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Abstract

This paper empirically tests the concept of value-in-behavior (consumer perceived value towards the performance of behaviors), considers how it influences consumer behavioral outcomes, and identifies implications for social marketing. Value-in-behavior was tested in the context of energy efficiency, an important area for pro-social marketing. A survey of a random sample of 1,444 consumers measured value perceptions towards the performance of energy efficient behaviors. Latent class analysis identified four segments based on consumers' perceived value of energy efficiency behaviors. The demographic and psychographic predictors of these latent classes are shown, and ANOVA and multinomial logistic regression are used to identify the relationships between the latent class value segments and behavioral outcomes. Implications for marketing theory and practice and suggestions for future research are discussed.

Keywords: Value theory, consumer behavior, social marketing, latent class analysis, energy efficiency, value-in-behavior

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1. Introduction

Social marketing utilises marketing concepts and tools to promote pro-social behavior (French and Gordon, 2015). Scholars working in the environmental management area have considered using social marketing to promote socially responsible behaviors, such as energy efficiency (McKenzie-Mohr, 2011; Viardot, 2013; Yam, Russell-Bennett, Foth, and Mulcahy, 2017). Promoting responsible domestic energy consumption and energy efficiency are important topics given contemporary discourse regarding climate change, issues with energy security, increasing energy prices, and fuel poverty (Yergin, 2006; Simshauser, Nelson, and Doan, 2011). Energy researchers are, however, critical of social marketing and other social change approaches that assume influencing attitudes will drive behaviors (Shove, 2010). Their concerns are rooted in research evidence showing a consistent attitude-behavior gap, in which positive attitudes towards environmentally responsible behaviors such as energy efficiency, are a poor predictor of actual behavior (Barr and Gilg, 2006; Belz and Peattie, 2009; Shaw, McMaster, and Newholm, 2016). Responding to these critiques, social marketing scholars are focusing on other factors that promote energy efficient behaviors, such as consumer perceived value (Butler, Gordon, Roggeveen, Waitt, and Cooper, 2016), and the social and cultural conditions that shape energy consumption (Shove and Walker, 2014; Waitt, Roggeveen, Gordon, Butler, and Cooper, 2016). This paper considers how a new perspective on consumer value, perceived value-in-behavior, can add to the knowledge base.

The value-in-behavior concept that has been proposed in the social marketing literature (Zainuddin and Gordon, 2014; French and Gordon, 2015). The central tenet is that

consumers may not only perceive value in exchanging for (value-in-exchange), or using and experiencing (value-in-use) goods and services, but also towards performing behaviors. Although not a direct measure of behavior in its own right, value-in-behavior theorizes that consumers perceive value that is, or is not realized, through the performance of behavior. For example, the concept could reflect the value associated with eating healthily or keeping fit. This type of value is particularly relevant to promoting energy efficiency. Being energy efficient can involve exchanging and using goods (e.g. a heat pump) and services (e.g. a green energy provider), but it can also involve the performance of behaviors such as switching off appliances at the wall socket, or keeping cool by using a fan instead of an air conditioner. The idea of value-in-behavior is of importance to social marketers because of their interests in understanding and influencing the performance of pro-social behaviors (Dann, 2010; Gopaldas, 2015). Understanding and creating value for consumers in social marketing has been shown to facilitate pro-social behaviors and socially beneficial outcomes (Zainuddin, Russell-Bennett, and Previte, 2013; Chell and Mortimer, 2014; Mulcahy, Russell-Bennett, and Rundle-Thiele, 2015).

Although researchers have started to consider how value-in-behavior might promote energy efficiency behaviors (Butler et al., 2016), empirical research is needed to explore the concept's scope and application (French and Gordon, 2015; Butler et al., 2016). This paper addresses this gap, examining whether consumers do perceive value-in-behavior and, how they differ in their perceptions. Predictors of consumer perceptions of value-in-behavior are identified and associations between these perceptions and behavioral outcomes are considered. This knowledge informs understanding of consumer value towards behaviors that could be harnessed by social marketers to promote socially beneficial behaviors.

The remainder of the paper is structured as follows. The literature on value theory is considered and the conceptual framework of value-in-behavior is explicated. The study

methods are then described, and the findings presented. The theoretical, managerial, and research implications for marketing and social marketing are followed by the conclusions.

2. Literature review and theoretical framework: Value theory

2.1. Value theory in marketing

Value can be defined "as the regard that something is held to deserve, the importance, worth, or usefulness of something" (Oxford English Dictionary, 2013). Perceived consumer value and its influence on consumer behavior has attracted significant attention by scholars and marketing practitioners (Ravald and Grönroos, 1996; Prahalad and Ramaswamay, 2004; Anderson, Narus, and Van Rossum, 2006; Sánchez-Fernández and Iniesta-Bonillo, 2007; Gallarza, Gil-Saura, and Holbrook, 2011; Vargo and Lusch, 2013). This focus is unsurprising in light of evidence that creating and promoting consumer perceived value has a positive impact on consumer attitudes and behaviors (Sweeney and Soutar, 2001; Choi, Woo-Hyun, Sunhee, Hanjoon, and Chakon, 2004; Zainuddin, Russell-Bennett, and Previte, 2013).

However, value is a subjective idea and there are several different perspectives on how consumers perceive value and how it is created (Sánchez-Fernández and Iniesta-Bonillo, 2007). A key focus in the value literature is on value propositions (Kowalkowski, 2011) and whether consumer perceived value is created through value-in-exchange (Zeithaml, 1988), value-in-use (Holbrook, 2006), value in context (Chandler and Vargo, 2011), or value-in-behavior (French and Gordon, 2015). There is also considerable emphasis on the different dimensions of perceived value, which include: functional (Sweeney and Soutar, 2001); economic (Payne and Holt, 1999); emotional (Sánchez-Fernández and Iniesta-Bonillo, 2007); social (Holbrook, 2006); altruistic (Holbrook, 1994); and ecological value (Koller, Floh, and Zauner, 2011). To fully understand the value-in-behavior proposition, it is necessary to critically analyze these different perspectives on consumer perceived value.

2.2 Value-in-exchange

Value in marketing was originally conceptualized during the 1980s from a value-in-exchange perspective (Zeithaml, 1988). Based on economic theory (see Ricardo, 1817), this perspective suggests consumers identify value in consuming goods through a rational cost-benefit analysis (Zeithaml, 1988). In marketing, exchange involves trading or swapping goods, services, resources or values between two or more parties with the expectation that the benefits received will satisfy a particular need (Bagozzi, 1975; Houston and Gassenheimer, 1987). Often an exchange is utilitarian, involving the exchange of goods or services for money. However, it can also be symbolic, involving the transfer of psychological, social or other tangible or intangible benefits, such as a vote in return for tax breaks, or vaccinations in return for protection from disease. In such processes, the value-in-exchange perspective suggests that consumers will weigh what they must give up against what they will gain from making the exchange. This process involves considering the financial costs they must bear to purchase goods or services, the time they will sacrifice when buying or consuming, as well as other associated costs.

