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# A framework identifying the gaps between customers' expectations and their perceptions in green products



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## ABSTRACT

Much research about green product development and marketing has been proposed due to consumers' awareness of environmental protection and the international severe environmental regulations. Despite the scholarly attention paid to green issues, the market shares of many green products have not increased significantly in accordance with academic pursuit and interest over the past decade. A major reason for this lies in the fact that many green products in the marketplace cannot fulfill consumers' expectations because gaps exist between consumers' expectations and their perceptions of those products. This problem has been left unnoticed and even unexplored in previous research. As a result, this study purports to adopt the service quality model for drafting a model describing the gaps existing between consumers' expectations and their perceptions, and adopt the notion of SERVQUAL instrument to develop a green product instrument for measuring these gaps. This green product instrument is built upon the basic attributes of product quality, attributes for measuring environmental performance and eco-certification of green products. By means of the proposed instrument, we find that gaps do exist between customers' expectations and their perceptions related to green information products. The larger gaps existing between consumers' expectations and their perceptions of green information products are environmental attributes of green information products. Finally, suggestions are provided for the managerial use of the proposed instrument, and a number of future research issues are also identified.

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## 1. Introduction

Green products, namely, environmentally friendly products or environmentally conscious products, are referred to as products designed to lessen the consumption of natural resources required and minimize the adversely environmental impacts during the whole life-cycles of these products (Albino et al., 2009; Janssen and Jager, 2002; Tsai, 2012). Driven by environmental concerns, more and more customers are inclined to purchasing green products and even willingly pay comparatively higher prices for these products (Chen, 2008; Zhou and Schoenung, 2007). Before developing green products and pursuing market opportunities after producing them, firms are urged to take both environmental sustainability and profit into consideration (Albino et al., 2009; Bansal and Roth, 2000).

In academic circles likewise, much research regarding green marketing has been proposed (Bamberg, 2003; Chan et al., 2008; Diamantopoulos et al., 2003; do Paço and Raposo, 2010; Flamm,

2009; Han et al., 2010; Mostafa, 2007; Peattie, 2001a; Roberts, 1996; Roberts and Bacon, 1997; Tanner and Kast, 2003; Wong et al., 1996). These studies have concentrated on targeting green customers with an aim to promoting the sales of green products. Yet, despite the scholarly attention paid to green issues, the market shares of many green products have not increased significantly in accordance with academic interest and pursuit over the past decade (Brécard et al., 2009; Peattie and Crane, 2005; Rex and Baumann, 2007; Sheth et al., 2011). A major reason for this lies in the fact that many green products in the market place cannot fulfill customers' expectations and get their purchase because gaps exist between customers' expectations and their perceptions of green products (D'Souza et al., 2006; Horie et al., 2005).

The reasons why these gaps exist have been left rather unexplored in previous research. In order to explore this uncharted territory, it is essential to first identify the gaps, then to investigate what concerns customers and why the green product providers fail to fulfill customers' expectations, and finally to bridge the gaps as best as possible. The first step regards corporate understanding of the gaps between customers' expectations and their perceptions, which should be viewed as the most crucial one in developing green products. Although previous studies have shown that

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customer satisfaction of products plays a major role in customer loyalty and repeat purchase (Fornell, 1992; Fornell et al., 1996; Szymanski and Henard, 2001), customers' overall satisfaction is determined mostly by customers' overall expectations and perceived quality performance of products (Fornell, 1992; Fornell et al., 1996; Olsen, 2002; Yu et al., 2005). Customer expectations can be influenced by word-of-mouth, personal needs, past experiences, and external communications (Parasuraman et al., 1991). Indeed, there are various attributes of a green product. Many customers are unwilling to trade off product qualities for a product's green attributes (Lin et al., 2013; Peattie, 2001a; Rex and Baumann, 2007). Additionally, customers' requirements about green attributes may not align with their actual purchasing behavior (Lin et al., 2013; Prakash, 2002). For the purpose of providing green products to fulfill customers' demands, the green products suppliers have to know which kinds of attributes customers are concerned with, what their expectations for and perceptions of every attribute are, and the gaps existing between their expectations and perceptions.

