



The role of benefits and transparency in shaping consumers' green perceived value, self-brand connection and brand loyalty



Jialing Lin, Antonio Lobo*, Civilai Leckie

Swinburne University of Technology, Australia

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ABSTRACT

Building on the literature on green consumption, this study investigates consumers' perceptions of a brand's green benefits (utilitarian environmental and warm glow) and green transparency on their green perceived value (GPV). In particular, this study tests the mediating role of GPV and self-brand connection on the relationships between green benefits and green transparency and brand loyalty. We used structural equation modeling to test the research model with a sample of 826 Chinese respondents. Our findings suggest that most of the hypotheses were supported. However, comparison between brands of physical goods and services indicate that the approach to develop consumers' green value perceptions is different and that the influences of GPV and self-brand connection on brand loyalty are significantly different between these two groups of brands. Hence, it would be more effective for organizations to have diverse green branding strategies between these two groups of brands.

1. Introduction

The environmental awareness of the general public nowadays has increased dramatically in the light of issues relating to social and environmental concerns such as global warming and sustainability. Consumers are willing to pay a price premium for products which are perceived to contribute to sustainability, social responsibility and greening of the environment (Meise et al., 2014; Parsa et al., 2015). The value of the global green market has witnessed a fourfold increase in just four years from \$209 billion in 2011 to \$845 billion in 2015 (Kotler, 2011, p. 134; Leonidou and Skarmas, 2015). From a lifecycle perspective, a green brand is characterized by the minimum usage of resources throughout the whole product lifecycle (Scheffer, 1991). However, from a comparative standpoint, a green brand refers to “a brand which offers a significant eco-advantage over its incumbents and which is able to attract consumers who set their priority to be green in their purchases” (Grant, 2008, p. 25). Such features of green brands have been extended to cover broader aspects, including ethical and social concerns (e.g., Newholm and Shaw, 2007; Shaw and Clarke, 1999; Carrigan and Kirkup, 2001). In other words, benefits relating to environmental responsibility, ethical and social issues signal to consumers that the brand which they purchase is a green one.

Companies increasingly position their brands as being green through environmental innovations (Berrone et al., 2013), the use of green labels and trademarks as well as by adopting effective environ-

mental management systems (Delmas and Toffel, 2008; King et al., 2005). However, not all organizations are honest about their green marketing practices and some make unsubstantiated and misleading claims about the green functionality of their products. Such malpractices are commonly referred to as *greenwash* (Chen and Chang, 2012; Huang and Chen, 2015). This situation has exacerbated consumers' sceptical attitudes towards green products, which in turn has increased the gap between their environmental attitudes and actual purchase behaviour (Chen and Chang, 2012). If such greenwash continues, it will undermine genuine companies' green investment (Aschemann-Witzel and Niebuhr Aagaard, 2014; Caruana et al., 2015) and dampen consumers' confidence in green brands.

Despite the growing importance of green marketing literature (e.g., Grant, 2008; Hartmann and Apaolaza-Ibañez, 2006; Paul et al., 2016), scant attention has been paid to addressing green brand-related issues, for example the development of green brands from consumers' perspective (Wang and Horng, 2016). In order to fulfil consumption-related goals, consumers need transparent information about green brands and they must be convinced that green brands offer benefits and value which exceed those provided by alternatives. Previous research suggests that customer value is an effective means of differentiation (Treacy and Wiersema, 1993). Chen and Chang (2012) have developed the concept of green perceived value (GPV), which intends to capture consumers' overall appraisal of the net benefits associated with a product or service based on their environmental desires, sustainable

* Corresponding author.

E-mail addresses: jialinglin@swin.edu.au (J. Lin), alobo@swin.edu.au (A. Lobo), cleckie@swin.edu.au (C. Leckie).

expectations and green needs. Some scholars have suggested that both utilitarian environmental (e.g., utilitarian benefits) and emotional benefits (e.g., warm glow of giving) need to be considered as antecedents of GPV (Hartmann et al., 2005; Hartmann and Apaolaza-Ibáñez, 2006). Additionally, consumers require more detailed and transparent information about the manner in which their money or personal efforts are leveraged through the provision of social responsibility initiatives. The concept of green transparency signifies the attempt of green brands to provide clear information disclosure in their green practices. Hence, this study proposes that consumers' perception of utilitarian and warm glow benefits as well as green transparency would potentially influence GPV.

While green consumption can help address environmental sustainability, it is important that green brands result in brand loyalty (Paul et al., 2016; Huang et al., 2014). Promoting GPV and a shared sense of responsibility for the environment can persuade consumers to purchase green brands (Chen and Peng, 2014). A well communicated relationship between consumers and green brands through enhanced GPV can increase consumers' intentions to repurchase (Chen, 2013). Also, the more the consumers identify with a brand, the stronger would be their commitment and positive word of mouth communication (Griskevicius et al., 2010; Tuškej et al., 2013). Such identification is synonymous with self-brand connection which possibly mediates the relationship between GPV and brand loyalty (Park et al., 2010).

This study makes a major contribution to the body of research on the development of green brands from the consumers' perspective by presenting, and then testing, a unique model comprising GPV, self-brand connection and brand loyalty. The purpose of this study is firstly to examine the influence of the three antecedents (utilitarian environment and warm glow benefits and perceived green transparency) on GPV. Secondly, it aims to investigate the direct influence of GPV on brand loyalty and the indirect relationship on brand loyalty via self-brand connection. Finally, this study investigates whether the relationships among the various constructs vary between physical goods and services brands.

