

# The Effect of Chronic Regulatory Focus on Online Review and Information Search Behavior by Using Web Log Data

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**Abstract.** As the consumers who search for information of product in online website increase continuously, more researches are needed to give an insight into the information searching behavior of online consumers. This research investigates the effects of regulatory focus on information search behavior in consumer decision making in the context of online shopping. In order to research the online searching behavior of consumer in more practically, we used web log analysis by developing web log collecting program which can be adapted to present online shopping website. As a result of the study, we found three primary findings. First, prevention focused consumers are more likely to search for online reviews than promotion focused consumers. Second, compared to consumers with prevention focused, promotion focused consumers have a tendency to search for more alternatives with various product web pages. Finally, prevention-focused consumers tend to devote relatively greater time and efforts at a local level of information which provides details about products. This study not only provides us with a cohesive view of online consumer behavior, but also serves as a guideline for building an online marketing strategy.

**Keywords:** regulatory focus, online information search, online shopping, eWOM, alternatives, construal level

## 1. Introduction

More people than ever before are using the web to shop for a wide variety of items, from houses to airplane tickets. Under these conditions, it is greatly meaningful for online businesses to comprehend how consumers search for product information and behave in online shop. For this reason, a large number of companies are recently observing and analyzing consumers' searching activities in online taking advantage of new technology and methodology such as eye tracking and web log analysis. However, in order to investigate the online consumers' shopping behavior in depth, they should not only adopt a new technology but also consider psychological and motivational factors which derive consumer's behavior.

In this point of view, this research investigates the relationship between online information search behavior and psychological factors, chronic regulatory focus. According to the regulatory focus theory, two types of regulatory focus can be distinguished: a promotion focus which emphasizes approach oriented strategies and a prevention focus which emphasizes avoidance oriented strategies(Pham and Chang 2010). There are substantial prior researches pointing out that consumers show different behavior patterns depending upon which regulatory focus they have chronically, and that regulatory focus is a significant indicator for understanding how consumers behave in life.

The purpose of this study is to explore online consumers' searching activities based on the self regulatory focus theory. Furthermore, in order to analyze them more objectively and practically, we used web log analysis after collecting log data from online panel.

## 2. Theoretical Overview

### 2.1. The Relationship between Regulatory Focus and e-WOM Search

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Although there are many ways of classifying goals, self-regulatory theory by Higgins(1997) distinguishes between two major categories of desired goals : promotion focus related to advancement and growth and prevention focus related to safety and security. These two focuses are distinct not only in the types of goals and needs that they regulate, but also in the types of strategies that they invoke to fulfil the goals and needs. For example, the promotion focused person relies primarily on approach strategies to seize of opportunities while prevention focused person relies primarily on avoidance strategies to achieve protection and security goal. Prior researches suggest that promotion and prevention modes of self-regulation appear to foster different patterns of exploration and different attitudes in overall behavior.

Electronic Word of Mouth(e-WOM) is an important external clue to help consumers to make a purchase decision(Kim and Kim 2010). Although online consumers generally spend bags of time and a great amount of energy searching for e-WOM, degree of efforts spent on e-WOM searching is influenced by chronic regulatory focus consumers have. Since desire for external information is different between promotion and prevention modes. States of promotion have been found to encourage the reliance on internal inputs as opposed to external information, whereas states of prevention have been found to produce the reverse(Pham and Avnet 2004). Compared to promotion focused consumers who individually tend to make a decision based on their own mood, prior experience, and judgement, prevention focused consumers tend to decide more analytically, considering not only internal information but also external information such as public materials and others' opinions(Pham and Avnet 2004; Florack, Friese, and Scarabis 2010). Moreover, prevention focus consumers are inclined to have a more sceptical response to the advertiser's manipulative intent than promotion focus consumer(Kirmani and Zhu 2007). It is because prevention people have a lower threshold for manipulative intent than do promotion individuals. They increases vigilance about commercial advertisement and ambiguous persuasion attempts by sellers. However, e-WOM has greater influence with potential consumers due to that it includes relatively less manipulative persuasion(Herr, Frank, and Kim 1991). Thus we predict that consumers with prevention regulatory focus will tend to search for e-WOM much more actively than those with promotion regulatory focus.