With a purpose to understand which kinds of attributes that customers are concerned with and measure the gaps existing between customers' expectations and their perceptions regarding green products, we adopt the notion of SERVQUAL<sup>1</sup> instrument (Parasuraman et al., 1988) to develop a green product measuring instrument built upon the basic attributes of product quality (Garvin, 1987; Synodinos, 2001), attributes for measuring environmental performance (Schvaneveldt, 2003) and eco-certification (Amacher et al., 2004; Hamilton and Zilberman, 2006) of green products. The SERVQUAL instrument is a useful instrument for evaluating the magnitude of the differences between users' expectations and their perceptions as it provides a superior indicator of quality (Jiang et al., 2000). Based on this rationale, we adopt the notion of SERVQUAL instrument to develop a green product instrument for measuring the gaps between customers' expectations and their perceptions in green products. The remainder of this study is organized as follows: first, we offer a review of the extant literature of SERVQUAL as well as the application of SERVQUAL. Then, we introduce the research framework of this study. This is followed by an overview of research results. We conclude with a discussion, an outline of future research recommendations, and limitations of this study.

## 2. Literature review

Past literature regarding green marketing has not yet explored the gaps existing between consumers' expectations and their perceptions. Therefore in what follows, we will not only provide a concise overview of past research on the topic of green marketing but also bring up the SERVQUAL model and instrument. Our aim is to draft a model describing the gaps between consumers' expectations and their perceptions, and develop a green product instrument for measuring the gaps.

### 2.1. Green marketing

The concept of green marketing emerged in the late 1980s (Peattie and Crane, 2005). The term green marketing has been used to depict marketing activities with the aim to reduce the negative environmental and social impact that products might cause and how to promote those products to reach its consumers an effective way (Peattie, 2001b). The green consumer has been the central character of green marketing, as firms attempt to understand and respond to external pressures to improve their environmental

performance (Peattie, 2001a). Extant research on green marketing has drawn our attention to the purchase of green products, environmental interest and the relationships between demographic and psychological variables and green consumer behaviors. Its findings can be summarized as follows:

#### a. Demographic variables

Demographic analysis is one statistical analysis commonly used for segmenting consumers because of its readily available characteristics (Diamantopoulos et al., 2003). A great deal of studies has attempted to identify demographic variables that correlate with green consumers (Chan et al., 2008; do Paço and Raposo, 2010; Han et al., 2010; Laroche et al., 2001; Roberts, 1996; Rowlands et al., 2003; Straughan and Roberts, 1999). Such variables, including age, sex, income, and education, if significant, offer easy and efficient approaches for marketers to segment consumers and identify green consumers (Diamantopoulos et al., 2003; Straughan and Roberts, 1999). The general belief in age in association with consumer behaviors is that young consumers perform more green consumer behaviors than older ones do and this is supported by many studies (Han et al., 2010; Rowlands et al., 2003; Straughan and Roberts, 1999). The most common argument for this is that those who have grown up in a time period in which environmental concerns have been a salient issue at some level, are more likely to be sensitive to these issues (Straughan and Roberts, 1999). Taking gender issue into consideration, the connection between sex and green consumer behavior is that women display stronger green consumer behaviors than men do and this again is supported by many studies (Chan et al., 2008; Diamantopoulos et al., 2003; do Paço and Raposo, 2010; Han et al., 2010; Laroche et al., 2001; Roberts, 1996; Straughan and Roberts, 1999; Tanner and Kast, 2003). The theoretical justification for this is that women will consider the impacts of their actions on others more carefully (Straughan and Roberts, 1999). Income, another variable under consideration here, is generally thought to be positively related to green consumer behavior (do Paço and Raposo, 2010; Rowlands et al., 2003; Straughan and Roberts, 1999). The most common justification for this belief is that individuals can, at higher income levels, bear the marginal increase in costs associated with supporting green causes and favoring green product offerings (Straughan and Roberts, 1999). In a similar vein, educational level is generally expected to be positively correlated with green consumer behavior as most related studies have found a significant and positive relationship between education level and green consumer behaviors (do Paço and Raposo, 2010; Diamantopoulos et al., 2003; Rowlands et al., 2003). The justification for this is that the better-educated tend to score higher on all components of the environmental domain since they understand the issues involved more fully and, hence, are more concerned about environmental quality and more motivated to participate in green consumer behaviors (Diamantopoulos et al., 2003). However, some researchers have illustrated a weak relationship between demographic variables and green consumer behavior (Akehurst et al., 2012). The use of traditional demographic variables, even though important, was characterized as inappropriate for identifying green consumers because of contradicting and inconclusive findings (Diamantopoulos et al., 2003; Leonidou et al., 2010; Peattie, 2001a)

#### b. Psychological factors

Much research has suggested a wide variety of psychological factors influencing green purchasing behaviors. They can be characterized as environmental knowledge, concerns and attitudes. Research regarding environmental knowledge and green consumer

<sup>1</sup> SERVQUAL denotes "Service Quality".

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