2. Literature review and development of conceptual framework

2.1. Green branding

Green branding is an effective strategy for gaining significant eco-advantages over one's competitors (Delgado-Ballester and Munuera-Alemán, 2005). However empirical studies in the green branding literature are limited (Wang and Horng, 2016). Past research has focused on customer-based brand equity in the green branding context (Chen, 2008; Ng et al., 2014). For example, Chen (2010) demonstrated that perceived green brand image, green satisfaction and green trust positively contribute to green brand equity. Ng et al. (2014) argue that traditional features of a brand such as quality influence consumers' green decision and they suggest that consumers' perceived brand quality and overall credibility have significant influences on green brand equity. Furthermore, recent studies argue that green brand positioning is a key factor in determining the success of green branding strategies and many studies agree that active communication and brand uniqueness can ensure the commercial success of green products (e.g., Hartmann et al., 2005; Hartmann and Apaolaza-Ibáñez, 2006, 2012). However, majority of the studies examine the influence of product-related attributes and consumers' perceived benefits on their environmental attitudes and purchase intention. There is scant research which investigates the understanding of communication between consumers and green brands and their perceived differentiation of competing green brands.

2.2. Green perceived value (GPV)

Green value is an important component of green brand positioning (Hartmann and Apaolaza-Ibáñez, 2006). Many scholars have developed consumer perceived value from a green perspective (e.g., Chen and Chang, 2012; Koller et al., 2011). In particular, Chen and Chang (2012) developed a construct called *green perceived value* (GPV). They define GPV as "a consumer's overall appraisal of the net benefits of a product or service between what is received and what is given based on the consumer's environmental desires, sustainable expectations, and green needs" (p. 505). In other words, GPV is a subjective evaluation influenced by consumers' green desires, expectations and needs. GPV has been shown to have positive effects on green purchase intentions and contribute to the relationship development between consumers and brands through enhancing their green satisfaction and green trust (Chen and Chang, 2012; Chen, 2013; Koller et al., 2011). Hence, the GPV approach is suitable for examining consumers' green brand purchase behaviour and for capturing their green brand relationship building.

In order to facilitate the communication between consumers and green brands, Hartmann et al. (2005) adopted a functional and emotional positioning to predict consumers' attitudes toward green products and found that a combination of functional attributes and emotional benefits ensures the highest perceptual effects. Hartmann and Apaolaza-Ibáñez (2006) argue that emotional benefits can increase consumers' attention when they are actively communicated to consumers. Green functional and emotional benefits such as utilitarian environmental, warm glow benefits and nature experience were found to positively impact green brand purchase intentions (Hartmann and Apaolaza-Ibáñez, 2012). The fact that consumers look for both functional and emotional benefits helps green brands to understand the development of consumers' overall green value perceptions. Besides utilitarian and emotional benefits, consumers' expectations relating to a firm's ethical commitment to society also influence their evaluation of a firm and its brands (Creyer, 1997; Leonidou and Skarmneas, 2015). Hence, a broader research framework can be adopted to explore the influential factors of GPV based on consumers' expectations of a firm's ethical commitment to society, especially in dealing with the current challenge caused by greenwash. Consumers increasingly expect detailed information to evaluate corporate initiatives for being green (Chen and Chang, 2012; Reynolds and Yuthas, 2008; Tapscott and Ticoll, 2003). As a result, information disclosure has shown to have a positive impact on consumer-firm relationships and a high level of perceived environmental transparency (green transparency) can increase customers' understanding of the value of a firm's socially responsible activities (Vaccaro and Echeverri, 2010). This study proposes that utilitarian environmental, warm glow benefits and green transparency are key drivers of GPV. Additionally, customer value has been regarded as an effective means for gaining differentiation (Treacy and Wiersema, 1993) and building strong consumer relationships (Smith and Colgate, 2007; Wang et al., 2004).

2.3. Green Benefits and GPV

Based on egotism and utilitarianism theories, the benefits and avoidance of costs are important criteria when consumers evaluate a firm's ethical practice (Brunk, 2010). Consumers of green brands seek benefits from their purchase (Vitell et al., 2001). Papista and Krystallis (2013) focus on two types of benefits (utilitarian and psychological) when evaluating their influence on customer perceived value. Utilitarian environmental benefits are regarded as an essential attribute of green brands, which outweighs the attributes of conventional alternatives. Consumers look for functional benefits when they consume products with environmentally sound attributes (Bech-Larsen, 1996; Sriram and Forman, 1993). These functional benefits reflect their perceived utility acquired from a brand's capacity to fulfil a

functional, utilitarian or physical environmental performance (Sheth et al., 1991). Research suggests that there is a positive relationship between product performance and customer perceived value (e.g., Baker et al., 2002; Dodds et al., 1991; Grewal et al., 1998; Sirohi et al., 1998). As compared to customers' overall perceived value, GPV focuses more on their environmental expectations and green needs. Thus, it is expected that functional benefits have a significant positive impact on GPV. Hence, the following has been hypothesized:

H₁. Utilitarian environmental benefit is positively associated with GPV.

