

Instead of computer hardware the second experiment concerns the more routinized choice between food products. Instead of an informational label the positive and negative ethical information is captured in a simple logo that is explained briefly at the start of the experiment. In addition to testing the relationships with equal prices, it is tested to what extent the effects change when the more ethical alternative is offered at a price premium as is common for most food (and many non-food) products. In addition, instead of attitude towards the product, the preference for one alternative over the other was measured as the dependent variable.

A positive ethical logo identifies a product with added sustainable benefits. Likewise a negative ethical logo would identify a product with sustainable deficiencies. To test the differential effect of either the positive or the negative logo each has to be compared to a product without a logo. Compared to a product with either a positive or a negative logo the state of a product without a logo is left implicit and the consumer faces incomplete information (Slovic &

MacPhillamy, 1974), which is different from the stated 'industry average' in the first experiment. When product information is incomplete, this may influence consumer choice. In a choice with incomplete information the common attributes tend to dominate the choice and the unique attribute only plays a subordinate role in choice (Kivetz & Simonson, 2000). This suggests that presenting two-sided ethical information, in which a positive certified product is compared to a negative labelled product, may have a stronger effect compared to presenting one-sided positive or one-sided negative ethical information, in which only one alternative is labelled. Therefore this experiment has a design in which respondents face (a) a positive labelled versus an non-labelled product, (b) a negative labelled versus a non-labelled product, and (c) a positive labelled versus a negative labelled product.

When products with different ethical quality are offered at the same price, it is expected that complete information about ethical quality will positively influence preferences for the product with the highest ethical quality, because consumers generally have favourable attitudes towards products with ethical attributes. In addition, when there is incomplete information (i.e., only information about the ethical quality of one of the two products) preferences for the sustainable product will be less strong, because consumers have no information about the ethical quality of the alternative product, and price cannot be used to discriminate between products or to make quality-related inferences. Thus, when there is no price difference between the alternatives, complete information should be more effective than incomplete information. Based on this line of reasoning, the first hypothesis is reformulated as:

H5.1a: When there is no price difference between products with positive and negative performance on ethical attributes, complete information on ethical quality through labelling of both positive and negative ethical quality leads to more ethical preference and choice than incomplete information through labelling either positive or negative ethical performance

The effects of different types of labelling are expected to change when the more ethical alternative is offered at a premium price compared to the less ethical alternative. When there is a price premium for obtaining the product

with high ethical quality or avoiding the product with lower ethical quality, it is expected that the effect of negativity bias will become manifest. Therefore it is expected that providing negative information about ethical quality will result in a larger preference for the alternative product, than that positive labelling will result in endorsement of this same product. Basically, the hypothesis tested is the same as H1:

H5.1b: In a trade-off between ethical quality and product price, signalling less ethical quality by negative labelling leads to more ethical preference and choice than signalling more ethical quality by positive labelling

In sum, the second experiment investigates the impact of one-sided or two-sided labelling in a choice context in which product prices differ between the less sustainable and the more sustainable alternative. Respondents indicate their preferences relative to a concrete alternative. The products in this experiment are food products (coffee, yoghurt, and fruit juice) that are purchased in a routinized fashion. This more strongly resembles actual purchase situations, where people are confronted with mainstream and sustainable products in a low involvement context.

Participants and Design

A sample was recruited from a University campus in The Netherlands. Respondents were invited to participate in a computer-based experiment in exchange for a modest financial compensation. A total of 170 students participated in the experiment. Age of the respondents varied between 18 and 24, and 67% of the respondents were female.

Measures

Regulatory focus: Regulatory focus was measured with the same 10-item regulatory focus scale as used in the first experiment.

Preference: Respondents were asked to state their preference for either product on a seven point rating scale of unmarked boxes displayed between the two products. Preference was coded from 1 to 7, with 1 designating a preference for the non-organic alternative and 7 designating a preference for the organic alternative.

Experimental Procedure

Upon arrival respondents were told that all instructions would be displayed on a computer screen. Participants were seated in front of a personal computer in a test room.

Before the start of the experiment a brief explanation of the logos that were used was displayed. Two logos were displayed. On the left side the positive certification mark was shown, being the existing Dutch logo for certified organic production 'Eko'. On the right side the negative mark was shown, being a self-designed logo showing a spray-gun and the text 'No-Eko'. Each mark was black-and-white. Below the images was a brief explanation (Figure 5.2).

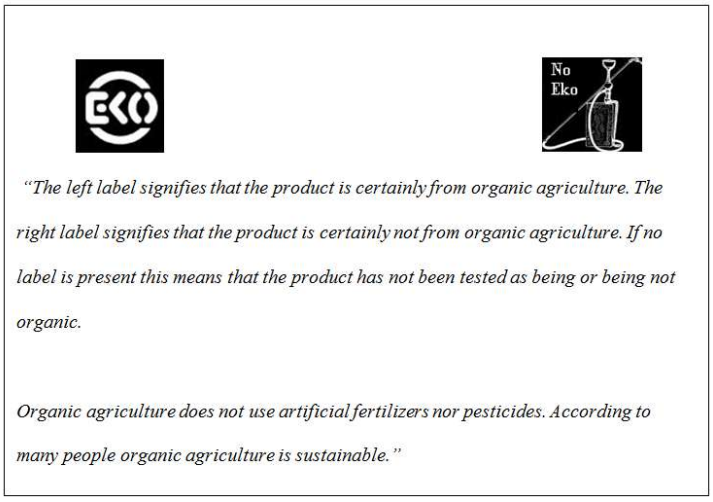

Figure 5.2: Information on logo's used in experiment 2

Next two products were displayed on screen. Depending on the experimental condition one or both products were displayed with a logo on the package. Apart from the logo the two pictures of the products were identical. Below each product was a brief description containing product type (e.g. coffee), the type of logo on the product (e.g. 'No Eko'), and the price. Respondents were asked to indicate which product they preferred on a 7-point

scale that was anchored by both products. Figure 5.3 shows a screenshot of how the products were displayed in the choice task.

After respondents entered their preference they were asked to confirm their choice by clicking the button in the middle of the screen (Figure 5.3), and the next set of products was displayed. The respondents were presented with two sequences of three labelling conditions that were randomly assigned to each of the three food products:

1) a product with a positive logo against a product with no logo (positive label)
2) a product with a negative logo against a product with no logo (negative label)
3) a product with a positive logo against a product with a negative logo (two-sided label)

Figure 5.3: Example of choice in experiment 2 with negative label (right) and premium price (left)

The design represents a 2 (price) * 3 (labelling) within subjects design. In the first sequence, respondents were presented three choices showing equal prices for both products. In the second sequence, respondents were presented three choices showing a price premium for the more ethical product. In all three conditions the same price premiums were set at a realistic price difference between organic and mainstream products of that product category in a regular supermarket. Price premiums varied between 58% for yoghurt and 23% for fruit juice. Order effects and presentation bias were controlled for. The results were analysed with a repeated measures ANOVA.

Results

Both the main effect of labelling condition ($F_{(2,168)}$ = 23.98; p < .001), and the interaction effect of price*labelling, ($F_{(2,168)}$ = 8.03; p < .001), are significant. Not surprisingly the preference rating for organic products without a price premium is higher than for organic products with a price premium, ($F_{(1,169)}$ = 565.65; p < .001; Figure 5.4). The effects of labelling are further analysed in a separate analysis of the two price conditions.

In the condition with no price penalty the two-sided labelling condition generates a significantly higher preference ($F_{(2,168)}$ = 6.13; p = .002) for the more sustainable alternative compared to the incomplete information conditions of positive and negative label only. This is in line with hypothesis 5.1a, and shows that complete information is more effective than one-sided incomplete information.

In the price penalty condition the preference for the organic alternative in the positive label condition is significantly less than in the negative label condition and the two-sided condition ($F_{(2,167)}$ = 7.26; p = .001).

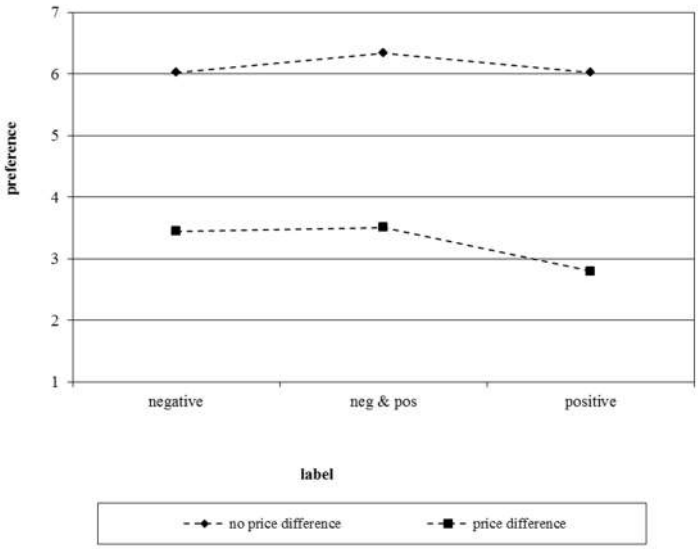

Figure 5.4: GLM of price and labelling on preference for the more ethical alternative

A post hoc Tukey HSD test for the pairwise comparisons shows that the preference in the negative labelling condition is not significantly different from

the preference in the two-sided information condition (d = .06; p = .96). These findings confirm hypothesis 5.1b and support the results of the first experiment. One-sided negative labelling has a stronger effect on preference than one-sided positive labelling, provided that the more ethical product is offered at a price premium. Preference for the more ethical product did not differ between the two-sided information condition and the negative labelling condition. Therefore, no evidence was found that complete information on ethical quality through providing two-sided information about positive and negative ethical quality would lead to more ethical preference and choice than incomplete information through labelling only negative ethical performance.

Table 5.2: Regression of preference for more ethical product on regulatory focus (premium price)

Label	predictor	ß	t(168)	p
Negative	Promotion focus	.04	0.559	.57
	Prevention focus	.04	0.459	.65
Positive	Promotion focus	.16	2.062	.04
	Prevention focus	-.03	-0.348	.73
Two-sided	Promotion focus	.03	0.381	.70
	Prevention focus	-.03	-0.424	.67

The regression of preference (under premium price) on regulatory focus (Table 5.2) shows that prevention focus (α = .622) failed to have a significant contribution. Promotion focus (α = .766) however has a positive effect on the preference in one-sided positive labelling. Hypothesis 5.2a is rejected in this experiment, whereas hypothesis 5.2b is confirmed.

Discussion of experiment 2

The results show that manipulation of labelling changes preferences within the individual and they reconfirm and refine the effect of negativity bias. Negative labelling of the lower priced non-sustainable alternative drives individual preference away from this less sustainable alternative, whether or not the alternative is explicitly labelled as organic. The results show that the effect of negativity bias becomes manifest only if sustainable products are offered at a price premium compared to the non-sustainable product.

The results reconfirm that the effect of positive labelling is enhanced by promotion focus. Contrary to the first experiment the enhancement of negative labelling by prevention focus was not found.

Jointly the results of the two experiments suggest that as long as ethical products are offered at a price premium, positive labelling may attract attitude and product preference for respondents with a promotion focus but negative labelling strongly affects the attitude and preference of consumers in general in favour of a non-negative alternative.

A possible limitation of this experiment is that the positive and the negative label may not have been in balance. That is, the spraying gun that was used to label low ethical performance might have triggered stronger responses than the 'eko' logo that was used to indicate high ethical performance, which could be an alternative explanation of the negativity effect. In addition, the spraying gun was a newly designed label, whereas the 'eko' logo is an existing logo used to identify organic products. Familiarity with the label might also have had an influence on the results, possibly an underestimation of the negativity effect due to the unfamiliar logo. Another limitation is that the within subjects design implied that respondents faced all three labelling conditions, which may have confounded the results on regulatory fit. These limitations are met in the third experiment by using a different negative label and a between subjects design.

Additionally the effects of sustainable motives (i.e. environmental concern and personal sustainable norms) are tested in this third experiment.

Experiment 3

In this experiment, a between subjects design was applied to test the effect of one-sided versus two-sided positive and negative labelling on consumer preferences for products with ethical attributes. Additional psychographic measures were included to explore to what extent the effect of labelling is moderated by environmental concern and whether the negativity bias can be explained by norm activation.

Figure 5.5: No-EKO mark in experiment 3

To prevent informational priming a new 'no-eko' mark was designed that was derived from the 'eko' logo, reshaped into a prohibitory (traffic)sign with a red circle and diagonal (Figure 5.5). No explanation of the logo's was provided, because the EKO-logo is well known and the prohibitory sign was expected to be self-evident.

Participants and Procedure

A sample of 177 University students participated in a computer based experiment. The procedure was similar to the previous experiment and only the changes in design are reported. Choices were offered between two products in four subsequent product categories, being coffee, jam, milk, and fresh tomatoes, and respondents indicated their preference on a 7-point scale anchored by two products that only differed in label and price.

Respondents completed four choice trials in one of three conditions, being positive label, negative label, or both positive and negative label (i.e. two-sided labelling). Respondents were 62% female and aged between 18 and 32. No significant differences in age and gender were found between conditions.

After the choice trials sustainable concern was measured by a 9-item NEP-scale (α = .743) from *chapter 3*. Sustainable norms were measured by 3 items (α = .763) [*I feel a strong obligation to purchase sustainably; I am willing to exert extra effort to purchase sustainably; I would feel guilty if I wouldn't purchase sustainably*] from Vining & Ebreo (1992). Regulatory focus was measured similar to the previous experiments by the prevention focus scale and the promotion focus scale by Lockwood et al. (2002; Van Kleef, 2006).

Results

The analysis concerns the preference across four products in the different labelling conditions, where preference is expressed in terms of the preference for the more sustainable product. The average preference score across four trials is calculated to serve as the dependent variable (α = .867). The design is a one factor between subjects design with 3 levels. One-way analysis of variance shows a significant effect of labelling on preference ($F_{(2,174)}$ = 5.717; p = .004), with positive labelling leading to lower preference for sustainable (3.19) compared to negative (4.07) and two-sided (4.40) labelling. The difference

between the negative and two-sided conditions is not significant (p = .64). The results reconfirm hypothesis 5.1/5.1b, that negative labelling has a stronger effect on preference for the more sustainable product than positive labelling.

Table 5.3: Multi-group analysis of regression of preference on regulatory focus

Condition	Predictor	B(SE)	t	p	F(2,54) (p)
Positive Label	Promotion focus	0.87 (.29)	3.035	.004	6.877 (.002)
	Prevention focus	0.18 (.29)	0.607	.55	
Negative Label	Promotion focus	0.43 (.28)	1.549	.13	14.707 (.000)
	Prevention focus	0.95 (.30)	3.200	.002	

In order to further analyse the different effects of positive and negative labelling, only the positive label and the negative label conditions are included in subsequent analyses. Labelling condition is effect coded (positive condition +1; negative condition -1) and the promotion and prevention focus measures are mean centred. Hypothesis 5.2 suggests a differential effect of regulatory focus on the relationship between type of label and preference, with promotion focus enhancing the effect of positive labelling (positive interaction) and prevention focus enhancing the effect of negative labelling (negative interaction). The difference between the two conditions is analysed by multi-group analysis. Analysing both conditions separately (Table 5.3) reveals that a promotion focus only contributes significantly under positive labelling and that a prevention focus only contributes significantly under negative labelling.

Table 5.4: Regression of preference on label, moderated by NEP and NEP-squared

Indep	ß	t	p
Label (positive/negative)	-.38	-1.789	.08
Environmental concern	.85	4.488	.000
(Environmental concern.)^2	-.20	-1.244	.22
Label * Environmental concern	-.06	-0.297	.77
Label * (Environmental concern)^2	-.05	-0.307	.76

The third hypothesis suggests that the effect of type of labelling on preference is linear or curvilinear moderated by environmental concern. This is tested by a linear regression in which the independents are mean centred ($F_{(5,108)}$ = 5.821; p = .0001; Table 5.4). The results show no evidence of a curvilinear relation and no evidence of moderation, therefore hypothesis 5.3a is rejected.

The results however do show a significant direct effect of environmental concern on preference and a non-significant effect of labelling.

Secondly the hypothesis 5.3b suggests that personal norm is activated by negative labelling, which is confirmed by a simple regression of norm on condition (B = -0.31; $F_{(1,112)}$ = 7.179; p = .008). Mediation analysis confirms that the effect of negative label on preference is fully mediated by personal norms (Sobel's z = -2.495; p = .013) supporting hypothesis 5.3c. Thus, negative labelling activates personal norms and personal norms mediate the effect of labelling on preference for the more sustainable product.
Because hypothesis 5.3a is rejected, it is highly unlikely to find support for hypothesis 5.3d. Indeed no evidence of moderation by environmental concern was found (B= -0.16; t = -1.21; p = .23).

Discussion of experiment 3

The third experiment reconfirms the results of the previous experiments, showing the robustness of negativity bias and the enhancement of positive labelling by promotion focus. In line with the first experiment the effect of negative labelling was enhanced by prevention focus.

The third experiment also shows that the effect of labelling and regulatory focus on preference is mediated by personal norms, which provides an important contribution to research in this area. Overall, the results of this study suggest that the effect of type of labelling is not related to environmental concern. However, the type of label does influence the activation of personal sustainability norms, which increases consumer preferences for sustainable products. The implications of these results for labelling practices are discussed in the general discussion.

