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Influence of made with renewable energy appeal on consumer behaviour

Renewable
energy appeal
on consumer
behaviour

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Abstract

Purpose – The purpose of this paper is to explore the extent to which consumer purchasing behaviour is influenced by advertised information that a product is made with renewable energy. It also seeks to identify why some consumers might respond more favourably.

Design/methodology/approach – Three experiments were conducted using two samples of university students enrolled in Australia. The first experiment tested the main effect of this research, the second tested the potential amplifying effect of locus of control and the third tested the temporal orientation.

Findings – Consumer respond favourably to products promoted as made with renewable energy. The possible explanation for this is that future temporal orientation (FTO) influences attitude towards the brand, attitude towards the advertisement, purchase intention and willingness to pay a premium for brands. The observed interaction effect between perceived greenness of the advertisement and FTO is also robust to scepticism.

Research limitations/implications – Results presented here are also derived from responses made by students at a regional Australian university. Although atypical in their profile with most over 30 years of age, findings cannot reliably be generalised to the larger population. Determining how much importance a renewable energy appeal has when it is positioned among other green appeals would reveal the relative usefulness of the focal promotion to marketers.

Practical implications – Promoting a firm's use of renewable energy presents an important opportunity to achieve desirable outcomes, and the efficacy of this is magnified within individuals that habitually focus on the future.

Social implications – These findings benefit society because they contribute towards increasing the frequency of sustainable business practices. It should also encourage policy-makers to implement policy changes (e.g., removing subsidies that prevent renewable energy from attaining cost parity with non-renewable sources of energy), which can result in beneficial economic outcomes.

Originality/value – This research is the first of its kind to be conducted in an Australian context, providing findings that assist both firms' and policy-makers' decision-making.

Keywords Green marketing, Locus of control, Renewable energy, Temporal construal

Paper type Research paper

Introduction

In a recent survey on sustainable brands, 91 per cent of consumers indicated that companies should become more involved in addressing social and environmental issues rather than making profits only (Sustainable Brands, 2015). Consumers display an increasingly detailed knowledge of renewable-energy-related terms such as carbon footprint, renewable power and carbon offset (Polonsky *et al.*, 2011). These trends present companies with more opportunities to employ an array of green marketing strategies (Agerup and Nilsson, 2016).

The provision of environmentally sustainable “green” products has up, until now, been the response to consumer concerns about the environment from marketing oriented



companies. Typically, these are brand made from recycled material or able to be recycled. Yet, at a time where the depletion of finite energy resources is so important to the community, this kind of marketing has never been more ineffectual at helping to solve the problem. This is because the green credentialing of products has become a catchall for so many products that it has lost its meaning as a unique benefit to consumers, a phenomenon known as greenwashing. Thus, it should be no surprise that most consumers do not purchase green products even though the large majority express a high level of environmental concern (Bray *et al.*, 2011). What is more, too many companies attempt to make misleading and pseudo green or renewable energy marketing claims to benefit from being perceived as green (Capital Flows, 2012). The result is an increasingly disillusioned green-minded consumer.

A hitherto unconsidered green marketing credential is the use of renewable energy in supply chains. This is an increasingly important consideration in corporate strategy and policy. For example, renewable sources power 93 per cent of Apple's facilities worldwide and 100 per cent of its data servers (Apple, 2016). Google, which has committed over US\$1 billion to renewable energy projects, powers 35 per cent of all operations with renewable energy (Google, 2016). The upsurge in corporate adoption of renewable energy and its incorporation into marketing strategy can be partly attributed to rising consumer interest in sustainability and the environmental credence of their purchases (Plitsos *et al.*, 2017; Polonsky *et al.*, 2011). According to Yadav *et al.* (2016), environmental marketing strategies can improve corporate reputation. This suggests that businesses may use renewable energy to benefit society as a whole and also improve their bottom line. Such strategies can also reduce transition risk (i.e. the risk that a company will be caught short when regulatory changes penalise non-renewable energy use or prefer renewable energy). In addition, by engaging in sustainable business practices that considered altruistic, a company's relationships with its stakeholders (i.e. customers, local communities, employees and shareholders) are also strengthened (Hanson, 2005). Many of these assertions have not been tested. We do not know, for example, whether consumers will recognise a "made with renewable energy" claim as an important product benefit. A primary contribution of this paper is to examine the importance of a "made with renewable energy" claim on consumer preferences. Further, we explore who this might work for. In doing so, this research answers calls in the marketing literature to find ways to increase environmental consciousness and eco-friendly behaviour (Brough *et al.*, 2016). It also addresses cross disciplinary calls to examine the value of renewable energy policies from a marketing perspective (Wustenhagen and Menichetti, 2012).

The remainder of this paper is organised as follows. Next, we briefly examine the literature on renewable energy and develop some hypotheses. This is followed by a brief explanation of our theoretical framework, and then a section on our experimental method. Finally, we present our empirical results and discussion.