Warm glow of giving reflects a feeling of moral satisfaction when involving the common good, which is a form of impure altruism (Andreoni, 1989, 1990). It is a psychological benefit which has received increasing interest in the specific context of green brands (e.g., Hartmann and Apaolaza-Ibáñez, 2012; Papista and Krystallis, 2013; Pickett-Baker and Ozaki, 2008). Papista and Krystallis (2013) propose that altruistic value is positively associated with customer perceived value. Consumers tend to feel good when they purchase green brands which have environmentally friendly attributes (Pickett-Baker and Ozaki, 2008) and impure altruism motivates consumers to use green products or services (Hartmann and Apaolaza-Ibáñez, 2006). This results in moral satisfaction for consumers when they make a decision to purchase green brands. Essentially, warm glow of giving by firms leads consumers to have a positive evaluation of a firm and its brands. Hence the following hypothesis has been developed:

H₂. Warm glow benefits are positively associated with GPV.

2.4. Green transparency and GPV

A firm's moral commitment to environmental, social and ethical issues is a crucial factor in influencing consumers' positive evaluation of a firm and its brands (Brunk, 2010; Lavorata, 2014). In order to reduce the negative impact of greenwash (e.g., Nyilasy et al., 2014) and consumers' sceptical attitudes toward corporate green initiatives, the dimension of perceived green transparency has been studied (Teas, 1993; Vaccaro and Echeverri, 2010). Green transparency refers to the manner in which green brands clearly provide relevant information on its environmental policies as well as frank admission on how its production process impacts the environment (Eggert and Helm, 2003). Since green brands usually carry higher prices than non-green brands, consumers require more detailed information to facilitate their green decision-making processes. Meise et al. (2014) suggest that firms are able to communicate value by increasing the transparency of value-differentiating sustainability-related information. In other words, green transparency assists consumers in understanding the motives of firms' green initiatives (Reynolds and Yuthas, 2008; Tapscott and Ticoll, 2003; Teas, 1993). This deeper understanding of firms' green initiatives, in turn, influences consumers' willingness to engage in pro-environmental behaviour (Vaccaro and Echeverri, 2010). The attribution theory proposes that consumers tend to attribute a firm's behaviour to intrinsic motivations when they perceive that the firm's behaviour is moral, ethical and environmental (Ellen et al., 2006; Parguel et al., 2011; Vlachos et al., 2009). Hence, if a brand provides consumers with relevant information and communication, such perceived green transparency would lead them to ascribe the firm actions to intrinsic motivations. This would meet consumers' green expectations and their green value perceptions would be enhanced. Hence, the following has been hypothesized:

H₃. Perceived green transparency is positively associated with GPV.

2.5. GPV as a mediator

Consumers generally reward a firm which serves them with sincere loyalty (Maignan et al., 1999). However, the direct relationship

between ethical behaviour and brand loyalty is debatable as some researchers suggest that the relationship is mediated by consumer value perceptions and relational constructs (e.g., trust and affect) (Salmones et al., 2005; Singh et al., 2012). In the green brand context, although some research has demonstrated that both functional and emotional benefits directly contribute in enhancing consumers' green purchase intentions (Hartmann and Apaolaza-Ibáñez, 2012), they have not succeeded in addressing the attitude-behaviour gap associated with green consumption. Consumers still do not *walk their talk* in their green brand consumption despite large number of ethical activities that have been performed by firms. Consequently, some scholars have focused on tools to communicate between firms/brands and consumers to enhance their market value (Schadewitz and Niskala, 2010). Hence, customer value may play a mediating role in the relationships between green benefits and brand loyalty (e.g., Dodds et al., 1991; Grewal et al., 2003; Sweeney et al., 1999; Zeithaml, 1988). Thus, this study proposes that utilitarian environmental, warm glow benefits and perceived green transparency influence brand loyalty indirectly through GPV. This is because the ability of the firm to develop brand loyalty hinges on its ability to effectively communicate its green benefits (both utilitarian and emotional) and disclose green information and thus induce consumers' systematic evaluations toward a green brand. Once consumers are convinced of the green value of a brand, then they are more likely to become loyal to that brand. Hence the following hypothesis has been developed:

H₄. GPV mediates the relationships between (a) utilitarian environmental benefit, (b), warm glow of benefit, and (c) perceived green transparency and brand loyalty.

2.6. Self-brand connection

Customer perceived value has been well documented in the relationship marketing area as to its critical influence on some important relational outcomes, such as brand trust, brand satisfaction and brand loyalty (e.g., Smith and Colgate, 2007; Wang et al., 2004; Sirohi et al., 1998). Recent studies have demonstrated that this direct link between customer value and brand loyalty is mediated by relationship quality (Sirohi et al., 1998; Valenzuela et al., 2010). Relationship quality consists of five dimensions, i.e., commitment, brand-partner quality, love and passion, intimacy and self-brand connection. Papista and Krystallis (2013) propose that customer perceived value potentially impacts the dimensions of relationship quality, however, they did not empirically test the model. Hence, this study proposes that self-brand connection, which aims at building consumers' self-concept or identity towards a brand provides an alternative theoretical lens to understand the role of GPV in consumer green brand relationship building.

Self-brand connection is defined as "the extent by which individuals have incorporated brands into their self-concept" (Escalas and Bettman, 2005, p. 379). When green brands claim to be environmentally friendly and moral in their activities, they provide an opportunity for consumers to reflect on their green identity and assist them in expressing the significant aspects of the self when they purchase and use the green products (Fournier, 1998). For example, consumers would associate themselves with a green brand if such a brand successfully delivers values which fulfil their goals. Social exchange theory (Blau, 1964) suggests that consumers are likely to develop an ongoing relationship with a brand through favourable relational behaviour when their expectations are met (Dwivedi, 2014). Consumers are more likely to identify with green brands that assist them in fulfilling their environmental and social goals. Stronger customer identification with a brand can be achieved once personal relevance is enhanced (Einwiller et al., 2006). An enhanced GPV is expected to increase consumers' connection with a particular brand. Hence the following has been hypothesized:

H₅. GPV is positively associated with self-brand connection.

