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“It’s Not Easy Living a Sustainable Lifestyle”:

How Greater Knowledge Leads to Dilemmas, Tensions and Paralysis

Forthcoming in Journal of Business Ethics

Abstract

Providing people with information is considered an important first step in encouraging them to behave sustainably as it influences their consumption beliefs, attitudes and intentions. However, too much information can also complicate these processes and negatively affect behaviour. This is exacerbated when people have accepted the need to live a more sustainable lifestyle and attempt to enact its principles. Drawing on interview data with people committed to sustainability, we identify the contentious role of knowledge in further disrupting sustainable consumption ideals. Here, knowledge is more than just information; it is familiarity and expertise (or lack of it) or how information is acted upon. We find that more knowledge represents a source of dilemma, tension and paralysis. Our data reveal a dark side to people’s knowledge, leading to a ‘self-inflicted sustainable consumption paradox’ in their attempts to lead a sustainable consumption lifestyle. Implications for policy interventions are discussed.

Keywords

Actual behavioural control; attitude-behaviour inconsistencies; barriers to sustainability; consumer compromises; consumer knowledge; sustainable consumption.

Abbreviations

ABC	Actual behavioural control
PBC	Perceived behavioural control
TPB	Theory of planned behaviour
TRA	Theory of reasoned action

Introduction

The majority of the research that investigates people's engagement in the sustainability agenda adopts the Theory of Reasoned Action (TRA) (Fishbein and Ajzen 1975) and the Theory of Planned Behaviour (TPB) (Ajzen 1991, 2002; Ajzen and Madden 1986). These approaches focus on the decision making process in order to unpack the dynamics of people's intentions, attitudes and behaviours. This rational decision making perspective attributes crucial importance to the provision of information to support the accomplishment of sustainable behaviours (Olander and Thøgersen 1995; Thøgersen 1994). The supply of relevant information as a precursor to behave sustainably is thus assumed to be a key factor in influencing people to bridge the gap between their intentions and their actual behaviours.

However, this stream of research has been questioned on a number of levels. First, consumer decision making processes are subject to heuristics and biases that compromise people's abilities to engage in rational choice (Caruana et al. 2015; Dolan 2002; Eckhardt et al. 2010; Moraes et al. 2012). Second, people's capacity to actualise their sense of responsibility for the common good does not always represent a simple, linear process implicit in such theories (Bray et al. 2011; Carrigan and Attalla 2001; Carrington et al. 2010). Third, accepting that a lack of information represents a barrier towards behaving more sustainably and negatively impacts on the formation of attitudes and behaviours to actualise sustainability principles (Bray et al. 2011; De Pelsmacker and Janssens 2007; Shaw and Clarke 1999), too much information also increases consumers' confusion and leads them to be sceptical about corporate actions (Burgess et al. 1998; Chen and Chang 2013; Owens 2000; Press and Arnould 2009). Indeed, the top-down channel of information about sustainability to the general public can be overwhelming and create ambiguity (Carrigan and Attalla 2001; Connolly and Prothero 2008; Moisander 2007).

Tension surrounding the role and nature of information provision remains an important topic for debate within sustainability circles. This paper extends the argument further by addressing what happens to consumers who are persuaded by the information they have received, accept the principles of sustainability and then try and enact its principles. Prior research identifies that novice and more

knowledgeable people have different perceptions about the adequacy of information (De Pelsmacker and Janssens 2007). To date, the focus has been on the effects provoked by an exposure to information originating from different external sources.

Knowledge differs from information. It has a complex and multifaceted nature and emerges from the accumulation of information and the ability to connect different pieces of information together. It also bridges experiences developed over time – knowledge, in this sense, has a background (Alba and Hutchinson 1987, 2000; De Pelsmacker and Janssens 2007). Extant research posits that achieving sustainability goals is grounded in knowledge about environmental issues (Kollmuss and Agyeman 2002). Further, accumulation of environmental knowledge positively impacts on consumers' intention to purchase green alternatives (d'Astous and Legendre 2009; Shaw et al. 2005). By contrast, the linear relationship that broader and deeper knowledge necessarily leads to a direct and easy accomplishment of sustainable practices has been disputed (Chan 2001; Johnstone and Tan 2015a; Kollmuss and Agyeman 2002).

This study aims to extend our understanding of the role of knowledge for people who want to pursue a more sustainable lifestyle and the difficulties experienced by them as they attempt to behave more sustainably. The paper's findings and discussion contribute to the knowledge discourse in the context of sustainable living and reveals how knowledge can impede the realisation of a sustainable consumption ideal. We conclude with some policy implications by proposing an alternative to traditional, top-down, sustainable consumer education programmes.

Conceptual Framework

Consuming sustainably: barriers and challenges

Sustainable consumption has been defined as:

“The use of goods and related products which respond to basic needs and bring a better quality of life, while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations.” (Norwegian Ministry of Environment 1994).

Table 1 represents how sustainable consumption can occur through adapting consumption practices whilst maintaining similar levels of overall consumption or by reducing the amount consumed (Cherrier et al. 2012; Iyer 1999; Princen et al. 2002; Shaw and Newholm 2002).

SUSTAINABLE LIVING AS MAINTAINED LEVELS OF CONSUMPTION	SUSTAINABLE LIVING AS REDUCED LEVELS OF CONSUMPTION
<p><u>Focus:</u> Alternative way of purchasing. Consumers' consideration for the environment and social welfare influences the content of their shopping trolleys.</p>	<p><u>Focus:</u> Reducing the quantity of goods consumed with a consideration of the damaging environmental and social impacts of their consumption.</p>
<p><u>Main practices:</u> Searching for information to identify goods, the methods of production and distribution of which reflect corporate sensitivity for environmental and social issues; Purchasing as 'voting' for sustainability; Sourcing from the local economy rather than relying on the mass market chains.</p>	<p><u>Main practices:</u> Scaling-down consumption (for example: stopping using the car or not flying anymore); Reducing working hours to develop personal identity; Auto-producing one's own consumption goods (for example: make-do-and-mend); Relying on 'non-market exchange mechanisms' (for example: use shared goods).</p>

Table 1: Practising sustainable living.

Maintained and reduced levels of consumption can occur independently or interdependently. In either scenario, sustainable consumption is a nonlinear process lived by people who encounter obstacles when seeking to materialise their own expression of sustainability (Connolly and Prothero 2008; Iyer 1999; Moisander and Pesonen 2002). They experience contradictions between their lived practices and their sustainability beliefs due to the unpredictability of contextual circumstances and personal challenges (McEachern et al. 2010; Szmigin et al. 2007). Consumers can be 'locked-in' to particular unsustainable consumption patterns by contextual factors (Sanne 2002). The configuration of the retailing arena and marketplace social structures might be discouraging for consumers as purchasing sustainable offers can be obstructed by their limited accessibility and availability, premium prices, and/or store characteristics (Bray et al. 2011; Hassan et al. 2015; Press and Arnould 2009). Moreover, normative social factors, such as peer influence, policies and regulation, can act as impediments in relation to consumers' pursuit of sustainability ideals (Bray et al. 2011; Press and

Arnould 2009; Shaw and Clarke 1999). Personal constraints can also create obstruction. “Duty conflicts” (Prothero et al. 2011, p.34) occur when consumers attempt to balance the contrasting goals of the many roles that they play in their daily lives (i.e. parent; business manager; activist). Balancing such commitments and the pressure of social necessities and passions that clash with ethical beliefs combine to challenge an individual’s coherent integrity in the pursuit of sustainable practices (Connolly and Prothero 2008; Newholm 2005). This can evoke emotions of guilt, specifically when people are prone to take responsibility for their actions and they believe that their behaviours exert an effect on others and/or their environment (Antonetti and Maklan 2014).

The navigation of contextual and personal constraints in the pursuit of sustainability goals is motivated and directed by access and accumulation of knowledge. Moreover, a lack of and/or confusion about knowledge will have a critical impact on consumers’ accomplishment of sustainable practices (Chen and Chang 2013; Press and Arnould 2009; Tanner and Wölfling 2003). The role of consumer knowledge in the accomplishment of sustainability represents a complex and contested issue and is developed further in the following section.

Empowering sustainability through knowledge

Performing sustainability in consumers’ everyday lives has been conceived as an information processing exercise composed of linear phases and their interconnections (Carrington et al. 2010). The assumption is that consumers are rational utility-maximising decision makers, who, moved by altruism, adopt logic to search for information so as to be able to make effective environmentally friendly decisions (Schaefer and Crane 2005).

Knowledge of the sustainable characteristics and features of products is considered crucial for stimulating consumers into making environmentally and socially responsible decisions (d’Astous and Legendre 2009; De Pelsmacker and Janssens 2007; Shaw et al. 2005). Specifically, consumers’ increased knowledge of sustainable offers leads to them feeling more involved and interested, hence being less sceptical about purchasing them (De Pelsmacker and Janssens 2007). Consumer knowledge is commonly conceived as the knowledgeable background developed by individuals for the accomplishment of product-related tasks (Alba and Hutchinson 1987). Critically it can influence

consumers' intentions to embrace sustainability by favouring a change in shopping habits to choose environmentally and socially responsible offers over mainstream ones.