Overall discussion

The results from these three experiments can be viewed in relation to recent studies on negative labels and rating scale labels (Grankvist & Biel, 2007; Grankvist et al., 2004; Heinzle & Wüstenhagen, 2012; Meißner, Heinzle, & Decker, 2013) and on light users of sustainable products (*chapter 2; chapter 3*). The results of our experiments suggest that explicitly labelling the non-

sustainable aspect of mainstream products shifts preference away from these products more easily than explicitly labelling the ethical aspects of sustainable products. This suggests that positive labelling of more sustainable alternatives may contribute to cognitive understanding, without having motivational implications (*chapter 2*). While positive labelling may add to the general relevance of sustainable attributes, negative labelling directly seems to influence the determinance of sustainable attributes (Myers & Alpert, 1968; chapter 3), and thus to the actual choice of more sustainable alternatives (Grankvist & Biel, 2007; chapter 3). Consumers may not be willing to reward better-than-average sustainability with paying premium prices, but they are willing to pay more in order to avoid less-than-average sustainability (Prakash, 2002).

As proposed by Grankvist et al. (2004) the effect of labelling is mediated by personal norms, though contrary to their proposition it is negative labelling and not positive labelling that is mediated through personal norms. Therefore the current results also support the norm-activation model of sustainable consumption (Stern, 2000; Stern et al., 1999). The norm-activation approach states explicitly that a personal normative obligation towards behaviour is activated when people believe that something they value is threatened. Negative labelling apparently makes the threat to sustainable development more visible than positive labelling.

Environmental concern is strongly related to preference for the more sustainable product, but does not moderate the effect of positive or negative labelling, which contrasts earlier findings (Grankvist et al., 2004). The results of the current study confirm the conclusion of Grankvist et al. (2004) that negative labelling of the least sustainable alternatives is more effective in changing consumer behaviour than positive labelling of the most sustainable alternatives.

Studies into energy rating scales have found that a rating scale ranging from A (high) to D (low) is more effective than a rating scale ranging from A+++ (high) to A (low) (Heinzle & Wüstenhagen, 2012). This was explained by the visual similarity of A+++ to A labels (Meißner et al., 2013). However, the current experiments suggest an alternative explanation. A rating scale from A+++ to A suggests positive labelling (A or better) whereas a rating scale from A to D may suggest negative labelling (A or worse), and consumers would be

more willing to move their preference away from a perceived low level D, than to move it towards a perceived high level A+++.

It has been stated that negative labelling is not feasible in the existing context of voluntary third party certification (Grankvist et al., 2004). This might be true, but the current experiments suggest that one-sided positive ethical labelling is not effective in influencing consumer demand. Given the effectiveness of negative ethical labelling it can be concluded that in order to be effective for consumer demand, one-sided voluntary positive certification should be supplemented by a mandatory negative 'non-sustainable' label for non-certified products. Even though no producer will pay to have a product labelled as 'worse than average for the environment', a mandatory negative label for baseline products allows any producer who exceeds the minimum standards of sustainability to differentiate his products from this baseline. Negative labelling might help consumers and producers to remove the least sustain able products from the market and contribute jointly to sustainable development.

6. General discussion: sustainable consumption and marketing

"… the economic system is heavily dependent on the social and ecological systems,…" (Fisk, 1973)

Introduction

The overall policy with respect to sustainable food production assigns a key role to consumers. However, in food choice, as in many other product categories, the majority of consumers claims to consider sustainability generally important and desirable, but does not act accordingly. This gap between positive consumer attitudes towards sustainable development and actual non-sustainable consumer behaviour is one of the persistent problems in sustainable marketing (Roberts & Bacon, 1997; Uusitalo, 1990; Vermeir & Verbeke, 2006). Similarly many companies that acknowledge the general importance of sustainable development tend to be highly reluctant to commit themselves to sustainable procurement, production, or products (Funtowicz & Strand, 2011; Gifford, 2011; Laine, 2010; Polasky, Carpenter, Folke, & Keeler, 2011; Wagner, Lutz, & Weitz, 2009). This gap between positive corporate attitudes towards sustainable development and actual non-sustainable corporate behaviour is comparable to the attitude-to behaviour gap in consumer behaviour (Menzel et al., 2010; Orsato, 2006; Wagner et al., 2009).

In this thesis the gap between sustainable or ethical attitudes and non-sustainable or non-ethical behaviour has been viewed as a symptom of the conflict between motives to achieve valued distant outcomes and motives that guide actual behaviour.

Construal level theory of psychological distance offers a general framework that explains discrepancies between valued distant outcomes and actual behaviour from differences in levels of abstraction. A distant outcome is, cognitively and motivationally, represented more abstract and idealistic compared to the immediacy and feasibility of actual consumer choice. The aim of this thesis was to show that the various manifestations of the discrepancy between sustainable development goals and actual behaviour in consumer behaviour and marketing can be explained by the overarching difference in construal level between sustainable development as an abstract construct and sustainable behaviour as concrete actions.

Overview of main results

The results of the studies in this thesis are summarised in Table 6.1. The first two empirical chapters of this thesis are inductive and provide evidence for explaining the meaning of sustainability and importance among light users in terms of construal level theory. From a comparison between the motivational and the cognitive structure of sustainable development among light users (*chapter 2*) it is established that light users can distinguish meaningfully between different dimensions of sustainable development. More specifically, both the 'Brundtland' conception of social and temporal sustainability dimensions (WCED, 1987) and the Triple-P bottom line conception of people, planet, and prosperity dimensions (Hammond, 2006) can be used by light users for discerning among sustainable attributes. This does not necessarily imply that light users in their daily life use those dimensions to understand sustainable development, but it does show that any lack of use of these dimensions is not caused by a lack of understanding. Having established the cognitive potential for distinguishing dimensionalities in sustainable development, the motivational structure of sustainable development was tested for these same dimensionalities. In two surveys it is shown that different aspects of sustainable

development converge into a single overarching sustainable motive that efficiently explains actual choices for organic or ethical products. This overarching sustainable motive is efficiently explained by biospheric values and two constructs (connectedness to nature and ethical orientation) that measure sustainable identity (see also *chapter 4*). Jointly these surveys show that light users of sustainable products represent sustainable development as a simple and coherent, highly abstract, motivational construct.

Building on this result a method for the a priori measurement of importance at distinct levels of abstraction has been developed and tested (*chapter 3*). The abstract importance of attributes at high construal level was defined as attribute relevance and measured as a direct rating of stated attribute importance. The concrete importance of attributes at low construal level was defined as attribute determinance and measured by a series of forced choices between attributes. The results have shown that the determinance of product attributes that are related to sustainable development (hereafter 'sustainable attributes') is a better predictor of sustainable product choice than the relevance of these attributes. Compared to utilitarian and hedonic attributes the relation between the relevance and the determinance is significantly weaker for sustainable attributes and the statistical prediction of determinance is only partially mediated by relevance. Especially the future temporal orientation of light users directly enhances the determinance of sustainability without affecting its relevance.

The results of these two chapters support an interpretation of the sustainable attitude to behaviour gap in terms of construal level theory of psychological distance. For the majority of consumers, who only incidentally purchase certified sustainable products, sustainability is an abstract and distant goal. This abstract goal is mentally represented at a high construal level in a broad motivational structure for sustainability that focuses on coherence and that is experienced as a relevant and desirable ideal, with little regard to the feasibility of this ideal. As a consequence sustainability is highly relevant to light users in general, but not determinant for the actual personal choices that are made here and now.

Table 6.1: summary of results

Chapter/study	Objective	Method	Dependent variable(s)	Outcome
2 / 1	Compare the cognitive structure of sustainable development to WCED and/or Triple-P dimensionality	Within subjects repeated measure design N = 109 students	Scores of 10 attributes on 2 (social, temporal) and 3 (people, planet, prosperity) scales	2 dimensions of WCED (social, temporal) and Triple-P dimensions (people, planet, prosperity) both supported
2 /2	Explore the dimensionality of the motivational structure of sustainable development among light users	Panel survey CFA N = 4857 households	Scores on Food Choice Questionnaire	Sustainable motives revert to a single dimension
	Predict sustainable motivation	Panel survey Redundancy analysis N = 851 households	Stated importance of 10 attributes	Overall sustainable motive is predicted efficiently
	Predict sustainable choice by one overall sustainable motive	Panel data + survey Poisson regression N = 570 households	Organic or ethical purchases over 12 weeks	Overall sustainable motive outperforms multiple motives
3 / 1	Compare relation among relevance and determinance of utilitarian versus sustainable attributes	Panel survey; determinance measured by forced choice. t-test; Fisher's z-test N = 1417 households	None: interdependency	Relevance and determinance correlate lower for sustainable attributes than for utilitarian attributes
	Compare relevance and determinance of sustainable attributes for explaining purchase	Panel data + survey Logit regression Neg. binomial regression N = 1112 households	Occurrence of sustainable purchases across 27 product groups over 12 weeks # product categories with certified sustainable purchases over 12 weeks	Determinance outperforms relevance in explaining actual purchase data
	Explaining determinance of sustainable attributes by relevance, future temporal orientation and social orientation	Panel survey, linear regression N = 1453 households	Determinance of sustainable attributes	Future temporal orientation predicts determinance. Social orientation is fully mediated by relevance

4 / 1	Formation of sustainable identity	Survey data MDS Repeated measures ANOVA; linear regression N = 229 students	None: interdependency	Sustainable identity defined as composite of ethical orientation and connectedness to nature
	Activation of proximal/intrinsic (self-confirmation), and distal/extrinsic (sustainable) motives by sustainable identity		Preference for sustainable products	Sustainable identity predicts preference, partially mediated by proximal/intrinsic motives.
4 / 2	Activation of proximal determinance or distal relevance of sustainable attributes by sustainable identity	Panel data + survey Linear regression Neg. binomial regression N = 1112 households	Relevance and determinance of sustainable attributes	Determinance is predicted by future temporal orientation and by sustainable identity Effect of sustainable identity is partially mediated by relevance
	Prediction of choice by sustainable identity, relevance and determinance of sustainable attributes		# Product categories with certified sustainable purchases over 12 weeks	Most parsimoneous model is fully mediated by determinance
5 / 1	Effect of negative sustainability information on consumer choice	Experiment, between subjects ANCOVA N = 81 students	Choice of a technical item	Negative information has stronger effect than positive information Prevention focus is moderator
5 / 2		Experiment, within subjects ANOVA N = 170 students	Choice of food products	Negative label affects choice under price difference.
5 /3		Experiment, between subjects ANOVA N = 177 students	Choice of food products	Negative label has effect on choice. Prevention focus enhances the effect of negative label. Effect of negative label is mediated by personal norms

The actual choices in daily consumption are governed by low construal motivational factors rather than by abstract and distant goals. Recent studies suggest that low construal motives are intrinsic, means-focused, and/or loss oriented (Freitas et al., 2004; Freund et al., 2010; Fujita et al., 2008; Lee et al., 2010). Therefore internal intrinsic motivations for sustainable consumption, or external product cues that are congruent with loss avoidance should, be effective in triggering sustainable consumption among light users. The remaining two empirical chapters are deductive and test whether low construal motives contribute to bridging the gap between (high construal) attitudes towards sustainability and (low construal) actual consumer choice.

In two studies self-confirmation of a sustainable self-concept, or sustainable identity, was investigated as an intrinsic motive for, and predictor of, sustainable consumption (*chapter 4*). In the first study sustainable identity has been shown to trigger intrinsic self-confirmation motives for sustainable consumption. In the second study it is established that sustainable identity directly affects the (low construal) determinance of sustainability, and through determinance influences actual choice for sustainable products. Sustainable identity was shown to moderate the relation between biospheric value orientation and relevance of sustainability, as well as the relation between relevance and determinance of sustainability. The first study also suggested a positive feedback loop in which sustainable choice reinforces low construal motives for sustainable choice.

Negative labelling of non-sustainable alternatives, matching with proximal, low construal, loss avoidance motives, has been studied as an extrinsic cue to influence sustainable consumption (*chapter 5*). Three experiments have confirmed that focusing consumer attention on the lack of sustainability of non-sustainable products triggers loss-avoidance motives and stimulates sustainable choice more strongly than positive labelling of sustainable products. The effect of loss avoidance is mediated by intrinsic norms, which suggests that motivating sustainable choice through loss avoidance could increase the salience of sustainable identity, which further reinforces increased sustainable consumption.

The results of these empirical chapters further support the explanation of the attitude-to-behaviour gap in sustainable development in terms of construal level theory of psychological distance. Actual behaviour is by definition

proximal behaviour that is performed in the 'here and now'. Linking sustainable behaviour to intrinsic motives or linking sustainable behaviour to loss avoidance motives reduces the construal level of sustainable outcomes. Reducing the construal level of sustainable outcomes moves these outcomes to the 'here and now' and therefore increases the incidence of actual sustainable behaviour. Additionally both empirical chapters suggest that not only do low construal motives trigger sustainable behaviour, but that this behaviour in turn triggers or reinforces low construal motives for sustainable behaviour. Where high construal motives often result in a rebound effect (Gino et al., 2011; Wenzlaff & Wegner, 1998, 2000), low construal motives appear to be empowering (Schmeichel & Vohs, 2009).

Conclusions

The majority of people perceive sustainable development as an abstract and distant goal that may be desirable and relevant in general, but that does not determine the immediate feasibility of their behaviour. The resulting discrepancy between pro-sustainable attitudes and lack of pro-sustainable behaviour, known as the attitude-to-behaviour gap in sustainable development, can be explained by the differences in construal level between abstract goals and concrete behaviour. People may cognitively represent sustainable development as an abstract and high construal goal, but their actual sustainable consumption can be stimulated by low construal motives. This suggests that the crux of the attitude-to-behaviour gap in sustainable development may not be the elusive goal of sustainability, but the actual processes of development and change. Viewing sustainable development as an abstract goal implies a high construal representation and high construal motivational factors. Viewing sustainable development as a concrete process requires a low construal representation and low construal motivational factors. For the majority of light users such low construal motivational factors enhance sustainable product choice.

In a high construal goal representation sustainable development of the global food system implies a balance between the potentially conflicting goals of economic sustainability, social sustainability, ecological sustainability, and increased supply. In a low construal process representation this sustainable

balance cannot be imposed by individual products, processes, outputs, or firms, because it is an outcome that emerges from the entire global food system. High construal representation of the elusive and abstract goal of sustainable development has up to now failed to induce the desired changes. Over four decades after the Stockholm declaration (UNEP, 1972) the dominant approach in global food markets is cost reduction and a global 'race-to-the-bottom' rather than sustainable development (KPMG, 2012; Marsden, 2012). Apparently it is still rational for a firm to focus on profit maximisation rather than focusing on the goals of 'economic sustainability, social sustainability, ecological sustainability, and increased supply'. In a low construal representation of the actual process of sustainable development firms should trigger low construal motives to stimulate sustainable consumption. By extension economic policy should create low construal incentives to stimulate sustainable marketing, or – sustainability being an elusive goal – incentives to discourage non-sustainable marketing among firms. A low construal step toward sustainable development as a process therefore should be the removal of those incentives that currently stimulate the non-sustainable ideal market of unconstrained profit and utility maximisation.

Implications

A methodological implication is that à priori attribute importance should be measured at low levels of abstraction as determinance in order to predict actual choice. Rating scales for measuring self-reported attribute importance appear to be fine-tuned to abstract cognitive and affective attitude components while ignoring the conative component of the attitude towards the attribute that is measured (Bagozzi, Tybout, Craig, & Sternthal, 1979; Rosenberg & Hovland, 1960). A rating scale for measuring importance typically results in a high construal construct that is more likely to reflect the relevance that people feel and believe than the determinance of what they are prepared to do. This high construal bias of rating scales appears to be independent of domain specificity or the degree of correspondence with behaviour (Kaiser, Wölfing, & Fuhrer, 1999). The forced choice scale that has been developed in this thesis shows that a measurement that incorporates the trade-off inherent in choice is a more

valid predictor of actual behaviour. Alternative forced choice rating scales could be employed and further research may determine an optimal methodology for measuring à priori attribute determinance in a survey.

A strategic implication is that a sustainable marketing strategy for light users cannot be derived from research on heavy users. In a choice between sustainable and non-sustainable products light or non-users are governed by motivational factors that are different from to those commonly found among heavy users of sustainable products. The broad and coherent motivational structure of sustainability among light users that was found in this thesis contrasts to the complex and domain specific motives that are typically found among acknowledged heavy users of sustainable products (Autio, Heiskanen, & Heinonen, 2009; Barr, Shaw, & Gilg, 2011; Brown et al., 2009; De Ferran & Grunert, 2007; Griskevicius et al., 2010; Lorenzen, 2012; Thøgersen & Ölander, 2003). Light users appear to represent sustainability at a higher construal level than heavy users, which might explain why strategies that are effective for heavy-users fail to increase sustainable consumption among light or non-users. Conversely there is no compelling reason why strategies that are effective for light users would not be effective for heavy users as well. The studies in this thesis show that sustainable consumption among light users can be stimulated by low construal motivational factors. Among light users a prevention focused positioning relative to long term goals triggers more goal-congruent behaviour than a promotion focused positioning (*chapter 5*). It seems implausible that a prevention focused positioning, like negative labelling, would be ineffective among heavy users. Additionally, intrinsic (self-confirmation) motives trigger light users to respond more positively to a promotion focused positioning (*chapter 4).* Again it is unlikely that heavy users would not be positively influenced by intrinsic motives. Further research is required to study the interaction between involvement, psychological distance, and construal level in the motivation for sustainable consumption.