Previous studies have reported inconsistent findings with regards to the direct relationship between customer perceived value and brand loyalty. For example, some researchers argue that customer perceived value is directly related to loyalty and positive word-of-mouth communication (e.g., Chen, 2013; Valenzuela et al., 2010; Zeithaml, 1988), while others argue that their relationship is mediated by satisfaction and brand trust (e.g., Hur et al., 2013; Patterson and Spreng, 1997; Park and Kim, 2016). Thus, this study proposes that GPV directly impacts brand loyalty and indirectly impacts brand loyalty via self-brand connection. Papista and Krystallis (2013) propose a conceptual model which contains propositions that customer value is directly related to loyalty and it also indirectly influences behavioral loyalty through relationship quality (i.e., commitment, brand-partner quality, love and passion, intimacy and self-connection). Furthermore, self-brand connection which reflects the manner in which consumers integrate a brand into their self-concept was found to be a predictor of loyal brand behaviour (e.g., willingness to rebuy or re-patronise). That is, the more a consumer identifies with a brand, the more loyal that person will be to that brand (Stokburger-Sauer et al., 2012). Hence, the following has been hypothesized:

H₆. GPV is directly associated with brand loyalty and also indirectly associated with brand loyalty through self-brand connection.

Following on from the discussion so far, a conceptual framework for this study has been proposed which is depicted in Fig. 1.

3. Research methodology

3.1. Measures

All the measurement scales were adapted from previous studies. All the items used in the current study are listed in Table 1 and were measured using a 7-point Likert scale (1=strongly disagree to 7=strongly agree). Finally, demographic information was solicited for gender, age, income, education, marital status and occupation.

To measure utilitarian benefits, three items were adapted from Johnson and Frank (2006), Salmela and Varho (2006) and Truffer et al. (2001). These items were intended to measure consumers' perceptions of the manner in which a brand is able to provide functional attributes relating to respect for the environment and also its effort in reducing environmental hazards such as pollution and global warming. To measure warm glow benefit, three items were adapted from Aquino and Reed (2002), Hartmann and Apaolaza-Ibáñez (2012) and Nunes and Schokkaert (2003). These items were intended to capture the 'feel good' aspect of consumers, in that they do not cause harm to the environment, or at best help protect the environment and well-being of humanity and nature. Green transparency was operationalized using four items that were adapted from Eggert and Helm (2003). These items were intended to elicit consumers' perceptions of the manner in which a brand clearly provides relevant information on its environmental policies as well as on how its production process impacts the environment.

The scale measuring GPV was adapted from Chen and Chang (2012). This four item scale was intended to measure the manner in which a brand is environmentally friendly, offers more environmental benefits and concerns and provides good value to a consumer. Self-brand connection was measured by three items adapted from Dwivedi (2014) and Stokburger-Sauer et al. (2012). This three item scale was intended to measure the manner in which a brand provides a strong sense of belonging and embodies what a consumer believes in. Finally, brand loyalty was measured using four items adapted from Chen (2013) and Huang et al. (2014). These items were intended to capture the manner in which a consumer continues to purchase a green brand. Both attitudinal and behavioral components of a consumer's brand loyalty were incorporated in the items.

3.2. Instrument design and Pre-test

The survey instrument was translated into Chinese using the prescribed back translation technique (Usunier, 1998) by professional translators. The translated questionnaire was also cross-checked by two other bilingual researchers and a final agreement of the translation was arrived at. To ensure instrument clarity, question wording and validity, six academics who were experts in green marketing and relationship management were invited to discuss and scrutinise the survey instrument. Then, two rounds of pre-tests were conducted by using two focus groups, each of which included eight university students who resided in the Guangzhou (South) and Chengdu (West) cities of China, and who had purchase experience of green brands. Subsequently, some minor changes regarding the wording and formatting were made based on the feedback received from these pre-tests.

3.3. Online survey

The pre-tested questionnaire was formatted into an online version. For the actual launch of the online survey, an international market research agency was employed to collect data in China. This agency has approximately 1.3 million Chinese panel members. The practice of using consumer panels is in line with online market research (e.g., Steenkamp and Geyskens, 2006). The market research agency has a reward system based on marketplace points which encourages panel members' participation and stratified sampling was used. The criteria for selecting the sampling frame were gender, geographical location and purchase experience of green brands.

The introductory part of the instrument contained pictures and descriptions of seven popular green brands relating to products and services available in China. They included brands that were related to electronic and electrical products, personal care products and tourism services. The five brands associated with products were air-conditioner (Midea), washing machine (Haier), computer (Lenovo), personal care (Heborist) and home cleaning products (Chao Neng). The two brands associated with tourism services were hotel (7 Days Inn) and airline (China Southern Airline). Respondents who had purchase experience

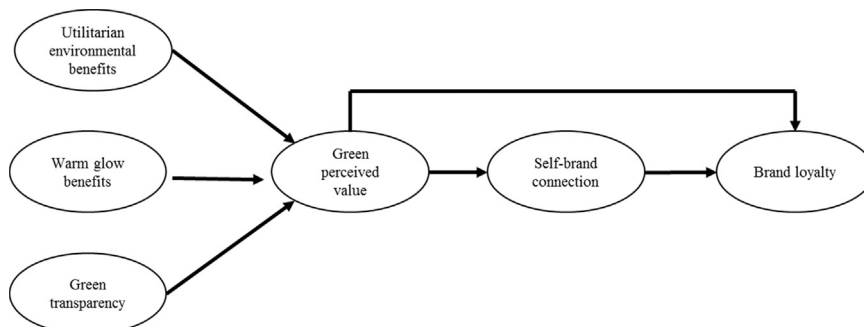


Fig. 1. The proposed conceptual framework.