Consumer knowledge represents a multidimensional concept, composed of two main components: familiarity and expertise. Familiarity is "the number of product-related experiences that have been accumulated by the consumer" and expertise is "the ability to perform product-related tasks successfully" (Alba and Hutchinson 1987, p. 411). Compared to the novice consumer, experts are more at ease processing elaborate information by grasping the meanings of messages and making connections with other pieces of information to build up their knowledge on a specific issue (Alba and Hutchinson 1987). Knowledge also reinforces an individual's confidence in their capabilities to accomplish the desired outcomes (Bertrandias and Vernet 2012). Striving to be knowledgeable has a motivational drive that is underpinned by the desire to practise effectively in a chosen field and be recognised as knowledgeable by others (Bandura 1977; Deci and Ryan 2008; Ryan et al. 2008; White 1971). Further, expectations of personal efficacy influence the efforts that an individual is prepared to invest in an experience and the time spent trying to perform, despite potential adversities (Bandura 1977). This efficacy depends upon how knowledge is constructed based upon four sources of information: performance accomplishments (past masteries or failures appear to be proof of the capacities to cope and succeed in life); vicarious experience (understanding that the difficulty of a task is ameliorated by observing and rating the performance of others when carrying out that activity); verbal persuasion (the formation of self-efficacy is influenced by suggestions); and physiological states (emotions can reveal a person's awareness of the level of their personal competency) (Bandura 1977).

It is accepted that developing knowledge on sustainability issues facilitates familiarity with the sustainability agenda and contributes to the formation of individual attitudes and intentions that lead to the concretisation of sustainability (Bray et al. 2011; De Pelsmacker and Janssens 2007; Shaw and Clarke 1999). However, it is also acknowledged that the relationship between know-how and leading a sustainable lifestyle is more complex. Whilst it would seem reasonable to conclude that increased knowledge would help people in practising sustainability, the reality is that it can take such a complex form that it is difficult to interpret and hence, hinders the actual capacity to pursue a

sustainable consumption lifestyle effectively (Chan 2001; Chen and Chang 2013). That is, this leads to them experiencing difficulties in exerting actual behavioural control (ABC) when pursuing sustainable consumption (Carrington et al. 2010; Hassan et al. 2015; Jackson 2005).

The following section reflects on the discourse positing consumer knowledge as complicating rather than facilitating consumption practices.

Knowledge as a barrier

The quality and quantity of information play a critical role in encouraging or discouraging consumers to act sustainably (De Pelsmacker and Janssens 2007). However, “consumer knowledge is seldom complete or errorless” (Alba and Hutchinson 2000, p. 123). The misjudgement of consumer knowledge has been posited as a failure to calibrate individual and interpersonal knowledge (Alba and Hutchinson 2000; Bertrandias and Vernetto 2012; Johar et al. 2006). That is, the degree of correspondence between the knowledge that an individual believes she/he has and that which she/he actually possesses (Alba and Hutchinson 2000; Bertrandias and Vernetto 2012). Previous research has explicated knowledge calibration in the context of inefficient consumer decision making, risk taking and biased interpretations produced by overconfidence in levels of expertise and a reliance on pre-constructed background knowledge (Alba and Hutchinson 2000; Bertrandias and Vernetto 2012). Errors of calibration also occur when consumers overestimate or underestimate the degree of knowledge of the source of information leading to sub-optimal decision making (Alba and Hutchinson 2000).

Furthermore, the richness of information available can paradoxically complicate consumers’ decision processing through information overload produced as a consequence of the amount of time invested in processing the information and the difficulty in identifying what is actually relevant (Bartiaux 2008; Connolly and Prothero 2008; Jacoby 1984; Lurie 2004; Owens 2000). It follows therefore that being exposed to environmental information does not necessarily translate into more sustainable practices where consumers feel overwhelmed by the level of green information (Carrigan and Attalla 2001; Jahdi and Acikdilli 2009; Moisander 2007). Extant research suggests that confusion and scepticism towards green-washing derived from overabundant and unclear information creates

distrust of the credibility claims made by eco-friendly goods (Bartiaux 2008; Burgess et al. 1998; Connolly and Prothero 2008; Owens 2000). In addition, the excessive choice of sustainable products and services, many of which appear to be very similar, produces similar levels of cynicism (Chen and Chang 2013).

Consumers exposed to overloaded and conflicting information feel that they are required to consider the implications of their consumption choices, yet struggle to make the 'right decision' (Connolly and Prothero 2008; Eckhardt et al. 2010; Shaw and Black 2009). The top-down approach of creating and distributing information has a focus on explicit consciousness, thereby neglecting the daily challenges and routines ingrained in everyday practices (Heat et al. 2015; Hobson 2003; Shove 2003; Szmigin et al. 2007). Conceiving consumers as rational agents, who act mainly on the information available to them, does not consider the nuanced and emotional paths experienced when striving to deal with the functional and hedonic nature of sustainability (Dolan 2002; Luchs and Kumar 2015; Schaefer and Crane 2005). Hence, whilst decision-making models can help to clarify the formation of the attitudes and intentions to behave sustainably, they are problematic when it comes to explaining the gaps occurring between what people believe and intend to do and what they actually do (Moraes et al. 2012).

This Study

Being environmentally and socially aware can be hard work (Johnstone and Tan 2015a, 2015b; Young et al. 2010). Published studies have highlighted how accomplishing sustainable behaviours is impeded by external barriers such as policies, infrastructures, and market offers (Bray et al. 2011; Hassan et al. 2015; Press and Arnould 2009), and personal barriers which focus the incoherencies experienced by individuals when pursuing competing life priorities in order to accomplish their desired life paths (Connolly and Prothero 2008; Newholm 2005; Prothero et al. 2011). Our study is aimed at contributing to the unpacking of the internal conflicts lived by individuals when striving to consume more sustainably by shedding new light on the contested role played by knowledge in this context (Bartiaux 2008; Chan 2001; Moisander 2007).

This paper explores and interprets the difficulties lived by consumers to accomplish a more sustainable consumption lifestyle by challenging the information decision making paradigm and unpacking the reverse side of knowing in sustainability. Adopting an interpretivist perspective, we investigate and examine the ways consumers attempt to embed and concretise sustainability principles into their daily consumption behaviours by considering the role played by social and cultural factors (Cherrier et al. 2012; Dolan 2002; Schaefer and Crane 2005). Through an interpretation of consumers' lived experiences we analyse the attitude-behaviour gap in consumer efforts to conduct a more sustainable lifestyle and consider the incoherencies and compromises that are manifest when individuals attempt to merge their ethical and green concerns in the conduct of their daily routines.

On the one hand, knowledge has been essentially conceptualised as a source of value for consumers who adopt it to accomplish their consumption and satisfy their desires (Berg 2007; Moisio et al. 2013). Specifically, a lack of knowledge has been defined as a strong internalised barrier to act sustainably (Chen and Chang 2013; Press and Arnould 2009; Tanner and Wölfling 2003). On the other hand, an under-theorised dysfunctional nature of consumer knowledge is attributed to the effects exerted by information overload and the miscalculations of knowledge calibration, which consumers are generally unaware of.

As suggested by Johnstone and Tan (2015a, p. 313): “these mixed results may also suggest a more complex relationship between environmental knowledge and behaviour”. Moreover, as contended by Mishra et al. (2008), the investigation of the link between consumer knowledge and wellbeing is still under-researched:

“it might be possible that, despite one's aversion toward vagueness, vagueness can actually make one happy about the outcomes of one's actions by allowing one to see what one wants to see - a case when ignorance is truly bliss” (Mishra et al. 2008, p. 584).

Thus, this paper is aimed at contributing to the understanding of the complex nature of consumer knowledge when attempting to consume sustainably. The goal is to extend the current

comprehension of the dysfunctional nature of consumer knowledge and its manifestations within the practice of sustainable consumption.

Methodology

Adopting a cultural lens for the study of sustainability facilitates the exploration and interpretation of the nuances of practising a sustainable way of life where consumers are conceived as ‘meaning seekers’ (Caruana et al. 2015; Dolan 2002; Schaefer and Crane 2005; Soron 2010). Specifically, applying a Consumer Culture Theory (CCT) perspective favours the understanding of the complexity of consumption phenomena and of socio-cultural processes (Arnould and Thompson 2005, 2007). As a result, to explore and interpret the contentious nature of consumer knowledge, the authors have adopted a cultural interpretive approach that conceives consumption as being in the form of multiple and intangible mental constructions that are socially and experientially based (Goulding 1999). In contrast, approaching the phenomenon as a problem-solving exercise, presents difficulties in unlocking the emotional and cultural complexity of sustainable consumption (Dolan 2002; Eckhardt et al. 2010; Moisander and Pesonen 2002; Schaefer and Crane 2005). A cultural interpretive perspective is also considered more appropriate to grasp consumers’ engagement in sustainability in the context of the self and the search for a balance between subjective desires and values as well as the social identification with subculture meanings (Dolan 2002; Jackson 2005).