Some important critiques of the value-in-exchange perspective should be acknowledged. Sheth and Uslay (2007) argue that a primary focus on exchange in marketing has been limiting, creating a transactional buyer and seller perspective that ignores other relevant actors from consumption contexts such as the producer, the consumer, the user, the financier and other relevant stakeholders. Zafirovski and Levine (1999, p311) argue that understanding human interaction through exchange alone requires “an untenable reductionism that grossly violates real-life complexity by proceeding on the delusion of simplicity in a complex socio-economic world”. In complex, high involvement, and longer-term consumption contexts, such as promoting pro-social behaviors, the notion of value-in-exchange may not always be suitable.

In such cases, interactions often go beyond a simple exchange. Longer-term commitments may also be involved, such as contributing to environmental sustainability through reduced energy consumption behavior, enjoying improved long-term health from living a healthy lifestyle, or benefiting from active participatory citizenship through voting in elections (Hastings and Domegan, 2013). Applying a value-in-exchange perspective to pro-social marketing can be problematic because exchanges are typically so intangible that they become abstract and evasive (Peattie and Peattie, 2003). Using a rational economic perspective to promote pro-social behaviors can therefore be problematic. Accordingly, scholars have recognized that exchange theory and value-in-exchange may have limited application in relation to the more abstract contexts found in social marketing (Holbrook, 1994; Peattie and Peattie, 2003; Domegan, Collins, Stead, McHugh, and Hughes, 2013; Hastings and Domegan, 2013). An approach to value has emerged that extends the notion of value beyond the moment in time at which an exchange occurs, and is focused on value-in-use (Vargo and Lusch, 2004).

2.3 Value-in-use

Value-in-use is an experiential approach that conceptualizes consumer perceived value as relative rather than absolute, and that is related to the experience of consuming goods and services (Heinonen and Strandvik, 2009; Macdonald, Wilson, Martinez, and Toossi, 2011). This perspective sees consumer value as realized during the experience of consuming, rather than as embodied in goods or services (Sandström et al., 2008). Value-in-use has been found to influence behavior, for example research has shown that consumer perceived value of car usage influences intentions to purchase green automobiles (Koller et al., 2011).

Macdonald, Wilson, Martinez, and Toossi, (2011, p671) define value-in-use as "a customer's outcome, purpose or objective that is achieved through service", with service involving the skills, knowledge, and resources that actors use to deliver value. Here, consumers often become 'resource integrators', whereby they create value and achieve their own objectives (McColl-Kennedy, Vargo, Dagger, Sweeney, and van Kasteren, 2012).

Value-in-use from a service perspective is regarded as the achievement of a consumer outcome through service, in which service involves the resources that actors use to deliver value (Macdonald et al., 2011). For example, value-in-use could be the perceived value associated with the experience of using a health screening service. This value could include the time clients waited, the friendliness of staff, the benefits gained from being screened, and so on.

Although value-in-use may imply the performance of behaviors, this type of value is more specifically oriented towards the actual consumption experience. These subtle distinctions are important in exposing the particular contribution that value-in-behavior can make. Taking the health screening example, value-in-use is not specifically oriented towards the performance of a behavior, such as attending the health screening service. While value-in-exchange and value-in-use perspectives can help to understand perceived value in relation to exchanging and using goods and services that promote pro-social behavior, they fall short in capturing the perceived value that is realized through these behaviors. These perspectives reveal little about the consumer perceived value of behaving in an energy efficient way, of recycling, or of eating more healthily, or of how this value can be promoted to facilitate pro-social outcomes (French and Gordon, 2015; Butler et al., 2016). These are key questions that that cannot be answered by these value perspectives. More recently, Chandler and Vargo (2011) have proposed the idea of value-in-context, an approach that explores the roles that context and the multiple actors in service eco-systems have in co-creating value.

2.4 Value-in-context

The concept of value-in-context takes a systems perspective, acknowledging the complex interactions between actors that are often inherent in consumption exchanges. Value-in-context (Vargo, 2009; Chandler and Vargo, 2011) has the potential to offer a more nuanced understanding of consumer perceived value where more complex interactions are involved, such as those found in social marketing (Domegan et al., 2013). This perspective recognizes that exchanges are often complicated, can involve multiple actors, and may have multiple contextual dimensions at the individual/micro, meso, and macro/market levels. It also acknowledges that context, and the practices, routines, activities, processes and structures that operate within, between and around various actors and at different levels, play an important role in framing exchange. Whilst this systems perspective offers a more holistic framework of value, it is difficult to operationalize. Comprehensively examining value-in-context would involve considering perceived value and value co-creation among multiple actors, at multiple levels, and would take numerous contextual factors into consideration.

Furthermore, while the value-in-context view provides a useful systems perspective for understanding value eco-systems (Meynhardt, Chandler, and Strathoff, 2016), it does not capture fully the perceived value that is realized through the performance of behaviors.

2.5 Value-in-behavior

Given the limitations of the value-in-exchange, value-in-use, and value-in-context perspectives in explaining the value consumers perceive in performing pro-social behaviors, social marketing scholars have proposed the concept of value-in-behavior (Zainuddin and Gordon, 2014; French and Gordon, 2015). This concept recognizes that consumers may not only perceive value towards exchanging and using goods or services, but also towards performing behaviors. The central focus is that value is realized through the performance of

the behavior itself, rather than through the exchange or experience of using goods or services. Whilst value-in-behavior is not a direct measure of behavior, it can help understand what motivates consumers towards the performance of specific behaviors. In relation to energy efficiency, for example, it could reveal the value that consumers perceive towards taking shorter showers or reducing the temperature of their heating. Such insight is pertinent for social marketers seeking to facilitate pro-social behaviors and socially beneficial outcomes (Zainuddin et al., 2013; Chell and Mortimer, 2014). Incorporating the concept of value-in-behavior into social marketing theory could, therefore, assist in promoting socially responsible behaviors such as being energy efficient.

To further explore the value-in-behavior potential, it is helpful to further consider the energy efficiency context in relation to the other value perspectives. Beginning with value-in exchange, consumers may weigh up the value of purchasing a new energy efficient refrigerator by performing a cost-benefit evaluation comparing the purchase price with the energy savings offered. Energy consumption in the home may also involve value-in-use, such as when a consumer uses a dual fuel (gas and electricity) energy tariff from a utilities supplier. When using such a service, consumers may gain discounts and save money, resulting in feelings of satisfaction. However, promoting pro-social behaviors in this context, requires not only the use of goods like the refrigerator, or the experience of using services like dual fuel; but also the performance of energy efficient behaviors, such as turning off lighting when not in use, or ensuring the washing machine is full before running a cycle. The value-in-behavior concept (French and Gordon, 2015) focuses on the value achieved by performing these pro-social behaviors in a way that the extant value-in-exchange and value-in-use concepts do not.