Table 1
Measures and reliabilities.

Constructs	Standardized factor loadings
Utilitarian environmental benefit (UEB) ($\alpha=.76$, CR=.76 and AVE=.52)	
This brand respects the environment.	.77
This brand helps to prevent global warming.	.64
Products of this brand do not pollute the environment.	.74
Warm glow (WG) ($\alpha=.84$, CR=.77 and AVE=.53)	
With this brand, I can feel good because I help to protect the environment.	.79
With this brand, I have the feeling of contributing to the well-being of humanity and nature	.72
With this brand, I can feel better because I don't harm the environment	.66
Green transparency (GTR) ($\alpha=.81$, CR=.83 and AVE=.55)	
This brand explains clearly how it controls the emissions caused by its production processes that could harm the environment.	.74
Overall, this brand provides the information needed to understand the environmental impact of its production processes.	.73
This brand provides relevant information regarding environmental issues associated with its production processes.	.78
The environmental policies and practices of this brand are provided to customers in a clear and complete way	.70
Green perceived value (GPV) ($\alpha=.83$, CR=.86 and AVE=.60)	
This brand's environmental functions provide very good value for me.	.78
This brand is environmental friendly.	.80
This brand has more environmental benefits than other brands	.76
This brand has more environmental concern than other brands	.76
Self-brand connection (SBC) ($\alpha=.83$, CR=.83 and AVE=.62)	
This brand embodies what I believe in.	.71
This brand is an important indication of who I am.	.78
I feel a strong sense of belonging to this brand.	.86
Brand loyalty (BL) ($\alpha=.85$, CR=.85 and AVE=.59)	
I prefer to purchase this brand to other brands.	.82
I intend to continue buying this brand.	.75
Overall, this brand will be my first choice.	.74
I will recommend this brand to other people	.75

Note: χ^2 (174) =435.631, CFI=.97, TLI=.97, RMSEA=.043; α =Cronbach's alpha, CR=Construct reliability and AVE=Average variance extracted.

of green brands were invited to participate and they were initially asked to select one brand from the listed seven, with which they had the strongest association based on their previous purchase or identification of the logo. Then, they were requested to complete the survey keeping in mind their selected green brand as the focal object and remembering the image associated with green claims of the selected green brand.

The reasons we requested respondents to choose one of the seven brands were fourfold. First, all these brands were listed in China's recent "Top 100 green brands" report published by the *Journal of China Brand* (Li, 2012). These brands are recognizable and commonly available in China. Second, these brands have received much attention in current green brand research, hence it is likely that respondents had a certain amount of green knowledge about these brands. For instance, brands associated with electronic, electrical products and personal care products have been widely discussed in green related research (e.g. Chen, 2010; Chen and Chang, 2013; Ng et al., 2014; Yeon Kim and Chung, 2011; Zhao et al., 2014). Similarly, brands associated with tourism services, such as the selected hotel and airline have incorporated green elements into their brand management and the green image of these types of services can influence consumers' choice (Chen and Tung, 2014; Choi et al., 2015; Mayer et al., 2012). Third, since these brands are commonly found in China, a higher numbers of participants could be recruited for this study thus improving the response rate. Finally, these brands are found and used by Chinese consumers daily, hence they are conversant and closely associated with their green claims.

A total of 826 usable online responses were obtained for this study. Of the 826 respondents, 47.9% were female and 52.1% were male. The majority of the respondents were company white collared workers (52.9%) with a relatively high monthly income (> ¥5000: 50.8%). Also, 62.5% of them were married with young children, 54% were aged between 26 and-35 years and 69% held a bachelor's degree. The

proportion of the responses received for each of the seven brands were Midea (21.9%), 7 Days Inn (20.6%), China Southern Airline (15.9%), Chao Neng (15.3%), Haier (10.8%), Lenovo (8.4%) and Herborist (7.1%).

4. Results

The two-step approach developed by Anderson and Gerbing (1988) was employed to analyze the data and the statistical software program Mplus7.31 was used to perform the analysis.

4.1. Measurement model results

Prior to the analysis, all variables were screened regarding normality, outliers and missing values to avoid the violation of analysis assumptions. Then, Harman's one-factor test was also adopted to test the presence of common method variance (CMV) (Podsakoff et al., 2003). All 21 measurement items were included in one general factor using CFA and the result indicated that the one-factor model poorly fitted the data (RMSEA=.10, CFI=.85, TLI=.83). Therefore, no apparent problems associated with CMV were revealed.

Confirmatory factor analysis was utilized to test the reliability and convergent and discriminant validity of the latent constructs in this study. While the Chi-square value of the measurement model was significant, other fit indices revealed a satisfactory fit to the data ($\chi^2_{(174)}=435.63$, $\chi^2/d.f.=2.5$; CFI=.97, TLI=.97, RMSEA=.043). The composite reliability (CR) and average variance extracted (AVE) for each construct are shown in Table 2. Convergent validity was achieved since all factor loadings were significant. The standardized factor loadings of all items well exceeded the recommended .50 cut-off (Rencher, 2003). Cronbach's alphas for all constructs ranged from .76 to .85. The composite reliability of all constructs ranged from .76 to

Table 2
Correlations and descriptive statistics.