The study incorporates purposeful sampling (Patton 1990). This sampling approach allows for an identification of informants who attributed high meaning and value to pursuing a sustainability agenda and who had a rich and varied background regarding sustainability matters. This choice also mirrors the sampling approach found in other studies (cf. Connolly and Prothero 2008). More specifically, the informants were selected owing to their participation in activities organised by an environmental organisation belonging to the Transition Movement Network (Seyfang 2009), an organisation which aims to build a sustainable future by harnessing the power of the community in the face of declining natural resources and increasing fuel and food costs. Transition Towns are organised into different subgroups that address the sustainability goal from a particular perspective, such as: food group; energy group; transport group; or inner transition group. Transition Towns vary in size

according to the range of expertise and interest groups. These groups have a specific area of expertise around which they develop communal projects to enhance the town's expression of sustainability and to sensitise the citizens towards their projects. For example, food groups promote sustainability events and projects linked to making production and consumption food practices more sustainable, such as: guerrilla gardening; community supported agriculture; cookery courses; meetings to discuss new projects or the advancement of the existing ones; and debates hosted by public figures regarding sustainable issues.

The authors completed a series of participant observations at umbrella and project events organised by the subgroups of a Transition Town at a city in the South West of England (2011/2012). The multiple subgroups (food group; energy group; transport group; inner transition group), allowed the authors to become cognisant of the complexity of the sustainability cause, the sources of knowledge influencing the informants, and the degree of knowledge of the informants. Specifically, we participated in four Transition Talk debates themed as 'Inspiration for action to create strong, low carbon communities'. The expert led discussions focused on changing behaviour, local food culture, materialism and waste, and energy conservation. The authors also participated in an 'Open Home Weekend', an initiative organised to inform the public about refurbishing and insulating homes to decrease energy use. Homeowners resident in the city, who had invested in making their houses more energy efficient held open house events to provide a tour of the house and demonstrate and share their experiences. The authors visited three houses in total.

Food decisions and practices represent another important area in relation to sustainable consumption. The authors participated in two meetings and a session of seeds planting, organised by the community supported agriculture (CSA) of the Transition Town, to generate insights into the connection between sustainable food growing and community building. This was bolstered by attending twelve meetings of the food group (during which decisions are made on key events and workshops), and participation in guerrilla gardening, planting and an outdoor cookery course.

Detailed field notes were used to capture the role, type and nature of the knowledge debated during these events and the direction and level of knowledge transfer between participants during the workshops, seminars and projects. Knowledge was categorised in terms of specific sustainability

matters, namely: the environmental and social benefits of local food production and distribution; the awareness of brands and local small companies able to respond to individuals' needs to reduce their energy consumption; possible energy saving actions to take in terms of the thickness of the glazing, the type of loft insulation and draught proofing. Individuals who displayed a high degree of knowledge on sustainability issues were identified and invited to participate in in-depth interviews. For example, interviewees include homeowners who participated in the Open Home weekend and Transition Town members most active in growing and gardening events.

Phenomenological one-to-one interviews (Thompson et al. 1989) were conducted to allow for probing and interpreting informants' views and experiences regarding the knowledge and skills that they were mobilising so as to engage in a sustainable consumption lifestyle. The authors conducted a total of eighteen in-depth interviews to capture the complex role played by consumer knowledge (see Appendix 1 before the references, for a precise understanding of and practice regarding sustainability for each informant). Interviewees were all residents within the chosen Transition Town and aged between 21 years and 68 years with a fairly even split across the genders (10 women and 8 men). Pseudonyms were used for all interviewees. The interviews lasted between one hour and three and a half hours, were audio-recorded and subsequently transcribed.

The objective of the interviewing was to obtain a first-person description of the interviewees' materialisation of their sustainability ideals. Descriptions of the practices as given by the informants could then be considered as the experience itself (Thompson et al. 1989). The researchers judged the informants to have freely expressed their practices and their personal interpretation of their sustainable consumption lifestyle, which revealed their green consumption behaviours aimed at preserving the environmental ecosystem (De Pelsmacker and Janssens 2007). Moreover, they shared their experiences regarding consumption decisions and actions involving ethical related issues (i.e. human and animals rights). In sum, our informants believed in and were pursuing sustainable consumption by being environmentally and socially responsible. As with all phenomenological interviews, the course of the discussion was driven by the interviewees (Thompson et al. 1989, 1990, 1994). As a consequence, the dialogue with the interviewees was circular rather than linear. Specific questions and comments originated as a result of the descriptions by the interviewees of their

implementation of sustainability in their lives, particularly in relation to the nature of the knowledge and skills that they had adopted and combined.

Lincoln and Guba (1985) proposed four criteria (credibility, transferability, dependability, confirmability) to assess the trustworthiness of qualitative research. Active participation and informant interaction through interviews and at various events enabled prolonged engagement in the field to assure a high degree of study credibility (Lincoln and Guba 1985; Wallendorf and Belk 1989). Transferability refers to the extent to which findings of the study can be applied in other contexts of analysis (Wallendorf and Belk 1989). This study's inquiry into performance of sustainability has not been restricted to a specific product industry or consumption experience. The phenomenological type of interviewing chosen here liberates the interviewees to describe their own experiences about the phenomenon under investigation. The researchers checked and discussed the interpretation and analysis of the findings to minimise potential biases of singular interpretation and to respect the criterion of dependability (Thompson et al. 1989). Finally, the authors adopted a hermeneutical analytical approach (Arnold and Fischer 1994; Thompson 1997) to ensure the confirmability of the findings as well as to reflect the perceptions and experiences of the informants. This entailed an iterative process of data analysis, involving reading and rereading the data, to identify recurrent elements, that were subsequently coded and grouped into themes (Spiggle 1994). Following the hermeneutic cycle (Thompson et al. 1989), a holistic understanding of a singular interview was attained (Thompson and Hirschman 1995) followed by a comparison of the transcripts to identify similarities and differences and attribute a sense to the data set in its entirety (Arnold and Fischer 1994; Thompson et al. 1989). Insights gained from later interviews allowed for rereading and reshaping of previous interpretations (Thompson et al. 1990, 1994).

Findings

Our findings uncover the contrasting and paradoxical role of knowledge (Bartiaux 2008; Carrigan and Attala 2001; Moisander 2007). We challenge the assumption that being aware of sustainability issues invariably positively supports consumers' ability to live sustainably. Our results reveal how consumer knowledge can have a disempowering effect on consumers by being a source of

Living sustainably: the dark side of knowledge

dilemma, tension and paralysis, hence provoking a self-inflicted paradoxical situation for people. Consequently, consumer knowledge might represent a source of disvalue rather than value to the practice of sustainable consumption.

Consumer knowledge as a source of dilemma

We selected our informants from among several members of the Transition Town, because, as aforementioned, they distinguished themselves by their display of knowledge of specific sustainability matters (e.g. transformation of a household to make it more energy efficient to reduce carbon emissions; growing local vegetables and fruits by guerrilla gardening to sensitise other people to the environmental and social benefits of short chains of production). Hence, they are individuals who are deeply committed to sustainability. It emerged that most of them are exposed to information overload as with the average consumer, but they transform it into a knowledgeable background regarding sustainability issues. Adele illustrates how she has built up her knowledge by combining different pieces of information.

“You need the information otherwise you are not shocked enough... It is a sort of gradual knock-on effect... And then someone will tell you about another piece of information... Do you see what I mean? It is a sort of incremental informal education...I stayed with some friends in London, and I started to say: ‘You know that, you realise what that washing liquid does to the river, what it does to the fish; and, you know daddadada’ (she laughs). They did not know. So, next time, they said: ‘We bought Ecover’.” (Adele)

Adele’s expertise in sustainability derives from a long-term incremental process of education informed specifically by her son. Her experience of learning about sustainability and at the same time, educating other people about the environmental and social effects of their actions, illustrates how some pieces of information are used to shock people into action, whereas others are utilised more for educational purposes. Consciously playing the role of an ‘evangeliser’ of principles of sustainability, Adele variously utilises her knowledge, firstly, to shock her friends about the environmentally

damaging effects of their consumption and, secondly, to educate them regarding the eco-friendly offers available in the market.

However, the way knowledge is used and its impact on practising a sustainable consumption lifestyle might differ to the point that it not only guides the accomplishment of sustainability goals, but can also hinder their actualisation.

“The other day, Paul, who is new to sustainability, told me:

‘When you want to be part of the world being more sustainable, it is really difficult... Oh sometimes I am so worried about everything, sometimes I wish I hadn’t encountered sustainability... Knowing that everything you do has such a big consequence.’