As shown in Table 1, four perspectives of value have been identified: value-in-exchange, value-in-use, value-in-context, and value-in-behavior. Value-in-behavior is

theorized to involve a holistic and multi-dimensional consumer appraisal of the value in performing a particular behavior, such as ensuring a washing machine is full before using it. The context for value-in-behavior is therefore distinct from value-in-exchange and value-in-use, because it is explicitly behavior based and behavior oriented. Finally, reflecting the diverse motivations driving the performance of human behaviors, value-in-behavior may be intrinsic and extrinsic to the self and others (Zainuddin et al., 2013; French and Gordon, 2015).

Table 1: Comparison table between economic, experiential and behavioral value

Value perspective	Value-in-behavior	Value-in-exchange	Value-in-use	Value-in-context
Approach	Behavioral approach	Economic approach	Experiential /Service approach	Context/Systems Approach
Value definition	A holistic and multi-dimensional appraisal of value in performing behavior(s) (Zainuddin and Gordon, 2014)	An outcome of an evaluation of costs against benefits (Zeithaml, 1988)	Outcome, purpose or objective achieved through service (skills, knowledge & resources actors use to deliver value) (Macdonald *et al.,*2011)	How actors interact through exchange within a specific context; exploring the role that context plays in framing exchange (Chandler and Vargo, 2011)
Example	The perceived value in performing behaviors such as turning the thermometer down on the heater, or filling the washing machine before using it	The economic cost versus the value benefit of buying an energy efficient refrigerator	The emotional and experiential value of using a green energy service tariff	How multiple actors interact and create/destroy value in systems such as the Australian Energy Market
Context	Behavior-based	Goods-based	Experiential/Service-based	Systems
Orientation	Behavior-oriented	Outcomes-oriented	Process-oriented	Context/Systems oriented
Benefits	Intrinsic and extrinsic to self and others	Predominantly extrinsic to self	Predominantly intrinsic to self	Multi-dimensional/Systems level benefits

(Source: Adapted from Zainuddin, 2011; French and Gordon, 2015).

Focusing on consumer perceived value-in-behavior goes beyond the attitude based approaches to energy research that are critiqued by Shove (2010). This focus complements research that considers other influences on pro-social behaviors beyond attitudes, such as

personal values, social norms, and social and cultural conditions (Gilg, Barr, and Ford, 2005; Pepper, Jackson, and Uzzell, 2009; Waitt et al., 2016). Furthermore, investigating consumer perceived value-in-behavior may increase understanding of the attitude-behavior gap commonly found in pro-social behavior research (Barr and Gilg, 2006; Shaw, McMaster, and Newholm, 2016). Indeed, researchers have begun to consider how value-in-behavior may influence consumers in the context of energy efficiency. One recent qualitative study found that participants identified economic, functional, and ecological value towards the performance of energy efficiency behaviors (Butler et al., 2016). The findings suggest that consumer perceived value-in-behavior may be an important influence on energy efficient behaviors, alongside other known influences such as attitudes, social norms, and structural conditions. Although their findings provide support for the concept of value-in-behavior, Butler et al. (2016) call for further empirical research to test the concept and explore what dimensions of value consumers perceive towards energy efficient behaviors (Butler et al., 2016).

2.6. Dimensions of Value

In addition to considering different value perspectives, it is necessary to examine the dimensions of value to understand how consumers may perceive value-in-behavior. While the value literature lacks an agreed and parsimonious framework of consumer perceived value dimensions (Sheth et al., 1991; Sweeney and Soutar, 2001), several different dimensions have been proposed. These include functional value, economic value (sometimes included within functional value), emotional value (sometimes termed hedonic value), social value, ecological value, epistemic value, and altruistic value (Sheth, Newman, and Gross, 1991; Holbrook, 1994; Sweeney and Soutar, 2001; Holbrook, 2006; Koller et al., 2011).

Consumption experiences normally involve the simultaneous creation of more than one type of value (Holbrook, 1994; Sweeney and Soutar, 2001). Consequently, researchers often focus on value dimensions that they deem relevant in a particular context.

In the present study, functional value, economic value, emotional value, social value, and ecological value are considered relevant to energy efficiency. Functional value relates to the utility, ease, and control provided by using goods or services, or performing behaviors (Sweeney and Soutar, 2001). Functional value may reflect whether a consumer considers it easy to embed a particular behavior within household routine or whether that behavior offers them control over their energy use (Butler et al. 2016). This kind of value tends to be extrinsically motivated, and is oriented towards benefits for the self.

Economic value (also known as price value) is focused on a cost-benefit analysis and tends to be intrinsically motivated (Sweeney and Soutar, 2001). This type of value particularly relevant to low income consumers, as performing energy efficient behaviors can reduce energy bills and save money. Emotional value refers to consumer practice that occurs in pursuit of an emotional experience (e.g. confidence, pleasure, anger or fear), and is intrinsically motivated and self-oriented (Holbrook, 2006). Previous research suggests that consumers who feel righteous as a result of performing energy efficient behaviors may derive emotional value as a result (Butler et al., 2016). Social value is directed towards others and relates to influencing other people to achieve a desired goal, such as status or hierarchy in a group (Russell-Bennett, Previte, and Zainuddin, 2009). For example, consumers may perceive that being energy efficient leads other householders to view them and their parsimonious behavior in a good light.

Ecological value refers to the utility for the environment and ecological issues that the consumer perceives from consumption (Koller et al., 2011; Zauner, Koller, and Hatak, 2015). However, this kind of value can also enhance or impact on an individual's self-concept

(Koller et al., 2011). Ecological value can be both intrinsically and extrinsically motivated, and oriented towards the self and others. In the context of energy efficiency, ecological value may be intrinsically motivated by reducing carbon emissions and contributing towards environmental sustainability and extrinsically motivated by making consumers feel good for being green. Ecological value is relevant where there is an environmental imperative because of links between consumption and potential harm to the natural environment (Koller et al., 2011). It recognizes the growing importance that consumers place on the impacts of consumption behaviors and experiences on the natural environment (Belz and Peattie, 2009). Although Koller et al., (2011) argue the case for considering the concept and develop a scale for measuring ecological value, scholars acknowledge that further empirical research on this value dimension would be useful (Zauner et al., 2015).

Finally, altruistic value could also be considered relevant in the context of energy efficiency. This type of value is intrinsically motivated but directed towards others, whereby the goal is to achieve self-fulfillment or a sense of wellbeing (Holbrook, 2006). While recognizing that altruistic value could motivate pro-social behaviors, social marketers identify the need for empirical research and scales to enable its measurement and use. Although the present study does not specifically examine altruistic value, it does consider ecological value, which acknowledges both intrinsic and extrinsic motivations.

2.4. Research questions and research hypotheses

The study takes a staged approach to examining the concept of value-in-behavior and its effect on consumer behaviors, within the context of energy efficiency. The impact of energy consumption on carbon emissions and climate change means that energy efficiency is an important priority for social marketing research (Akhmat, Zaman, Shukui, and Sajiid,

2014). Firstly, the study examines if consumers perceive value in behavior, and if so, how perceptions of such value differ. This leads to the first research question:

RQ1: Do consumers perceive value-in-behavior and, if so, what are the differences in how they perceive it?