Literature review

Renewable energy

Companies make energy sustainability claims based on one or more of a variety of activities, including on-site generation, or co-generation, using renewable sources (e.g., solar, hydropower, geothermal, wind, biomass, etc.), policies that specify the use of renewable energy at key points in or throughout the supply chain, and the purchase of carbon offsets (renewable energy or carbon credits produced elsewhere in the economy) (Pegallapati and Frank, 2016).

Research by Brannan *et al.* (2012) reveal a trend towards greater renewable energy use by the private sector, but the trend towards marketing the use of renewable energy as a selling point has emerged only within the last few years (Hartmann *et al.*, 2016).

Brannan *et al.*'s study found that firms are using the claim to enhance brand image, differentiate their products and to increase product appeal to environmentally conscious consumers (ECCs) (Brannan *et al.*, 2012).

In addition, firms who purchase green power off the grid are beginning to promote their use of renewable energy as a selling feature in point of sale marketing (Wiser *et al.*, 2001). In a study in the USA over 50 mid-sized companies were identified that communicate their use of renewable energy to their ECC target markets (Brannan *et al.*, 2012).

Ward *et al.* (2011) and Li *et al.* (2014) provide empirical studies which offer insight to "made with renewable energy" claims. Ward *et al.* (2011) found that consumers are willing to pay a premium for appliances manufactured by companies that market their participation in the USEPA's Green Power Partners program. The findings of Li *et al.* (2014) also support this phenomenon as consumers indicated a willingness to pay a premium (WTPP) for appliances manufactured by companies that participate in the USEPA's Corporate Climate Leadership program. Given the undoubted importance that the environmental impact of a product has to consumers coupled with the relative newness of the benefit claim "made with renewable energy" we would expect brand communication of this benefit to cut through any greenwashing effect to have a positive effect on consumer preference such that:

- H1. Marketing management activities that communicate that a product or brand is made with renewable energy will result in a favourable outcome in terms of (a) brand evaluation, (b) attitude towards the advertisement (AAD) and (c) purchase intention (PI).

Understanding who this might work for

Another goal of this research is to examine the conditions under which the hypothesised effects may be particularly beneficial. In this research, we propose that consumers who have a high locus of control (LOC) and an FTO will be particularly responsive to advertising featuring made with renewable cues. Locus of control is a belief held by consumers that they can control their environment and it is considered a potentially important psychological influence on the regulation of behaviours in support of the environment (Cleveland *et al.*, 2012). Particularly so now that environmental issues have moved from local to global (Leonidou and Leonidou, 2011) with consumers often no longer seeing the outcome of their actions and more and more having to assume their actions will have benefit in some other place or time. Further to this, it has been proposed that when consumers do act in an environmentally conscious way it is because they account for their long term actions thus taking an FTO (Polonsky *et al.*, 2014).

LOC. LOC is one of the most persistent and predictive personality constructs found in the social sciences literature (Bradley and Sparks, 2002). According to Rotter's (1966) interpretation, an individual's locus (Latin for "location" or "place") of control is said to range from external, typified by a limited belief in their ability to affect outcomes, to internal, typified by a substantial belief in their ability to affect outcomes. Thus, at one end of the scale, "externals" hold very little belief (if not total disbelief) that outcomes are a result of their own choices and, at the other extreme, "internals" hold the belief that outcomes are entirely a result of their own choices. An individual with an external LOC attributes outcomes to choices made by others, whereas an individual with an internal LOC attributes outcomes to choices made by themselves. As an alternative to this one-dimensional scale, Levinson (1974) presented a three-dimensional scale, known as the IPC framework (i.e. Internal, Powerful others and Chance). The distinguishing characteristic of the IPC framework is the inclusion of an assessment of the degree to which an individual believes that outcomes are the result of fate or chance, and not only because of actions made by the

individual or by others. Researchers have predominantly used one of the two scales to determine an individual's LOC but both scales essentially measure the same thing – the degree to which an individual perceives they have personal control over outcomes.

LOC is conceptually similar to perceived consumer effectiveness (PCE) – which again is a measurement of an individual's belief that they are able to affect environmental problems (Lee and Holden, 1999) – but the two concepts are different because LOC measures actual control beliefs, whereas PCE measures expectations of control. This subtle difference is worth noting because even though specific types of environmentally conscious consumer behaviour (ECCB) undoubtedly have at least some impact on the environment, they are only truly efficacious in the aggregate (Kilbourne and Pickett, 2008), meaning only when others also engage in the same behaviour. As a consequence, owing to the enormity of certain environmental problems (i.e. climate change), in the context of this research, it was considered appropriate to assess a consumer's LOC rather than only the degree to which a consumer believes they are responsible for solving such global problems. In other words, the focus here is not on determining how strongly an individual believes that they are personally responsible for making a difference – but rather, it is on how strongly they believe their actions will make a difference.

