



Development of a web-based survey system for evaluating affective satisfaction

Youngseok Cho, Jaehyun Park, Sung H. Han^{*,1}, Sungjin Kang

Department of Industrial and Management Engineering, Pohang University of Science and Technology (POSTECH), San 31, Hyoja, Pohang 790-784, Republic of Korea

ARTICLE INFO

Article history:

Received 5 March 2010

Received in revised form

14 January 2011

Accepted 25 January 2011

Available online 5 March 2011

Keywords:

Affective satisfaction

Web-based evaluation

Mobile phones

ABSTRACT

The concept of affective satisfaction is used to measure subjective feelings or impressions toward a product and to provide designers with knowledge about how well users are affectively satisfied. Numerous studies of affective satisfaction toward mobile devices have been conducted in laboratory environments. However, evaluating affective satisfaction whenever a new product is designed can be expensive. Therefore, this study proposes a method to develop a web-based survey system for evaluating affective satisfaction. A case study evaluating the affective satisfaction of thirty mobile phones was conducted by more than three hundred participants. The multiple linear regression technique was applied to build the relationship models between affective satisfaction and design features of the mobile phones. The proposed method can be used for a guideline to evaluate the affective satisfaction over the internet. Moreover, designers can use this method in product families other than mobile phones.

Relevance to industry: The results of this study can be used to evaluate affective satisfaction of consumer electronic products efficiently. Moreover, designers can get feedback on their prototypes of products through analyzing the evaluation results.

© 2011 Elsevier B.V. All rights reserved.

1. Introduction

Affective design features of consumer electronic devices are regarded to be just as important as functionalities of the devices (Han et al., 2000; Suri and Marsh, 2000). Except in a few cases, competing consumer electronic devices have similar functionalities. Thus, design features such as the color of buttons or the size of a display are among the most critical factors that influence users' purchase decisions (Chang and Wu, 2009).

The concept of the affective satisfaction can help product designers to design features that satisfy users' affect (Jordan, 1998). Affective satisfaction can be defined as users' subjective feelings perceived while experiencing products (Han et al., 2001; Hong et al., 2008). Many studies of affective satisfaction have been conducted to develop or improve relationship models between subjective feelings of the users and design features of the products (Artacho-Ramírez et al., 2008; Han et al., 2000; Hsiao et al., 2008; Huang et al., 2011; Kim and Han, 2008; Kwahk and Han, 2002; Nagamachi, 2002). Product designers can get feedback about how their design features affect user satisfaction by interpreting the relationship models.

A variety of studies have been conducted to assess affective satisfaction of mobile phones. Han et al. (2004) identified design features of a mobile phone critical to affective satisfaction. A component (e.g. button, display panel, and body) and property (shape, size, color, and material) matrix was used to develop dozens of design features such as 'shape of mainly used button' or 'ratio of display width and height'. Prior to this, Yun et al. (2003) reported that design features are closely related to the perceived satisfaction of the users. The perceived satisfaction was collected by image/impression characteristics including luxuriousness, simplicity, attractiveness, colorfulness, texture, delicacy, harmoniousness, salience, rigidity, and overall satisfaction. Seva et al. (2007) investigated whether emotion experience of the mobile phone user influences purchase intention. This study defined the emotion experience as pre-purchase affect (i.e., amazed, content, encouraged, hopeful), and revealed pre-purchase affect strongly influences purchase intention. Note that, the results also demonstrated a significant relationship between design attribute of mobile phones and pre-purchase affect. In addition, Hong et al. (2008) proposed a multiple response surface (MRS) approach for consumer product designs. As a case study, optimization results were obtained for design features of mobile phones, which increased affective satisfaction dimensions drastically.

However, the above-mentioned studies have the critical drawback that they evaluated affective satisfaction in a laboratory setting. This type of evaluation might not be feasible or practical

* Corresponding author. Tel.: +82 54 279 2203; fax: +82 54 279 2870.

E-mail address: shan@postech.edu (S.H. Han).

¹ Currently at Penta Security Systems, Inc.