Secondly, the study assesses the predictors of different consumer perceptions of value-in-behavior. The energy research literature identifies income (Poortinga, Steg, Vlek, and Wiersma, 2003; Abrahamse, and Steg, 2009), age (Yohanis, Mondol, Wright, and Norton, 2008; McLoughlin, Duffy, and Conlon, 2012), attitudes (Abrahamse and Steg, 2009), and education (Poortinga et al., 2003) as potential predictors of energy efficient behaviors. Understanding how personal characteristics affect consumers' perceptions of value-in-behavior is crucial for those seeking to promote particular behaviors. This leads to the second research question:

RQ2: What are the predictors of consumer perceptions of value-in-behavior?

The study assesses associations between consumer perceptions of value-in-behavior, and behaviors. The extant literature suggests that when consumers perceive value, a positive effect on behavioral outcomes is likely (Sweeney and Soutar, 2001; Choi et al., 2004; Zainuddin et al., 2013; Zainuddin et al., 2016). While existing work has tested the effect of positive consumer perceptions of value-in-exchange and value-in-use, the effect of value-in-behavior has not been considered. Addressing this gap is necessary to understand the potential importance of the value-in behavior perspective for marketers. This leads to the third research question:

RQ3: What is the influence of consumer perceptions of value-in-behavior on behavioral outcomes?

3. Method

1,444 low-income older residents (aged ≥ 60 years) in regional Australia were surveyed to assess their perceived value towards energy efficiency. The research was undertaken as part of a larger marketing project with the objective of promoting energy efficiency in the community. Low-income older residents were the focus because of the challenges this group often faces in managing energy use, particularly given rising energy prices and associated issues of fuel poverty (Simshauser et al. 2011; Boardman, 2013). Reflecting rising fuel prices, fuel poverty and thrifty consumption practices among this group (Simshauser et al., 2011; Waitt et al., 2016), social marketing research on promoting energy efficiency has focused on low income consumers (see Yam et al., 2017).

Random digit dialing was carried out to generate the study sample, with a short telephone questionnaire used to screen for eligibility based on age, and income level. The Australian Bureau of Statistics income bracket definition of low income was used. An interview administered questionnaire survey was then undertaken in participants' homes by trained researchers using iPads, with responses recorded on the Qualtrics survey software platform.

All participants gave written informed consent and ethical approval for the study was obtained from the appropriate university ethics committee. Participants were presented with a $30 voucher as recompense for their time. The survey instrument was developed following extensive consultation of the value literature and the use of existing reliable value scales. Due

to a lack of suitable functional value items for use in a study focusing on energy efficiency, a process of scale development was undertaken for the functional value items following the Churchill (1979) procedure. This process involved a review of the extant literature on functional value, theory based generation of functional value measurement items, an expert panel Delphi process to review proposed functional value items, and factor analysis to test the measurement items. The developed functional value scale was used in conjunction with established value scales to measure the functional, economic (Koller et al., 2011), emotional (Nelson and Byus, 2001), social (Sweeney and Soutar, 2001) and ecological value (Koller et al., 2011) of energy efficiency. Appendix 1 shows the value items used.

Once collected, the data were transferred to SPSS for initial cleaning and descriptive analysis, prior to running latent class analysis using *Mplus* version 6.11 to identify consumer profiles based on value perceptions. Latent class analysis offers a sophisticated finite mixture model approach to identify unobservable groups of consumers using a probabilistic model that describes the distribution of the data, and models the latent structure behind it. This type of analysis enables researchers to understand complex consumer attitudes and behaviors, such as in relation to energy efficiency. In this case, the model was based on value theory and value dimensions (Hagenaars and McCutcheon, 2009). Analysis of variance tests were conducted to identify predictors of latent class membership relating to demographics, knowledge about energy efficiency (DeWaters, 2009), and attitudes towards energy efficiency (DeWaters, 2009). Analysis of variance and multinomial logistic regression identified associations between latent class membership and consumers' self-reported energy use (Gadenne et al., 2011; von Borgstede et al., 2013). A general linear model was utilized to assess associations between latent class membership and actual energy use, as recorded on consumers' most recent energy bills. Appendix 2 shows the knowledge, attitudes, and behaviors items used in this phase of the analysis.

4. Results

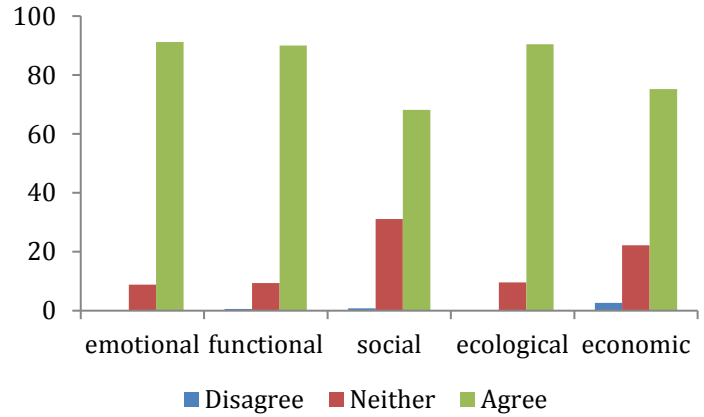
Initial descriptive analyses were conducted using *SPSS* version 21 statistical software. The achieved sample size was 1,444, with 60% females (n = 866) and 40% males (n = 578). The mean age was 71 years (SD: 7.3, minimum 60 years, maximum 99 years). Most of the sample (84.6%) were retired. Of those still working, 3.6% (n=52) were 'professional', 1.9% 'management' (n=28), 1.5% (n=21) 'technician and trades workers', and 3.9% (n=57) reported 'other'. In relation to the highest level of education attained, 12.3% (n=178) reported less than high school, 38.6% of the sample (n=557) reported high school, 30.8% (n=445) reported College or TAFE, 11% (n=159) had undertaken a three-year university degree, and 7.3% (n=105) had completed Bachelor with Honors or higher (PhD, Doctorate or Professional Degree).

4.1. Latent class analysis to identify levels of consumer perceived value-in-behavior

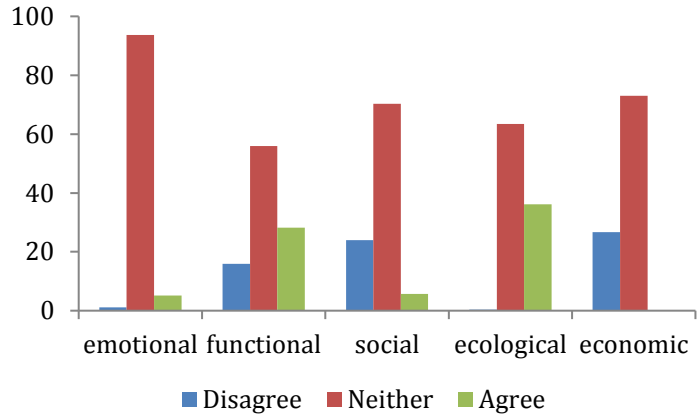
Latent class analysis was performed on participant responses to the 22 value scale items. Scale items featured the same five point Likert response scale with anchor points of strongly disagree and strongly agree. The latent class analysis involved testing models with one latent class, two latent classes, and so on, until the optimal number of latent classes was identified. This optimal number was informed by indices of model fit (e.g., Akaike's Information Criteria, Bayesian Information Criteria, and sample-size adjusted Bayesian Information Criteria) and bootstrap likelihood ratio tests, and took account of other important considerations such as the size and distinctiveness of the latent classes.