Constructs	1	2	3	4	5	6
1. Utilitarian environmental benefit	.52					
2. Warm glow benefits	.66**	.53				
3. Green transparency	.63**	.54**	.55			
4. Green perceived value	.65**	.61**	.69**	.60		
5. Self-brand connection	.55**	.49**	.61**	.69**	.62	
6. Brand loyalty	.60**	.57**	.56**	.64**	.65**	.59
Mean	5.56	5.59	5.24	5.26	5.60	5.55
Standard deviation	.86	.89	.88	.90	1.08	.90
Skewness	-.71	-.72	-.31	-.64	-.79	-.57
Kurtosis	1.09	.67	-.20	.66	.85	.38

Note: All correlations are significant at the .01 level** (2-tailed). Average variance extracted (AVEs) are shown on the diagonal (bold an italicized).

.86, all exceeding the recommended cut-off values of .70 (Nunnally and Bernstein, 1994). The AVE values of all constructs exceeded the threshold of .50 (Fornell and Larcker, 1981). Table 2 demonstrates that all squared correlations coefficients were below AVEs, indicating discriminant validity (Fornell and Larcker, 1981).

Two possible shortcomings of requesting respondents to select the brand with which they had the strongest association are around i) variances and ii) resultant skewed distribution. However, as can be seen from the descriptive statistics in Table 2, all variables have a slight negatively skewed distribution indicating that there are variations in responses, some respondents have given low scores 1–4 on the 7-point scale) and the standard deviations of core constructs are typical of those commonly found (e.g., Nyadzayo et al., 2016). In addition, respondents could have selected the brand they liked most, hence such self-selection could have inflated the relationships that some variables had with loyalty. However, as it can be seen from the descriptive statistics, the slight negative skewness and some variation in kurtosis indicate that the respondents did not select the brand which they most preferred.

4.2. Hypothesis testing

Structural equation modeling with maximum likelihood was employed to test the hypotheses presented in Fig. 1. The results displayed in Table 3 indicate that the fit of the model is acceptable ($\chi^2_{(180)}=473.59$; $\chi^2/d.f.=2.6$; CFI=.97, TLI=.96, RMSEA=.044) and all of the hypothesized relationships were statistically significant.

The antecedents (utilitarian environmental, warm glow benefits and green transparency) positively influenced GPV. Utilitarian environmental benefit was found to positively influence GPV ($\beta=.24$, $p < .01$). Warm glow benefit also had a positive impact on GPV ($\beta=.23$, $p < .01$). Finally, green transparency had a positive impact on GPV ($\beta=.50$, $p < .01$). Hence, H₁, H₂ and H₃ were supported. In addition, we also tested the direct effect of the three antecedents on brand loyalty. They were found to be insignificant ($p > .10$) while the influence of GPV on brand loyalty was significant ($\beta=.50$, $p < .01$). It can therefore be concluded that GPV fully mediated the relationships between utilitar-

Table 3
Results of the structural model.

Structural relationships	Std. coefficient	Results
Utilitarian environmental benefits→Green perceived value	.24**	Supported
Warm glow benefits→Green perceived value	.23**	Supported
Green transparency→Green perceived value	.50**	Supported
Green perceived value→Brand loyalty	.50**	Supported
Green perceived value→Self-brand connection	.84**	Supported
Self-brand connection→Brand loyalty	.35**	Supported

Note: $\chi^2_{(180)}=473.59$; CFI=.97; TLI=.96; RMSEA=.044 and ** $p < .01$.

ian environmental, warm glow benefits and green transparency and brand loyalty. Thus, H₄ was supported. The results also supported H₅ as the relationship between GPV and self-brand connection was supported ($\beta=.84$, $p < .01$). Finally, the results shown in Table 3 reveal that the indirect relationship between GPV and brand loyalty was supported as GPV was significantly related to self-brand connection ($\beta=.84$, $p < .01$) and self-brand connection, in turn, significantly influenced brand loyalty ($\beta=.35$, $p < .01$). As a result, H₆ was supported.

4.3. Post-hoc analysis

In an attempt to extend the knowledge of green branding, recent studies have addressed topics relating to green brand purchase intention and green brand equity (Chen, 2010; Huang et al., 2014; Ng et al., 2014). These empirical studies have studied brands which are pre-dominantly associated with electrical and electronic products. Also research on consumers' perceptions of brands associated with delivery of services is relatively rare. Obviously, there are similarities in the formation of consumers' green value perceptions toward brands associated with both physical goods and services. However, some differences between these types of brands can also be expected, as brands associated with services generally comprise of intangible elements (Wakefield and Blodgett, 1999). Thus, multi-group analysis was employed in this study to investigate the differences, if any, of customer green value development between the brands of physical goods and services.

The results of the structural invariance test revealed a Chi-square statistic of 784.145 (d.f.=390) when relaxing all equality on the structural coefficients. Then a significant increase of χ^2 from 784.145 to 798.026 ($\Delta\chi^2=13.881$ with $\Delta df=6$ and $p=.031$) was found by adding constraints on all the structure weights (Table 4), which suggests that the differences between the two groups were significant. The results of the multi-group SEM analysis are summarised in Table 4.

