

A Study of Emotional and Rational Purchasing Behavior for Online Shopping

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Abstract. Emotion has gained much attention in product design over recent years. It is not surprised that the aesthetic appeal may determine the fate of a product, namely its success or failure in the market. Unlike the traditional marketing channel, websites provide a different opportunity for promoting the products to the potential customers who may know the products via a computer mediated website and its user interface. Previous studies have shown that website design features and usability can influence the willingness of the purchase. However, whether the product characteristics on the websites and the customers' attitudes (emotional thinking vs rational thinking) will affect the purchasing behavior is still unknown. In this study, the influence of the emotional appearances of the websites and the product characteristics as well as the user characteristics to the purchase behavior was examined. The findings suggest the emotional web appeal may not be able to affect the thinking style which may further enhance the purchasing intention of specific products. Further study on web appeal and web design strategies may be needed to identify and attract online customers.

Keywords: E-commerce, Emotional decision, Web appeal, Purchase behavior.

1 Introduction

According to Forrest Research, the US Internet commerce was 16.5 billion dollars in 2001, and expects to reach 35.1 billion dollars in 2011. As this growth continues, there is increasing interest and needs in understanding issues regarding online consumer behavior. Indeed, the online sales environment is different from the traditional market in which the face-to-face contact and the direct experience of the transaction are required in making purchase decisions. In the electronic commerce, or e-commerce, the buying and selling of products and services is computer mediated. Medium characteristics, consumer characteristics and product characteristics are important group factors to online consumer behaviors [2]. Among others, design elements are one of the major attributes of the medium characteristics. The purpose of this study is to identify what design strategies should have to enhance consumer's purchasing intention by examining the interaction of emotional on web design and product and consumer characteristics.

2 Background and Research Proposition

Emotional and rational paradigms can apply in many different aspects of consumer decision-making process. From determining of the product characteristics to evaluation of the advertisement effectiveness and to understanding the styles the consumer process product information, some models were used for developing the strategies to attract consumers.

2.1 Rational and Emotional Paradigm on Product Type and Advertisement Appeal

The consumer's purchasing decision making process can vary widely among products. Vaughn [14] reviewed Foot, Cone, and Belding's FCB model, by which products were categorized with two different dimensions: involvement (high/low) and rationality/emotionality (think/feel). From these dimensions of FCB model, any product purchasing decision can be classified into one of the following four types, i.e., think/high, think/low, feel/high and feel/low. Typically, think/high products include large appliances, home appliances etc. Feel/high products include fashion, jewelry and apparel, etc. Products such as foods, drugs and house cleaning belong to think/low categories, and those which can help to create little personal pleasure, such as beers and desserts, are of feel/low group. Reliable measurement of FCB dimension was developed [11] and the scales were used to test candidate products in order for insuring the proper choice of product type.

On the other hand, appeals are used to enhance the attractiveness of products. Appeals in product advertisement can be considered as either emotional or rational [13]. Rational appeals can be seen as informative in nature and may be exemplified with information such as product components, availability, nutrition content, package details, price/value position, etc. Emotional appeals can be seen as psychological in nature and may stimulate either negative or positive emotion that changes purchasing desire [4]. It was hypothesized that the type of appeals works better when matching the type of products. The result of the study did show that the rational appeals work best for the thinking products and emotional appeals are more appropriate for feeling products.

2.2 User Characteristics

User characteristic will lead to variations of which people respond to an advertisement appeal. It was argued that when exposed to the same amount of emotional stimuli, people who are more emotional oriented will respond with a higher level of emotionality [7], and people who enjoy thinking more will process and evaluate the advertisement more deeply [10]. Based on the above findings, it is expected that the similar effects of the advertisement appeal will also be found for the web appeal. Thus, the following hypothesis was formulated.

H_1 : People who process information by feeling (the feelers) are affected by the emotional web appeal and people who process information by thinking (thinkers) are not affected by the emotional web appeal.

2.3 Web Design

Web design plays an important role in online shopping. Fogg et al. [5] found that 46% of online consumers would judge the site's credibility based on the impression received from the web design. Like traditional retail channel, the atmosphere of web site is considered important for attracting and retaining online customers; therefore, the similar effects of real shop atmosphere are expected. [9]. This study expected the emotional web appeal would work in the same way as emotional advertisement appeal did for feel type products. The following hypothesis was formulated, accordingly.

H_1 : Enhancing the emotional atmosphere of the web appeal will also enhance the emotional response of consumers to the feel type products.

3 Methodology

3.1 Experimental Design and Subjects

A test was conducted in the laboratory in order to find out if the hypotheses were acceptable. There were 32 participants whose ages ranged from 20 to 29 with gender balanced in this study. According to a survey done by Market Intelligence Center (2006), 56.9 percent of Internet users in Taiwan belonged to this age group. The participants were recruited from graduate students at the Department of Industrial Engineering and Engineering Management in National Tsing Hua University.