Figure 1: Latent class value profiles

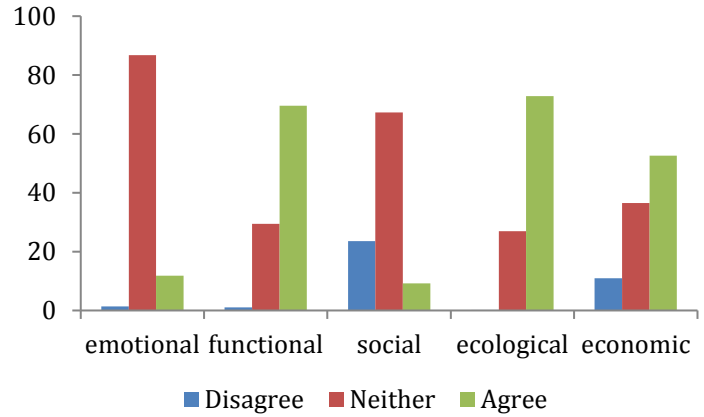
A. Value Opportunists (n = 216; 17.7%)



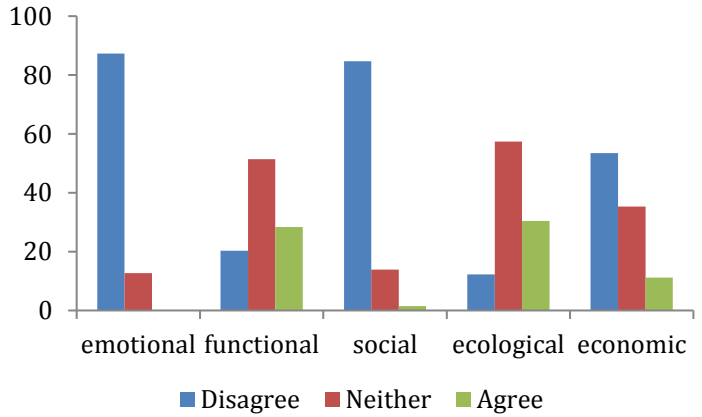
B. Ambivalent (n = 280; 23.0%)



C. Frugal Eco Warriors (n = 554; 45.4%)



D. Independents (n = 169; 13.9%)



The results indicated four distinct latent class profiles (see Figure 1A – D), which were given descriptive names according to their value perceptions. The Value Opportunist profile (n=216; 17.7%) reported high-perceived value towards energy efficiency across all value dimensions and was the most positive in terms of their perceptions. The Ambivalent profile (n=280; 23.0%) was characterized by largely ambivalent responses across the five value dimensions, flitting between agree, disagree and neither across items in each of the value dimensions. This finding suggests that consumers in this profile were either unclear about the perceived value of being energy efficient, or did not care too much about the implications. The largest profile, termed Frugal Eco Warriors (n=554; 45.4%) reported relatively high perceived functional, economic, and ecological value, but were ambivalent with respect to emotional, and social value, signified by responding neither agree nor disagree to the value items. Consumers in this profile apparently perceived that energy efficiency behavior could create functional value, such as helping them to manage the home; economic value, such as saving on energy bills; and ecological value, by contributing to environmental sustainability. However, these consumers appeared to be unsure or less concerned about emotional value, such as having a sense of pride about using energy efficiently; or social value, such as being positively perceived by family and friends for saving energy. Finally, the Independents profile (n=169; 13.9%) reported low emotional and low social value, and mixed responses for the functional, economic, and ecological value dimensions.

This analysis phase suggests that consumers do perceive value in energy efficient behavior, supporting the concept of value-in-behavior. If the concept had not been supported, ambivalence or ‘don’t know’ responses would have been expected from participants. Furthermore, the latent class analysis demonstrates that consumers can be placed in distinct groups (or profiles) according to their value perceptions towards energy efficiency. This

implies that there are distinct differences in how consumers perceive the value of energy efficient behavior. To better understand these value profiles, further analysis was undertaken to identify the predictors of membership and its impact on behavior.

4.2. Predictors of consumer perceptions of value-in-behavior

Table 2 shows the univariate associations of the demographic variables, knowledge, and attitudes with each of the value profiles, which indicate differences between them. This overview reveals whether demographic factors such as education, age, and gender, and knowledge and attitudes regarding energy efficiency, help to predict profile membership. The multivariate results showing the associations among these variables are summarized below. Table 3 provides the results of multinomial logistic regression that compares each profile with a reference group. The Frugal Eco Warrior profile is used as the chosen reference group because it is the largest profile. Thus, all of the reported odds ratios in Table 3 are relative to the Frugal Eco Warrior profile.

A few demographic factors are identified as significant factors that distinguish the value profiles. Individuals who had not completed high school were significantly more likely to belong to the Value Opportunist profile (OR = 3.97, $p < .001$). Individuals in the Ambivalent profile (OR = .92, $p < .05$), and in the Independents profile (OR = .93, $p < .001$), were younger than those in the Frugal Eco Warrior profile

Knowledge was not a significant predictor of the value profiles, suggesting that knowing more about energy efficiency does not influence consumer perceived value of energy efficient behavior. However, attitudes towards energy efficiency were found to differ between the profiles. For example, the Value Opportunists had more positive attitudes (OR = 1.19, $p < .001$) and the Independents more negative attitudes (OR = .79, $p < .001$) than the

Frugal Eco Warriors. This may suggest a link between positive attitudes towards energy efficiency and the perceived value of performing energy efficient behavior.