Significant differences in the Chi-square statistics were found for two of the six individual paths, i.e. from GPV to brand loyalty ($p=.008$) and from self-brand connection to brand loyalty ($p=.048$). Consumers perceived the links between green value and brand loyalty to be stronger for brands of services as compared to that for physical goods. However, they also perceived that the linkage between self-brand connection and brand loyalty was evident in brands associated with physical goods whilst this direct relationship was absent in brands associated with services.

In addition, although consumers' perceptions of antecedents to GPV across two groups of brands were not significantly different, the formation of their green value across these two types of brands was still different. For example, utilitarian environmental benefits and green transparency contributed in enhancing GPV in brands of physical goods while warm glow benefits together with green transparency were positively associated with GPV of brands associated with services (see Fig. 2 and Fig. 3).

5. Discussion and implications

This study aims to understand the factors influencing customers' green value perceptions and their influence on brand loyalty. These factors include product-oriented attributes (i.e., green benefits) and the corporate practice of providing environmental information (i.e., green transparency). Green benefits (utilitarian environmental and warm glow benefits) and green transparency had a direct influence on GPV. GPV was found to directly influence brand loyalty and indirectly influence brand loyalty via self-brand connection. These outcomes contribute to the body of knowledge by integrating green branding with the broader research framework of corporate social responsibility and empirically examining the conceptual model proposed by Papista and Krystallis (2013). The findings also confirm that the GPV concept

Table 4
Results of multi-group analysis.

Model	χ^2	df	$\Delta\chi^2$	Δdf	Significance level (p)
Unconstrained	784.145	390	–	–	.000
Constrained	798.026	396	13.881	6	.031*
Constrained Path	χ^2	B_{goods}	B_{services}	$\Delta\chi^2(1)$	Test result
UBE→GPV	786.992	.36 **	.01		
WG→GPV	784.339	.18	.27 *		
GTR→GPV	786.287	.44**	.67 **	2.14	
GPV→GBL	791.169	.36 **	.66**	7.02**	Significant different across groups
GPV→SBC	784.150	.87 **	.79**	.001	
SBC→BL	788.067	.49 **	.19	3.92*	Significant different across groups

Note: UBE=Utilitarian environmental benefits, WG=warm glow benefits, GPV=Green perceived value, GTR=Green transparency, BL= Brand loyalty; ** $\rho < .01$ and * $\rho < .05$; $\chi^2_{(396)}=798.026$, $\chi^2/df=1.9$, CFI=.96, TLI=.95, RMSEA=.05; $n_1=525$ (Goods) and $n_2=301$ (Services). All exogenous variables were allowed to co-vary. R^2 for endogenous variables ranges from .63 to .82.

should be considered by all stakeholders in improving the effectiveness of communication between consumers and green brands and in reducing the conflict between consumers' green needs and companies' green offerings.

Essentially, if organizations wish to enhance customers' green value perceptions and generate brand loyalty, they should invest more resources either in improving their green benefit programs or in truthfully and transparently reporting their environmental contribution. The findings of this study demonstrate that green benefit programs, namely utilitarian environmental and warm glow benefits, have positive direct influence on consumers' green value perceptions and they indirectly influence brand loyalty via GPV. Additionally, customers' evaluation of firms' environmental transparency behaviour, namely green transparency, has a positive direct influence on their green value perceptions and they indirectly influence brand loyalty via GPV. These findings are similar to those obtained by Grewal et al. (2003) and Zeithaml (1988), which suggest that relationships between functional value, altruistic value and behavioral loyalty are indirect and mediated by customer perceived value. In addition, Salmones et al. (2005) and Singh et al. (2012) suggest that the relationship between ethical behaviour and brand loyalty is mediated by consumer value perceptions and relational constructs (e.g., trust and affect).

Our findings demonstrate that both the direct effect of customers' GPV in enhancing brand loyalty and the indirect influence mediated by customer self-brand connection are relatively strong. These findings empirically confirm the conceptual model developed by Papista and Krystallis (2013), which proposes that self-brand connection as part of the relationship quality dimension is an important mediator between customer perceived value and behavioral loyalty. Such an understanding assists in building a consensus that customers' green value perceptions can both directly influence brand loyalty (Chen, 2013) and indirectly affect brand loyalty via self-brand connection (Hur et al.,

2013).

Finally, the structural relationships in this study are significantly different between brands of physical goods and services. The development of brand loyalty varies across brands of physical goods and services and the direct influence of GPV on brand loyalty is stronger for brands of services than physical goods. However, the influence of self-brand connection on brand loyalty is stronger for brands of physical goods as compared to those of services. These findings suggest that adaptation is necessary before applying the fast-moving consumer goods approach to services branding (Balmer et al., 2001). The formation of their green value perceptions across these two groups of brands is different. Consumer perceived green transparency is an important driver to increase GPV in both groups of brands. Utilitarian benefits promote GPV in brands associated with physical good, but this relationship is insignificant in brands associated with services. Warm glow benefits promote GPV in brands of services, but this relationship is insignificant in the brands of physical goods. This is consistent with the findings of Morrison and Crane (2007) in that emotions play a more influential role in determining customers' satisfaction and loyalty towards brands of services. Hence, green branding strategies need to be diverse across intangible brand of services and brands of physical goods.