Lefcourt (1980, p. 210) stated that, “realistically, each individual may be said to have varied loci of control for various outcomes. One may not feel able to influence the outcomes in particular (situations), but feel highly adept at (influencing the outcomes in other situations)”. Lefcourt (1982) further suggested that LOC measures are most predictive of specific kinds of criteria when they are designed to assess beliefs pertinent to those criteria, and that situation specific LOC scales should provide more reliable and valid results than a general scale. Consistent with this recommendation, researchers have developed a multitude of LOC scales that are specifically formulated for use within distinctive domains such as: consumer behaviour (Busseri *et al.*, 1998), services (Bradley and Sparks, 2002), sales work (Chung, 2001) and others but the predictive power, validity and reliability of many of these scales remains questionable (Cleveland *et al.*, 2005).

Although Venkat and Ogden (2002) determined that LOC moderated the effect of specific advertising appeals on PI, the antecedent role of LOC on pro-environmental behaviours, such as green purchase behaviour, has shown inconsistent results thus far (Cleveland *et al.*, 2005). In this study the predictive power of LOC (at the societal level) is tested as a determinant of behavioural response to stimuli which contains information that a product is made with renewable energy. The extant literature on the relationship between LOC and ECCB lead to the following hypothesis:

- H2. The effect of marketing a product as made with renewable energy on (a) attitude towards the brand (ABR), (b) AAD, (c) PI and (d) WTPP is moderated by LOC.

FTO. Construal level theory, which encompasses temporal construal theory, posits that people develop distinctive types of representations of stimuli in response to their psychological distance from an object or event (Liberian *et al.*, 2002). With regard to consumer choice, an individual's psychological distance from an object or event is generally measured across four dimensions: temporal distance (meaning time-based distance), social distance (meaning personal distance), hypothetical distance (meaning likelihood or probability distance) and spatial distance (meaning physical proximity distance) (Liberian *et al.*, 2007). Temporal construal theory is distinguished as being a unique stream of construal level theory because it specifically postulates that people use more abstract schemas to construe (i.e. create a cognitive or affective representation of) a distant future object or event than they do for a near future object or event, irrespective of their

psychological distance from the object or event across other dimensions (i.e. social, hypothetical, and spatial) (Trope and Liberman, 2003).

According to temporal construal theory, perceptions of an object or event that exists in the distant future evoke representations that are comprised of primary, goal-related features which are characterised by a high level of abstraction (called high-level construals) and, conversely, perceptions of a near future object or event evoke representations that are more contextualised and centred on concrete secondary details (low-level construals) (Trope and Liberman, 2000, 2003). Liberman, Sagristano and Trope (2002, p. 524) suggested that as construals ascend from low-level to high-level, their degree of intricacy and detail diminishes. Furthermore, temporal construal theory predicts that people place more significance on the general, superordinate and essential attributes of an object or event and less significance on the specific, subordinate, and incidental attributes of an object or event when it exists in the distant future (Liberman *et al.*, 2002). In contrast, people place more significance on the specific, subordinate and incidental attributes of an object or event and less significance on the general, superordinate and essential attributes of an object or event when it exists in the near future (Trope, 2004).

The theory of action identification (Vallacher and Wegner, 1985) – which was instrumental in the development of temporal construal theory – further clarifies the differences between low-level and high-level construals. According to Vallacher and Wegner (1987), “how” an action is done constitutes a subordinate level of action identification, whereas “why” an action is done constitutes a superordinate level of action identification. This is because identification with “why” an action is conducted entails a more all-encompassing understanding of the affects and implications of the action. To put this into the context of the current study, those consumers who value high-level construals are more likely to think about “why” renewable energy is being used and be better able than those who value low-level construals to connect made with renewable energy with goal-related features like sustainability of the natural environment. Conversely, those who value low-level construals may focus on “how” it is made and are less likely to make the connection with sustainability, which requires a higher level of abstraction, preferring to focus on immediate features of the product and peripheral appeal of the advertisement. Thus it has been reasoned that high-level construals include superordinate “why” level actions rather than subordinate, “how” level actions (Liberman and Trope, 1998, p. 7; Trope and Liberman, 2000, p. 876).

The evaluation of a product advertised for release, or featuring attributes in the distant future therefore hinges more on the value that consumers place on the primary “why” attributes (high-level construals) and less on the secondary “how” attributes (low-level construals) of the product. Inversely, evaluations of a product that is advertised as being available in the near to immediate future should hinge more on the value that consumers place on the low-level construals and less on the high-level construals of the product. For example, an advertisement for the future release of a luxury automobile that contains the phrase, “The Ultimate Symbol of Prestige” (high-level construal) should be more effective at increasing consumer PI than an advertisement that accentuates technical features (low-level construals), whereas the opposite should hold true for a luxury automobile that is available in the more immediate future. Existing research also suggests, however, that the degree of influence which construals have over a consumer’s purchasing behaviour is shaped not only by temporal distance but also by the individual’s own temporal orientation (Martin *et al.*, 2009).