Table 2: Univariate associations between antecedents and profiles

	Value Opportunists	Ambivalent	Frugal Eco Warriors	Independents	P value
Age	71.3 (7.6)	68.2 (6.3)	73.4 (7.4)	69.3 (6.8)	< .001
Gender					.011
Male	87 (40.3)	127 (45.4)	189 (34.1)	71 (42.0)	
Female	129 (59.7)	153 (54.6)	365 (65.9)	98 (58.0)	
Occupation					< .001
Employed	28 (13.0)	60 (21.4)	40 (7.2)	33 (19.5)	
Not employed	188 (87.0)	220 (78.6)	514 (92.8)	136 (80.5)	
Children					< .001
None	27 (12.5)	58 (20.7)	49 (8.8)	30 (17.8)	
1 child	25 (11.6)	31 (11.1)	42 (7.6)	20 (11.8)	
2 children	65 (30.1)	98 (35.0)	171 (30.9)	62 (36.7)	
3 children	59 (27.3)	50 (17.9)	156 (28.2)	40 (23.7)	
≥ 4 children	40 (18.5)	43 (15.4)	136 (24.5)	17 (10.1)	
Ancestry					< .001
Australian	117 (54.2)	163 (58.2)	327 (59.0)	97 (57.4)	
European	32 (14.8)	39 (13.9)	39 (7.0)	25 (14.8)	
UK	56 (25.9)	62 (22.1)	174 (31.4)	45 (26.6)	
Other	11 (5.1)	16 (5.7)	14 (2.5)	2 (1.2)	
Religion					.322
Catholic	40 (18.5)	56 (20.0)	126 (22.7)	35 (20.7)	
Anglican	62 (28.7)	80 (28.6)	140 (25.3)	34 (20.1)	
Uniting	28 (13.0)	31 (11.1)	61 (11.0)	13 (7.7)	
Other	33 (15.3)	33 (11.8)	75 (13.5)	28 (16.6)	
No religion	53 (24.5)	80 (28.6)	152 (27.4)	59 (34.9)	
Marital Status					< .001
Single	41 (50.6)	74 (66.1)	95 (38.8)	38 (56.7)	
Partnered	40 (49.4)	38 (33.9)	150 (61.2)	29 (43.3)	
Education					< .001
< High School	42 (19.4)	34 (12.1)	70 (12.6)	19 (11.2)	
High School	79 (36.6)	96 (34.3)	243 (43.9)	67 (39.6)	
College	63 (29.2)	108 (38.6)	139 (25.1)	63 (37.3)	
Tertiary	32 (14.8)	42 (15.0)	10.2 (18.4)	20 (11.8)	
Housing type					.002
House	166 (76.9)	215 (76.8)	386 (69.7)	123 (72.8)	
Flat	27 (12.5)	45 (16.1)	84 (15.2)	35 (20.7)	
Other	23 (10.6)	20 (7.1)	84 (15.2)	11 (6.5)	
Attitudes	34.8 (3.7)	31.5 (3.6)	32.7 (3.4)	29.5 (5.0)	< .001
Knowledge	3.3 (1.2)	3.3 (1.1)	3.2 (1.2)	3.1 (1.9)	.148

Table 3: Results of the multinomial logistic regression examining the associations of antecedents with the profiles.

	Value Opportunists	Ambivalent	Independents
Age	.99	.92**	.93**
Gender			
Male	Ref	Ref	Ref
Female	.81	.69	.82
Occupation			
Employed	1.24	1.71	1.97
Not employed	Ref	Ref	Ref
Children	.96	.89	.86
Ancestry			
Australian	Ref	Ref	Ref
European	2.00	1.26	1.33
UK	.93	.87	1.00
Other	1.93	1.60	.29
Religion			
Catholic	1.06	.88	.77
Anglican	1.80	1.38	.64
Uniting	1.95	1.32	.56
Other	1.46	.95	1.02
No religion	Ref	Ref	Ref
Marital Status			
Single	3.53	1.98	.97
Partnered	Ref	Ref	Ref
Education			
< High School	3.97*	1.50	1.40
High School	1.60	1.06	1.43
College	1.66	1.59	2.01
Tertiary degree	Ref	Ref	Ref
Housing type			
House	Ref	Ref	Ref
Flat	.75	.85	1.40
Other	.86	.79	.63
Knowledge	.97	.97	.87
Attitudes	1.19**	.91	.79**

**** Refers to a significant relationship**
Note that the Frugal Eco Warrior profile is the reference profile

4.3. Associations between consumer perceptions of value-in-behavior and behaviors

4.3.1. Self-reported energy efficient behavior

Univariate analysis of variance was performed to examine whether the latent profiles were significantly associated with self-reported energy efficiency behaviors. Once again, the Frugal Eco Warriors were the reference profile. These models controlled for the covariates listed in Tables 2 and 3.

The results show that the profiles did not differ significantly in relation to whether participants filled up their washing machine or tumble-dried their clothes, but did differ in terms of whether they turned off lights. The Ambivalent (B = -.20, p = .001) and Independents profiles (B = -.15, p = .031) were significantly less likely to turn off lights in rooms that were unoccupied. These two profiles demonstrated lower perceived value of energy efficient behavior than the other two. The profiles also differed in relation to whether electrical devices were left in standby mode. Value Opportunists, the profile with the highest level of perceived value in performing energy efficient behavior, were more likely (B = .24, p = .016) and Independents less likely (B = -.41, p < .001) to use standby functions. Finally, Value Opportunists were significantly more likely to unplug mobile chargers when not in use, compared with the Frugal Eco Warriors (B = .28, p = .003).

4.3.2. Frequency of performing energy efficient behaviors

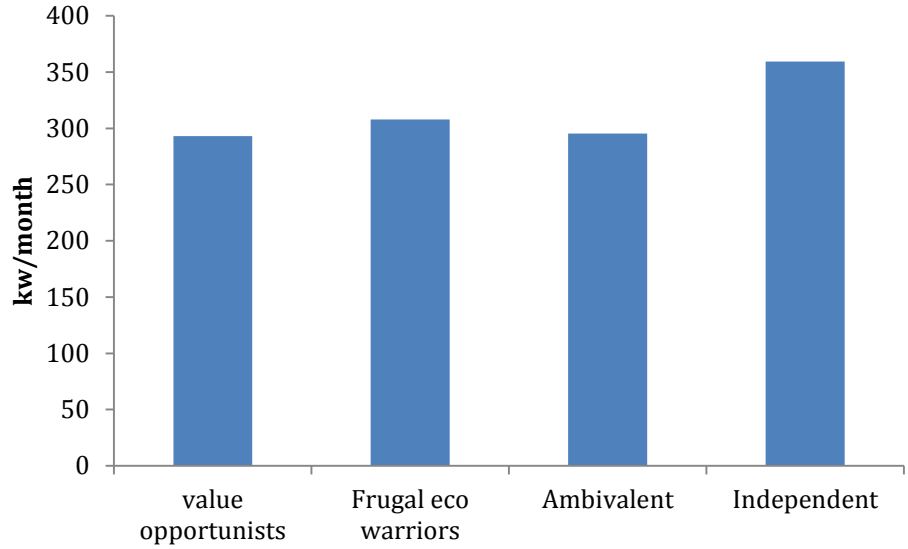
Multinomial logistic regression models were used to examine whether the latent profiles were significantly associated with the frequency of different energy efficiency behaviors. While the frequency of reducing temperature in hot water did not differ between the profiles, there were significant differences in the usage heating/air conditioning. The Independents were significantly less likely to sometimes (OR = .39, p = .027), often (OR = .44, P = .029), and always (OR = .37, p = .004) minimize their heating/air conditioning use.

4.3.3. Energy efficiency: Energy usage per month

A general linear model was used to examine the effects of value profile membership on energy use. There was a significant difference between the profiles regarding average

monthly energy use by each profile, as illustrated in Figure 2. Independents used significantly more energy per month compared with Frugal Eco Warriors (B = 51.50, P = .018). None of the other differences was significant.

