

## INTRODUCTION

For developing Developing attractive vehicles to increase sales has become a main primary objective among almost automobile manufacturers. Whether a vehicle's appearance which can captures a customer's attention is one of the key factors affecting a consumer's purchasing decisions, when once the functional and operational utilities of automobiles have fulfilled customer needs (Moulson & Sproles, 2000). In general, vehicles form a vehicle's design initially develops from outstanding the current designers' innovative experience and innovation, which tends to rapidly differentiate the automobile an automobile's shape from that of the competitor's vehicles. However, designers could can never be guaranteed of the market success of their distinguished ed design. An existed A widespread problem is that designers fail to objectively consider customer satisfaction and to reliably meet customer affective demands ofn the automobile design. Therefore, it is essential that enhancing to improve designers' understanding to of customer affective responses and developing so they can develop and systematically guiding guide vehicle form design to best meet consumers' actual and potential desires.

Several studies of product design have been investigated run to achieve a better gain more insight into a customers' affective level responses in order to develop appealing products to be and successful products (Hong, Han, & Kim, 2008; Hsiao, Chiu, & Lu, 2010; Lai, Chang, & Chang, 2005; Zhai, Khoo, & Zhong, 2009). The Kansei Engineering (KE) method is a significant research which because it initially introduced a cause and effect assumption in product design and that systematically translates translated customer feelings and demands into design elements (Nagamachi, 1995). The purpose of the KE method is to provide designers the with an explicit evaluation way of a method for product design by examining and clarifying the relationships between affective factors in consumers and design variables. However, in order to optimize a customer's affective satisfaction of with a product, researchers still have to face must take many restrictions in determining variables into account to determine a suitable KE methodology to evaluate ward target products.

In this paper, we aims at to providing a method adopted support vector regression that adopts Support Vector Regression (SVR) for evaluating to evaluate affective responses to green technology cars, in order to determine consumer preferences and to promote further understanding among designers; of the psychological consumer needs that should be fulfilled by a product. The paper is structured as follows: Section 2 reports a related literature review of the current KE method. Section 3 proposes a description to

### 註解 [Editor1]:

Golden English Editing  
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### 註解 [Editor2]:

CHECK: Consider using the word 'affective' only to describe the responses, as the word seems best used to describe emotional results and responses ("effects") from consumers in this study. I thus recommend deleting the word "affective" here.

### 註解 [Editor3]:

CHECK: Do you mean "because it introduced **for the first time** a cause and effect..."? If you say "initially introduced", I will think that the KE method first introduced a cause & effect assumption, and second introduced another assumption, etc.

### 註解 [Editor4]:

CHECK: Consider using the word 'affective' only to describe the responses, as the word seems best used to describe emotional results and responses ("effects") from consumers in this study. I thus recommend deleting the word "affective" here.

### 註解 [Editor5]:

CHECK: Please verify that this edit retains your meaning. Writing about the variables to take into account, rather than the restrictions, provides a positive and natural link with the next paragraph to readers.

~~construct~~includes a proposal for construction of a method based on the SVR prediction model. Section 4 ~~demonstrates~~reports the experimental results by analyzing samples collected from the market, using green technology cars as examples. Finally, ~~in~~ Section 5 offers conclusions and suggestions for future study ~~are reported~~.

### Overview of Previous Works

The KE method introduces several useful applications for product design and ~~demonstrates~~provides a potential advantage for product development. Nagamachi (1993) first suggested a KE approach ~~could~~should contain ~~several~~the following steps as ~~follow~~: target product selection, adjective collection, adjective definition understanding, emotional assessment, statistical analysis, and ~~an~~ expert system establishment. Based on previous KE studies, Schutte, Eklund, Axelsson, and Nagamachi (2004) point out ~~the common procedures of~~common to past KE studies ~~including~~, which include choosing the product domain ~~chosen~~, surveying the ~~space~~ survey of semantic ~~and product~~ and other properties of a product, and ~~synthesize~~synthesis of these elements.

For evaluating the description of affective quality, Hsu, Chuang, and Chang (2000) propose measuring the cognitive gap ~~of~~between the affective responses to adjectives in a product description ~~with adjectives between~~ from designers and customers, in order to further understand the affective impact adjectives used in ~~affective evaluation of~~ a new product design may have. Two categories of adjectives can be used to describe affective attitudes (Lamb & Kallal, 1992): aesthetic attributive adjectives, which are ~~regard as~~ more appropriate to describe ~~product~~ how appealing a product's appearance is, or aesthetic style, as ~~these adjectives correlate~~ expressive attributive adjectives, which correlate closely with various product characteristics (Chen, 1997; Wang, 2009). ~~Due to a lack of design knowledge and skills, general consumers often encounter the barrier to~~ cannot completely ~~interpret the~~ understand intricate or very innovative product shapes ~~of highly diversity~~ or their aesthetics (Hsu, Chuang, & Chang, 2000). ~~So,~~ it is easier for consumers to express their perceptions of a product's appearance using expressive attributive adjectives ~~compared to~~ than using esthetic attributive adjectives ~~are relatively easy to customers to express their perceptions of a product look~~. For this reason, expressive attributive adjectives provide researchers with a more effective evaluation method for investigating customer affective responses toward a target product.

#### 註解 [Editor6]:

CHECK: Please verify that this edit retains your meaning: specifically, that this reference is a survey of past KE studies, not a prescriptive paper for future studies.