Temporal orientation is a predisposition to focus on the past, present or future (Holman and Silver, 1998) and is predictive of whether high-level or low-level construals will be valued by consumers. It is viewed as a personality characteristic (Bearden *et al.*, 2006; Strathman *et al.*, 1994; Zimbardo and Boyd, 1999), and although it contains three temporal

dimensions, extant marketing literature submits that the present-future dichotomy is best suited to consumer research (Bergadaa, 1990). Researchers have noted several significant differences between present- and future-oriented individuals. For example, in comparison to present-oriented individuals, it has been shown that future-oriented individuals report lower levels of impulsiveness (Harber *et al.*, 2003), a greater capacity to delay gratification (Strathman *et al.*, 1994), and that they are more likely to plan ahead because they feel personally responsible for their own future (Bergadaa, 1990). In addition, it has been suggested that in contrast to present-oriented individuals, future-oriented individuals have an increased aptitude to anticipate and construe distant-future events precisely because they habitually focus on the future (Simons *et al.*, 2004).

In the context of advertising, future-oriented individuals are most prone to experience a subjective sense of engagement – and subsequently a favourable response – with an advertisement that features a product that will be released in the distant future. They are also more likely to value higher level construals and thus focus attention on primary, goal-related features whereas present-oriented consumers are more likely to react favourably to an advertisement that draws attention to secondary product attributes (low-level construals). Although there is not an abundant stream of extant research to support these indications, corroboration is provided by the results of Martin *et al.* (2009), Tangari and Smith (2012) and Polonsky *et al.* (2014).

Given the notion that the environmental benefits commonly associated with the use of renewable energy (mitigation of anthropogenic climate change, long-term preservation of the natural environment, etc.) most certainly contain temporally distant outcomes, it was expected that, in the context of this research, future-oriented consumers are likely to have a more favourable reaction towards an advertisement that frames the use of renewable energy during product manufacture as a high-level construal (e.g. as a superordinate attribute with abstract outcomes or in other words, the “whys”). Moreover, it was surmised that such promotional material would be expected to be especially effective at increasing purchasing intentions and increased WTPP in future-oriented consumers for products that will be released in the distant future.

The literature pertaining to construal level theory indicated that FTO may be positively correlated with ECCB. Martin *et al.* (2009), as well as Tangari and Smith (2012), showed that FTO has moderating effects on consumer evaluations. Thus the following hypothesis was arrived at:

- H3.* The effect of marketing a product as being made with renewable energy on (a) ABR, (b) AAD, (c) PI and (d) WTPP is moderated by FTO.

Method

Three experiments were conducted to test the hypotheses above. All experiments employed a between-subjects design. Student samples were used. These are often criticised for being non-representative of the broader population, however, the profile of these students were non-typical. This is because the university the students were enrolled in was regional, not near a large metropolitan base, and as such many students seek education by distance, and are part time. What is more they are older and more likely to have families and jobs. For instance, Table I indicates that 43-55 per cent of respondents are aged over 30 across the experiments while 31-55 per cent had an income greater than \$20,000 per year.

Study 1

In study 1, a 2 (made with renewable energy or not made with renewable energy) between subjects design was used. A total of 79 responses were obtained. The purpose was to test the main effect that a made with renewable energy cue would lead to more favourable outcomes.

Sample characteristic	Study 1 (<i>n</i> = 79)		Study 2 (<i>n</i> = 81)		Study 3 (<i>n</i> = 91)		Renewable energy appeal on consumer behaviour
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
<i>Age</i>							
18-24	38	48	29	36	22	24	
25-29	7	9	13	16	19	21	
30-39	15	19	18	22	22	24	
40+	19	24	21	26	28	31	
<i>Gender</i>							
Male	24	30	16	20	27	30	
Female	55	70	65	80	64	70	
<i>Annual individual income</i>							
Less than \$10,000	27	34	28	35	20	22	
\$10,000-\$19,999	27	34	24	29	21	23	
\$20,000-\$39,999	16	20	17	21	18	20	
\$40,000-\$60,000	5	6	6	7	18	20	
Greater than \$60,000	4	5	6	7	14	15	

Table I.
Sample characteristics
(Studies 1-3)

Stimuli. A survey was administered with each group viewing one of two advertisements for a pair of earphones, a product considered relevant to the profile. The advertisement viewed by the test group included a specific appeal, which indicated that the manufacturing facilities of the brand were “powered with 100 per cent renewable energy”. The advertisement viewed by the control group contained no such appeal. All other aspects of the advertisement were identical. See Figure A1 for an example of the advertisement.

Measures. Immediately after each participant viewed the advertisement, three three-item Likert scales (strongly disagree/strongly agree) were completed to measure AAD (MacKenzie and Lutz, 1989, $\alpha = 0.950$), ABR (Pham and Avnet, 2004, $\alpha = 0.939$) and PI (Grewal *et al.*, 1998, $\alpha = 0.923$). These measures were followed by a two-item advertisement manipulation check that was included to determine: first, if participants were aware of the renewable energy appeal and second, the participant’s perceived greenness of the ad. The first item was a “yes/no” question that asked “Is the product in the advertisement made with renewable energy (experiment 1)/wind energy (experiment 2)?” The second item asked, “To what extent do you agree or disagree with the following statement: ‘The product in the advertisement reflects concern for the environment?’” A seven-point scale anchored with “strongly disagree/strongly agree” was used for this item. To assess potential confounds, participants were also asked to complete a shortened version of the Marlowe-Crowne Social Desirability Response Bias (SDRB) scale, adapted by Donovan *et al.* (2004), containing six items measured on a six-point Likert scale (strongly disagree/strongly agree, $\alpha = 0.705$). The source of all measures are summarised in Table II and all reliabilities including those additional measures used in studies 2 and 3 are reported in Table III.