This thesis also has implications for social marketing in general. In this thesis the attitude to behaviour gap in sustainable consumption is explained by the differences between the high construal representation of an abstract and remote goal and the low construal representation of concrete and actual behaviour (Liberman & Trope, 2014). Social marketing typically faces the challenge of promoting concrete behaviour that corresponds to abstract goals that are socially desirable (Rothschild, 1979) in a context where socially

undesirable behaviour comes naturally. The majority of research in social marketing focuses on raising the construal level of actual choices by awareness and self-control in order to decrease the influence of low construal incentives or 'guilty pleasures' (Amel et al., 2009; Fujita, 2011; Fujita & Roberts, 2010; Mantzios & Wilson, 2014; Wieber, Sezer, & Gollwitzer, 2014). Awareness raises the relevance, but not necessarily the determinance of distal goals or goal congruent attributes. Awareness may be a necessary but not a sufficient condition for behavioural change as long as the proximal incentives favour goal incongruent behaviour. Mere awareness of desirable distal outcomes does not reduce the awareness of conflicting and more proximal outcomes. Self-control requires a continuous conscious effort to suppress these proximal goal-incongruent impulses and therefore is subject to ego-depletion (Gino et al., 2011; Imhoff et al., 2015; Muraven & Baumeister, 2000). Awareness and self-control aim at behavioural change by forgoing immediate rewards without reducing the craving for these immediate incentives. Over time the craving grows and/or the self-control erodes and the unwanted behaviour re-establishes itself. This thesis has shown that behaviour that is congruent with abstract distal goals can be triggered more effectively by low construal motivational factors. Low construal motivated goal-congruent behaviour requires less self-control or effort and may even counteract ego-depletion (Schmeichel & Vohs, 2009). This thesis suggests that in a socio-temporal dilemma the intrinsic motives for distal-goal congruent behaviour can be enhanced by low construal goal congruent product choices. The possible existence of a self-reinforcing positive feedback loop from low construal goal-congruent choice to intrinsic motives for goal-congruent choice may imply a change in the perceived incentive structure that needs to be researched systematically in a range of social marketing issues.

Limitations and future research

A possible limitation of the present studies is that 'sustainable consumption among light users' is analysed at a high level of aggregation. Different product categories are purchased in different volumes and frequencies. Also price differences between sustainable and mainstream products vary considerably

between product categories. Therefore neither volume nor price provide a valid basis to compare and aggregate sustainable purchases across product categories. Most existing studies circumvent this by focusing on a single product group and thus limiting themselves to the explanation of sustainable consumption within that particular product group. In this thesis sustainable consumption within a product category was operationalised as the occurrence of at least one certified sustainable purchase in twelve weeks, and results were aggregated across product categories by simple summation of product categories. This aggregation across product categories and over time, and the limitation of 'sustainable product' to 'certified product' is a strength but also a weakness of the studies. The aggregation has allowed the quantitative identification and confirmation of relations between psychological variables and consumer purchases. At the same time the aggregation has masked individual differences in level of sustainable consumption, allowing analysis across product categories at the cost of analysis within product categories. In terms of assortment management the current thesis has focused on the width rather than the depth of the sustainable assortment that is purchased by light users. At this aggregation level all within product category variance of sustainable consumption has been removed from the individual data and has been reduced to error variance. Therefore segmentation of respondents was not considered nor attempted and consumers are analysed as a single homogeneous group. This notwithstanding prevention focus, future time perspective, and self-confirmation are identified as motivational factors that stimulate sustainable consumption, but it is possible that distinct segments of light users are differentially motivated. Future research could expand the current insights by incorporating product type and purchase frequency within a category in the analysis of sustainable consumption.

Psychological distance manifests itself along four dimensions as spatial distance, temporal distance, social distance, and hypotheticality (Trope & Liberman, 2010). A limitation of the present studies is that only two of these dimensions of psychological distance are pursued. In this thesis future temporal orientation was found to have a direct effect on determinance of sustainability and sustainable choice. Assumedly future temporal orientation directly affects sustainable consumer choice because it desensitises consumers to the temporal dimension of the psychological distance of sustainable development. Temporal self-transcendence therefore has a direct positive

effect on sustainable consumption. Self-transcendence on the social dimension has been tested in this thesis, but no effects were found. Following existing research (Joireman et al., 2001; Joireman et al., 2004) sensitivity to social distance was operationalised as social value orientation. Based on this existing research it was expected that social value orientation, like future temporal orientation, would have a direct effect on determinance and behaviour, but this failed to materialise. This may indicate the inadequacy of social value orientation as operationalisation of sensitivity to social distance. Social distance refers to a lack of social ties rather than lack of information whereas the measurement of social value orientation focuses on a game with an 'undisclosed other', which implicitly may suggest some social tie. Alternatively the lack of support for the effect of social value orientation on the determinance of sustainability may imply that the temporal dimension is unique in the context of sustainable development and that other dimensions of psychological distance are immaterial. Self-transcendence on the spatial and hypotheticality dimensions, or sensitivity to spatial distance and sensitivity to hypotheticality have been ignored in this thesis. Further research should focus on the operationalisation and measurement of individual differences in sensitivity to the different (non-temporal) dimensions of psychological distance as possible determinants of sustainable behaviour in order to settle this issue.

Another limitation is that a translation of the factors that increase sustainable consumption among light users into managerial interventions is not directly evident. For light users the dominant goal pursuit is prevention focus and the positioning of sustainable products by appealing to loss prevention is more effective than focusing on the sustainable gains of the product. A most radical loss avoidance appeal is negative labelling of the least sustainable products in a product category (*chapter 5)*. In practice this requires joint commitment and concerted action throughout the industry, which may be difficult to achieve. A less extreme application of prevention focus could be, e.g., stressing the (sustainable) opportunity costs of not purchasing, rather than the gains of purchasing, a pro-sustainable product. Further research could identify effective appeals to loss prevention, maybe in various combinations of low construal level motivational factors, to target light users effectively.

An implicit assumption in this thesis is that purchase and consumption of sustainable products contribute to sustainable development. Sustainable

products are further reduced to certified products, e.g. organic, fair trade, MSC, suggesting that the purchase of these certified products contributes to sustainable development. A major limitation therefore is that several fundamental objections can be raised against this simplified assumption. Firstly, certified products do not necessarily contribute more to sustainable development than non-certified products. Sustainable development is a multidimensional construct with a range of disparate goals and sub-goals (James, 2014; United Nations, 2012). Given the complexity of each of the systems that are involved (societies, natural environments, and human-nature interactions) it is virtually impossible to predict which choices will, and which will not, contribute to this outcome. The most sustainable products therefore may originate from a system that doesn't maximise any single output variable but instead balances the various dimensions of sustainability (Chandre Gowda & Jayaramaiah, 1998). The best performance in either ecological safety, or social wellbeing, or economic security does not guarantee an overall more sustainable performance. Existing certification schemes are codified on criteria that, at best, only cover a subset of these dimensions and require that products or processes are optimised on this narrow subset of criteria. Finding a sustainable multidimensional balance, rather than optimising a narrow subset of output variables, therefore is not likely to be compatible with any existing certification scheme. Conversely this implies that those products that are compatible with a single existing certification scheme do not necessarily contribute optimally to sustainable development, as for example shown by the environmental emissions of organic livestock production (Boggia, Paolotti, & Castellini, 2010). Secondly, increased demand for those certified products in itself does not necessarily contribute to sustainable development. Increased purchase of sustainable certified products does not imply that the production and consumption of least sustainable products will decrease. It can be argued that eliminating the least sustainable alternatives from an assortment contributes more to sustainable development than adding more sustainable alternatives to it (Akenji, 2014). Thirdly, the claim that 'convincingly strong' consumer demand may compel business to react with sustainable supply (European Commission, n.d.), or may compel corporate and public policy to adopt sustainable standards (Moisander, Markkula, & Eräranta, 2010; United Nations, 2012) shows unwarranted confidence in 'consumer sovereignty' (Van Tuinen, 2011). Consumer demand for sustainable food products does not reduce the vast

majority of food loss and food waste that occurs from production up to and including retail (Gustavson, Cederbeg, Sonsession, Van Otterdijk, & Meybeck, 2011). Sustainable development aims at changing the socio-economic system of production, provision, and consumption to create a complex balance between exploitation of resources, the direction of investments, the orientation of technological development, and institutional change (WCED, 1987). Such an emergent system outcome cannot be reduced to simple processes or actions. Mere consumer demand cannot change a system in which wasting resources can be more efficient than prudent and effective use of resources (Akenji, 2014; Engels, 1883/1971; Gustavson et al., 2011). Merely by contributing to the understanding of consumer purchase of certified sustainable products, the current thesis does not necessarily contribute to sustainable development.

Application to sustainable marketing: a research agenda

Consumer behaviour primarily is economic behaviour within a market system and the consumer behaviour research in this thesis therefore should have consequences for research on the marketing system (Pham, 2013). Though it may be bold to extend the results of consumer research to the supply side of the market, the behaviour of producers and consumers as economic actors within a market system show sufficient similarities (Cova & Dalli, 2009; Kozinets et al., 2004; Layton, 2009; Smith, 1784; Vargo & Lusch, 2004) to generate conjectures from this thesis that can be tested in marketing organisations.

Both sustainable consumption and sustainable marketing refer to economic behaviour within contexts in which the immediate incentive structure favours a choice that conflicts with distant goals. In this thesis it was shown that in consumer behaviour the conflict between long term goals and short term choices was not unique for sustainability. For companies a similar trade-off between the short-term and long-term outcomes is not limited to sustainable development either (Figge & Hahn, 2012; Menzel et al., 2010; Wu & Pagell, 2011). Like consumers, also corporate decision makers face the generic issue of balancing distal and proximal goals in their choices (Homburg & Jensen, 2007;

Slater & Narver, 1996). Strategic planning typically focuses on outcomes that are psychologically distant. Therefore strategic planning implies high construal cognitive and motivational factors, like idealistic reasoning, outcome focus, desirability considerations, gain orientation, etcetera. Conversely operational planning typically focuses on short term outcomes. Therefore operational planning implies low construal cognitive and motivational factors, like pragmatic reasoning, process focus, feasibility considerations, loss orientation, etcetera.

Goal conflicts and market orientation

Extending the insights from consumer research to marketing explains why companies face a generic tension between their (long-term) strategic market orientation and their (short-term) operational marketing actions (Dodd & Favaro, 2006; Kaiser & Craig, 2011; Kaiser & Overfield, 2010). This tension easily surfaces as a conflict between short-term profit maximisation versus long term profitability, short-term sales versus long-term customer relations, short-term cost-savings versus long term investments, and/or the short-term benefits versus long term costs of outsourcing (Dekkers, 2011; Done, Voss, & Rytter, 2011; Gutierrez & Serrano, 2008; Weitz & Bradford, 1999). In this respect, it is immaterial whether a company is seen as a single decision making unit or as a complex organisation in which different decision makers pursue different political or situational interests (Knight, Durham, & Locke, 2001; Lee, Locke, & Phan, 1997; Pritchard & Curts, 1973; Schoemaker, 1993). Following the results of *chapter 3* the strategic goals are relevant but the operational goals are determinant.

Viewing the tension between strategically relevant and operationally determinant objectives in terms of construal level theory allows a set of testable hypotheses to be derived from the conjecture that long-term objectives and strategic planning are cognitively represented at a high construal level, whereas short-term objectives and operational planning are cognitively represented at a low construal level. Strategic planning therefore should be characterised by broad and coherent concepts, idealistic reasoning, and a focus on the desirability of outcomes. Operational planning should be characterised by narrow and complex concepts, pragmatic reasoning, and a focus on the feasibility of processes.

A relation between construal level and market orientation is suggested by the resource advantage theory of competitive advantage (Hunt & Morgan, 1996, 1997). Focusing on lower resource costs or focusing on higher added value are different strategies to pursue the goal of competitive advantage and superior financial performance (Hunt, 1997; Hunt & Davis, 2008). Among these different strategies a cost-oriented strategy is motivated by prevention focus and risk avoidance (Jaworski & Kohli, 1993), which is typical for low construal goal pursuit. Conversely a value oriented strategy reflects the promotion focused innovative capability of companies (Grawe, Chen, & Daugherty, 2009), which is typical for high construal goal pursuit. This suggests the testable hypothesis that long term strategic marketing planning is congruent with a competitive focus on higher added value, whereas short term operational marketing planning is congruent with a competitive focus on lower resource costs. These differences in cognitive and motivational representation, and the related differences in competitive focus, should be visible between (effective) actors at different organisational levels and also within actors (e.g. entrepreneurs or SME-managers) when differentially focusing on long-term or short-term outcomes.

Goal conflicts and sustainable marketing

The generic tension between high construal and low construal focus is likely to be stronger for sustainable marketing within companies (Van Dam & Apeldoorn, 1996). In order to control the environmental and social impact of products and production processes over the entire product life cycle, sustainable development implies a cradle-to-grave approach to resource use and value creation that involves the entire value chain (Carter & Jennings, 2002; Marshall, McCarthy, McGrath, & Claudy, 2015; Wells & Seitz, 2005). Furthermore the environmental and social impact of products and production processes explicitly addresses the problem of the social costs of economic activity (Coase, 1960). In sustainable marketing the generic tension between strategic versus operational planning therefore is likely to be aggravated by the difference in spatial and temporal distance between cradle-to-grave versus local processes, and the difference in social and temporal distance between collective versus corporate costs and benefits. In this tension between sustainability and

business economics many companies are more concerned about the profitability of sustainable ventures than about the sustainability of profitable ventures (Menzel et al., 2010), which supports the conjecture that sustainability may be considered relevant but that profitability is determinant.

Sustainable market orientation

A sustainable market orientation aims at positive long-term outcomes in economic, social and environmental terms and therefore builds on value orientation and effectiveness rather than cost orientation and efficiency as competitive focus (Crittenden, Crittenden, Ferrell, Ferrell, & Pinney, 2011; Hunt & Duhan, 2002; Meng, 2015; Mitchell, Wooliscroft, & Higham, 2010). For most companies, however, the incentive structure of their tactical marketing decisions apparently favours cost reduction over value creation. Even when companies support a long-term value orientation in general terms, a short-term cost orientation tends to prevail whenever concrete actions are required (Ducassy, 2013; Marti, Rovira-Val, & Drescher, 2013; Menzel et al., 2010; Miller, Spivey, & Florance, 2008; Orsato, 2006; Saeidi, Sofiana, Saeidi, Saeidi, & Saaeidi, 2015). A (low construal) cost orientated competitive strategy appears to be incompatible with sustainable (Westkämper, 2008) or environmental performance (Liyin, Hong, & Griffith, 2006).

The consumer research in this thesis has shown that sustainable identity and future time perspectives offer intrinsic motives for sustainable performance (*chapter* 4). In line with these findings corporate sustainable identity may induce a shift from extrinsic motives to intrinsic motives for sustainable marketing (Heikkurinen & Ketola, 2012; Sharma, 2000). Further research is needed into the mechanisms that induce and enhance a corporate sustainable identity and the mechanisms that ascertain the salience of such a corporate sustainable identity among managers at the operational levels within the company (Alvesson & Spicer, 2012; Palazzo, Krings, & Hoffrage, 2012; Peattie, 1999). Companies may have more possibilities to induce abstraction from the present context among their employees than among their customers or the consumers of their products. Changing the incentive structure within companies could be one way to relay commitment to sustainable development to lower managerial levels and to create a sustainable corporate identity (Berson, Halevy, Shamir, & Erez, 2015; Gallarotti, 1996; Rothenberg, 2012). However, the willingness to

promote sustainable choices among operational and tactical marketing management by goal-congruent incentive structures may in turn depend on the low construal determinance rather than the high construal relevance of sustainability among higher management levels (cf. *chapter 3*).

On the temporal dimension of psychological distance it may be difficult to show that a long planning horizon promotes corporate sustainability, but the complementary relation – that a focus on quarterly financial results hinders long term sustainable investments – has already been suggested (Generation Investment Management, 2012). This suggests that other psychological distance dimensions (temporal, social, uncertainty) also may influence choices and decision making vis-a-vis sustainable development at different levels in an organization (Ambrose & Kulik, 1999; Klein, Wesson, Hollenbeck, & Alge, 1999). By extension this could explain why, in a mainstream incentive structure that favours short term economic outcomes, the factors that contribute to an entrepreneurial orientation enhance the practical implementation of a sustainable market orientation (see e.g., Marshall et al., 2015). Conversely a managerial orientation (Zaleznik, 1977) would be incongruent with a sustainable market orientation.

Sustainable market systems

Economic transactions are governed by a market system (Layton, 2007). The market as governance system is itself embedded in an institutional environment, that is composed of economic, social, and cultural conventions (Bessy & Favereau, 2003; Biggart & Beamish, 2003; Peattie, 1999). The institutional environment and the governance structure of the market shape the incentives that tip the balance between short-term and long-term corporate goals and between corporate and societal goals. Changes in the institutional environment lead to changes in governance (Lazonick & O'Sullivan, 2000), that in turn lead to changes in market orientation and marketing strategy (Ghosh & John, 1999).

At least since the 17th century the institutional environment has struggled with balancing the interests of private and public interests. Over the years this balance seems to have shifted from a conflict between public interest served by enterprises and private costs of individuals to a conflict between the private

interest of enterprises and the public costs for society (Coase, 1960; Viner, 1960). This has facilitated a shift in focus within companies, and eventually within society, from public interest to self-interest. It could be argued that by shifting from wealth creation and profitability to profit maximisation and shareholder value (Brueckner, 2013; Friedman, 1962), and by shifting from a consumer orientation to a buyer orientation (Alderson, 1958), marketing has redefined itself as business science rather than social science. In the business-scientific micro-marketing (or marketing management) view the effectiveness of marketing is measured in terms of financial corporate performance (Hunt & Morgan, 1996, 1997) and sustainable demand is just another market segment that can be catered to by adding a sustainable product line to the business model. At a chain or market level, which transcends the individual business interests, it is not evident that successful micro-marketing is compatible with successful markets (Hunt & Arnett, 2006), or that seeking efficiency in lower resource costs is compatible with finding effectiveness in delivering sustainable value (Hunt & Duhan, 2002; Meng, 2015). At higher levels of aggregation the effectiveness of marketing systems is evaluated by their capacity to provide accessible assortments to their customers (Grunert et al., 2005; Grunert, Trondsen, Campos, & Young, 2010) and by their capacity to contribute to welfare and quality of life (Carter & Jennings, 2002; Layton, 2009; McGuffog & Wadsley, 1999).