I think that when you want to be part of the world being more sustainable it is really difficult.” (Adele)

Paul’s confession to Adele prompts us to reflect upon a hidden dark side of knowing. The more he becomes aware of the detrimental environmental and social effects of his consumption habits, the more this becomes a burden rather than an aid. Thus, knowing might have a restraining effect rather than helping people to attain their sustainability objectives; a situation where ignorance might represent a state of bliss. Resonating with Mishra et al.’s (2008) study on the blissful ignorance effect, our results go beyond previously identified perspectives on the complications faced when trying to consume sustainably, as the following exemplifies. Max’s experience illustrates how it is not necessarily a lack of knowledge that produces consumer uncertainty about sustainability, but rather, in some cases, it is having too much:

“If I buy English tomatoes now, they are not very sustainable because in order to produce them you have to heat greenhouses. So, it’s much better either not to buy tomatoes, which I do, or I often buy them from, perhaps Italy, where the climate is warmer. So, it is difficult to know which the best thing to do is.” (Max)

Max is in his sixties, he is seriously engaged in sustainability matters, specifically, he is committed to local community projects aimed at preserving local traditions and cultivation. He has developed a rich background on sustainable agriculture, in terms of growing skills and knowledge of agricultural processes of production. However, he weighs up the advantages and disadvantages of buying local food grown in greenhouses as opposed to purchasing imported food. He stresses the challenge to balance the different factors he has to juggle with, some of which appear to compromise his sustainability intentions and yet still might be the best option for him.

In contrast to the contributions highlighting the negative effects of information overload (Bartiaux 2008; Carrigan and Attalla 2001; Moisander 2007; Owens 2000), Max's experience demonstrates that he is not confused by an overabundance of pieces of information or overload generated by the marketplace, but rather by knowing the pros and cons of the possible paths to take, i.e. a self-prescribed knowledge overload. Hence, it is his knowledge that plays a counter-role in contributing to his indecision regarding which purchasing decision to support. The identification of a self-prescribed knowledge overload serves to enrich the debate on how individuals are often dubious whether they are doing the 'right thing' while conducting a sustainable life (Connolly and Prothero 2008; Eckhardt et al. 2010; Shaw and Newholm 2002). Such overload contributes to the difficulties lived by consumers when attempting to live sustainably, weighing up different arguments and life priorities as well as when having to make trade-offs between their personal goals and the collective environmental and social wellbeing (Cherrier et al. 2012; Connolly and Prothero 2008; Johnstone and Tan 2015b; Szmigin et al. 2007).

Similarly, Tessa's dilemma whether or not to buy beans shipped from Kenya and Judith's quandary about purchasing Fairtrade wine or not help to expose the negative side of knowing, specifically in terms of social sustainability.

"I was having a discussion a long time ago with somebody about green beans coming from Kenya and how ridiculous it seems because you can actually grow green beans here or much closer than Kenya. And the guy was saying to me actually that when he was out in Africa for one year, doing voluntary things, and that there are communities that

depend on us to buy green beans. It might not be the ideal life for those people but with money that they get from green beans, it means a lot to them. So, if everybody suddenly stops taking green beans from Kenya, it would be an economic nightmare for them. You can't just necessarily say: 'That thing is evil' and just stop yourself from doing it. You cannot condemn it just because you are right, because you don't know what repercussions there might be further down the line. You don't know the full story; it is just a small fragment of the world of consumers' things, but it is more complicated than I thought originally.” (Tessa)

Tessa is in her thirties and since she was a child, she has been acutely involved in adopting sustainability principles into her life, due also to her parents' influence. Her family has always actively advocated the protection of human and animal rights by signing petitions as well as promoting the protection of environmental resources. She is always eager to enrich her local environment by sharing her knowledge and craftsmanship skills with others. Her critical thinking and in depth knowledge represent the sources of her dilemmas when balancing the social and environmental effects of products. Purchasing beans from Kenya may be environmentally damaging, because of the environmental cost of shipping them for long distances, but it can bring socioeconomic benefits for the farmers back to Kenya. The dilemmas in relation to evaluating the social and environmental effects of consumption are shared among the interviewees, as the following quote by Judith shows:

“We might want Fairtrade wine or we might want to buy wine from as nearby as we could. And most Fairtrade wines come from South Africa, which is quite a long way. But Spain is very much nearer but wines won't be Fairtrade.” (Judith)

Judith reveals the struggle to combine social and environmental principles in one single purchasing option. Knowing the Fairtrade labelling system, its social beneficial effects and the

harmful environmental consequences of shipping products from far away, makes her doubtful about whether she should proceed in buying them or rather prefer more closely produced alternatives.

Our results challenge the conceptualisation of “green confusion” (Chen and Chang 2013) as being caused by information overload. Specifically, our interpretation of Max, Tessa and Judith’s experiences reveals how dilemmas do not necessarily originate in the multitude of alternatives available in the marketplace or by being bombarded by multiple types of information, but rather, in the enhanced knowledge that committed consumers to sustainability have built up regarding its complexity. Consumers have usually been portrayed as being confused by the spread of green claims and the difficulty to judge their validity, resulting in higher degrees of scepticism in relation to green washing strategies (Bartiaux 2008; Bray et al. 2011; Jahdi and Acikdilli 2009; Moisander 2007; Owens 2000). Hence, the emphasis has been on how confused consumers tend to distrust brands and their claims (Chen and Chang 2013). By contrast, our informants highlight how the accumulation of knowledge makes them doubtful of their own capabilities. It is not trust for a brand that is under threat, but their ability to accomplish their sustainability ideals holistically.

Whilst an accumulation of knowledge can make consumers doubtful of their own capabilities, it also raises another issue, which is facing the social dilemma of having to make a choice between different options when there is no clear winner. Individuals can differently experience the responsibility of their dilemmas over the best action to take to attain sustainability goals. On the one hand, accumulating knowledge can make them doubtful of their own capabilities, on the other, dilemmas regarding whether they or others can make a difference when trade-offs occur are created.

The extant literature has mainly focused on consumer confusion in environmental terms. Regarding which, ‘green confusion’ refers to consumers being doubtful of acquiring the most environmentally friendly offer (Chen and Chang 2013). Our analysis reveals the importance of taking into account also the social dimension of sustainability when attempting to comprehend the dilemmas encountered by individuals struggling to embrace sustainability in their daily lives.

Consumer knowledge as a source of tension

Our findings contribute to a better understanding of how leading a sustainable lifestyle represents a complex path for consumers (Bray et al. 2011; McEachern et al. 2010; Szmigin et al. 2007). Our informants' experiences reveal how the accumulation of knowledge can represent a source of tension in terms of not being able to attain desired sustainability ideals. Illustrating knowledge as a potential cause of tension extends the discussion regarding the non-linearity of conducting a sustainable lifestyle, due to constraints that limit consumers ability to actualise sustainability principles (Connolly and Prothero 2008; McEachern et al. 2010; Prothero et al. 2011; Szmigin et al. 2007). Our results reveal how knowledge can represent a complexity of tensions in that it can act as a source of inner tension, peer pressure tension and tension towards the environmental constraints (e.g. unsustainable manufacturing practices), thereby limiting the accomplishment of sustainability objectives. Knowledge can induce tension to act as a mirror by reminding individuals of the limitations in choosing one option over another to satisfy their hedonism and/or in relation to competing priorities versus sustainability ideals. In this case, knowledge acts as a source of inner tension by exacerbating distress felt by individuals for not being able to pursue sustainability more holistically.

Knowledge also represents a source of unrest in the case of individuals, who, whilst being perceived as experts in sustainability, are caught up in a consumption experience that does not fully respect sustainability principles. Their knowledge acts as an inner reprimand for not attaining sustainability principles and moreover, the same knowledge is charged with expectations driven by peer pressure. Furthermore, knowledge contributes to a state of tension also when consumers feel unwittingly trapped in unsustainable practices. Their unease is provoked by facing difficulties in finding alternatives to widespread and available less sustainable offerings.

Hence, we challenge the assumption that knowledge necessarily strengthens individuals' personal efficacy (Deci and Ryan 2008; Ryan et al. 2008) and acts as a pleasure enhancer of the overall consumption experience (Clarkson et al. 2013). Irene's struggles are an example of how profound expertise in sustainability matters can elicit an inner tension between her contrasting life goals, resulting in emotional distress and a sense of dissatisfaction by being unable to meet in full her

sustainability beliefs. Irene experiences a sensation of being torn apart, by being stretched between opposing goals.