Figure 2: Energy use per month by latent class value profile



5. Discussion

With respect to **RQ1,** which considered whether consumers perceive value-in-behavior and, if so, the differences in how consumers perceive value-in-behavior, the study clearly shows that consumers do perceive value-in-behavior. Most of the sample reported clear value perceptions towards energy efficient behavior. If consumers had not perceived value towards the performance of these behaviors, ambivalent responses would have been expected. This finding builds on recent empirical work suggesting that consumers perceive value realized through pro-social behaviors (Butler et al., 2016) and provides support for the concept of value-in-behavior (Zainuddin and Gordon, 2014; French and Gordon, 2015). Through explicating and empirically testing the concept of value-in-behavior, the findings have broadened the scope of value theory (see Table 1). In particular, the research has

responded to Chandler and Vargo (2011), who identified several important elements for understanding perceived value within an eco-systems perspective, including the performance of behaviors. The main conceptual contribution of the current study is the addition of the value-in-behavior perspective to complement the existing perspective of value-in-exchange, value-in-use and value-in-context.

There are several important managerial and practical implications. Commercial and social marketers should consider strategies and tactics that help to promote and co-create value-in-behavior with consumers. For example, social marketers could promote and create value related to the performance of pro-social behaviors, such as quitting smoking; which a consumer may perceive as providing economic value by saving on the cost of buying cigarettes, or functional value by improving their health. More broadly, commercial marketers may consider how promoting the value in performing certain behaviors may foster the use of goods and services.

The study found significant differences in how consumers perceive value-in-behavior. Four distinct profiles have been identified with respect to the perceived value of performing energy efficient behaviors across the functional, economic, emotional, social and ecological value dimensions: Value Opportunists, Ambivalent, Frugal Eco Warriors and Independents. These findings reveal distinct consumer segments based on value-in-behavior and suggest that there is potential to tailor marketing and programs for different groups based on the latent class analysis (Wiedman, Hennigs, and Siebels, 2009). Earlier research by Koller et al., (2011) that used a similar latent class approach to segment green car consumers on the basis of value-in-use, also showed the value of this approach. The results in this current study are also consistent with an earlier study showing the benefits of value-based segmentation in supporting the targeting and positioning of health messages (Zainuddin, Previte and Russell-Bennett, (2011).

Functional value towards energy efficiency was perceived as high by the Value Opportunist and Frugal Eco Warrior profiles, which represented almost two-thirds of the sample. This finding supports the work of Butler et al., (2016) who found that low income consumers perceived high functional value in being energy efficient. This result is consistent with extant value theory literature that finds a preference for seeking functional benefits from consuming goods and services (Sánchez-Fernández and Iniesta-Bonillo, 2007). The findings from this study suggest that high functionality is important in relation to promoting behaviors associated with energy efficiency.

Perceived economic value towards energy efficiency was also high among the Value Opportunist and Frugal Eco Warrior profiles. This finding aligns with an earlier qualitative study of low income consumers who identified economic value in performing energy efficient behaviors (Butler et al., 2016). Given that energy bills form a significant component of a household budget, and acknowledging concerns about fuel security and rising energy prices, it is unsurprising that the economic benefits of energy efficient are recognized. Ecological value was also perceived as high by the Value Opportunist and Frugal Eco Warrior profiles. Most study participants viewed energy efficiency as a good way to contribute to environmental sustainability and make a positive impact on ecological outcomes, an area in which social marketing is being increasingly used (Peattie and Peattie, 2009). This finding complements previous research showing that older, low income consumers perceive ecological value from being energy efficient (Butler et al. 2016). Furthermore, ecological value is a newer dimension of value that researchers have identified requires the identification of strong ecological value in this study supports the argument for ecological value as a relevant dimension in the context of energy efficiency and reinforces the need for further investigation and conceptual support (Koller et al., 2011; Zauner et al., 2015).

The high functional, ecological, and economic value perceptions suggest that in the context of energy efficiency, participants are principally motivated by utilitarian benefits. Less evidence emerged of high perceived emotional and social value in relation to being energy efficient. This outcome, which aligns with the findings of Butler et al. (2016), suggests that energy efficient behaviors tend not to be motivated by emotional or social benefits. Perceived emotional value was high only among the Value Opportunist profile, with the Frugal Eco Warrior and Ambivalent profiles appearing ambivalent. Emotional value was also low among the Independents. This contradiction with Zainuddin et al.'s (2011) study of emotional value among users of a breast screening service, highlights the importance of context in influencing value perceptions. As a breast screening service is oriented towards personal health and has clear emotional connotations, self-oriented concerns like emotional value are salient. In comparison, energy consumption is mundane and functional (Barr and Gilg, 2006), so performing energy efficient behaviors in the home is less likely to have a prominent emotional dimension. It is also what Zainuddin (2013) describes as a 'social betterment cause', that is oriented towards others, rather than the self.

A similar pattern emerged with respect to social value, which was high among the Value Opportunists profile, generated ambivalence with the Frugal Eco Warriors profile and Ambivalent profiles, and was low among the Independents profile. These results suggest there is little focus on social acceptance from performing energy efficient behaviors, and that people engage in energy conservation for personal and utilitarian reasons, such as in response to receiving a large energy bill (Waitt et al., 2016).

Given energy consumption behaviors in the home take place largely in private, the low priority given to social value is not particularly surprising. Future value research might explore the social acceptability of energy consumption outside of the home, particularly in contexts where behaviors are more visible, such as in the workplace.

In relation to **RQ2,** which considered the predictors of consumer perceptions of value-in-behavior, this study found that education, age and attitudes towards energy efficiency were significant predictors of membership of the perceived value-in-behavior profiles. These findings align with previous research that identifies education (Poortinga et al., 2003), age (Yohanis et al., 2008; McLoughlin et al., 2012), and attitudes (Abrahamse and Steg, 2009) as predictors of energy efficient consumer behaviors. Previous studies examining income as a predictor of energy behaviors show mixed results, with some reporting a significant relationship (e.g. Abrahamse and Steg, 2009), while others did not (e.g. Hori, Kondo, Nogata, and Ben, 2013). In this study, income was not found to predict membership of the value profiles.

Identifying the predictors of different value profiles is useful for segmentation purposes, offering insight into the types of individuals who hold particular value perceptions. For example, in the context of energy efficient behaviors, the results suggest that Value Opportunists are less likely to have completed high school and more likely to hold more positive attitudes towards energy efficiency than those in other profiles. Understanding these predictors helps inform marketers about the demographic characteristics and consumer attitudes that influence perceptions of value-in-behavior. This knowledge can be used to inform segmentation, targeting and positioning efforts. For example, consumers in the Ambivalent and Independent value profiles who perceived lower value-in-behavior towards being energy efficient, were younger than those in other profiles who perceived high value. Social marketers may therefore need to work particularly hard with younger consumers to create positive perceptions of the value of energy efficient behaviors.