Results

Manipulation check and confounds

The manipulation of the advertisement was effective, and a significant relationship ($p < 0.001$) exists between the type of advertisement viewed and the extent to which respondents perceived that the product featured in the advertisement was reflective of concern for the environment ($M_{\text{No Appeal}} = 2.63$, $M_{\text{Appeal included}} = 5.07$). Bivariate correlations between SDRB and all other variables were not statistically significant and thus, SDRB was not found to be a confounding factor.

Construct	Items	Operational form of measurement	Source
Attitude towards the brand	3	7-point bipolar semantic differential (anchors: bad/good, dislike/like, unfavourable/favourable)	Pham and Avnet (2004)
Attitude towards the advertisement	3	7-point bipolar semantic differential (anchors: bad/good, unpleasant/pleasant, unfavourable/favourable)	MacKenzie and Lutz (1989)
Purchase intention	3	7-point bipolar (anchors: very low/very high)	Grewal <i>et al.</i> (1998)
Willingness to pay	3	7-point bipolar (anchors: strongly disagree/strongly agree)	Netemeyer <i>et al.</i> (2004)
Socially desirable response bias	6	6-point bipolar (anchors: strongly disagree/strongly agree)	Donavan <i>et al.</i> (2004)
Scepticism	9	7-point Likert (anchors: strongly disagree/strongly agree)	Obermiller and Spangenberg (1998)
Environmental concern	15	7-point Likert (anchors: strongly disagree/strongly agree)	Dunlap <i>et al.</i> (2000)
Locus of control	10	7-point Likert (anchors: strongly disagree/strongly agree)	Paulhus (1983)
Future temporal orientation	13	5-point Likert (anchors: very uncharacteristic/very characteristic)	Zimbardo and Boyd (1999)

Table II.
Name and source of measures

Construct	Number of items	Study 1 Cronbach's α	Study 2 Cronbach's α	Study 3 Cronbach's α
Attitude towards the brand	3	0.939	0.939	0.961
Attitude towards the advertisement	3	0.950	0.950	0.951
Purchase intention	3	0.923	0.903	0.892
Willingness to pay	2	–	0.822	0.835
Socially desirable response bias	15	0.705	–	–
Scepticism towards advertising	4	–	0.929	0.908
Environmental concern	15	0.808	–	–
Locus of control	9	–	0.823	–
Future temporal orientation	13	–	–	0.809

Table III.
Reliability of measures (Studies 1-3)

Renewable energy cue

To test the existence of the main effect, one-way analysis of variance (ANOVA) tests were used to examine the variability among the means (between groups) across all three dependent variables. *H1a*, which posits that brand evaluation will increase as a result of marketing renewable energy usage during product manufacture, is not supported. While there did appear to be a slight difference in the comparison of the means ($M_{\text{No appeal}} = 4.56$, $M_{\text{Appeal included}} = 4.91$), the relationship was not statistically significant ($p = 0.138$). With regards to *H1b*, which tested whether marketing renewable energy usage during product manufacture would increase AAD, the difference in means between groups was marginally higher in the test group ($M_{\text{No appeal}} = 4.35$, $M_{\text{Appeal included}} = 4.63$) but again no statistically significant relationship was observed ($p = 0.422$). However, a statistically significant relationship ($p = 0.039$) between the treatment variable and PI was evidenced through comparison of the means between the groups ($M_{\text{No appeal}} = 3.26$, $M_{\text{Appeal included}} = 3.96$), and thus *H1a-H1c* is partially supported. It should be noted here that of the three dependent variables, PI is normally considered to be the most powerful indicator of a favourable response in the marketing literature.

To further investigate the effect of the renewable energy appeal decision was made to dummy code the treatment variable (type of advertisement viewed; no appeal = 0, renewable appeal included = 1) and multiply it by the perceived greenness of the

advertisement (PGA) measure (1-7 continuous factor) and to then apply this new variable as a direct predictor of the three dependent variables on the entire sample ($n = 79$).

Through the use of ordinary least squares regression, results indicate that the dummy coded PGA measure did have a direct main effect on attitude to the brand ($\beta = 0.246$, $t = 4.284$, $p < 0.001$), attitude to the advertisement ($\beta = 0.234$, $t = 2.624$, $p = 0.01$), and PI ($\beta = 0.325$, $t = 3.877$, $p < 0.001$). *H1a*, *H1b*, *H1c* were in this way confirmed adding cautious support for the notion that when a product or brand is marketed as being made with renewable energy, a favourable outcome will occur – in terms of (a) ABR, (b) AAD and (c) PI.