“On one hand I want to be local, low carbon and organic and all these other adjectives, which are connected to sustainability. And on the other hand, I want something nice to eat that I can afford. And those things sometimes don't go together easily. So, when I have low energy or I am a bit overstretched about things, trying to live sustainably feels like a life of deprivation.” (Irene)

Irene has invested time and effort to develop a rich knowledge base pertaining to environmental and social sustainability, by being highly involved in sustainability since her childhood. For instance, she has volunteered for the ‘willing workers on the organic farms’ scheme (WWOOF) to enhance her practical skills. Her strong respect for the preservation of the environment and animals, combined with her belief in the power of community, constitute her guiding principles. However, despite her dedication, she feels that leading a sustainable lifestyle is not an unfettered process, but to the contrary, it is characterised by ongoing emotional distress. Similarly, as David puts it: “leading a sustainable lifestyle is quite an emotional rollercoaster”. That is, both Irene and David experience stress when trying to match their sustainability doctrine with their daily life commitments and routines. Their experience reflects the incongruent situation consumers find themselves in, whereby their willingness and commitment to act sustainably and their societal needs and family expectations do not match, as explained by Cherrier et al. (2012). By uncovering knowledge accumulation as a source of tensions, our results provide valuable insight into to why ‘it is too hard to be green’ (Johnstone and Tan 2015a).

Irene’s knowledgeable background contributes to making her feel torn between her sustainability ideals and her daily reality. This result resonates with Cherrier et al.’s (2012) analysis, which found that the external and internalised socio-cultural barriers prevent individuals from diminishing carbon emissions. Cherrier et al. (2012) highlighted a knowledge-action gap occurring when individuals do not transform their knowledge into action, following internalised needs that they

desire to satisfy. Irene's experience contributes to the comprehension of knowledge as an internal barrier to practising sustainability by provoking inner tension, resulting in a state of unrest and imbalance. Her knowledge background acts to magnify her perception of being incapable of holistically pursuing her sustainability objectives.

She contrasts her personal desires, namely, her hedonistic orientation with leading a sustainable lifestyle, which she equates with a "life of deprivation". Her consideration of sustainable living as being hardship helps to shed new light upon the relationship between knowledge and wellbeing (Mishra et al. 2008). Our results contrast with Clarkson et al. (2013), who found that consumers feel the consumption experience to be more pleasurable when they have improved their relative knowledge background. On the contrary, Irene's experience reveals that her expertise acts as an admonishment of the shortcomings of her actions, thus decreasing her sensation of happiness and overall wellbeing.

Irene's tension is well reflected in her practice of purchasing unsustainably sourced fish, which does not resonate with her guiding sustainability principles. She is aware of the negative environmental and health related effects of this practice, but she prioritises her pleasure.

"Fish feels like a necessary sort of protein but I know that 'value' smoked salmon in Morrisons, which is very cheap, is farmed salmon. I know that it's not a good idea because farmed salmon harvest diseases which fresh salmon coming down the rivers pick up when they swim through the farms and it's not organically fed so it is not a sustainable system because it is polluting, and it is damaging the natural system in that area. But I so wanted to eat salmon that I bought it anyway and when somebody pointed out to me and I just said: 'Shut up, I just want to eat this; can I not have one thing that is nice and I like?'" (Irene)

Purchasing farmed smoked salmon is judged to be unethical by Irene. Being aware of the damaging environmental effects of farming salmon creates tension as she concedes to consume the salmon that she can afford to buy. Our results build on the analysis by Luchs and Kumar (2015) in relation to the trade-offs that consumers make between product sustainability and other valued

product attributes, such as utilitarian and hedonic values. These authors found that consumers are more willing to trade-off hedonic values for sustainability than utilitarian ones, which thus demonstrates that tension between the two stances can occur. In contrast to their findings, Irene's experience highlights that the search for hedonism can take precedence over sustainable product features. Our results highlight the effects of the choice of trading-off sustainability for hedonism by revealing the emotional distress felt by consumers. Specifically, different to the literature (Bertrandias and Vernetta 2012), we discovered that the knowledge that consumers develop over time to increase their degree of confidence in attaining their desired goal can actually have adverse outcomes. In fact, their rich and deep knowledge can provoke inner tension rather than enhancing their sense of serenity.

Irene's unrest is also triggered by others' commenting on her incoherencies in not completely embracing her sustainability values. She has developed a knowledge background over time that places her on a pedestal among her peers. As extant literature has theorised, a strong motivational drive underpins individuals' attempts to become knowledgeable to be confident in accomplishing a task and to be perceived expert by others (Bandura 1977; Deci and Ryan 2008; Ryan et al. 2008; White 1971). Our informants' experiences reveal the tension provoked by the pressure to consistently live up to this knowledge also through others' eyes. Similarly to Irene, Veronica shares how expertise can become a source of peer pressure tension:

“If you stand up and say: ‘I am part of the Transition movement’. You work to encourage people to lead a more sustainable lifestyle. Hmmm, there is a sort of pressure to live up to what you preach to other people. I mean, I am not very keen on this preachy side of it. I can remember once at a public event, I was late, and I thought: ‘Oh, I would not have the time to walk down, I will catch the bus, I will drive down’. So, I drove down. And, as I was driving, I drove past a family who were on their bicycles. I had just spoken to them ten minutes before about how important it is to reduce carbon footprint. There's that pressure but, yeah, I mean basically you do what you can so you should not be too angry at you about it” (Veronica)

Veronica is a very active member of the Transition Town Movement and she spends time and energy sharing with others her expertise on sustainability matters, specifically, sustainable food production and consumption. She feels disappointed with herself when she is perceived by others not to respect the sustainability principles that she urges others to follow. Hence, perfecting knowledge regarding sustainability issues can constitute a source of inner as well as peer pressure tension, because it provokes a sense of imbalance by reminding to the individual of the social/environmental and economic shortcomings of pursuing life priorities that compete with the holistic accomplishment of sustainability principles.

At the same time, the same knowledge background can constitute a source of tension, not only directed towards the self, but also towards the contextual circumstances preventing individuals from practising sustainability. In the case of Damini, her knowledge of producers and retailers' misbehaviour provokes her to feel unsettled as she is aware of the unsustainable effects provoked by wasteful mass production practices. She feels under tension because in order to try not to be indirectly co-responsible for the relative unsustainable effects of these mass-production practices, she has to find alternatives that are not always easily available in the marketplace.

“We have an electric toothbrush. The instructions say that when it stops working, you have to remove the batteries to dispose of them safely to save the environment, which is good. But what it is bad, it is that in order to get the batteries out, the instructions actually say that we have to press it in a certain way which breaks the case. So, that it automatically means that it is not possible to replace the old batteries with new ones because to get the old batteries out you have to break the plastic. I don't think that it was necessary for them to do that, the same company made a shaver many years back where you could actually take apart the batteries and put in new batteries and put it back together again. Why can't they do that now? Manufacturers could encourage reuse for as long as it is possible and design it [products] in such a way that you can use it [them] for as long as possible. This would give rise to new types of industries where replacement and repair are possible for broken parts.” (Damini)

In Irene's case, her level of knowledge reflects the contradictions in her consumption that mar her ability to accomplish sustainability and hence, generates inner conflict. From a different, but related perspective, Damini's experiences help us to extend further the understanding of the role of her knowledge in instilling distress by being an indirect part of an unsustainable manufacturing ecosystem.

For Damini, her widespread knowledge on sustainability has made her tensed when she encountered external malpractice by companies. She is irritated at the proliferation of short-lived disposable products, which she believes constitute an obstacle to environmental sustainability. Her experience sheds light on the impact of manufacturing practice that results in consumer deskilling (Jaffe and Gertler 2006) and she exposes the critical role played by manufacturers who place obstacles in the way of sustainability. Damini demonstrates how mass production practices can cause a domino effect. In essence, she abhors processes that involve creating throw-away products or goods that are irreparable and commit consumers to discarding them, whether they like it or not, and she feels that her actual behavioural control (Ajzen 2002; Carrington et al. 2010) is affected by infrastructural barriers and production methods.

Damini's response towards the 'planned obsolescence' of several mass-produced goods, conceived and created to have a short-product lifecycle, enriches the discussion by Guiltinan (2009) on the shared responsibility of this phenomenon. On one hand, manufacturers are accountable for producing goods that are not designed to last long and that are difficult to disassemble and/or to get repaired. On the other hand, consumers are held responsible for following the 'culture of fashion obsolescence' and replacing functioning products with the latest updated models to satisfy hedonic needs and feel socially accepted. The tension felt by Damini regarding increasingly widespread product obsolescence distinguishes her from mainstream consumers' reaction towards planned obsolescence and reveals her attempt to actualise mindful consumption (Sheth et al. 2011).

Mobilising her knowledge about production/distribution/disposal processes allows for the identification of problems in the functioning of the marketplace. It reflects a mindful mindset based upon a care for her family's wellbeing, for the protection of the common good, and for the preservation of the natural environment (Sheth et al. 2011). Damini's critical thinking and knowledge,

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however, does not hinder her commitment to her sustainable lifestyle. She is engaged in mindful behaviour (Sheth et al. 2011), as she opts for premium brands that promise a longer product life and she prefers keeping her utility goods, like her mother-in-law's sewing machine and getting them repaired so as to extend their lifetime. These findings reveal the complex tensions experienced by individuals when striving to actualise their commitment to sustainability.