A $2 \times 2 \times 4$ experiment design comprising of 2 levels of web appeal (low/high) and 2 levels of user's information processing style (thinking vs. feeling) and 4 levels of product types in FCB models were used in this study. User's information processing style and web design are between subject variables. Subjects of different information processing style groups were randomly assigned to either one of web design condition.

3.2 Manipulation of Web Design

In order to create different levels of emotional web appeal (low and high), five design experts were interviewed. Experts suggested including animated pictures and scenario images on the website to stir up the consumers' positive emotional response. They also addressed that animation should be used carefully, since it only attracts consumers at their first visit and may reduce the efficiency of the webpage. They also addressed that the structure of the web design should be the same as those online super stores. This would also be essential for the acceptance and the trust by online consumers. The two levels of web appeals were created based on the expert's comments, and both had the same page layout, product categories, tools, navigation structure and the same amount of information. The differences were the heading design and advertisement shown on the main page. The low emotional web appeal design was informative oriented (the web logo in the heading part and product image advertisement) and the high one showed more emotional tendency (the animated heading design and scenario type holiday advertisement). The colors of web were also considered because colors may produce emotional effects on people and, in general,

warm colors are believed to be more exciting than the cold colors do. The orange color was selected for this experiment, since it could evoke emotions regarding home and make people feel comfortable [6].

3.3 Experimental Procedure

In order to classify subjects by their information processing styles, they were asked to answer the need for cognition (NFC) and the preference of affect (PFA) scales before the actual tests were started. This was due to the facts that construct of NFC has been found to be reliable for distinguishing individuals who enjoy more thinking [1] while the PFA has been proved also reliable for measuring the affective processing [12]. Only subject shows high thinking processing style (high NFC scores and low PFA scores) and high feeling processing style (Low NFC scores and high PFA scores) were interested and included in our study.

In the beginning of the test, subjects were exposed to one of the web appeal (low/high) then answered items related to their attitude toward the web design. Subjects rated each item on a scale of 1 to 7, where 1 represent to “strong disagree” and 7 is strong agree. Items about receiving of pleasant, attractive, pleased feeling, easy to use and willingness to buy product in the web were included for manipulation checking of web appeal.

After subjects answered those questions, they were given a short introduction about the next task. They were asked to find the specific product (NB->Think/high, watch->feel/high, battery->think/Low and cake->feel/low) each time and performed memory tasks after view the product page for 2 mins A free- recall task is used to measure the memory in this study. Since previous research shows that pleasant material is associated with the increase of memory capability. We believe an emotional web appeal should increase the positive emotional response of people (make them more pleasant) and then to increase their memory capability. Subjects were given a maximum of 5 mins to complete the free- recall task, and after that they were told to record the product information as many as possible. Subjects need to go through all the 4 products, and the order of products were followed by the latin-square design rule to reduce the ordering effects. Further, subjects were asked to reconstruct the layout and graphics of the home page of the web sites. They were informed to draw everything they have seen. Finally, the demographic data of subjects were collected.

4 Result

The result of ANOVA showed that no significant difference was found in terms of pleasure, willingness to buy and easy to use regarding the low and high web appeals. The manipulation of web appeals did not work well enough as expected. The animated heading design and holiday advertisement only slightly increased the positive responses. For the attitude toward web attractiveness, the interaction is significant. ($F=9.239$, $P=0.005$). It was observed that feelers' opinions were opposite to those of the thinkers. The manipulation of emotional web appeal did work in attractiveness for feelers, however, it created negative responses to thinking style people.

For the memory tasks, the total items recalled did not show major difference on either user type or product type. The persuasive communication effects of emotional type advertisement were not found with the emotional web appeal.

The result of recalled tasks of the web design elements are shown in the Table 1.

Table 1. Percentages of subjects who correctly recalled the web design elements in the two levels of web condition

Item	Low (% of users)	High (% of users)
Name of web	44%	35%
Color	75%	56%
Heading design	19%	44%
Main advertisement	31%	81%
Wordings used in the heading	31%	50%

The animation and scenario type advertisement did increase awareness of some subjects, however, it was not the case for recalling the name of the web and the color used.

5 Discussion and Conclusion

The result shows that no strong relationship between emotional web appeal and purchasing intention of emotional consumers, which are measured by better memory on the product information. The result and conclusion can be highlighted as below.

1. Consumers spend much less time in online shops than traditional channels. When they visit the super stores, they usually focus on searching the product information and therefore pay less attention to the web appeal. And unlike the advertisement appeal are directly contribute to the product promoting, the web appeal is indirectly contributor.
2. The result of manipulation check shows only slightly effects on the design manipulation. And in order to remain certain structure of web super stores, the available areas for manipulating web appeal is limited. Although animation heading design and scenario advertisement did increase the percentage of subjects correctly recalled. However, it did not make people feel the web more attractive and pleasant to visit. We should seek for more effective way and correct to enhance the emotional web appeal. Furthermore, the result of subject attitude of attractiveness also implies the fact that we know only little about what design strategies can enhance purchasing intention of consumers. And it might be related to the information processing style with which works for feelers but may not be necessarily the same for the thinkers. Further research requires to identify successful manipulation of emotional web appeal for different information processing style people.

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