In social life personal interests and collective interests are balanced by social norms (Biel & Thøgersen, 2007; Coleman, 1990). In mainstream marketing theory the prevailing norm is self-interest and profit maximisation (Friedman, 1962; Hunt & Morgan, 1996; Palazzo et al., 2012; Woolverton & Dimitri, 2010). In a mainstream (orthodox neo-classical economic) marketing system external regulation is required to restrain the tendency of individual market actors to externalise their costs in pursuit of micro-marketing effectiveness (Beyer & Höpner, 2003; Coase, 1960; Qu, Ennew, & Sinclair, 2005; Ramírez & De Long, 2001; Van Dam & Apeldoorn, 1996; Zhao & He, 2014). Among the mature and emergent markets around the world examples of alternative or unorthodox market systems can be found (Layton, 2011). Those unorthodox market systems range from structured mature markets in advanced economies to informal emergent markets in developing regions. Structured market systems are characterised by horizontal or vertical collaborative relationships, the strength of which reflects not only the economic but also social investment

by the parties involved. In structured market systems economic transactions are more likely to be governed by mutual benefits (Layton, 2009), rather than the individual profit maximisation of purposeful markets. Also the majority of emerging market systems that function on the fringes of the free market economy are governed at least as much by social conventions as by economic profit (Greene, 2004; Layton, 2011; Li, 2010; Lu, 2007; Urban & Koh, 2013). Further research should focus on the identification and understanding of these unorthodox market systems in comparison to orthodox market systems in terms of effectiveness and sustainability. This could allow the identification of institutional arrangements that remove the barriers to sustainable market development in the current food and agribusiness system.

REFERENCES

Abalo, J., Varela, J., & Manzano, V. (2007). Importance values for Importance-Performance Analysis: A formula for spreading out values derived from preference rankings. *Journal of Business Research, 60*(2), 115-121.

Adelman, L., Sticha, P.J., & Donnell, M.L. (1984). The role of task properties in determining the relative effectiveness of multiattribute weighting techniques. *Organizational Behavior and Human Performance, 33*(2), 243-262.

Agerström, J., & Björklund, F. (2009). Moral concerns are greater for temporally distant events and are moderated by value strength. *Social Cognition, 27*(2), 261-282.

Agrawal, N., & Wan, E.W. (2009). Regulating risk or risking regulation? Construal levels and depletion effects in the processing of health messages. *Journal of Consumer Research, 36*(3), 448-462.

Akaah, I.P., & Korgaonkar, P.K. (1983). An empirical comparison of the predictive validity of self-explicated, Huber-hybrid, traditional conjoint, and hybrid conjoint models. *Journal of Marketing Research, 20*(2), 187-197.

Akenji, L. (2014). Consumer scapegoatism and limits to green consumerism. *Journal of Cleaner Production, 63*, 13-23.

Alderson, W. (1958). *Marketing behaviour and executive action (a functionalist approach to marketing theory)*. Homewood (Ill): Irwin.

Alvesson, M., & Spicer, A. (2012). A stupidity-based theory of organizations. *Journal of Management Studies, 49*(7), 1194-1220.

Ambrose, M.L., & Kulik, C.T. (1999). Old friends, new faces: Motivation research in the 1990s. *Journal of Management, 25*(3), 231-292.

Amel, E.L., Manning, C.M., & Scott, B.A. (2009). Mindfulness and sustainable behavior: Pondering attention and awareness as means for increasing green behavior. *Ecopsychology, 1*(1), 14-25.

Anderson, M.J., & Potter, G.S. (1998). On the use of regression and verbal protocol analysis in modeling analysts' behavior in an unstructured task environment: A methodological note. *Accounting, Organizations and Society, 23*(5-6), 435-450.

Ares, G., Giménez, A., Barreiro, C., & Gámbaro, A. (2010). Use of an open-ended question to identify drivers of liking of milk desserts. Comparison with preference mapping techniques. *Food Quality and Preference, 21*(3), 286-294.

Assael, H. (1992). *Consumer behavior and marketing action*. Boston: PWS-Kent.

Autio, M., Heiskanen, E., & Heinonen, V. (2009). Narratives of 'green'consumers — the antihero, the environmental hero and the anarchist. *Journal of Consumer Behaviour, 8*(1), 40-53.

Avnet, T., & Higgins, E.T. (2006). How regulatory fit affects value in consumer choices and opinions. *Journal of Marketing Research, 43*(1), 1-10.

Azapagic, A., & Perdan, S. (2000). Indicators of sustainable development for industry: A general framework. *Process Safety and Environmental Protection, 78*(4), 243-261.

Babbie, E. (2010). *The practice of social research*. Belmont, CA [etc.]: Wadsworth/Cengage Learning.

Bagozzi, R.P., Tybout, A.M., Craig, C.S., & Sternthal, B. (1979). The construct validity of the tripartite classification of attitudes. *Journal of Marketing Research, 16*(1 / Feb.), 88-95.

Bakalian, F., Ritchie, H., Thompson, K., & Merryfield, W. (2010). Exploring atmosphere-ocean coupling using principal component and redundancy analysis. *Journal of Climate, 23*(18), 4926-4943.

Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology, 27*(1), 14-25.

Bar-Anan, Y., Liberman, N., & Trope, Y. (2006). The association between psychological distance and construal level: Evidence from an implicit association test. *Journal of Experimental Psychology: General, 135*(4), 609-622.

Barbuto Jr, J.E., & Scholl, R.W. (1998). Motivation sources inventory: Development and validation of new scales to measure an integrative taxonomy of motivation. *Psychological Reports, 82*(3 PART 1), 1011-1022.

Barden, J., & Petty, R.E. (2008). The mere perception of elaboration creates attitude certainty: Exploring the thoughtfulness heuristic. *Journal of Personality and Social Psychology, 95*(3), 489-509.

Barlas, S. (2003). When choices give in to temptations: Explaining the disagreement among importance measures. *Organizational Behavior and Human Decision Processes, 91*(2), 310-321.

Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research. Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Barr, S., Shaw, G., & Gilg, A.W. (2011). The policy and practice of 'sustainable lifestyles'. *Journal of Environmental Planning and Management, 54*(10), 1331-1350.

Barsalou, L.W. (1983). Ad hoc categories. *Memory and Cognition, 11*(3), 211-227.

Bartels, J., & van den Berg, I. (2011). Fresh fruit and vegetables and the added value of antioxidants: Attitudes of non-, light, and heavy organic food users. *British Food Journal, 113*(11), 1339-1352.

Baumeister, R.F., Bratslavsky, E., Finkenauer, C., & Vohs, K.D. (2001). Bad Is Stronger Than Good. *Review of General Psychology, 5*(4), 323-370.

Beckman, L. (2008). Do global climate change and the interest of future generations have implications for democracy? *Environmental Politics, 17*(4), 610-624.

Ben Youssef, A., & Abderrazak, C. (2009). Multiplicity of eco-labels, competition, and the environment. *Journal of Agricultural and Food Industrial Organization, 7*(2).

Berger, J., & Heath, C. (2007). Where consumers diverge from others: Identity signaling and product domains. *Journal of Consumer Research, 34*(2), 121-134.

Bergman, A. (1993). To be or not to be separate: the meaning of hide-and-seek in forming internal representations. *Psychoanalytic review, 80*(3), 361-375; 377.

Berson, Y., Halevy, N., Shamir, B., & Erez, M. (2015). Leading from different psychological distances: A construal-level perspective on vision communication, goal setting, and follower motivation. *Leadership Quarterly, 26*(2), 143-155.

Bessy, C., & Favereau, O. (2003). Institutions et économie des conventions. *Cahiers d'économie politique/Papers in Political Economy, 44*(1), 119-164.

Beyer, J., & Höpner, M. (2003). The disintegration of organised capitalism: German corporate governance in the 1990s. *West European Politics, 26*(4), 179-198.

Biel, A., & Thøgersen, J. (2007). Activation of social norms in social dilemmas: A review of the evidence and reflections on the implications for environmental behaviour. *Journal of Economic Psychology, 28*(1), 93-112.

Biggart, N.W., & Beamish, T.D. (2003). The economic sociology of conventions: Habit, custom, practice, and routine in market order. *Annual Review of Sociology*, 443-464.

Boggia, A., Paolotti, L., & Castellini, C. (2010). Environmental impact evaluation of conventional, organic and organic-plus poultry production systems using life cycle assessment. *World's Poultry Science Journal, 66*(1), 95-114.

Böhm, G., & Pfister, H.R. (2005). Consequences, morality, and time in environmental risk evaluation. *Journal of Risk Research, 8*(6), 461-479.

Bolis, I., Morioka, S.N., & Sznelwar, L.I. (2014). When sustainable development risks losing its meaning. Delimiting the concept with a comprehensive literature review and a conceptual model. *Journal of Cleaner Production, 83*, 7-20.

Bougherara, D., & Combris, P. (2009). Eco-labelled food products: What are consumers paying for? *European Review of Agricultural Economics, 36*(3), 321-341.

Bougherara, D., & Piguet, V. (2009). Market behavior with environmental quality information costs. *Journal of Agricultural and Food Industrial Organization, 7*(2), Article 8

Boulstridge, E., & Carrigan, M. (2000). Do consumers really care about corporate responsibility? Highlighting the attitude—behaviour gap. *Journal of Communication Management, 4*(4), 355-368.

Bourgeois, L.J. (1979). Toward a method of middle-range theorizing. *Academy of Management Review, 4*(3), 443-447.

Brown, E., Dury, S., & Holdsworth, M. (2009). Motivations of consumers that use local, organic fruit and vegetable box schemes in Central England and Southern France. *Appetite, 53*(2), 183-188.

Brueckner, M. (2013). Profit maximization. In: S.O. Idowu, N. Capaldi, L. Zu & A. Das Gupta (eds.), *Encyclopedia of Corporate Social Responsibility* (pp. 1921-1927). Heidelberg (etc.): Springer.

Brunsø, K., Verbeke, W., Olsen, S.O., & Jeppesen, L.F. (2009). Motives, barriers and quality evaluation in fish consumption situations: Exploring and comparing heavy and light users in Spain and Belgium. *British Food Journal, 111*(7), 699-716.

Buckley, R. (2013). Sustainability: Three reasons for eco-label failure. *Nature, 500*(7461), 151.

Bullock, J.G., Green, D.P., & Ha, S.E. (2010). Yes, but what's the mechanism? (don't expect an easy answer). *Journal of Personality and Social Psychology, 98*(4), 550-558.

Bulte, E., & Horan, R.D. (2010). Identities in the commons: The dynamics of norms and social capital. *B.E. Journal of Economic Analysis and Policy, 10*(1), Article 13.

Burger, G.K., Yonker, R.D., Calsyn, R.J., Morse, G.A., & Klinkenberg, W.D. (2003). A confirmatory factor analysis of the brief psychiatric rating scale in a homeless sample. *International Journal of Methods in Psychiatric Research, 12*(4), 192-196.

Cacioppo, J.T., Von Hippel, W., & Ernst, J.M. (1997). Mapping cognitive structures and processes through verbal content: The thought-listing technique. *Journal of Consulting and Clinical Psychology, 65*(6), 928-940.

Cairncross, F. (1991). *Costing the earth*. London: The Economist Books.

Cameron, A.C., & Trivedi, P.K. (1998). *Regression analysis of count data*. Cambridge [etc.]: Cambridge University Press.

Carlson, K.A., & Bond, S.D. (2006). Improving preference assessment: Limiting the effect of context through pre-exposure to attribute levels. *Management Science, 52*(3), 410-421.

Carlston, D.E., & Eliot, R.S. (1996). Principles of mental representation. In: E.T. Higgins & A.W. Kruglanski (eds.), *Social Psychology: Handbook of Basic Principles* (pp. 184-210). New York: The Guilford Press.

Carnevale, J.J., Fujita, K., Han, H.A., & Amit, E. (2015). Immersion Versus transcendence: how pictures and words impact evaluative associations assessed by the implicit association test. *Social Psychological and Personality Science, 6*(1), 92-100.

Carrillat, F.A., Riggle, R.J., Locander, W.B., Gebhardt, G.F., & Lee, J.M. (2009). Cognitive segmentation: Modeling the structure and content of customers' thoughts. *Psychology & Marketing, 26*(6), 479-506.

Carter, C.R., & Jennings, M.M. (2002). Social responsibility and supply chain relationships. *Transportation Research Part E: Logistics and Transportation Review, 38*(1), 37-52.

Cartwright, D. (1949). Some principles of mass persuasion: selected findings of research on the sale of United States war bonds. *Human Relations, 2*(3), 253-267.

Carver, C.S., Reynolds, S.L., & Scheier, M.F. (1994). The possible selves of optimists and pessimists. *Journal of Research in Personality, 28*(2), 133-141.

Chandre Gowda, M.J., & Jayaramaiah, K.M. (1998). Comparative evaluation of rice production systems for their sustainability. *Agriculture, Ecosystems and Environment, 69*(1), 1-9.

Chatterjee, S., Kang, Y.S., & Mishra, D.P. (2005). Market signals and relative preference: The moderating effects of conflicting information, decision focus, and need for cognition. *Journal of Business Research, 58*(10), 1362-1370.

Chen, M.F. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference, 18*(7), 1008-1021.

Chernev, A. (1997). The effect of common features on brand choice: Moderating role of attribute importance. *Journal of Consumer Research, 23*(4), 304-311.

Christensen, G.L., & Olson, J.C. (2002). Mapping consumers' mental models with ZMET. *Psychology and Marketing, 19*(6), 477-502.

Claeys, C., Swinnen, A., & Vanden Abeele, P. (1995). Consumer's means-end chains for "think" and "feel" products. *International Journal of Research in Marketing, 12*(3), 193-208.

Clark, G. (2007). Evolution of the global sustainable consumption and production policy and the United Nations Environment Programme's (UNEP) supporting activities. *Journal of Cleaner Production, 15*(6), 492-498.

Claudy, M.C., Peterson, M., & O'Driscoll, A. (2013). Understanding the attitude-behavior gap for renewable energy systems using behavioral reasoning theory. *Journal of Macromarketing, 33*(4), 273-287.

Clayton, S. (2003). Environmental identity: a conceptual and operational definition. In: S. Clayton & S. Opotow (eds.), *Identity and the Natural Environment: The psychological significance of nature* (pp. 45 - 65). Cambridge (Mass): MIT Press.

Clayton, S., & Opotow, S. (2003). Justice and identity: changing perspectives on what is fair. *Personality and Social Psychology Review, 7*(4), 298-310.

Coase, R.H. (1960). The problem of social cost. *Journal of Law and Economics, 3*(1), 1-44.

Coleman, J. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.

Corbett, J.B. (2005). Altruism, self-interest, and the reasonable person model of environmentally responsible behavior. *Science Communication, 26*(4), 368-389.

Cordano, M., Welcomer, S.A., & Scherer, R.F. (2003). An analysis of the predictive validity of the new ecological paradigm scale. *The Journal of Environmental Education, 34*(3), 22-28.

Cornelissen, A.M.G., van den Berg, J., Koops, W.J., Grossman, M., & Udo, H.M.J. (2001). Assessment of the contribution of sustainability indicators to sustainable development: a novel approach using fuzzy set theory. *Agriculture Ecosystems & Environment, 86*(2), 173-185.

Cornelissen, G., Dewitte, S., Warlop, L., & Yzerbyt, V. (2007). Whatever people say I am, that's what I am: Social labeling as a social marketing tool. *International Journal of Research in Marketing, 24*(4), 278-288.

Costa, S., Ibanez, L., Loureiro, M.L., & Marette, S. (2009). Quality promotion through eco-labeling: Introduction to the special issue. *Journal of Agricultural and Food Industrial Organization, 7*(2), Article 1.

Cova, B., & Dalli, D. (2009). Working consumers: The next step in marketing theory? *Marketing Theory, 9*(3), 315-339.

Cowley, E., & Mitchell, A.A. (2003). The moderating effect of product knowledge on the learning and organization of product information. *Journal of Consumer Research, 30*(3), 443-454.

Crittenden, V.L., Crittenden, W.F., Ferrell, L.K., Ferrell, O.C., & Pinney, C.C. (2011). Market-oriented sustainability: A conceptual framework and propositions. *Journal of the Academy of Marketing Science, 39*(1), 71-85.

Crouch, G.I. (2011). Destination competitiveness: An analysis of determinant attributes. *Journal of Travel Research, 50*(1), 27-45.

Crowe, E., & Higgins, E.T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes, 69*(2), 117-132.

Dagupen, M.K.T., Tagarino, D.D., Gumihid, B.B., Gellynck, X., & Viaene, J. (2009). The ideal vegetable attributes based on consumer preferences: A conjoint analysis approach. *Acta Horticulturae, 831*, 185-192.

Daigger, G.T. (2009). Evolving urban water and residuals management paradigms: Water reclamation and reuse, decentralization, and resource recovery. *Water environment research, 81*(8), 809-823.

Daugbjerg, C., Smed, S., Andersen, L.M., & Schvartzman, Y. (2014). Improving eco-labelling as an environmental policy instrument: Knowledge, trust and organic consumption. *Journal of Environmental Policy and Planning, 16*(4), 559-575.

Dawes, R.M., & Messick, D.M. (2000). Social dilemmas. *International Journal of Psychology, 35*(2), 111-116.

De Barcellos, M.D., Krystallis, A., de Melo Saab, M.S., Kügler, J.O., & Grunert, K.G. (2011). Investigating the gap between citizens' sustainability attitudes and food purchasing behaviour: Empirical evidence from Brazilian pork consumers. *International Journal of Consumer Studies, 35*(4), 391-402.