Consumer knowledge as a source of paralysis

Our informants' experiences reveal how knowledge not only constitutes a source of value for them to conduct a more sustainable consumption lifestyle, for it is also a source of disvalue. Our study highlights the reverse side of knowledge by showing how more and better information, resulting in more and better knowledge thanks to the expertise accumulated, in itself might lead to an impasse when striving to accomplish sustainability principles. Continuously perfecting knowledge can actually be paralysing in that it can paradoxically lead to the risk, as Kate puts it, of not being able to function.

“Sometimes you don't know and sometimes you know. I mean you can be a complete fanatic and I don't think it is helpful to be a complete fanatic. I think you just have to say: I want to tilt it as far this way as I can, without just kind of falling over and not being able to go on functioning.” (Kate)

Kate identifies the nadir of the potential downside of being more knowledgeable. She has experience of both top-down and bottom-up activities aimed at raising public awareness about sustainability. However, to avoid falling into the trap of the knowledge risk threshold, she firmly believes in the efficiency and strength deriving from grass roots initiatives. She is highly involved in guerrilla gardening activities as she has verified that sharing practical skills is more easily incorporated into consumers' daily lives than abstract pieces of information. Her position is in line with the debate on the dysfunctional effects of information overload, as also for her, 'less is more' (Davies and Elliott 2006; Schwartz 2004).

Enhancing her knowledgeable background makes Kate increasingly aware of the unsustainable effects that conducting a practice can exert on her, the environment, and society in general. Thus, Kate's expertise has made her foresee the existence of a borderline that, if crossed, makes her fall apart, leaving her in a state of burnout. Her experience adds to the comprehension of the complexity of being knowledgeable in sustainability terms. Her knowledge acts potentially as a source leading her to be paralysed over deciding the best way to satisfy all her sustainability principles and goals. At the same time, the same knowledge is used to rationalise her behaviour and prevent her from reaching the state of complete burnout.

Similarly, Judith copes with knowing her limitations in pursuing sustainability by repeatedly seeing herself as not fully succeeding. She considers buying mass-produced clothes from China to be negative. However, she sees herself continuously buying these products even though she knows that their manufacturing processes and labour conditions might not fully respect environmental and social sustainability principles and standards.

"Sometimes when I have an aim in mind, I find that it takes me about a year to get that aim in place. I have to spend the first few months watching myself fail before I see how I can do it. So, I might say, I am not going to buy anything from China. Then, I see that I keep failing and I watch myself doing whatever it is that I was going to do until it happens and, then, I am doing it. So, it is a bit of that sort of zany zone thing when you play tennis you just watch the ball going in the wrong place. I don't play tennis but in terms of tennis you just watch yourself hitting the ball. And it is not going in. You just see that until it starts going in. I found that quite a useful idea because I saw that is what I do anyway. When I am trying to either give something up or take something on that I fail and it's important not to give up at that moment but just observe. I just go on through the end until somehow it will work, I expect." (Judith)

Judith feels a strong sensation of incapability in knowing that the practice that she is undertaking is not sustainably sound. Her critical thought and knowledge of the environmental and

social effects of her consumption thus represent a source of paralysis by making her aware of her failures. Judith tries to rationalise the downsides of her practices, and she accepts her failure in being unable to correct her consumption patterns. Like Kate, the same knowledge that hinders her capacity to function fully sustainably represents the source of a process of self-discovery and rationalisation.

Kate's acceptance of her practices as not being completely sustainable and Judith's acceptance of her continuous failure contribute to the understanding of the ways environmentally and socially conscious consumers rationalise their unsustainable behaviours (Chatzidakis et al. 2007; Johnstone and Tan 2015b). These two women's use of their knowledge as a means to rationalise their behaviours, represents a neutralisation technique aimed at protecting their sense of self (Johnstone and Tan 2015b). According to Johnstone and Tan (2015b), individuals' rationalisation of their unsustainable behaviours occurs because of the perception of eco-friendly actions as being potential sacrifices, thereby impacting negatively their self-concepts. Differently, Kate and Judith's rationalisations protect them from a higher risk: the possibility of completely falling apart.

Thus, interpreting Kate and Judith's experiences sheds new light on the complex relation between knowledge and wellbeing. The sense of paralysis potentially felt by Kate and the sensation of failure continuously lived by Judith enhance the understanding of the 'blissful ignorance effect', evoked by Mishra et al. (2008). These two women's rich knowledge background on sustainability enables them to be more acutely aware of where they are failing to actualise their sustainability values. Consequently, our findings question the assumption that deepening consumer knowledge necessarily enhances the pleasure of engaging in the consumption experience (Clarkson et al. 2013). Differently to Bertrandias and Vernet (2012), our informants have revealed how accumulating more knowledge on sustainability matters actually decreased their sense of perceived efficacy and confidence, rather than contributing to reinforcing it.

Discussion

With our study we respond to the call to advance the theorisation of sustainability in marketing theory (Kotler 2011; Luchs and Kumar 2015). We build upon the understanding of the complexity encountered by individuals who seek to lead a sustainable consumption lifestyle. We do

so by shedding new light on the role played by consumer knowledge in the challenges they face. We contribute to better understanding the link between the commitment towards leading a sustainable consumption lifestyle and the role played by knowledge to accomplish this.

Our results reveal the challenges faced when attempting to conduct sustainable consumption by highlighting the disempowering rather than empowering side of knowing. Thus, this study responds to Johnstone and Tan's (2015a) inquiry over the comprehension of the complex nature of consumer knowledge and its role in sustainable behaviours. Prior research has mainly conceived consumer knowledge as a source of value facilitating sustainable consumption practices (Bray et al. 2011; De Pelsmacker and Janssens 2007; Shaw and Clarke 1999). In contrast, our results show how the development and refinement of knowledge itself by consumers who are highly committed and involved in sustainability can have a reverse side.

Building on the conceptualisation of the dysfunctional nature of consumer knowledge (Chan 2001; Connolly and Prothero 2008; Lurie 2004), our study reveals how it can be also disempowering by threatening self-esteem and confidence. As a result, our findings enrich the current debate on the link between knowledge and wellbeing (Mishra et al. 2008). Specifically, our analysis has revealed how consumer knowledge can represent a source of dilemmas, tensions and paralyses in the daily dynamics of endeavouring to consume sustainably. Dilemmas, tensions and paralyses can be seen as potential signals of a 'self-inflicted sustainable consumption paradox', where consumers feel emotionally challenged and sense a decrease in the level of their personal accomplishment. That is, the same knowledge supporting sustainable practices can also represent a source of confusion and distress, even to the extent that a person becomes burned out. Paradoxically, having too much knowledge can represent a burden in that consumers might realise how difficult the sustainability challenge is.

Our results provide empirical evidence of what Carrington et al. (2016) refer to as the hysterical subject; i.e. a consumer who continuously doubts whether she or he is precisely accomplishing a consumption practice. Their deep and wide knowledge can act as an obstacle provoking dilemmas and making them feel that they are at a crossroads, not knowing the right way to proceed. Our findings counter the conceptualisation of knowledge as necessarily increasing

individuals' confidence and sense of control, by providing evidence that it also represents a source of conflict and indecision. Hence, our analysis strengthens the critiques of the information deficit model (Carrington et al. 2010; Eckhardt et al. 2010; Schaefer and Crane 2005). Specifically, we contribute to the conceptualisation of the 'dysfunctional consequences' (Jacoby 1984) of information overload (Bartiaux 2008; Connolly and Prothero 2008; Owens 2000) by revealing how knowledge accumulation can restrict consumers' capacity to achieve their sustainability ideals. Moreover, the identification of 'a self-prescribed knowledge overload' represents an internalised barrier rather than being an overload externally originated, as usually defined in literature.

Conceiving knowledge as a potential barrier to consuming contrasts with extant research, which reports the improvement of knowledge as strengthening individuals' confidence and increasing the pleasure in practising consumption experiences (Bertrandias and Vernet 2012; Clarkson et al. 2013). Our findings reveal how knowledge itself can be a source of tension for consumers as it can provoke rather than ease unrest and stress. In their quest to become more knowledgeable, consumers can also feel unfulfilled, if they become conscious of their inability to satisfy their sustainability aspirations completely at the same time as pursuing their hedonic desires. Individuals, who are considered as experts on sustainability matters by their peers, experience tension in having to live up to the pressure of being considered role models by others. Hence, when they fail to attain sustainability goals, not only does their knowledge act as a source of tension by revealing their shortcomings, but also, it plays out as a source of peer pressure as they do not always actualise the knowledge they claim to have. Their sense of dissatisfaction is also accentuated by the unsustainable patterns ingrained in some manufacturing processes, which impact on their own possibility to consume sustainably.