With respect to **RQ3,** which concerns the nature of the influence of consumer perceptions of value-in-behavior on behavioral outcomes, the study indicates a significant and positive relationship between latent class profiles that perceived high value-in behavior

and energy efficient behaviors. Consumers who perceived them behaviors as high value, such as the Value Opportunists, were more likely to engage in behaviors such as unplugging their mobile phone chargers. Consumers in the Ambivalent and Independents profiles, who perceived lower or no value in energy efficiency, were less likely to perform energy efficiency behaviors such as turning off lights in rooms they had vacated. This suggests that promoting the value of energy efficiency behaviors may be a useful approach to encourage consumers to perform such behaviors.

The findings identified that consumer profiles with high perceived value-in-behavior had a significant and positive relationship with energy efficiency (kWh energy use). For example, the Independents (low perceived value) used significantly more energy per month than the Frugal Eco Warrior (high perceived value). These results indicate that consumer perceived value can have a positive influence on energy efficient behaviors and energy efficiency, as indicated by energy use in kWh. These findings are consistent with previous research showing that when consumers recognize the value in acting, a positive effect on behavioral outcomes will result (Sweeney and Soutar, 2001; Choi et al., 2004; Zainuddin et al., 2013).

The research has implications for pro-environmental and energy research. By focusing on value-in-behavior, the study has moved beyond the much-criticized attitude-based approaches, which are considered poor predictors of pro-environmental behaviors (Shove, 2010; Belz and Peattie, 2009). The focus on consumer perceived value-in-behavior complements previous work to understand and bridge the attitude-behavior gap, that has examined personal values (Black and Cherrier, 2010), social norms (Hitchings, Waitt, Roggeveen, and Chisholm, 2015), and social practices (Shove and Walker, 2014).

Acknowledging consumer perceived value in behavior, alongside the other influences, can provide a more nuanced and granular understanding of what influences energy and other

pro-social behaviors. Researchers of energy, environmental, and other pro-social behaviors are therefore encouraged to pay attention to the influence of consumer perceived value on such behaviors.

Useful insights arise for energy policy makers, and energy efficiency program managers seeking to develop and tailor policy and practice. The first is that value-in-behavior provides the basis for a useful segmentation approach (Butler et al., 2016), especially in pro-social contexts. For example, the Frugal Eco Warriors could be targeted with messages about functionality (making energy efficiency easy, convenient, and readily controllable), economic value (saving on energy bills, or even health costs from experiencing thermal discomfort), and ecological benefits (being energy efficient makes a difference to the environment) could be effective. Energy policy could be developed in support of these objectives to make it easier, more convenient and more affordable to be energy efficient. Such policy could focus on providing subsidies for solar panels, creating supply chain channels to deliver energy efficiency measures, and offering advice and support on the purchase and installation of solar energy.

Some limitations of the research should be acknowledged. The cross-sectional design means it is not possible to suggest causal associations between perceived value-in-behavior and behavior. Longitudinal research could test for such causal inferences. Furthermore, value-in-behavior is only considered in the context of energy efficiency. Additional research that empirically tests the concept of value-in-behavior in other behavioral contexts, and among different consumer demographic categories is required to provide further insight. While this study considered self-reported behavior, future studies that gather data from consumers' energy bills could evaluate associations between perceived value-in-behavior and actual energy use. Finally, the study has identified value-in-behavior in the context of being energy efficient. More research is needed to examine the full potential of the value-in-

behavior perspective across other consumption contexts, such as health and well-being, ethical consumption, and sports and fitness.

7. Conclusion

In summary, the research has contributed to value theory, by empirically investigating the concept of value-in-behavior. Consumers are shown to differ in their perceptions of the value in performing behaviors, and predictors of these perceptions are identified. The study also suggests that perceived value-in-behavior could usefully predict consumer behavior. The implication is that the value-in-behavior perspective can help more comprehensively understand consumer perceived value.

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Appendix 1: Survey scale items for measuring consumer perceived value

Construct	Source	Items
Functional Value*	Original scale items*	Using energy efficiently can be done consistently.
		Using energy efficiently can be done easily.
		Using energy efficiently can be done according to my needs.
		Using energy efficiently is beneficial.
		Using energy efficiency can be done conveniently.
		Using energy efficiently is something I can control.
Economic value	Koller et al., 2011	Using energy efficiently is reasonably priced.
		Using energy efficiently offers value for money.
		Using energy efficiently is economical.
Emotional value	Nelson and Byus, 2001	Using energy efficiently makes me feel protected.
		Using energy efficiently makes me feel comfortable.
		Using energy efficiently makes me feel safe.
		Using energy efficiently makes me feel happy.
		Using energy efficiently makes me feel calm.
		Using energy efficiently makes me feel relieved.
		Using energy efficiently makes me feel proud.
Social value	Walsh et al., 2014	Using energy efficiently helps me to feel acceptable
		Using energy efficiently improves the way I am perceived
		Using energy efficiently makes a good impression on other people.
Ecological value	Koller et al., 2011	Using energy efficiently is environmentally friendly.
		Using energy efficiently pollutes the environment only marginally.
		Using energy efficiently is more environmentally friendly than not doing so.

*Functional Value Items 1-6 from a scale development process following Churchill's protocol. This process involved a review of the extant literature on functional value, theory based generation of functional value measurement items, an expert panel Delphi process to review proposed functional value items, and factor analysis to test the measurement items.

Appendix 2: Survey scale items for measuring knowledge, attitudes, behaviors, and energy efficiency outcomes

Construct	Source	Items
Knowledge	DeWaters, 2009	Which two things determine the amount of ELECTRICAL ENERGY (ELECTRICITY) an electrical appliance will consume?
		The best reason to buy an ENERGY STAR® appliance is…
		Which uses the MOST ENERGY in the average Australian home in one year?
		Which uses the LEAST ENERGY in the average Australian home in one year?
		Which of one the following items uses the most electricity in the average Australian home in one year?
Attitudes	DeWaters, 2009	I would do more to save energy if I knew how.
		Saving energy is important
		We don't have to worry about conserving energy, because new technologies will be developed to solve the energy problems (such as resource depletion and energy-related environmental impacts) for future generations.
		All electrical appliances should have a label that shows the resources used in making them, their energy requirements, and operating costs.
		Australians should conserve more energy.
		The way I personally use energy does not really make a difference to the energy problems that face our nation (such as resource depletion and energy-related environmental impacts).
		I believe that I can contribute to solving energy problems by making appropriate energy-relate choices and actions.
		I believe that I can contribute to solving energy problems by working with others.
Energy Efficient Behaviors	Gadenne et al., 2011	I reduce the temperature in my hot water system.
		I keep heating/air conditioning low to save energy.
		I turn the heating/air conditioning off in unused rooms.
	von Borgstede et al., 2013	I always fill up my washing machine when washing.
		For drying, I usually tumble dry my clothes.
		I always turn off the lights in those rooms I'm not in.
		I never leave electrical appliances at home in standby mode.
		I always un-plug the mobile charger when it's not in use.
		I try to buy energy efficient household appliances
Energy Efficiency	N/A	What was the $ amount of your most recent energy bill?
		How much energy did you use in your most recent energy bill in kWh?
		What was the Billing Period?