De Cremer, D., Mayer, D.M., van Dijke, M., Schouten, B.C., & Bardes, M. (2009). When does self-sacrificial leadership motivate prosocial behavior? It depends on followers' prevention focus. *Journal of Applied Psychology, 94*(4), 887.

De Cremer, D., & Van Vugt, M. (1998). Collective identity and cooperation in a public goods dilemma: A matter of trust or self-efficacy? *Current Research in Social Psychology, 3*, Article 1.

De Dreu, C.K.W. (2010). Social value orientation moderates ingroup love but not outgroup hate in competitive intergroup conflict. *Group Processes and Intergroup Relations, 13*(6), 701-713.

De Ferran, F., & Grunert, K.G. (2007). French fair trade coffee buyers' purchasing motives: An exploratory study using means-end chains analysis. *Food Quality and Preference, 18*(2), 218-229.

De Groot, A.D. (1969). *Methodology*. The Hague-Paris: Mouton.

De Groot, J.I.M., & Steg, L. (2007). Value orientations and environmental beliefs in five countries: Validity of an instrument to measure egoistic, altruistic and biospheric value orientations. *Journal of Cross-Cultural Psychology, 38*(3), 318-332.

De Groot, J.I.M., & Steg, L. (2010). Relationships between value orientations, self-determined motivational types and pro-environmental behavioural intentions. *Journal of Environmental Psychology, 30*(4), 368-378.

De Koning, M.E.L. (1998). *De aandacht van publiek, media en politiek voor milieuproblemen (The attention of public, media and politics for environmental problems).* Katholieke Universiteit Nijmegen, Nijmegen.

De Pelsmacker, P., Driesen, L., & Rayp, G. (2005). Do consumers care about ethics? Willingness to pay for fair-trade coffee. *Journal of Consumer Affairs, 39*(2), 363-385.

Deci, E.L., & Ryan, R.M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227-268.
Dekkers, R. (2011). Impact of strategic decision making for outsourcing on managing manufacturing. *International Journal of Operations and Production Management, 31*(9), 935-965.
Denver, S., Christensen, T., Jensen, J.D., & Jensen, K.O.D. (2012). The stability and instability of organic expenditures in Denmark, Great Britain, and Italy. *Journal of International Food & Agribusiness Marketing, 24*(1), 47-65.
DeShon, R.P., & Gillespie, J.Z. (2005). A motivated action theory account of goal orientation. *Journal of Applied Psychology, 90*(6), 1096-1127.
Devine-Wright, P. (2013). Think global, act local? The relevance of place attachments and place identities in a climate changed world. *Global Environmental Change, 23*(1), 61-69.
Dhar, R., & Kim, E.Y. (2007). Seeing the forest or the trees: Implications of construal level theory for consumer choice. *Journal of Consumer Psychology, 17*(2), 96-100.
Dholakia, U.M., Gopinath, M., Bagozzi, R.P., & Nataraajan, R. (2006). The role of regulatory focus in the experience and self-control of desire for temptations. *Journal of Consumer Psychology, 16*(2), 163-175.
Dodd, D., & Favaro, K. (2006). Managing the right tension. *Harvard Business Review, 84*(12), 62-74.
Done, A., Voss, C., & Rytter, N.G. (2011). Best practice interventions: Short-term impact and long-term outcomes. *Journal of Operations Management, 29*(5), 500-513.
Ducassy, I. (2013). Does corporate social responsibility pay off in times of crisis? An alternate perspective on the relationship between financial and corporate social performance. *Corporate Social Responsibility and Environmental Management, 20*(3), 157-167.
Dumas, C., & Doré, F.Y. (1991). Cognitive development in kittens (Felis catus): an observational study of object permanence and sensorimotor intelligence. *Journal of comparative psychology, 105*(4), 357-365.
Dunlap, R.E. (2008). The new environmental paradigm scale: From marginality to worldwide use. *Journal of Environmental Education, 40*(1), 3-18.
Dunlap, R.E., Van Liere, K.D., Mertig, A.G., & Jones, R.E. (2000). Measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Social Issues, 56*(3), 425-442.
Dunn, E.C. (2003). Trojan pig: paradoxes of food safety regulation. *Environment and Planning A, 35*(8), 1493-1511.
Eckhardt, G.M., Belk, R., & Devinney, T.M. (2010). Why don't consumers consume ethically? *Journal of Consumer Behaviour, 9*(6), 426-436.
Engelen, B. (2006). Solving the paradox: The expressive rationality of the decision to vote. *Rationality and Society, 18*(4), 419-441.
Engels, F. (1883/1971). *Dialectics of nature*. New York: Interntional Press.
Escalas, J.E., & Bettman, J.R. (2003). You are what they eat: The influence of reference groups on consumers' connections to brands. *Journal of Consumer Psychology, 13*(3), 339-348.

Escalas, J.E., & Bettman, J.R. (2005). Self-construal, reference groups, and brand meaning. *Journal of Consumer Research, 32*(3), 378-389.

European Commission. (n.d.). Consumer choice. Retrieved July 3rd, 2015, from http://ec.europa.eu/environment/archives/youth/waste/waste_consumer_en.html

Evans, D., & Abrahamse, W. (2009). Beyond rhetoric: The possibilities of and for 'sustainable lifestyles'. *Environmental Politics, 18*(4), 486-502.

Evenson, R.E., & Gollin, D. (2003). Assessing the impact of the Green Revolution, 1960 to 2000. *Science, 300*(5620), 758-762.

Eyal, T., Liberman, N., Trope, Y., & Walther, E. (2004). The pros and cons of temporally near and distant action. *Journal of Personality and Social Psychology, 86*(6), 781-795.

Feitelson, E. (1991). Sharing the globe. The role of attachment to place. *Global Environmental Change, 1*(5), 396-406.

Felcher, E.M., Malaviya, P., & McGill, A.L. (2001). The role of taxonomic and goal-derived product categorization in, within, and across category judgments. *Psychology and Marketing, 18*(8), 865-887.

Fiedler, K. (2007). Construal level theory as an integrative framework for behavioral decision-making research and consumer psychology. *Journal of Consumer Psychology, 17*(2), 101-106.

Fiedler, K., Jung, J., Wänke, M., Alexopoulos, T., & de Molière, L. (2015). Toward a deeper understanding of the ecological origins of distance construal. *Journal of Experimental Social Psychology, 57*, 78-86.

Figge, F., & Hahn, T. (2012). Is green and profitable sustainable? Assessing the trade-off between economic and environmental aspects. *International Journal of Production Economics, 140*(1), 92-102.

Fischer, K.W. (1980). A theory of cognitive development: The control and construction of hierarchies of skills. *Psychological Review, 87*(6), 477-531.

Fishbach, A., & Shah, J.Y. (2006). Self-control in action: Implicit dispositions toward goals and away from temptations. *Journal of Personality and Social Psychology, 90*(5), 820-832.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading (MA): Addison-Wesley.

Fisher, R.A. (1915). Frequency distribution of the values of the correlation coefficient in samples from an indefinitely large population. *Biometrika, 10*, 507-521.

Fisher, R.A. (1921). On the probable error of a coefficient of correlation deduced from a small sample. *Metron, 1*(4), 3-32.

Fisk, G. (1973). Criteria for a theory of responsible consumption. *Journal of Marketing, 37*(2), 24-31.

Fisk, G. (1974). *Marketing and the ecological crisis*. New York (NY): Harper & Row.

Förster, J. (2009). Relations between perceptual and conceptual scope: How global versus local processing fits a focus on similarity versus dissimilarity. *Journal of Experimental Psychology: General, 138*(1), 88-111.

Förster, J., Liberman, N., & Shapira, O. (2009). Preparing for novel versus familiar events: Shifts in global and local processing. *Journal of Experimental Psychology: General, 138*(3), 383-399.

Fortier, J.J. (1966). Simultaneous linear prediction. *Psychometrika, 31*(3), 369-369.

Fotopoulos, C., Krystallis, A., & Ness, M. (2003). Wine produced by organic grapes in Greece: Using means - End chains analysis to reveal organic buyers' purchasing motives in comparison to the non-buyers. *Food Quality and Preference, 14*(7), 549-566.

Franses, P.H., & Kleibergen, F. (1996). Unit roots in the Nelson-Plosser data: Do they matter for forecasting? *International Journal of Forecasting, 12*(2), 283-288.

Freitas, A.L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology, 40*(6), 739-752.

Freund, A.M., Hennecke, M., & Riediger, M. (2010). Age-related differences in outcome and process goal focus. *European Journal of Developmental Psychology, 7*(2), 198-222.

Friedman, M. (1962). *Capitalism and Freedom*. Chicago: The University of Chicago Press.

Friedman, R.S., & Forster, J. (2000). The effects of approach and avoidance motor actions on the elements of creative insight. *Journal of Personality and Social Psychology, 79*(4), 477-492.

Friedman, R.S., & Forster, J. (2001). The effects of promotion and prevention cues on creativity. *Journal of Personality and Social Psychology, 81*(6), 1001-1013.

Fujita, K. (2011). On conceptualizing self-control as more than the effortful inhibition of impulses. *Personality and Social Psychology Review, 15*(4), 352-366.

Fujita, K., & Carnevale, J.J. (2012). Transcending temptation through abstraction: The role of construal level in self-control. *Current Directions in Psychological Science, 21*(4), 248-252.

Fujita, K., Eyal, T., Chaiken, S., Trope, Y., & Liberman, N. (2008). Influencing attitudes toward near and distant objects. *Journal of Experimental Social Psychology, 44*(3), 562-572.

Fujita, K., & Han, H.A. (2009). Moving beyond deliberative control of impulses: The effect of construal levels on evaluative associations in self-control conflicts. *Psychological Science, 20*(7), 799-804.

Fujita, K., Henderson, M.D., Eng, J., Trope, Y., & Liberman, N. (2006). Spatial distance and mental construal of social events. *Psychological Science, 17*(4), 278-280.

Fujita, K., & Roberts, J.C. (2010). Promoting prospective self-control through abstraction. *Journal of Experimental Social Psychology, 46*(6), 1049-1054.

Funtowicz, S., & Strand, R. (2011). Change and commitment: Beyond risk and responsibility. *Journal of Risk Research, 14*(8), 995-1003.

Furnham, A., & Ribchester, T. (1995). Tolerance of ambiguity: A review of the concept, its measurement and applications. *Current Psychology, 14*(3), 179-199.

Gallarotti, G.M. (1996). It pays to be green: The managerial incentive structure and environmentally sound strategies. *The Columbia Journal of World Business, 30*(4), 38-57.

Gärling, T. (1999). Value priorities, social value orientations and cooperation in social dilemmas. *British Journal of Social Psychology, 38*(4), 397-408.
Gärling, T., Fujii, S., Gärling, A., & Jakobsson, C. (2003). Moderating effects of social value orientation on determinants of proenvironmental behavior intention. *Journal of Environmental Psychology, 23*(1), 1-9.
Garnett, T. (2013). Food sustainability: Problems, perspectives and solutions. *Proceedings of the Nutrition Society, 72*(1), 29-39.
Generation Investment Management. (2012). *Sustainable capitalism*. London.
Gentner, D. (1983). Structure-mapping: A theoretical framework for analogy. *Cognitive Science, 7*(2), 155-170.
Gentner, D., & Markman, A.B. (1997). Structure mapping in analogy and similarity. *American Psychologist, 52*(1), 45-56.
Ghosh, M., & John, G. (1999). Governance value analysis and marketing strategy. *Journal of Marketing, 63*(SUPPL.), 131-145.
Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist, 66*(4), 290-302.
Gino, F., Schweitzer, M.E., Mead, N.L., & Ariely, D. (2011). Unable to resist temptation: How self-control depletion promotes unethical behavior. *Organizational Behavior and Human Decision Processes, 115*(2), 191-203.
Goldstein, W.M. (1990). Judgments of relative importance in decision making: Global vs local interpretations of subjective weight. *Organizational Behavior and Human Decision Processes, 47*(2), 313-336.
Goldstein, W.M., & Mitzel, H.C. (1992). The relative importance of relative importance - inferring other peoples preferences from relative importance ratings and previous decisions. *Organizational Behavior and Human Decision Processes, 51*(3), 382-415.
Gong, M., Baron, J., & Kunreuther, H. (2009). Group cooperation under uncertainty. *Journal of Risk and Uncertainty, 39*(3), 251-270.
Gosseries, A. (2008). On future generations' future rights. *Journal of Political Philosophy, 16*(4), 446-474.
Grankvist, G., & Biel, A. (2007). The impact of environmental information on professional purchasers' choice of products. *Business Strategy and the Environment, 16*(6), 421-429.
Grankvist, G., Dahlstrand, U., & Biel, A. (2004). The impact of environmental labelling on consumer preference: Negative vs positive labels. *Journal of Consumer Policy, 27*(2), 213-230.
Grawe, S.J., Chen, H., & Daugherty, P.J. (2009). The relationship between strategic orientation, service innovation, and performance. *International Journal of Physical Distribution & Logistics Management, 39*(4), 282-300.
Greene, S. (2004). Indigenous people incorporated? Culture as politics, culture as property in pharmaceutical bioprospecting. *Current Anthropology, 45*(2), 211-237.

Griskevicius, V., Tybur, J.M., & Van den Bergh, B. (2010). Going green to be seen: Status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology, 98*(3), 392-404.

Grunert, K.G., & Grunert, S.C. (1995). Measuring subjective meaning structures by the laddering method: Theoretical considerations and methodological problems. *International Journal of Research in Marketing, 12*(3), 209-225.

Grunert, K.G., Jeppesen, L.F., Jespersen, K.R., Sonne, A.M., Hansen, K., Trondsen, T., et al. (2005). Market orientation of value chains: A conceptual framework based on four case studies from the food industry. *European Journal of Marketing, 39*(5-6), 428-455.

Grunert, K.G., Trondsen, T., Campos, E.G., & Young, J.A. (2010). Market orientation in the mental models of decision makers: Two cross-border value chains. *International Marketing Review, 27*(1), 7-27.

Gul, F., & Pesendorfer, W. (2001). Temptation and self-control. *Econometrica, 69*(6), 1403-1435.

Gupta, S., & Ogden, D.T. (2009). To buy or not to buy? A social dilemma perspective on green buying. *Journal of Consumer Marketing, 26*(6), 378-393.

Gustavson, J., Cederbeg, C., Sonsession, U., Van Otterdijk, R., & Meybeck, A. (2011). *Global food losses and food waste*. Rome: FAO.

Gutierrez, A., & Serrano, A. (2008). Assessing strategic, tactical and operational alignment factors for SMEs: Alignment across the organisation's value chain. *International Journal of Value Chain Management, 2*(1), 33-56.

Gutman, J. (1982). A means-end chain model based on consumer categorization processes. *The Journal of Marketing, 46*(2), 60-72.

Hamlin, R.P. (2010). Cue-based decision making. A new framework for understanding the uninvolved food consumer. *Appetite, 55*(1), 89-98.

Hammond, G.P. (2006). 'People, planet and prosperity': The determinants of humanity's environmental footprint. *Natural Resources Forum, 30*(1), 27-36.

Hardisty, D.J., & Weber, E.U. (2009). Discounting Future Green: Money Versus the Environment. *Journal of Experimental Psychology: General, 138*(3), 329-340.

Harte, J.M., & Koele, P. (1995). A comparison of different methods for the elicitation of attribute weights: Structural modeling, process tracing, and self-reports. *Organizational Behavior and Human Decision Processes, 64*(1), 49-64.

Harte, J.M., Koele, P., & Van Engelenburg, G. (1996). Estimation of attribute weights in a multiattribute choice situation. *Acta Psychologica, 93*(1-3), 37-55.

Hayes, A.F. (2013). *An introduction to mediation, moderation, and conditional process analysis: a regression-based approach*. New York: Guilford Press.

Hayes, S.C., Strosahl, K.D., & Wilson, K.G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford Press.

Heikkurinen, P., & Ketola, T. (2012). Corporate responsibility and identity: From a stakeholder to an awareness approach. *Business Strategy and the Environment, 21*(5), 326-337.

Heinzle, S.L., & Wüstenhagen, R. (2012). Dynamic Adjustment of Eco-labeling Schemes and Consumer Choice – the Revision of the EU Energy Label as a Missed Opportunity? *Business Strategy and the Environment, 21*(1), 60-70.