This unfulfilled feeling provide evidence of the calibration of knowledge exercised by consumers when pursuing their sustainability values. Individuals who possess a wide knowledge of a product/service or consumption experience are more likely to realise their own failures when trying to achieve their consumption ideals, experience a failure in their knowledge calibration and to suffer from a dilution of faith in their capacity to make an optimal decision. This insight differs from current contributions, portraying consumers who commit errors in their calibration of knowledge without

necessarily being aware of the lack of correspondence between the knowledge that they believe they possess and that which they actually have (Alba and Hutchinson 2000; Bertrandias and Vernet 2012; Johar et al. 2006).

The participants in our research were keenly aware of the limitations of their level of control, which meant that their perceived behavioural control (PBC) matched their actual behavioural control (ABC), which runs counter to what has been written in much of the extant literature. Accumulating knowledge, in fact, acted as a facilitator to critically analysing their own actions and making them aware of their failures. When knowledge threatens to become a source of paralysis, it can provoke a sensation of feeling burned out, with the awareness that everything one might possibly do has some possible detrimental environmental and/or social effects. Our study contributes to understanding the overall complexity of the nature of consumer knowledge as it reveals how the same knowledge possibly causing a burnout state, represents a source for consumers to rationalise their behaviours and cope with their limitations. Thus, it represents a neutralisation technique aimed at protecting their sense of self (Johnstone and Tan 2015b).

Our focus on the reverse side of consumer knowledge sheds new light on the implications of ascribing responsibility to consumers for achieving societal sustainability objectives. Our perspective differs from that of Graafland (2003), who positively associated the concept of ability with the degree of empowerment, resources and welfare obtained by the different stakeholders. Our study has offered empirical evidence that simply strengthening people's knowledge about sustainability represents the way to bridge the gap between intentions and actual behaviours is an illusion. Hence, we concur with Carrington et al. (2016) questioning the notion of consumers as sovereign agents, who are responsible for the current economical, environmental and social unsustainability and having the power to solve these problems.

Our results are in line with Carrington et al.'s (2016) call to take into account the role played by market structures in influencing the gap between consumer willingness to act sustainably and actual capacity to do so. Our analysis has revealed how consumers can experience a sense of tension and unrest by being aware of the influences of mass production on the actualisation of sustainable consumption practices. Their feeling of uneasiness is caused by knowing about the existence of

manufacturing practices that involve launching new products that are not reusable, repairable or transformable and the awareness that these practices lead towards higher degrees of consumer deskilling (Jaffe and Gertler 2006). As a result of these developments, individuals are being drawn into a mass disposal form of consumption that works to thwart their pursuit of their sustainability principles.

Different to the widespread top-down policies aimed at spreading information on sustainability related matters, we recommend the development of initiatives aimed at favouring the collaboration between different stakeholders. Given sustainability is a societal challenge, the coordinated action of consumers, producers, not-for-profit organisations, retailers and public institutions is required (i.e. Guiltinan 2009; Sheth et al. 2011). For example, more regulations should be put in place with the aim of ensuring the consolidation and respect of manufacturing processes, based upon sustainable sourcing of the materials utilised and guaranteeing a longer durability of goods. This would decrease the unrest felt by individuals when they cannot fulfil their sustainability goals owing to the interference of infrastructural and market barriers.

Moreover, organisations like the Transition Movement, could act as facilitators for the cooperation between stakeholders. During Transition Town events the intervention of other stakeholders (for example, providers of sustainable products and services, such as environmental architects, solar panels installers, suppliers of triple glazing windows) would be positively welcomed by the participants, if they had the credentials of being bone fide members of their sustainability oriented community. The spread of such initiatives would encourage consumers to be less sceptical about their purchasing and at the same time would also be beneficial for companies. For, by authentically aligning their strategies with the sustainability agenda, their brand can gain greater credibility. Furthermore, the organisation of more ‘inner transition’ workshops, aimed at sharing positive and negative experiences, would facilitate the construction of shared practices and routines, which would then help to assuage the participants’ personal guilt, because they will come to realise that others are facing the same challenges.

An interesting and necessary future research stream would involve the exploration and analysis of the transfer of knowledge among different stakeholders so as to identify the creation of

possible 'chains of knowledge development and transfer' based upon the different expertise and role of each stakeholder involved. This would address one of the key limitations of the current research, whereby the focus was merely on interpreting the complex nature of the knowledge of 'expert' consumers, who are firm believers in the principles of sustainability and who are fully committed to applying this knowledge in pursuit of a commensurate lifestyle. That is, considering sustainability in a wider context would provide more comprehensive insights into the challenges faced when attempting to apply knowledge gained in relation to this phenomenon. Future studies would benefit from investigating the impact of the empowering as well as the disempowering nature of knowledge when pursuing sustainability goals for the general public and other stakeholders, such as business organisations not considered to be sustainability 'experts'.

The analysis of consumer knowledge as source of dilemmas, tensions and paralyses reveals a contrary side of knowing, where accumulation contributes to a dilution of value rather than value creation. Knowledge is predominantly conceived as an enhancer of the value, supporting consumers in their quest for a pleasurable and successful consumption experience (Bertrandias and Vernet 2012). Their confidence derives from their past experiences and their feeling of being capable of connecting multiple pieces of information (Alba and Hutchinson 1987, 2000). Moreover, extant research reports that the efforts to become knowledgeable positively influence consumers' expectations of personal efficacy and their overall pleasure in engaging in a consumption behaviour (Clarkson et al. 2013; Deci and Ryan 2008; Ryan et al. 2008).

Our study reveals consumer knowledge as a source of dilemma reflected in the cognitive doubts exhibited by consumers when regarding which alternatives represent the best sustainable path to take. In this case, the value embedded in an expertise to evaluate the sustainability character of the alternative practices is diluted by the difficulty to choose over the alternatives. The value derived from knowledge of the sustainability of a product or engaging in a consumption practice is suspended by a sense of uneasiness lived by the consumers. That is, when knowledge acts as a source of inner tension, peer pressure tension and/or tension with the market, then the value that it carries is deferred. For example, when consumers experience inner tension prioritising hedonic goals over sustainability goals, their knowledge background acts as an admonishment of their shortcomings in not being able

to attain their sustainability goals. Hence, the value of knowing the most sustainable alternative is not actualised and the overall value of the consumption experience is diluted by the complexity of the tensions felt. Finally, the value is the most diluted when consumer knowledge represents a source of paralysis. That is, an excess of knowledge might be so disruptive that it risks putting consumers into an inactive state in which they are unable to function.

In sum, this present study contributes to broadening the debate about the contentious role of knowledge when pursuing a sustainable consumption lifestyle (Carrigan and Attalla 2001; Moisander 2007). Our research helps to explain the distorting effects of consumer knowledge by highlighting how enhancing it can actually lead to higher uncertainty owing to the possible feelings of unhappiness derived from a sense of failure when arbitrating about the righteousness of the choice taken.

Ethical approval: “All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.”

Informed consent: “Informed consent was obtained from all individual participants included in the study.”

Appendix

Informants' demography	Sustainable living	Specific knowledge background
Adele, 52, Female, married, with children, Therapist in the health system	<p>Maintained consumption levels: searching for information to evaluate marketplace offers; purchasing sustainable offers; doing grocery shopping in alternative retailers where food is not packaged and consumers can buy it loose.</p> <p>Reduced consumption levels: preserving fruits and vegetables from her allotment rather than buying market produced jams; growing own fruits and vegetables; cutting down on the use of the car in preference for public transport and trains for long journeys.</p>	Knowledge of sustainable offers and of the environmental and socially damaging effects of unsustainable alternatives; familiarity with the labelling system and its multiple eco-friendly/social-friendly/ambiguous different labels. Craftsmanship skills: cooking skills; gardening abilities; sewing expertise.
Brigitte, 31, Female, in a relationship, without	Maintained consumption levels: purchasing from a food cooperative organically and locally produced vegetables and fruits. Searching for information on brand stories and practices to evaluate their coherence with sustainability principles or their degree of green washing.	Knowledge of the functioning of the marketplace; critical thinking; knowledge of the environmental and social problems caused by overconsumption in different