Discussion

The results of study 1 show that consumers do respond more favourably to renewable energy cues. Our next two studies examine whether individual differences might amplify the effect. Study 2 examines LOC and study 3 examines FTO.

Study 2

In study 2, a 2 (high LOC vs low LOC) between subjects design was employed focusing on advertisements with a made with renewable cue only. A total of 81 responses were obtained. The purpose was to evaluate the potential explanatory effect of LOC including an attempt to prime for this condition. Aside from the prime, the procedure was the same as study 1 except the term renewable energy was replaced with a kind of renewable energy – in this case “solar”.

Stimuli. In an effort to prime respondents for LOC, the experience recall task that was successfully applied by Fisher and Johnston (1996) was used. At the beginning of the survey and immediately prior to viewing the advertisement stimuli, participants in the internally primed group were asked to “Please describe three examples of a time in your life when you have felt in control and able to achieve something that you set out to do”, and participants in the externally primed group were asked to “Please describe three examples of a time in your life when you have felt out of control and unable to achieve something that you set out to do”. Both groups then viewed an identical advertisement that indicated that the manufacturing facilities of the brand were “powered with 100 per cent solar energy”.

Measures. Reliability of the measures, including those also used in study 1, are reported in Table III. For this study we also added a three-item willingness to pay a premium measure (Netemeyer *et al.*, 2004, $\alpha = 0.822$) and a ten-item LOC scale (Paulhus, 1983, $\alpha = 0.823$) both measured on seven-point Likert scales (strongly disagree/strongly agree).

Manipulation check and confounds. One-way ANOVA tests were used to examine the variability among the between-groups mean scores ($M_{\text{Internal LOC Prime}} = 5.43$, $M_{\text{External LOC Prime}} = 5.44$, $p = 0.957$) in relation to the one-item manipulation check that asked, “How much control do you feel you have over things that are important to you?” and also on the mean scores of the LOC measure ($M_{\text{Internal LOC Prime}} = 3.67$, $M_{\text{External LOC Prime}} = 3.82$, $p = 0.486$) with both of these tests indicating that there was no statistically significant difference between the groups.

Results

In the absence of a successful prime we used the measured independent variable, LOC. Mediated moderation (Muller *et al.*, 2005) was used to explore the potential moderating effect of LOC on the mediator, PGA, and its effect on the four dependent variables: ABR, AAD, PI and WTPP.

The analysis showed that PGA had a significant direct effect on all four of the dependent variables (ABR: $\beta = 0.355$, $t = 3.379$, $p = 0.001$; AAD: $\beta = 0.270$, $t = 2.491$, $p = 0.015$; PI: $\beta = 0.242$, $t = 2.212$, $p = 0.030$; WTPP: $\beta = 0.242$, $t = 2.219$, $p = 0.029$). There also was a

significant LOC \times PGA interaction on ABR ($\beta = 0.355, t = 3.370, p = 0.001$); but not on AAD, PI and WTPP (AAD: $\beta = 0.130, t = 1.161, p = 0.249$; PI: $\beta = 0.208, t = 1.887, p = 0.063$; WTPP: $\beta = 0.191, t = 1.729, p = 0.088$). However, the moderating effect of LOC became insignificant for all four of the dependent variables (ABR: $\beta = -0.033, t = -0.125, p = 0.901$; AAD: $\beta = 0.012, t = 0.044, p = 0.965$; PI: $\beta = 0.016, t = 0.058, p = 0.954$; WTPP: $\beta = 0.148, t = 0.540, p = 0.591$) when the mediating variable (PGA), moderating variable (LOC) and the interaction variable (LOC \times PGA). In addition, an insignificant relationship was observed between the interaction term (LOC \times PGA) and attitude to the brand ($\beta = 0.245, t = 0.550, p = 0.584$), attitude to the advertisement ($\beta = -0.243, t = -0.522, p = 0.603$), PI ($\beta = 0.012, t = 0.025, p = 0.980$) and WTPP ($\beta = 2.058, t = 2.393, p = 0.019$). Thus, the results of these regression models indicated that LOC does not moderate consumer evaluations of a product or brand that is marketed as being made with renewable energy and therefore $H2$ is not supported.

Discussion

The results of study 2 show that consumers with a high LOC do not respond more favourably to renewable energy cues. While expected to discover a link between the degree to which individuals consider themselves able to influence outcomes at the broad socio-political level and how they respond to this particular green marketing appeal, the results did not support this. Perhaps the dynamics that occur in the domain of smaller social groups and family situations – which unlike abstract macro-level events, are experienced on a daily basis – are more relevant to ECCB. It is possible that such interpersonal control beliefs may even hold greater relevance than internal personal efficacy (self-control) beliefs do as moderators of ECCB owing to the effect of social norms.

Our next study examines whether the individual difference of future orientation might amplify the effect.

Study 3

In study 3, a 2 (high FTO vs low FTO) between subjects design. A total of 91 responses were obtained. The purpose was to evaluate the potential explanatory effect of FTO including an attempt to prime for this condition. The procedure was identical to study 1 except the term renewable energy was replaced with a kind of renewable energy – in this case “wind”.