Henderson, M.D., Trope, Y., & Carnevale, P.J. (2006). Negotiation from a near and distant time perspective. *Journal of Personality and Social Psychology, 91*(4), 712-729.
Henion, K.E. (1976). *Ecological marketing*. Columbus (OH): Grid.
Higgins, E.T. (1997). Beyond pleasure and pain. *American Psychologist, 52*(12), 1280-1300.
Higgins, E.T. (2005). Value from regulatory fit. *Current Directions in Psychological Science, 14*(4), 209-213.
Higgins, E.T., Roney, C.J.R., Crowe, E., & Hymes, C. (1994). Ideal Versus Ought Predilections for Approach and Avoidance - Distinct Self-Regulatory Systems. *Journal of Personality and Social Psychology, 66*(2), 276-286.
Hilpert, H., Kranz, J., & Schumann, M. (2013). Leveraging green IS in logistics. *Business & Information Systems Engineering, 5*(5), 315-325.
Hitlin, S. (2003). Values as the core of personal identity: Drawing links between two theories of self. *Social Psychology Quarterly, 66*(2), 118-137.
Hobson, K. (2002). Competing discourses of sustainable consumption: Does the 'Rationalisation of lifestyles' make sense? *Environmental Politics, 11*(2), 95-120.
Homburg, C., & Jensen, O. (2007). The thought worlds of marketing and sales: Which differences make a difference? *Journal of Marketing, 71*(3), 124-142.
Horsky, D., Nelson, P., & Posavac, S.S. (2004). Stating preference for the ethereal but choosing the concrete: How the tangibility of attributes affects attribute weighting in value elicitation and choice. *Journal of Consumer Psychology, 14*(1-2), 132-140.
Hoyer, W.D. (1984). An examination of consumer decision making for a common repeat purchase product. *Journal of Consumer Research, 11*(3 / Dec.), 822-829.
Hunt, S.D. (1997). Resource-advantage theory and the wealth of nations: Developing the socio-economic research tradition. *Journal of Socio-Economics, 26*(4), 335-357.
Hunt, S.D., & Arnett, D.B. (2006). Does marketing success lead to market success? *Journal of Business Research, 59*(7), 820-828.
Hunt, S.D., & Davis, D.F. (2008). Grounding supply chain management in resource-advantage theory. *Journal of Supply Chain Management, 44*(1), 10-21.
Hunt, S.D., & Duhan, D.F. (2002). Competition in the third millennium: Efficiency or effectiveness? *Journal of Business Research, 55*(2), 97-102.
Hunt, S.D., & Morgan, R.M. (1996). The resource-advantage theory of competition: Dynamics, path dependencies, and evolutionary dimensions. *Journal of Marketing, 60*(4), 107-114.
Hunt, S.D., & Morgan, R.M. (1997). Resource-advantage theory: A snake swallowing its tail or a general theory of competition? *Journal of Marketing, 61*(4), 74-82.
Hussain, S.S. (2000). Green consumerism and ecolabelling: A strategic behavioural model. *Journal of Agricultural Economics, 51*(1), 77-89.
Idson, L.C., Liberman, N., & Higgins, E.T. (2000). Distinguishing gains from nonlosses and losses from nongains: A regulatory focus perspective on hedonic intensity. *Journal of Experimental Social Psychology, 36*(3), 252-274.

Imhoff, R., Schmidt, A.F., & Gerstenberg, F. (2015). Exploring the interplay of trait self-control and ego depletion: Empirical evidence for ironic effects. *European Journal of Personality, 28*(5), 413-424.

Irmak, C., Wakslak, C.J., & Trope, Y. (2013). Selling the forest, buying the trees: The effect of construal level on seller-buyer price discrepancy. *Journal of Consumer Research, 40*(2), 284-297.

Israëls, A.Z. (1986). Interpretation of redundancy analysis: Rotated vs. unrotated solutions. *Applied Stochastic Models and Data Analysis, 2*(3), 121-130.

Jackson, J.W. (2008). Reactions to social dilemmas as a function of group identity, rational calculations, and social context. *Small Group Research, 39*(6), 673-705.

James, P. (2014). *Urban sustainability in theory and practice: circles of sustainability*. Abingdon & New York: Routledge.

Jaworski, B.J., & Kohli, A.K. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing, 57*(3), 53-70.

Jenkins, K.T., & Tapper, K. (2014). Resisting chocolate temptation using a brief mindfulness strategy. *British Journal of Health Psychology, 19*(3), 509-522.

Jepson, E.J. (2001). Sustainability and planning: Diverse concepts and close associations. *Journal of Planning Literature, 15*(4), 499-510.

Jewell, R.D., & Unnava, H.R. (2004). Exploring differences in attitudes between light and heavy brand users. *Journal of Consumer Psychology, 14*(1-2), 75-80.

Joireman, J.A., Lasane, T.P., Bennett, J., Richards, D., & Solaimani, S. (2001). Integrating social value orientation and the consideration of future consequences within the extended norm activation model of proenvironmental behaviour. *British Journal of Social Psychology, 40*(1), 133-155.

Joireman, J.A., Sprott, D.E., & Spangenberg, E.R. (2005). Fiscal responsibility and the consideration of future consequences. *Personality and Individual Differences, 39*(6), 1159-1168.

Joireman, J.A., Van Lange, P.A.M., & Van Vugt, M. (2004). Who cares about the environmental impact of cars?: Those with an eye toward the future. *Environment and Behavior, 36*(2), 187-206.

Jones, G. (2008). Are smarter groups more cooperative? Evidence from prisoner's dilemma experiments, 1959-2003. *Journal of Economic Behavior and Organization, 68*(3-4), 489-497.

Kahneman, D., & Tversky, A. (1979). Prospect Theory - Analysis of Decision under Risk. *Econometrica, 47*(2), 263-291.

Kaiser, F.G., & Byrka, K. (2011). Environmentalism as a trait: Gauging people's prosocial personality in terms of environmental engagement. *International Journal of Psychology, 46*(1), 71-79.

Kaiser, F.G., Wölfing, S., & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of Environmental Psychology, 19*(1), 1-19.

Kaiser, R.B., & Craig, S.B. (2011). Do the behaviors related to managerial effectiveness really change with organizational level? An empirical test. *Psychologist-Manager Journal, 14*(2), 92-119.

Kaiser, R.B., & Overfield, D.V. (2010). Assessing flexible leadership as a mastery of opposites. *Consulting Psychology Journal, 62*(2), 105-118.

Kardes, F.R., Cronley, M.L., & Kim, J. (2006). Construal-level effects on preference stability, preference-behavior correspondence, and the suppression of competing brands. *Journal of Consumer Psychology, 16*(2), 135-144.

Kassarjian, H.H. (1971). Incorporating Ecology Into Marketing Strategy - Case Of Air Pollution. *Journal of Marketing, 35*(3), 61-65.

Kato, Y., Kamii, C., Ozaki, K., & Nagahiro, M. (2002). Young children's representations of groups of objects: The relationship between abstraction and representation. *Journal for Research in Mathematics Education, 33*(1), 30-45.

Kerr, N.L. (1995). Norms in social dilemmas. In: D. Schroeder (ed.), *Social dilemmas: Social psychological perspectives* (pp. 31-47). New York: Pergamon Press.

Khush, G.S. (2001). Green revolution: the way forward. *Nature Reviews Genetics, 2*(10), 815-822.

Kim, H., Schnall, S., & White, M.P. (2013). Similar psychological distance reduces temporal discounting. *Personality and Social Psychology Bulletin, 39*(8), 1005-1016.

Kivetz, R., & Simonson, I. (2000). The effects of incomplete information on consumer choice. *Journal of Marketing Research, 37*(4), 427-448.

Klein, H.J., Wesson, M.J., Hollenbeck, J.R., & Alge, B.J. (1999). Goal commitment and the goal-setting process: Conceptual clarification and empirical synthesis. *Journal of Applied Psychology, 84*(6), 885-896.

Knight, D., Durham, C.C., & Locke, E.A. (2001). The relationship of team goals, incentives, and efficacy to strategic risk, tactical implementation, and performance. *Academy of Management Journal, 44*(2), 326-338.

Kornelis, M., Dekimpe, M.G., & Leeflang, P.S.H. (2008). Does competitive entry structurally change key marketing metrics? *International Journal of Research in Marketing, 25*(3), 173-182.

Kornelis, M., van Herpen, E., van der Lans, I., & Aramyan, L. (2010). Using non-food information to identify food-choice segment membership. *Food Quality and Preference, 21*(5), 512-520.

Kortenkamp, K.V., & Moore, C.F. (2006). Time, uncertainty, and individual differences in decisions to cooperate in resource dilemmas. *Personality and Social Psychology Bulletin, 32*(5), 603-615.

Kozinets, R.V., Sherry Jr, J.F., Storm, D., Duhachek, A., Nuttavuthisit, K., & DeBerry-Spence, B. (2004). Ludic agency and retail spectacle. *Journal of Consumer Research, 31*(3), 658-672.

KPMG. (2012). *Expect the unexpected: building business value in a changing world*: KPMG International.

Kray, L.J. (2000). Contingent weighting in self-other decision making. *Organizational Behavior and Human Decision Processes, 83*(1), 82-106.

Kruglanski, A.W. (1999). Motivation, cognition, and reality: Three memos for the next generation of research. *Psychological Inquiry, 10*, 54-58.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin, 108*(3), 480-498.

Laine, M. (2010). Towards sustaining the status quo: Business talk of sustainability in finnish corporate disclosures 1987-2005. *European Accounting Review, 19*(2), 247-274.

Lambert, Z.V., Wildt, A.R., & Durand, R.M. (1988). Redundancy analysis: An alternative to canonical correlation and multivariate multiple regression in exploring interset associations. *Psychological Bulletin, 104*(2), 282-289.

Lancaster, K.J. (1966). A new approach to consumer theory. *Journal of Political Economy, 74*(2), 132-157.

Lancaster, K.J. (1971). *Consumer demand : a new approach*. New York [etc.]: [s.n.].

Laran, J., & Janiszewski, C. (2009). Behavioral consistency and inconsistency in the resolution of goal conflict. *Journal of Consumer Research, 35*(6), 967-984.

Laureati, M., Jabes, D., Russo, V., & Pagliarini, E. (2013). Sustainability and organic production: How information influences consumer's expectation and preference for yogurt. *Food Quality and Preference, 30*(1), 1-8.

Layton, R.A. (2007). Marketing systems - A core macromarketing concept. *Journal of Macromarketing, 27*(3), 227-242.

Layton, R.A. (2009). On economic growth, marketing systems, and the quality of life. *Journal of Macromarketing, 29*(4), 349-362.

Layton, R.A. (2011). Towards a theory of marketing systems. *European Journal of Marketing, 45*(1), 259-276.

Lazonick, W., & O'Sullivan, M. (2000). Maximizing shareholder value: A new ideology for corporate governance. *Economy and Society, 29*(1), 13-35.

Leary, M.R. (2007). Motivational and emotional aspects of the self. *Annual Review of Psychology, 58*, 317-344.

Ledgerwood, A., Trope, Y., & Chaiken, S. (2010). Flexibility now, consistency later: Psychological distance and construal shape evaluative responding. *Journal of Personality and Social Psychology, 99*(1), 32-51.

Lee, A.Y., Keller, P.A., & Sternthal, B. (2010). Value from regulatory construal fit: The persuasive impact of fit between consumer goals and message concreteness. *Journal of Consumer Research, 36*(5), 735-747.

Lee, T.W., Locke, E.A., & Phan, S.H. (1997). Explaining the assigned goal-incentive interaction: The role of self-efficacy and personal goals. *Journal of Management, 23*(4), 541-559.

Lévi-Strauss, C. (1950). Introduction à l'oeuvre de Marcel Mauss In: Marcel Mauss (1902 - 1938), *Sociologie et anthropologie*. Paris: PUF.

Li, T.M. (2010). Indigeneity, capitalism, and the management of dispossession. *Current Anthropology, 51*(3), 385-414.

Liberman, N., & Förster, J. (2009). Distancing from experienced self: How global-versus-local perception affects estimation of psychological distance. *Journal of Personality and Social Psychology, 97*(2), 203-216.

Liberman, N., Sagristano, M.D., & Trope, Y. (2002). The effect of temporal distance on level of mental construal. *Journal of Experimental Social Psychology, 38*(6), 523-534.

Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology, 75*(1), 5-18.
Liberman, N., & Trope, Y. (2014). Traversing psychological distance. *Trends in Cognitive Sciences, 18*(7), 364-369.
Liberman, N., Trope, Y., & Wakslak, C. (2007). Construal level theory and consumer behavior. *Journal of Consumer Psychology, 17*(2), 113-117.
Lillard, A.S., & Woolley, J.D. (2015). Grounded in reality: How children make sense of the unreal. *Cognitive Development*.
Lind, L.W. (2007). Consumer involvement and perceived differentiation of different kinds of pork - a Means-End Chain analysis. *Food Quality and Preference, 18*(4), 690-700.
Lindeman, M., & Väänänen, M. (2000). Measurement of ethical food choice motives. *Appetite, 34*(1), 55-59.
Lindenberg, S., & Steg, L. (2007). Normative, gain and hedonic goal frames guiding environmental behavior. *Journal of Social Issues, 63*(1), 117-137.
Liu, W. (2008). Focusing on desirability: The effect of decision interruption and suspension on preferences. *Journal of Consumer Research, 35*(4), 640-652.
Liyin, S., Hong, Y., & Griffith, A. (2006). Improving environmental performance by means of empowerment of contractors. *Management of environmental quality: an international journal, 17*(3), 242-257.
Lockwood, P., Jordan, C.H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology, 83*(4), 854-864.
Long, J.C. (2008). From a cocoa to CSR: Finding sustainability in a cup of hot chocolate. *Thunderbird International Business Review, 50*(5), 315-320.
Lorenzen, J.A. (2012). Going green: The process of lifestyle change. *Sociological Forum, 27*(1), 94-116.
Louviere, J.J., & Islam, T. (2008). A comparison of importance weights and willingness-to-pay measures derived from choice-based conjoint, constant sum scales and best-worst scaling. *Journal of Business Research, 61*(9), 903-911.
Lu, F. (2007). Integration into the market among indigenous peoples: A cross-cultural perspective from the Ecuadorian Amazon. *Current Anthropology, 48*(4), 593-602.
Luce, M.F. (1998). Choosing to avoid: Coping with negatively emotion-laden consumer decisions. *Journal of Consumer Research, 24*(4), 409-433.
Ludwig, D., Mangel, M., & Haddad, B. (2001). Ecology, conservation and public policy. *Annual Review of Ecology and Systematics, 32*, 481-517.
Luoma-Aho, V. (2013). Corporate social capital. *Revista de la Facultad de Ciencias Económicas y Empresariales, 1*(1), 164-177.
MacKinnon, D.P., Lockwood, C.M., Hoffman, J.M., West, S.G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*(1), 83-104.

Malkoc, S.A., & Zauberman, G. (2006). Deferring versus expediting consumption: The effect of outcome concreteness on sensitivity to time horizon. *Journal of Marketing Research, 43*(4), 618-627.

Malkoc, S.A., Zauberman, G., & Bettman, J.R. (2010). Unstuck from the concrete: Carryover effects of abstract mindsets in intertemporal preferences. *Organizational Behavior and Human Decision Processes, 113*(2), 112-126.

Mantzios, M., & Wilson, J.C. (2014). Making concrete construals mindful: A novel approach for developing mindfulness and self-compassion to assist weight loss. *Psychology and Health, 29*(4), 422-441.

Marini, Z., & Case, R. (1994). The development of abstract reasoning about the physical and social world. *Child Development, 65*(1), 147-159.

Marsden, T. (2012). Towards a Real Sustainable Agri-food Security and Food Policy: Beyond the Ecological Fallacies? *Political Quarterly, 83*(1), 139-145.

Marshall, D., McCarthy, L., McGrath, P., & Claudy, M. (2015). Going above and beyond: How sustainability culture and entrepreneurial orientation drive social sustainability supply chain practice adoption. *Supply Chain Management, 20*(4), 434-454.

Marti, C.P., Rovira-Val, M.R., & Drescher, L.G.J. (2013). Are firms that contribute to sustainable development better financially? *Corporate Social Responsibility and Environmental Management*(Online Early View).

Mason, C.F. (2009). Certification of socially responsible behavior: Eco-labels and fair-trade coffee. *Journal of Agricultural and Food Industrial Organization, 7*(2).

Mayer, F.S., & Frantz, C.M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology, 24*(4), 503-515.

McGuffog, T., & Wadsley, N. (1999). The general principles of value chain management. *Supply Chain Management: An International Journal, 4*(5), 218-225.

Meadows, D.H., Meadows, D.L., & Randers, J. (1972). *The limits to growth : a report for the Club of Rome's project on the predicament of mankind*. New York: [s.n.].

Meadows, D.H., & Randers, J. (2004). *Limits to growth : the 30-year update*. White River Junction, VT: Chelsea Green.

Mebratu, D. (1998). Sustainability and sustainable development: Historical and conceptual review. *Environmental Impact Assessment Review, 18*(6), 493-520.

Meißner, M., Heinzle, S.L., & Decker, R. (2013). Not worth the extra cost? Diluting the differentiation ability of highly rated products by altering the meaning of rating scale levels. *Journal of Consumer Behaviour, 12*(3), 223-231.

Meng, J. (2015). Sustainability: A framework of typology based on efficiency and effectiveness. *Journal of Macromarketing, 35*(1), 84-98.

Menzel, V., Smagin, J., & David, F. (2010). Can companies profit from greener manufacturing? *Measuring Business Excellence, 14*(2), 22-31.

Messick, D.M., & Brewer, M.B. (1983). Solving social dilemmas: A review. *Review of Personality and Social Psychology, 4*, 11-44.

Michaelidou, N., & Hassan, L.M. (2008). The role of health consciousness, food safety concerns, and ethical identity on attitudes and intentions towards organic food. *International Journal of Consumer Studies, 32*(2), 163-170.

Midmore, P., Francois, M., & Ness, M. (2011). Trans-European comparison of motivations and attitudes of occasional consumers of organic products. *NJAS - Wageningen Journal of Life Sciences, 58*(3-4), 73-78.

Milfont, T.L., & Gouveia, V.V. (2006). Time perspective and values: An exploratory study of their relations to environmental attitudes. *Journal of Environmental Psychology, 26*(1), 72-82.

Miller, N., Spivey, J., & Florance, A. (2008). Does green pay off? *Journal of Real Estate Portfolio Management, 14*(4), 385-399.

Milne, M.J., Kearins, K., & Walton, S. (2006). Creating adventures in wonderland: The journey metaphor and environmental sustainability. *Organization, 13*(6), 801-839.

Mitchell, R.W., Wooliscroft, B., & Higham, J. (2010). Sustainable market orientation: A new approach to managing marketing strategy. *Journal of Macromarketing, 30*(2), 160-170.

Mittal, V., Ross Jr, W.T., & Baldasare, P.M. (1998). The asymmetric impact of negative and positive attribute-level performance on overall satisfaction and repurchase intentions. *Journal of Marketing, 62*(1), 33-47.