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children, Seasonal worker	Reduced consumption levels: skip-diving (illegally collecting supermarket garbage and consuming it as a protest against over-consumption and market over-waste); exchanging and buying second-hand clothes; giving up driving; buying fewer market offers.	countries worldwide. Craftsmanship skills: growing; pruning; mending clothes; cooking.
Damini, 42, Female, married, with children, Stay-at-home mum	Maintained consumption levels: reading technical manuals, books and product comparisons to choose the most energy efficient appliances. Purchasing solar panels, energy efficient bulbs and lamps. Purchasing expensive brands, which assure a long product life. Purchasing goods that bring social benefits to their producers (i.e. buying decorative items produced from discarded pieces of cloth by women in third world countries). Reduced consumption levels: constantly attending workshops and courses to learn different manual arts (i.e. foraging; knitting; producing own yogurt) to cut down on marketplace purchases and auto-production. Giving a new life to objects rather than throwing them away and buying new ones (e.g. old broken jar transformed in a flower pot).	High technical knowledge concerning the environmental effects caused by energy inefficient products. Constant development of knowledge background on brands, which are distinguished for their environmental and social benefits. Craftsmanship skills: cooking and preserving skills; gardening, growing and foraging abilities; sewing and knitting crafts.
Irene, 33, Female, Single, without children, worker in environmental organisation	Maintained consumption levels: purchasing from food cooperatives and locally sourced shops rather than heavily relying on mass market chains. Reduced consumption levels: stop possessing a car and driving; reducing drastically heating consumption during winter months (coping with the cold by wearing more woollen clothes); collecting rain to water the garden to cut out the use of water from the pipes; guerrilla and community gardening.	Knowledge of the labelling system. Craftsmanship skills: in-depth knowledge and skills of planting and of how to grow different seasonal fruits, vegetables and flowering plants; beekeeping expertise.
David, 45, Male, married, with children, Architect and urban designer	Maintained consumption levels: purchasing a hybrid car and doing car sharing. Designing sustainable buildings to be eco-efficient and to favour community life in the neighbourhood. Purchasing energy efficient goods (i.e. boiler, solar panels, household appliances). Buying organic meat and free-range eggs. Reduced consumption levels: cutting down on flying and preferring short-distance holidays.	Extensive expertise on the environmental benefits obtained by eco-efficient appliances and insulation. Familiarity with the technical and specialised language utilised to certify sustainably sourced and produced products.
James, 55, Male, single, without children, Semi-retired, consultant for engineering projects	Maintained consumption levels: purchasing energy-efficient appliances and energy monitors. Draught-proofing around windows and doors. Reduced consumption levels: embracing a frugal lifestyle. Cutting down on his consumption (i.e. refraining from buying new clothes, new unnecessary leisure items). Volunteering for a project aimed at reducing the energy consumption in schools. He shares his technical knowledge and expertise to sensitise school faculties and children to change their energy consumption habits.	High technical knowledge of the environmental effects provoked by carbon emissions. Expertise in evaluating the various energy efficient offers available in the marketplace.
Judith, 65, Female, married, with children, Stay-at-home mum	Maintained consumption levels: preferring to purchase locally produced goods. Reduced consumption levels: reducing drastically heating consumption during winter months by keeping the temperature very low. Embracing a frugal lifestyle, trying to cut down on consumption and limiting waste. Make-do-mend practices to extend the life cycle of old products. Growing own vegetables in her garden. Avoiding buying fruit and vegetables that are flown in from far away.	Familiarity with climate change's environmental, economic and social effects. Knowledge of marketplace functioning. Craftsmanship skills: cooking and preserving skills; sewing and knitting crafts; growing and gardening abilities; capacity to build a house out of wood; horticulture; permaculture expertise.

<p>Kate, 50, Female, in a relationship, with children, Human resources advisor</p>	<p>Maintained consumption levels: purchasing organic and biological fish, jams and teas. Purchasing fruit and vegetables in season from farmers markets and local shops. Reduced consumption levels: avoiding the eating of beef to cut down carbon emissions. Avoiding having a car and just renting one occasionally, if unable to reach the destination with public transport. Guerrilla and community gardening.</p>	<p>Knowledge of sustainable offers. Expertise on evaluating the credibility of brands, greening their brand personality. Familiarity with the labelling systems certifying the attainment of sustainable credentials. Craftsmanship skills: growing, gardening.</p>
<p>Margaret, 56, Female, married, without children, Dog sitter</p>	<p>Maintained consumption levels: Buying in bulk to reduce packaging. Subscribing to a community supported agriculture box scheme to get seasonal vegetables and fruit. Purchasing energy-efficient appliances, insulating the house and installing solar panels. Reduced consumption levels: embracing a voluntary simplicity lifestyle. She has scaled-down her consumption and reduced her working hours to focus her energy on developing self enhancement. Cooking own jams. Saving rain water for gardening.</p>	<p>Knowledge of chains of production and distribution of goods and familiarity with their characteristics and the relative environmental and social effects. Craftsmanship skills: cooking and preserving skills; gardening, pruning, growing abilities.</p>
<p>Max, 63, Male, married, with children, Retired</p>	<p>Maintained consumption levels: Acquiring sustainable offers (i.e. purchasing organic fish and meat, free range eggs and Fairtrade teas, coffee and chocolate). Purchasing household appliances that allow for high energy conservation. Buying fruit and vegetables that are locally produced, in favour of the preservation of local traditions and varieties of fruit and vegetables.</p>	<p>Knowledge of the agricultural processes of production. Awareness of the different natures of resources utilised to grow vegetables and fruit biologically. Expertise on distinguishing sustainable offers based on their place of origin, brand credentials and adherence to recognised labelling systems.</p>
<p>Michael, 50, Male, married, with children, Editor</p>	<p>Maintained consumption levels: purchasing from farmers markets and locally sourced shops. Preferring to buy products that are produced and distributed locally to keep the carbon footprint low. Reduced consumption levels: embracing voluntary simplicity principles by minimising the purchases of unnecessary goods. Extending the life of products by repairing them and reusing them. Involvement in guerrilla and community gardening.</p>	<p>Knowledge of the functioning of networks and awareness of the resources utilised by the different stakeholders to accomplish their tasks. Critical thinking and evaluation of the environmental effects of production and distribution processes. Craftsmanship skills: permaculture expertise; growing and gardening abilities.</p>
<p>Owen, 68, Male, married, with children, Retired</p>	<p>Maintained consumption levels: purchasing eco-efficient household appliances. Draught-proofing and insulation of the house to save energy and to contain damaging environmental effects. Reduced consumption levels: He has inherited from his parents a frugal lifestyle and abhorrence for waste. Sharing goods that are occasionally used (such as, electric drill) within the neighbourhood.</p>	<p>Varied knowledge on sustainability matters, both regarding environmental and social issues. His extensive knowledge background originated from attendance of different workshops, watching television programmes and documentaries, personal experiences at seminars on sustainability. Craftsmanship skills: DIY abilities; capacity to forge wood to auto-produce wooden utensils and small pieces of furniture.</p>
<p>Rose, 62, Female, married, with children, Artist</p>	<p>Maintained consumption levels: buying locally sourced goods when possible. Reduced consumption levels: she leads a voluntary simplicity lifestyle, whereby she tries to minimise her consumption and engages in productive consumption activities (for example, she is highly involved in guerrilla</p>	<p>Knowledge of the environmental and social benefits of growing and consuming local food. Craftsmanship skills: growing and gardening expertise.</p>

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	gardening). She tries to “unhook” herself from buying new goods as she thinks that overconsumption hinders rather than increases happiness.	
Stephen, 21, Male, single, without children, University student	Reduced consumption levels: he is a holistic simplifier because he minimises his consumption to commit to a ‘simpler life’. His education informs also his scope for self-enhancement and he conceives his engagement in sustainability also in spiritual terms. Practising sustainability through foraging, community gardening, and skip-diving.	Development of his knowledge of sustainability issues by reading the biographies of people who live their lives by the principles of sustainability. Knowledge of the environmental and social effects of overconsumption as generating a throw-away society. Craftsmanship skills: growing and foraging abilities; cooking expertise.
Tessa, 37, Female, married, without children, Working in the publishing industry	Maintained consumption levels: purchasing offers in line with environmental and social sustainability principles. Reduced consumption levels: abhorring any forms of waste. Thanks to her artist background, she engages in creative practices of reusing and recycling of old goods. Auto-production of her clothes and accessories, from recycled and/or second-hand materials.	Attentive evaluation of the sustainable friendliness of marketplace offers. Craftsmanship skills: sewing and knitting skills.
Tom, 66, Male, married, with children, Retired	Maintained consumption levels: purchasing vegetables and fruit through a box scheme. Buying eco-efficient appliances and investing in refurbishing his house to cut down on energy consumption.	Knowledge of low carbon technologies and insulation processes. Knowledge of labelling systems to certify the respect of sustainability requirements.
Veronica, 60, Female, single, without children, Retired	Maintained consumption levels: buying locally sourced groceries. Purchasing as ‘voting’ to reward local shops and local companies that conduct their activities by being loyal to local traditions and by preserving the environment. Reduced consumption levels: frugal lifestyle. abhorrence of waste and auto-production of goods (make-do-and-mend, preservation)	Knowledge of the functioning of the marketplace and its actors. Expertise on evaluating sustainable offers based upon their supply chains, production and distribution processes, respect for certification. Craftsmanship skills: cooking and preserving skills; gardening, growing, pruning abilities.
William, 61, Male, in a relationship, with children, Retired	Maintained consumption levels: purchasing energy efficient appliances (i.e. heating, boiler, washing machine). Buying furniture constructed with sustainably sourced wood. Refurbishing the house so as to transform it into an energy efficient building.	Technical and specialised knowledge of insulation and draught-proofing practices to reduce energy consumption. Knowledge of the provenance of goods and attentive analysis of products life cycles and characteristics.

Appendix 1: Informants.

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