Stimuli. Following the method applied by Khan *et al.* (2011), at the beginning of the survey and immediately prior to viewing the advertisement, participants in the future-temporal-orientation group were asked to “describe a goal that you want to achieve by the end of next year”, while participants in the present-orientation group were asked to “describe a goal that you want to achieve by the end of this week”. Both groups then viewed an identical advertisement that indicated that the manufacturing facilities of the brand were “powered with 100 per cent wind energy”.

Measures. Reliability of the measures are reported in Table III. The future dimension of the Zimbardo Time Perspective Inventory (Zimbardo and Boyd, 1999, 13 items, $\alpha = 0.77$) was used to measure FTO. In addition, a single item manipulation check that asked, “How much influence does the future have upon your thoughts feelings and actions?” was included. For this study we also measured scepticism towards advertising, defined as the general inclination towards disbelief of advertising claims, using a nine-item scale (Obermiller and Spangenberg, 1998, $\alpha = 0.908$) measured on a seven-point Likert scale (strongly disagree/strongly agree).

Manipulation check and confounds. One-way ANOVA tests were used to examine the variability among the between-groups mean scores ($M_{\text{Present TO Prime}} = 5.33, M_{\text{Future TO Prime}} = 5.31$) in relation to the one-item manipulation check that asked, “How much influence

does the future have upon your thoughts feelings and actions?" and also on the mean scores of the FTO measure ($M_{\text{Present TO Prime}} = 3.72$, $M_{\text{Future TO Prime}} = 3.85$). The results indicate that there was no statistically significant difference between the groups. In addition scepticism towards advertising was not significantly correlated with any of the dependent variables, ABR ($\beta = -0.177$), attitudes towards the ad ($\beta = -0.063$), PI ($\beta = -0.177$) and WTPP ($\beta = -0.044$).

Results

In the absence of a successful prime we used the measured independent variable, FTO. To test the existence of the main effect Mediated moderation (Muller *et al.*, 2005) was used to explore the potential moderating effect of FTO on the mediator, PGA, and its effect on the four dependent variables.

The analysis showed that PGA had a significant direct effect on ABR and WTPP, (ABR: $\beta = 0.302$, $t = 2.984$, $p = 0.004$; WTPP: $\beta = 0.266$, $t = 2.603$, $p = 0.011$), but not on AAD and PI (AAD: $\beta = 0.139$, $t = 1.327$, $p = 0.188$; PI: $\beta = 0.136$, $t = 1.293$, $p = 0.199$). There also was a significant FTO \times PGA interaction on ABR and WTPP (ABR: $\beta = 0.262$, $t = 2.559$, $p = 0.012$; WTPP: $\beta = 0.216$, $t = 2.087$, $p = 0.040$), but not on AAD and PI (AAD: $\beta = 0.129$, $t = 1.225$, $p = 0.224$; PI: $\beta = 0.099$, $t = 0.936$, $p = 0.352$). However, the moderating effect of FTO became significant for all four of the dependent variables (ABR: $\beta = 0.727$, $t = 2.720$, $p = 0.008$; AAD: $\beta = 0.876$, $t = 3.188$, $p = 0.002$; PI: $\beta = 0.643$, $t = 2.291$, $p = 0.024$; WTPP: $\beta = 0.581$, $t = 2.125$, $p = 0.036$) when the mediating variable (PGA), moderating variable (FTO) and the interaction variable (FTO \times PGA) were all built into the regression models. In addition, a significant relationship was observed between the interaction term (FTO \times PGA) and attitude to the brand ($\beta = 2.367$, $t = 0.814$, $p = 0.006$), attitude to the advertisement ($\beta = 2.595$, $t = 3.006$, $p = 0.003$), PI ($\beta = 2.178$, $t = 2.468$, $p = 0.016$) and WTPP ($\beta = 2.058$, $t = 2.393$, $p = 0.019$). The results of these regression models indicated that FTO does moderate consumer evaluations of a product or brand that is marketed as being made with renewable energy and therefore *H3* is supported.

Discussion

The results of study 3 show that consumers with an FTO do respond more favourably to renewable energy cues. This finding is consistent with an emerging stream of literature on the connection between time perspectives and ECCBs (see: Polonsky *et al.*, 2014; Tangari and Smith, 2012).

Discussion

This research demonstrates that consumers do have a preference for a product or brand marketed as made with renewable energy. Most importantly, the effectiveness of an advertisement using this strategy is moderated by an individual's temporal orientation. Given that future-oriented individuals do not display impulsive tendencies and feel personally responsible for the future (Harber *et al.*, 2003), when they viewed the appeal to reflect environmental concern in the experiment, perhaps they could envision how the consumption of products made with renewable energy would result in less future environmental degradation. As such, this has caused them to respond favourably to the advertisement, which reinforces the need for marketers to specifically tailor green marketing promotions towards personality types, and in particular, based on how people relate to time. This aligns with Polonsky *et al.*'s (2014) suggestion, when future-oriented individuals are reached by a promotion, it would be prudent for marketers to reinforce the notion that distant beneficial environmental outcomes can be attained by way of engaging in ECCB.