Moisander, J., Markkula, A., & Eräranta, K. (2010). Construction of consumer choice in the market: challenges for environmental policy. *International Journal of Consumer Studies, 34*(1), 73-79.

Molden, D.C., & Higgins, E.T. (2004). Categorization under uncertainty: Resolving vagueness and ambiguity with eager versus vigilant strategies. *Social Cognition, 22*(2), 248-277.

Mont, O. (2007). The role of households in SCP agenda. A one-actor show or concerted action? *International Journal of Innovation and Sustainable Development, 2*(2), 201-214.

Mont, O., & Power, K. (2010). The role of formal and informal forces in shaping consumption and implications for a sustainable society. Part I. *Sustainability, 2*(7), 2232-2252.

Moorman, C. (1990). The effects of stimulus and consumer characteristics on the utilization of nutrition information. *Journal of Consumer Research, 17*(December), 362-374.

Moraes, C., Carrigan, M., & Szmigin, I. (2012). The coherence of inconsistencies: Attitude-behaviour gaps and new consumption communities. *Journal of Marketing Management, 28*(1-2), 103-128.

Mueller, S., Lockshin, L., & Louviere, J.J. (2010). What you see may not be what you get: Asking consumers what matters may not reflect what they choose. *Marketing Letters, 21*(4), 335-350.

Muraven, M., & Baumeister, R.F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*(2), 247-259.

Myers, J.H., & Alpert, M.I. (1968). Determinant buying attitudes: meaning and measurement. *Journal of Marketing, 32*(4 / Oct.), 13-20.

Myers, J.H., & Alpert, M.I. (1977). Semantic confusion in attitude research: salience vs. importance vs. determinance. *Advances in Consumer Research, 4*, 106-110.
Nansai, K., Kagawa, S., & Moriguchi, Y. (2007). Proposal of a simple indicator for sustainable consumption: classifying goods and services into three types focusing on their optimal consumption levels. *Journal of Cleaner Production, 15*(10), 879-885.
Nash, H.A. (2009). The European Commission's sustainable consumption and production and sustainable industrial policy action plan. *Journal of Cleaner Production, 17*(4), 496-498.
Naspetti, S., & Zanoli, R. (2009). Organic food quality and safety perception throughout europe. *Journal of Food Products Marketing, 15*(3), 249-266.
Navon, D. (1977). Forest before trees: The precedence of global features in visual perception. *Cognitive Psychology, 9*(3), 353-383.
Neff, W.S., & Cohen, J. (1967). A method for the analysis of the structure and internal consistency of Q-sort arrays. *Psychological Bulletin, 68*(5), 361-368.
Neisser, U. (1976). *Cognition and reality : principles and implications of cognitive psychology*. San Francisco: Freeman.
Ng, S., & Houston, M.J. (2009). Field dependency and brand cognitive structures. *Journal of Marketing Research, 46*(2), 279-292.
Ni, Y. (1998). Cognitive structure, content knowledge, and classificatory reasoning. *Journal of Genetic Psychology, 159*(3), 280-296.
Nunes, P.A.L.D. (2002). Using factor analysis to identify consumer preferences for the protection of a natural area in Portugal. *European Journal of Operational Research, 140*(2), 499-516.
Nunnally, J.C. (1978). *Psychometric theory*. New York [etc.]: McGraw-Hill.
Nussbaum, S., Liberman, N., & Trope, Y. (2006). Predicting the near and distant future. *Journal of Experimental Psychology: General, 135*(2), 152-161.
Nussbaum, S., Trope, Y., & Liberman, N. (2003). Creeping dispositionism: The temporal dynamics of behavior prediction. *Journal of Personality and Social Psychology, 84*(3), 485-497.
O'Connell, K.A., Hosein, V.L., & Schwartz, J.E. (2006). Thinking and/or doing as strategies for resisting smoking. *Research in Nursing and Health, 29*(6), 533-542.
Ölander, F., & Thøgersen, J. (1995). Understanding of consumer behaviour as a prerequisite for environmental protection. *Journal of Consumer Policy, 18*(4), 345-385.
Olds, J. (1956). *The growth and structure of motives: Psychological studies in the theory of action*. New York: The Free Press.
Orsato, R.J. (2006). Competitive environmental strategies: When does it pay to be GREEN? *California Management Review, 48*(2), 127-143+124.
Ozcaglar-Toulouse, N., Shiu, E., & Shaw, D. (2006). In search of fair trade: ethical consumer decision making in France. *International Journal of Consumer Studies, 30*(5), 502-514.
Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *British Food Journal, 107*(8), 606-625.

Palazzo, G., Krings, F., & Hoffrage, U. (2012). Ethical Blindness. *Journal of Business Ethics, 109*(3), 323-338.

Papaoikonomou, E., Ryan, G., & Ginieis, M. (2011). Towards a holistic approach of the attitude behaviour gap in ethical consumer behaviours: Empirical evidence from Spain. *International Advances in Economic Research, 17*(1), 77-88.

Park, S.Y., & Morton, C.R. (2015). The role of regulatory focus, social distance, and involvement in anti-high-risk drinking advertising: A construal-level theory perspective. *Journal of Advertising*(ahead of print).

Pearse, A. (1980). *Seeds of plenty, seeds of want. Social and economic implications of the green revolution*. Oxford: Oxford University Press.

Peattie, K. (1999). Trappings versus substance in the greening of marketing planning. *Journal of Strategic Marketing, 7*(2), 131-148.

Peeters, H. (2003). Sustainable development and the role of the financial world. *Environment, Development and Sustainability, 5*(1-2), 197-230.

Pelletier, L.G., Dion, S., Tuson, K., & Green-Demers, I. (1999). Why do people fail to adopt environmental protective behaviors? Toward a taxonomy of environmental amotivation. *Journal of Applied Social Psychology, 29*(12), 2481-2504.

Perry, L.K., Samuelson, L.K., Malloy, L.M., & Schiffer, R.N. (2010). Learn locally, think globally: Exemplar variability supports higher-order generalization and word learning. *Psychological Science, 21*(12), 1894-1902.

Peskin, J., & Ardino, V. (2003). Representing the mental world in children's social behavior: Playing hide-and-seek and keeping a secret. *Social Development, 12*(4), 496-512.

Pfeiffer, B.E., Deval, H., Kardes, F.R., Ewing, D.R., Han, X., & Cronley, M.L. (2014). Effects of construal level on omission detection and multiattribute evaluation. *Psychology and Marketing, 31*(11), 992-1007.

Pham, M.T. (2013). The seven sins of consumer psychology. *Journal of Consumer Psychology, 23*(4), 411-423.

Pham, M.T., & Avnet, T. (2004). Ideals and oughts and the reliance on affect versus substance in persuasion. *Journal of Consumer Research, 30*(4), 503-518.

Pizzi, G., Scarpi, D., & Marzocchi, G.L. (2014). Showing a tree to sell the forest: The impact of attribute- and alternative-based information presentation on consumers' choices. *Journal of Economic Psychology, 42*, 41-51.

Platt, J. (1973). Social traps. *American Psychologist, 28*, 641-651.

Polasky, S., Carpenter, S.R., Folke, C., & Keeler, B. (2011). Decision-making under great uncertainty: Environmental management in an era of global change. *Trends in Ecology and Evolution, 26*(8), 398-404.

Polman, E., & Emich, K.J. (2011). Decisions for others are more creative than decisions for the self. *Personality and Social Psychology Bulletin, 37*(4), 492-501.

Pöyhönen, M., & Hämäläinen, R.P. (2001). On the convergence of multiattribute weighting methods. *European Journal of Operational Research, 129*(3), 569-585.

Poynor, C., & Haws, K.L. (2009). Lines in the sand: The role of motivated categorization in the pursuit of self-control goals. *Journal of Consumer Research, 35*(5), 772-787.

Prakash, A. (2002). Green marketing, public policy and managerial strategies. *Business Strategy and the Environment, 11*(5), 285-297.

Preacher, K.J., Rucker, D.D., & Hayes, A.F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1), 185-227.

Preece, P.E. (1976). Mapping cognitive structure: A comparison of methods. *Journal of Educational Psychology, 68*(1), 1-8.

Pritchard, R.D., & Curts, M.I. (1973). The influence of goal setting and financial incentives on task performance. *Organizational Behavior and Human Performance, 10*(2), 175-183.

Proulx, T. (2013). Is the sky falling? The notion of the absurd versus the feeling of the absurd. In: H.C.M. Van Trijp (ed.), *Encouraging sustainable behavior: Psychology and the environment* (pp. 101-109). New York: Psychology Press.

Qu, R., Ennew, C., & Sinclair, M.T. (2005). The impact of regulation and ownership structure on market orientation in the tourism industry in China. *Tourism Management, 26*(6), 939-950.

Rabinovich, A., Morton, T.A., Postmes, T., & Verplanken, B. (2009). Think global, act local: The effect of goal and mindset specificity on willingness to donate to an environmental organization. *Journal of Environmental Psychology, 29*(4), 391-399.

Ramírez, C.D., & De Long, J.B. (2001). Understanding America's hesitant steps toward financial capitalism: Politics, the depression, and the separation of commercial and investment banking. *Public Choice, 106*(1-2), 93-116.

Ratneshwar, S., Barsalou, L.W., Pechmann, C., & Moore, M. (2001). Goal-derived categories: The role of personal and situational goals in category representations. *Journal of Consumer Psychology, 10*(3), 147-157.

Ratneshwar, S., Pechmann, C., & Shocker, A.D. (1996). Goal-derived categories and the antecedents of across-category consideration. *Journal of Consumer Research, 23*(3), 240-250.

Reilly, B.A., & Doherty, M.E. (1989). A note on the assessment of self-insight in judgment research. *Organizational Behavior and Human Decision Processes, 44*(1), 123-131.

Rex, E., & Baumann, H. (2007). Beyond ecolabels: what green marketing can learn from conventional marketing. *Journal of Cleaner Production, 15*(6), 567-576.

Ritchie, B., McDougall, G., & Claxton, J. (1981). Complexities of household energy consumption and conservation. *Journal of Consumer Research, 8*(3), 233-242.

Roberts, J.A. (1996). Green consumers in the 1990s: Profile and implications for advertising. *Journal of Business Research, 36*(3), 217-231.

Roberts, J.A., & Bacon, D.R. (1997). Exploring the subtle relationships between environmental concern and ecologically conscious consumer behavior. *Journal of Business Research, 40*(1), 79-89.

Roets, A., & Van Hiel, A. (2007). Separating ability from need: Clarifying the dimensional structure of the need for closure scale. *Personality and Social Psychology Bulletin, 33*(2), 266-280.

Rosen, S. (1974). Hedonic prices and implicit markets - product differentiation in pure competition. *Journal of Political Economy, 82*(1), 34-55.

Rosenberg, M.J. (1956). Cognitive structure and attitudinal affect. *Journal of Abnormal and Social Psychology, 53*(3), 367-372.

Rosenberg, M.J., & Hovland, C.I. (1960). Cognitive, affective, and behavioural components of attitudes. In: C.I. Hovland & M.J. Rosenberg (eds.), *Attitude organization and change* (pp. 1-14). New Haven: Yale University Press.

Rothenberg, S. (2012). Sustainability through servicizing. *MIT Sloan Management Review, 48*(2).

Rothschild, M.L. (1979). Marketing communications in nonbusiness situations or why it's so hard to sell brotherhood like soap. *Journal of marketing, 43*, 11-20.

Rozin, P., & Royzman, E.B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and Social Psychology Review, 5*(4), 296-320.

Saeidi, S.P., Sofiana, S., Saeidi, P., Saeidi, S.P., & Saaeidi, S.A. (2015). How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. *Journal of Business Research, 68*(2), 341-350.

Sarang, A., Vahedi, A., & Shamsai, A. (2008). How to quantify sustainable development: A Risk-based approach to water quality management. *Environmental Management, 41*(2), 200-220.

Schaub-De Jong, M.A., Schönrock-Adema, J., Dekker, H., Verkerk, M., & Cohen-Schotanus, J. (2011). Development of a student rating scale to evaluate teachers' competencies for facilitating reflective learning. *Medical Education, 45*(2), 155-165.

Schmeichel, B.J., & Vohs, K.D. (2009). Self-affirmation and self-control: Affirming core values counteracts ego depletion. *Journal of Personality and Social Psychology, 96*(4), 770-782.

Schoemaker, P.J.H. (1993). Strategic decisions in organizations: rational and behavioural views. *Journal of Management Studies, 30*(1), 107-129.

Schoemaker, P.J.H., & Waid, C.C. (1982). Experimental comparison of different approaches to determining weights in additive utility models. *Management Science, 28*(2), 182-196.

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

Schwartz, S.H. (1973). Normative explanations of helping behavior: a critique, proposal, and empirical test. *Journal of Experimental Social Psychology, 9*(4), 349-364.

Schwartz, S.H. (1977). Normative influences on altruism. In: L. Berkowitz (ed.), *Advances in Experimental Social Psychology* (pp. 221-279). New York: Academic Press.

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

Scott, W.A., Osgood, D.W., & Peterson, C. (1979). *Cognitive structure : theory and measurement of individual differences*. Washington: Winston.

Sen, A. (2013). The ends and means of sustainability. *Journal of Human Development and Capabilities, 14*(1), 6-20.

Sharma, S. (2000). Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *The Academy of Management Journal, 43*(4), 681-697.

Shaw, D., & Shiu, E. (2003). Ethics in consumer choice: a multivariate modelling approach. *European Journal of Marketing, 37*(10), 1485-1498.

Shultz, C.J., & Holbrook, M.B. (1999). Marketing and the tragedy of the commons: A synthesis, commentary, and analysis for action. *Journal of Public Policy and Marketing, 18*(2), 218-229.

Simpson, B. (2004). Social values, subjective transformations, and cooperation in social dilemmas. *Social Psychology Quarterly, 67*(4), 385-395.

Simpson, B. (2006). Social identity and cooperation in social dilemmas. *Rationality and Society, 18*(4), 443-470.

Sirieix, L., Kledal, P.R., & Sulitang, T. (2011). Organic food consumers' trade-offs between local or imported, conventional or organic products: A qualitative study in Shanghai. *International Journal of Consumer Studies, 35*(6), 670-678.

Slater, S.F., & Narver, J.C. (1996). Competitive strategy in the market-focused business. *Journal of market-focused management, 1*(2), 159-174.

Slovic, P., & MacPhillamy, D. (1974). Dimensional commensurability and cue utilization in comparative judgment. *Organizational Behavior and Human Performance, 11*(2), 172-194.

Smith, A. (1784). *An inquiry into the nature and causes of the wealth of nations (3rd ed.).* London: Printed for W. Strahan and T. Cadell in the Strand.

Smith, R., & Deppa, B. (2009). Two dimensions of attribute importance. *Journal of Consumer Marketing, 26*(1), 28-38.

Snelgar, R.S. (2006). Egoistic, altruistic, and biospheric environmental concerns: Measurement and structure. *Journal of Environmental Psychology, 26*(2), 87-99.

Sobel, M.E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In: S. Leinhardt (ed.), *Sociological Methodology* (pp. 290-312). Washington, DC: American Sociological Association.

Spash, C.L. (2006). Non-economic motivation for contingent values: Rights and attitudinal beliefs in the willingness to pay for environmental improvements. *Land Economics, 82*(4), 602-622.

Srivastava, J., Connolly, T., & Beach, L.R. (1995). Do ranks suffice? A comparison of alternative weighting approaches in value elicitation. *Organizational Behavior and Human Decision Processes, 63*(1), 112-116.

Stafford, T.F. (2008). Social and usage-process motivations for consumer internet access. *Journal of Organizational and End User Computing, 20*(3), 1-21.

Steg, L., Dreijerink, L., & Abrahamse, W. (2005). Factors influencing the acceptability of energy policies: A test of VBN theory. *Journal of Environmental Psychology, 25*(4), 415-425.

Steiger, J.H. (1980). Comparison of two methods for testing linear hypotheses in tables of proportions. *Psychological Bulletin, 88*(3), 772-775.

Steptoe, A., Pollard, T.M., & Wardle, J. (1995). Development of a measure of the motives underlying the selection of food: The Food Choice Questionnaire. *Appetite, 25*(3), 267-284.

Stern, P.C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*(3), 407-424.

Stern, P.C., Dietz, T., Abel, T., Guagnano, G.A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review, 6*(2), 81-97.

Stern, P.C., Dietz, T., & Kalof, L. (1993). Value orientations, gender, and environmental concern. *Environment & Behavior, 25*(5), 322-348.

Stets, J.E., & Biga, C.F. (2003). Bringing identity theory into environmental sociology. *Sociological Theory, 21*(4), 398-423+428.

Stewart, A.M., & Craig, J.L. (2000). Predicting pro-environmental attitudes and behaviors: A model and a test. *Journal of Environmental Systems, 28*(4), 293-317.

Strathman, A., Gleicher, F., Boninger, D.S., & Edwards, C.S. (1994). The consideration of future consequences: Weighing immediate and distant outcomes of behavior. *Journal of Personality and Social Psychology, 66*(4), 742-752.

Stryker, S. (2007). Identity theory and personality theory: Mutual relevance. *Journal of Personality, 75*(6), 1083-1102.

Stuive, I. (2007). *A comparison of confirmatory factor analysis methods: oblique multiple group method versus confirmatory common factor method.* Doctoral Thesis, Rijksuniversiteit Groningen, Groningen.

Sutcliffe, M., Hooper, P., & Howell, R. (2008). Can eco-footprinting analysis be used successfully to encourage more sustainable behaviour at the household level? *Sustainable Development, 16*(1), 1-16.

Tabachnick, B.G., & Fidell, L.S. (1989). *Using multivariate statistics*. New York [etc.]: Harper & Row.

Tabellini, G. (2008). The scope of cooperation: Values and incentives. *Quarterly Journal of Economics, 123*(3), 905-950.