The findings of this study offer some important managerial implications for organizations intending to implement green marketing and corporate social responsibility strategies. This study identifies the gap between consumers' positive green brand perceptions and their brand loyalty and this relationship is mediated by customer GPV. Thus, organizations should use different communication strategies to create customer-based green value as perceived by consumers. In particular, this study demonstrates that both utilitarian environmental and warm glow of benefits are found to have direct positive effects on GPV. Hartmann and Apaolaza-Ibáñez (2012) suggest that both emotional

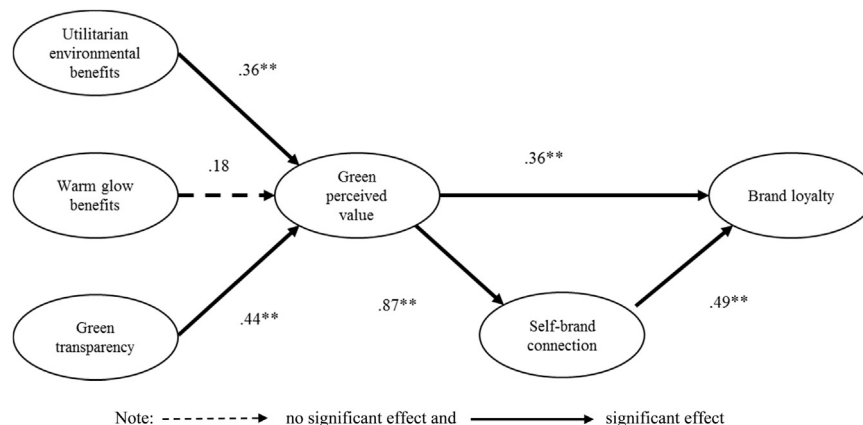


Fig. 2. Structural relationships in the context of brands of physical products.

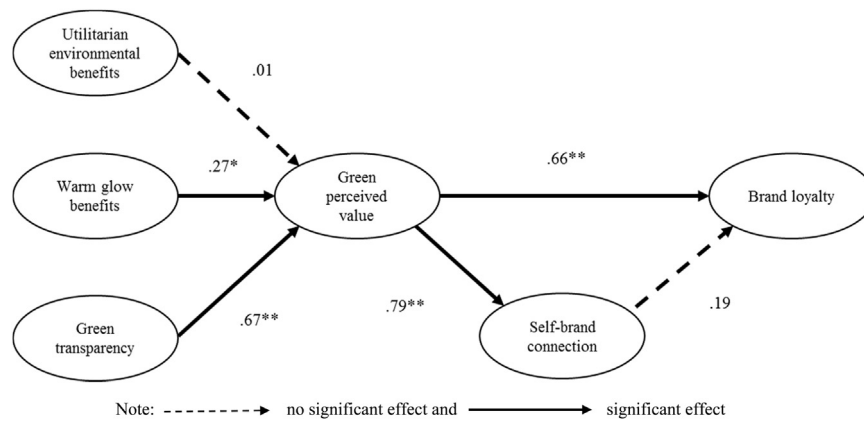


Fig. 3. Structural relationships in the context of brands of services.

and functional benefits have positive influence on green purchase attitudes. Also, warm glow of giving contributes significantly towards achieving green purchase intention as compared to utilitarian benefit. Therefore, both functional and emotional benefits need to be considered for organizations when they intend to create green value. Green transparency is a key antecedent of GPV and therefore, companies should communicate information truthfully and transparently to reduce consumers greenwash perceptions.

Despite the inconsistent findings of previous research, this study provides evidence that there is a direct positive link between GPV and brand loyalty. In addition, an indirect relationship between GPV and brand loyalty is mediated by customer self-brand connection. Thus, there are two paths for organizations to obtain brand loyalty. The first path is to improve customers' GPV by satisfying their expectations relating to green benefits. The second path is to increase customers' GPV by satisfying their expectations relating to corporate green transparency and also by providing a nexus between their moral satisfaction with green brands' ethical image so that brand loyalty can be enhanced. For instance, environmental functionality should be ensured as it has a strong impact on consumers' green purchase decision. Also, warm glow, aimed at providing consumers' moral satisfaction, should be included when considering an organization's benefit programs. This would assist in building consumers' affective attitudes toward a green brand. Priority should be given to transparency of green initiatives, and this should be effectively communicated to consumers as it helps to reduce green scepticism and increase green trust. Therefore, clear product information, effective communication procedures and disclosure of annual green practice reports would go a long way in enhancing consumers' perceptions relating to a firm's green transparency. Furthermore, increasing consumers' self-brand connection can effectively enhance brand loyalty. Thus, firms must intentionally strive to foster self-brand connection amongst their consumers. In particular, this connection can be strengthened by adopting effective communication strategies. For example, advertisements featuring green initiatives should emphasize a green brand's characteristics and its positive role in consumers' lives. This would strengthen the link between a green brand and its consumers' self-concept.

6. Limitations and future research

There are some limitations which have been identified in this study. First, it utilizes a cross-sectional research design. Further investigation by collecting longitudinal data is recommended to examine the dynamic relationships between the constructs. Second, comparative studies between consumers of different countries would be valuable in capturing the influence of cultural differences on the development of customer green value perceptions and its effect on customer-green brand relationship building. Although green scepticism is increasing

dramatically in China, further research would benefit by replicating and extending the conceptual model proposed in this study to other countries to increase the generalization of the research findings. Finally, even though this study has found that GPV is positively associated with brand loyalty, other relational outcomes also need to be explored in future research. Specifically, customer-based brand equity has been widely discussed in recent marketing research, which involves brand loyalty. Other relational outcomes such as customer-based brand equity are worthy of being investigated.

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