Theory

The finding which support the insight provided by construal level theory and in particular the individual difference of temporal orientation, contributes to the marketing literature by showing that the driving effect of the PGA measure (as a reflection of concern for the environment) on the outcome variables is moderated by an individual's FTO. In terms of physical distance, construal level theory suggests that individuals that are far removed from any noticeable form of environmental degradation would respond in a markedly different manner from people that are affected by pollution on a regular basis. Exactly how spatial distance influences ECCB remains to be seen, as multiple cognitive and affective processes are likely to be at play. For example, when the effects of air and water pollution are prominent, which is often the case in densely populated areas, there may be some sense of urgency to alleviate the matter and thus engagement with ECCs may be more pronounced. At the same time ECCs in urban areas may be affected by some sense of learned helplessness that inhibits favourable response patterns towards green marketing promotions.

To juxtapose this portrayal against rural areas – which in westernised nations are more likely to be more environmentally pristine – it is possible that community members place greater importance on the state of their immediate environment and thus they may respond more favourably to green marketing appeals. But because construal level theory states that people develop distinctive types of representations of stimuli in response to their physical distance from an occurrence (Lieberman *et al.*, 2002; Liberman and Trope, 1998; Trope and Liberman, 2000, 2003), in a scenario where anthropogenic harm to the environment is not readily noticeable, there is also the possibility that the urgency to engage in ECCB would be less manifest.

Practice

Considering that this exploratory research is the first of its kind in Australia, the findings suggest several implications for practice, theory, and policy, especially for academics engaged in green marketing research, governmental policy-makers, and industry professionals and consultants. Here is preliminary evidence that consumers do prefer products that are made with renewable energy. This suggests that marketers can achieve favourable outcomes via the integration of renewable energy into production processes or daily business operations. While the observed main effect is rather specific, it does speak indirectly to the importance of taking a holistic approach towards green marketing. This research presented a product that contained absolutely no other ecological aspects and, because of this, the findings strongly indicate that renewable energy is an influential first platform for firms to stand on as they strive to adopt other sustainable practices and policies.

Public policy

From the perspective of public policy, these findings suggest a public benefit because they contribute towards growing the adoption of sustainable business practices. This research suggests that consumers want firms to use renewable energy, providing evidence that renewable energy policies could be reframed away from symbolism, or as being costly, and can actually be pitched as beneficial to the bottom line of the firm.

Social

The findings also indicate that social norms about environmental behaviour may have moved beyond a mentality that “recyclable” or “made with recyclable material” is environmentally responsible behaviour. Evidence that made with renewable energy is important suggest a deepening interest from consumers in the sustainable business practices of marketers.

Limitations and future research

Considering that the results presented here are derived from responses made by students at an Australian university, findings cannot reliably be generalised to the larger population. Also, consumer values and opinions towards environmental issues are subject to the changes that occur as time progresses and, accordingly, this research may produce results that cannot be replicated in future studies.

A future, longitudinal study holds the potential to uncover how the temporal aspects of changing perceptions (i.e. beliefs and attitudes) affect ECCB. This would identify externally valid cause-effect relationships, especially regarding green marketing and ECCB. Also, the impact of including a renewable energy appeal in conjunction with other environmental appeals, such as carbon neutrality or recycling, is worthy of investigation. In addition, this research looks at only one product in a single product category (consumer electronics), and while no argument has been found which suggests that the observed main effect would not hold with regards to other product categories, future research that attempts to replicate this result could increase its generalisability by using multiple products and possibly from other industries. The impact of including a renewable energy appeal in conjunction with other environmental appeals (e.g. carbon neutral, made from recycled materials, fair-trade certified, sustainably produced, etc.) is an empirical question that is also worthy of investigation. Determining how much importance a renewable energy appeal has when it is positioned among other green appeals would reveal the relative usefulness of the focal promotion to marketers.

To increase the efficacy of green marketing strategy, academics have long called for the adoption of a holistic approach which does not use simple ecological posturing but rather integrates environmental initiatives into all aspects of business operations with a sustainable long-term approach (see Peattie and Crane, 2005; Dobscha and Ozanne, 2001; Polonsky and Rosenberger, 2001). This research suggests that a holistic approach should include the incorporation of renewable energy into business operations including marketing strategy.

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Further reading

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Appendix

Renewable energy appeal on consumer behaviour

Please take a moment to review the following advertisement.

RESONANCE
Legendary Sound™

RS325
Noise Isolating Earphones

Single High-Definition MicroDriver for full-range sound and optimized bass performance. Complete with advanced in-line mic controls for Apple iOS products and all other music enabled smartphones.

Resonance manufacturing facilities are powered with 100% Renewable Energy.

For more information visit www.resonance.net

0% 100%



Survey Powered By [Qualtrics](#)

Figure A1.
Advertisement with renewable energy cue

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