Tabernero, C., & Hernandez, B. (2011). Self-efficacy and intrinsic motivation guiding environmental behavior. *Environment and Behavior, 43*(5), 658-675.

Takane, Y., & Hwang, H. (2005). On a test of dimensionality in redundancy analysis. *Psychometrika, 70*(2), 271-281.

Tarkiainen, A., & Sundqvist, S. (2009). Product involvement in organic food consumption: Does ideology meet practice? *Psychology and Marketing, 26*(9), 844-863.

Taylor, S.L., & Capella, L.M. (1996). Hospital outshopping: Determinant attributes and hospital choice. *Health Care Management Review, 21*(4), 33-44.

Testa, F., Iraldo, F., Vaccari, A., & Ferrari, E. (2013). Why eco-labels can be effective marketing tools: Evidence from a study on Italian consumers. *Business Strategy and the Environment, 24*(4), 252-265.

Thøgersen, J. (2000). Psychological determinants of paying attention to eco-labels in purchase decisions: Model development and multinational validation. *Journal of Consumer Policy, 23*(3), 285-313.

Thøgersen, J. (2005). How may consumer policy empower consumers for sustainable lifestyles? *Journal of Consumer Policy, 28*(2), 143-177.

Thøgersen, J. (2009). The Motivational roots of norms for environmentally responsible behavior. *Basic and Applied Social Psychology, 31*(4), 348-362.

Thøgersen, J. (2010). Country differences in sustainable consumption: The case of organic food. *Journal of Macromarketing, 30*(2), 171-185.

Thøgersen, J., & Ölander, F. (2003). Spillover of environment-friendly consumer behaviour. *Journal of Environmental Psychology, 23*(3), 225-236.

Tilman, D. (1998). The greening of the green revolution. *Nature, 396*(6708), 211-212.

Todorov, A., Goren, A., & Trope, Y. (2007). Probability as a psychological distance: Construal and preferences. *Journal of Experimental Social Psychology, 43*(3), 473-482.

Trope, Y., & Liberman, N. (2000). Temporal construal and time-dependent changes in preference. *Journal of Personality and Social Psychology, 79*(6), 876-889.

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review, 110*(3), 403-421.

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*(2), 440-463.

Trope, Y., Liberman, N., & Wakslak, C. (2007). Construal levels and psychological distance: Effects on representation, prediction, evaluation, and behavior. *Journal of Consumer Psychology, 17*(2), 83-95.

Trumbo, C.W., & O'Keefe, G.J. (2005). Intention to conserve water: Environmental values, reasoned action, and information effects across time. *Society and Natural Resources, 18*(6), 573-585.

Tubillejas, B., Cuadrado, M., & Frasquet, M. (2011). A model of determinant attributes of corporate image in cultural services. *Nonprofit and Voluntary Sector Quarterly, 40*(2), 356-376.

Tukker, A., Sto, E., & Vezzoli, C. (2008). "The governance and practice of change of sustainable consumption and production." Introduction to the ideas and recommendations presented in the articles in this special issue of the journal of cleaner production. *Journal of Cleaner Production, 16*(11), 1143-1145.

Turaga, R.M.R., Howarth, R.B., & Borsuk, M.E. (2010). Pro-environmental behavior: Rational choice meets moral motivation, *Annals of the New York Academy of Sciences* (Vol. 1185, pp. 211-224).

Turner, G.M. (2008). A comparison of The Limits to Growth with 30 years of reality. *Global Environmental Change, 18*(3), 397-411.

Tversky, A., & Kahneman, D. (1991). Loss Aversion in Riskless Choice - a Reference-Dependent Model. *Quarterly Journal of Economics, 106*(4), 1039-1061.

Ülkümen, G., & Cheema, A. (2011). Framing goals to influence personal savings: The role of specificity and construal level. *Journal of Marketing Research, 48*(6), 958-969.

UNEP. (1972). Declaration of the United Nations Conference on the Human Environment. Stockholm.
United Nations. (1992). *Agenda 21 - Rio declaration on environment and development*. Rio de Janerio: United Nations Conference on Environment & Development.
United Nations. (2012). *The future we want, A/RES/66/288* New York.
Urban, G., & Koh, K.N. (2013). Ethnographic research on modern business corporations. *Annual Review of Anthropology, 42*, 139-158.
Uusitalo, L. (1990). Are environmental attitudes and behavior inconsistent? Findings from a Finnish study. *Scandinavian Political Studies, 13*(2), 211 - 226.
Van Dam, Y.K. (1991). *A conceptual model of environmentally conscious consumer behaviour*. Paper presented at the EMAC.
Van Dam, Y.K. (1997). Needs and motives revisited: an integration of theories with implications for green consumption *In: D. Arnott et al (eds.), Marketing: progress, prospects, perspectives, Warwick Business School, UK. (1997) 1272-1286*.
Van Dam, Y.K., & Apeldoorn, P.A.C. (1996). Sustainable marketing. *Journal of Macromarketing, 16*(2), 45-56.
Van den Wollenberg, A.L. (1977). Redundancy analysis an alternative for canoncial correlation analysis. *Psychometrika, 42*(2), 207-219.
Van der Iest, H., Dijkstra, J., & Stokman, F.N. (2011). Not 'just the two of us': Third party externalities of social dilemmas. *Rationality and Society, 23*(3), 347-370.
Van Ittersum, K., Pennings, J.M.E., Wansink, B., & van Trijp, H.C.M. (2007). The validity of attribute-importance measurement: A review. *Journal of Business Research, 60*(11), 1177-1190.
Van Kleef, E. (2006). *Consumer research in the early stages of new product development: issues and applications in the food domain*. PhD thesis, Wageningen University, Wageningen.
Van Lange, P.A.M., Liebrand, W.B.G., Messick, D.M., & Wilke, H.A.M. (1992). Social dilemmas: The state of the art - Introduction and literature review. In: W.B.G. Liebrand, D.M. Messick & H.A.M. Wilke (eds.), *Social Dilemmas: Theoretical Issues and findings* (pp. 3-28). Oxford: Pergamon Press.
Van Latesteijn, H.C., & Andeweg, K. (2011). The need for a new agro innovation system. In: H.C. Van Latesteijn & K. Andeweg (eds.), *The TransForum Model: Transforming agro innovation toward sustainable development* (pp. 1-19). Dordrecht: Springer.
Van Tuinen, H.K. (2011). The ignored manipulation of the market: Commercial advertising and consumerism require new economic theories and policies. *Review of Political Economy, 23*(2), 213-231.
Van Vugt, M. (2002). Central, individual, or collective control? Social dilemma strategies for natural resource management. *American Behavioral Scientist, 45*(5), 783-800+764.
Vargo, S.L., & Lusch, R.F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing, 68*(1), 1-17.
Verhallen, T.M.M., & Van Raaij, W.F. (1981). Household behavior and the use of natural gas for home heating. *Journal of Consumer Research, 8*(3), 253-257.

Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer "attitude - Behavioral intention" gap. *Journal of Agricultural and Environmental Ethics, 19*(2), 169-194.

Viner, J. (1960). The intellectual history of laissez faire. *Journal of Law and Economics, 3*(Oct.), 45-69.

Vining, J., & Ebreo, A. (1992). Predicting recycling behavior from global and specific environmental attitudes and changes in recycling opportunities. *Journal of Applied Social Psychology, 22*(20), 1580-1607.

Von Helversen, B., Mata, R., & Olsson, H. (2010). Do children profit from looking beyond looks? From similarity-based to cue abstraction processes in multiple-cue judgment. *Developmental Psychology, 46*(1), 220-229.

Wagner, T., Lutz, R.J., & Weitz, B.A. (2009). Corporate hypocrisy: Overcoming the threat of inconsistent corporate social responsibility perceptions. *Journal of Marketing, 73*(6), 77-91.

Wakslak, C.J., Trope, Y., Liberman, N., & Alony, R. (2006). Seeing the forest when entry is unlikely: Probability and the mental representation of events. *Journal of Experimental Psychology: General, 135*(4), 641-653.

Wang, J., & Lee, A.Y. (2006). The role of regulatory focus in preference construction. *Journal of Marketing Research, 43*(1), 28-38.

Ward, M.K., & Broniarczyk, S.M. (2011). It's not me, it's you: How gift giving creates giver identity threat as a function of social closeness. *Journal of Consumer Research, 38*(1), 164-181.

WCED. (1987). *Our common future*. Oxford [etc.]: Oxford University Press.

Webster, F.E.J. (1975). Determining the characteristics of the socially conscious consumer. *Journal of Consumer Research, 2*(3), 188-196.

Wedel, M., Vriens, M., Bijmolt, T.H.A., Krijnen, W., & Leeflang, P.S.H. (1998). Assessing the effects of abstract attributes and brand familiarity in conjoint choice experiments. *International Journal of Research in Marketing, 15*(1), 71-78.

Weitz, B.A., & Bradford, K.D. (1999). Personal selling and sales management: A relationship marketing perspective. *Journal of the Academy of Marketing Science, 27*(2), 241-254.

Wells, P., & Seitz, M. (2005). Business models and closed-loop supply chains: A typology. *Supply Chain Management, 10*(4), 249-251.

Wenzlaff, R.M., & Wegner, D.M. (1998). The Role of Mental Processes in the Failure of Inhibition. *Psychological Inquiry, 9*(3), 231-233.

Wenzlaff, R.M., & Wegner, D.M. (2000). Thought suppression, *Annual Review of Psychology* (Vol. 51, pp. 59-91).

Westkämper, E. (2008). Manufuture and sustainable manufacturing. In: M. Mitsuishi, K. Udea & F. Kimura (eds.), *Manufacturing systems and technologies for the new fontier: the 41st CIRP conference on manufaturing systems, May 26-28, 2008, Tokyo, Japan* (pp. 11-14). London: Springer.

Wheeler, S.C., Petty, R.E., & Bizer, G.Y. (2005). Self-schema matching and attitude change: Situational and dispositional determinants of message elaboration. *Journal of Consumer Research, 31*(4), 787-797.

White, K., & Peloza, J. (2009). Self-benefit versus other-benefit marketing appeals: Their effectiveness in generating charitable support. *Journal of Marketing, 73*(4), 109-124.

Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours. *Journal of Environmental Psychology, 30*(3), 305-314.

Wieber, F., Sezer, L.A., & Gollwitzer, P.M. (2014). Asking "why" helps action control by goals but not plans. *Motivation and Emotion, 38*(1), 65-78.

Wilson, K.V. (1980). *From associations to structure : the course of cognition*. Amsterdam [etc.]: North-Holland.

Woolverton, A., & Dimitri, C. (2010). Green marketing: Are environmental and social objectives compatible with profit maximization? *Renewable Agriculture and Food Systems, 25*(2), 90-98.

Wu, Z., & Pagell, M. (2011). Balancing priorities: Decision-making in sustainable supply chain management. *Journal of Operations Management, 29*(6), 577-590.

Yagci, M.I., Biswas, A., & Dutta, S. (2009). Effects of comparative advertising format on consumer responses: The moderating effects of brand image and attribute relevance. *Journal of Business Research, 62*(8), 768-774.

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

Zaleznik, A. (1977). Managers and leaders: Are they different. *Harvard Business Review, 55*(3 / May–June), 67-78.

Zander, K., & Hamm, U. (2010). Consumer preferences for additional ethical attributes of organic food. *Food Quality and Preference, 21*(5), 495-503.

Zhao, R., & He, Y. (2014). The accounting implication of banking deregulation: An event study of Gramm-Leach-Bliley Act (1999). *Review of Quantitative Finance and Accounting, 42*(3), 449-468.

Zinkhan, G.M., & Braunsberger, K. (2004). The complexity of consumers' cognitive structures and its relevance to consumer behavior. *Journal of Business Research, 57*(6), 575-582.

Zwetsloot, G.I.J.M. (2003). From management systems to corporate social responsibility. *Journal of Business Ethics, 44*(2-3), 201-207.

SUMMARY

Sustainable development in global food markets is hindered by the discrepancy between positive consumer attitudes towards sustainable development or sustainability and the lack of corresponding sustainable consumption by a majority of consumers. Apparently for many (light user) consumers the 'importance' of 'sustainability' has a meaning that is not directly translated into purchases.

The cognitive and motivational perceptual structures of sustainability among light users of sustainable products are empirically compared to the Brundlandt definition (needs of future generations) and the Triple-P-Baseline (people, planet, prosperity) definition of sustainability. Results show that light users cognitively can distinguish between the social and temporal dimensions of the Brundlandt definition, as well as the people, planet and prosperity dimensions of the Triple-P definition of sustainability. In the motivational structure of light users of sustainable products, all attributes that do not offer direct and personal benefits are collapsed into a single dimension. This single dimension explains purchases more parsimoniously than a more complex structure, and is itself explained by a set of psychographic predictors that appears to be related to identity.

Perceived relevance and determinance are two distinct constructs, underlying the overall concept of attribute importance. Attribute relevance is commonly measured by self-reported importance in a Likert type scale. In order to measure attribute determinance a survey based measure is developed. In an empirical survey (N=1543) determinance of sustainability related product attributes is measured through a set of forced choice items and contrasted to self-reported relevance of those attributes. In line with expectations, a priori determinance predicts sustainable food choice more efficiently than perceived relevance. Determinance of sustainability related product attributes can be predicted by future temporal orientation, independently of relevance of these attributes.

These results support an interpretation of the attitude to behaviour gap in terms of construal level theory, and this theory allows for testable hypotheses on low construal motivators that should induce light users to purchase sustainable products. Sustainable consumption is viewed as a dilemma between choices for immediate (low construal) benefits and choices that avoid long-term collective (high construal) harm.

Identity theory suggests that self-confirmation could be a driving motive behind the performance of norm-congruent sustainable behaviour. Through identity people may acquire the intrinsic motivation to carry out pro-environmental behaviour. This view is tested in two empirical studies in The Netherlands. The first study shows that sustainable identity predicts sustainable preference, and that the effect of identity on

preference is partly mediated by self-confirmation motives. The second study confirms that sustainable identity influences the determinance of sustainable attributes, and through this determinance has an impact on sustainable product choice. This effect is partly mediated by stated relevance of these attributes.

Sustainable certification signals positive sustainable quality of a product, but fail to create massive demand for such products. Based on regulatory focus theory and prospect theory it is argued that negative signalling of low sustainable quality would have a stronger effect on the adoption of sustainable products than the current positive signalling of high sustainable quality. The effects of positive vs. negative signalling of high vs. low sustainable quality on attitude and preference formation are tested in three experimental studies. Results show (1) that negative labelling has a larger effect on attitude and preference than positive labelling, (2) that the effect of labelling is enhanced by regulatory fit, and (3) that the effect of labelling is mediated by personal norms, whereas any additional direct effect of environmental concern on preference formation is negligible.

Overall the present thesis suggests that the attitude to behaviour gap in sustainable consumption can be explained as a conflict between high construal motives for the abstract and distant goals of sustainable development and the low construal motives that drive daily consumption. Activating low construal motives for sustainable consumption, be it intrinsic motives to affirm a sustainable self-concept or loss aversion motives, increases sustainable consumer behaviour. Applying these insights to marketing decision making opens a new line of research into the individual, corporate, and institutional drivers that may contribute to the sustainable development of global food markets.

ACKNOWLEDGEMENTS

"prospera omnes sibi indicant,
aduersa uni imputantur" (Tacitus)

Looking back over the years the list of people who should be mentioned here has no beginning and no end. The path that has led me to this specific moment in time and space has been determined as much by those who have supported me and helped me stand as by those who failed to support me and let me fall. I would like to thank the latter at least as much as the former for their immeasurable contribution to my development.

I especially thank my promotor and the reading committee for their critical contribution to this thesis.
I gracefully acknowledge all fellow scientists (living and dead) who inspire me with their ideas.
I especially thank those scientists who, by reading, using, and citing my publications, keep inspiring me to pursue my own interests in my research.
I acknowledge all the students, colleagues, professionals, politicians, citizens, or consumers who have discussed with me on the topics that they, or I, or both of us are concerned about.
I acknowledge the contributions of all the students who have challenged me in the lecture theatres.
You all have helped me over the years to continue learning and to expand my understanding of all the things that I don't know.
Rather than listing all your names and risking to forget mentioning someone who is dear to me, I would like to use this opportunity to address each of you personally:

Thank you for your willingness to share your ideas and your time with me.
Thank you for listening to and disagreeing with my ideas.
Thank you for sharing your experience and your insights when I need them.
Thank you for making use of my experience and my insights when you need them.
Thank you for showing me where you think I am wrong.
Thank you for your patience and your support in correcting myself.
And especially thank you for being part of my world and my life.

Without you this thesis never could have been written.

Nevertheless I take full responsibility for its content.

ABOUT THE AUTHOR

Ynte Karel van Dam (Haarlem, 1959) studied psychology at Universiteit van Amsterdam and Vrije Universiteit in Amsterdam. After graduation he got a hands-on training in marketing as staff coordinator of international market research and development at Turmac Tobacco Company.

Since 1989 Ynte is assistant professor in the Marketing and Consumer Behaviour group (formerly Marketing and Market Research group) of Wageningen University, with special interest in sustainable consumption and marketing. Over the years he has developed, coordinated and/or taught a range of courses on consumer behaviour (introductory and advanced levels), marketing (general and with respect to tourism), sustainable marketing, and sustainable value chains.

Cover picture: © Paul Wakefield, 1974. Reproduced with permission

Financing Organisation:
The research described in this thesis was partially financed by Transforum

Fonts:
Headings: Gill Sans MT 14 & 12; Bodytext: Garamond 12; Captions: Times New Roman 8; Tables: Times New Roman 7

Printed by: Proefschriftmaken.nl | | Uitgeverij BOXPress