H1. Prevention focused consumers will search for more e-WOM than promotion focused consumers.

## **2.2. The Relationship between Regulatory Focus and the Number of Alternatives in Online Search**

Promotion focused consumers are oriented toward accomplishment and growth that they tend to adopt an approaching strategy. It is enormously important for them to avoid errors of omission and get profits. In the contrary to this, prevention focused consumers are oriented toward safety and security that they aim to ensure correct rejections and to avoid errors of commission(Bodur and Matyas 2008; Lee, Keller, and Sternthal 2010). Due to this tendency, although prevention focus seems to trigger a drive to protect against potential threats, promotion focus seems to trigger a drive to capture as many existing opportunities as possible. That is, consumers with promotion focus prefer to compare and decide among many alternatives to enhance chances of achieving gains, whereas consumers with prevention focus tend to stop at the choice that meets their requirements and narrow down range of alternatives not to make a mistake(Crowe and Higgins 1997).

Based on prior research, we expected that different types of regulatory focus may show different information searching behavior in the regard of choosing alternatives when they shop in online. In online shopping mall, alternatives mean the product web pages which contain product information available for consumers to judge the value of product. Thus, we argue that promotion focus consumers may get on as many product web pages as possible, however, prevention consumers may access less product pages than promotion consumers since various alternatives can increase possibility for them to make a wrong decision.

H2. Promotion focused consumers will tend to have more alternative web pages compared to prevention focused consumers..

## **2.3. Relationship between Regulatory Focus and Search for Low Level of Information**

Many consumer decision making environments are organized hierarchically. For instance, restaurant menus are organized by courses and types of dishes within courses. Pham and Higgins(2005) suggested that in such hierarchically structured environments, promotion focused consumers tend to search for information in a more global manner while prevention focused consumers tend to search in a more local manner. In addition, Lee et al.(2010) also suggests that promotion focused individuals tend to process information more globally while prevention focused individuals tend to process information more locally. It is because global information searching enables promotion focus to achieve their advancement and growth goal by facilitating the identification of opportunities and reducing omission error. In contrast, local searching facilitates the avoidance of mistakes, a primary concern under prevention focused vigilance, by enabling an examination of the considered options.

Web site provides information hierarchically, high level of web pages which contain broad information about overall product and low level of web pages which contain specific information for product on sale. Usually, high level of web pages is list page showing all products categories and low level of web pages is a product web pages all product information is provided. Based on prior research, our view is that individuals with a prevention focus are likely to construe information more actively at a low level of information in web pages compared to promotion focus. Therefore, at low level of information which include specific information about products, prevention focused consumers would devote a greater share of their search efforts than promotion focused consumers, spending more time and showing more active click movement.

H3. Prevention focused consumers may spend more searching efforts at low level of information web pages compared to promotion focused online consumers.

### **3. Research Design**

#### **3.1. Method**

We conducted an experiment to examine the differences in online shopping behavior between promotion focused and prevention focused consumers. In order to verify this, we developed a web log collecting program which is a useful technology to investigate online shopper's activities. It provides information about site visitors' activity statistics, accessed pages, amount of time spent on each page and more. Thus, we designed an experiments based on a web log collecting methodology, targeting university students who are familiar with online shopping. During 44 days, 588 participants participated in our experiments.

After installing web log program in their computer on their own, participants were asked to sign up and answer for a few questions such as age, sex, job and so on. Importantly, we also asked participants to rate the chronic regulatory focus questions in this process. And then finally, they go online shopping ([www.11st.co.kr](http://www.11st.co.kr)) which is the most famous online shopping mall in Korea. While they are on shopping, log web program recorded every page that participants clicked and the length of time spent on each page. And participants are allowed to shop for up to 2 hours.

We allowed participants to shop any products which they want since we could get the date of consumers' realistic online shopping behavior. Instead, since we cannot exclude the potential influences of shopping items on experiment results, we narrowed down the range of products from fashion categories(eg. Clothes, bags, shoes, etc.) to electronics(eg. laptops, external hard drives, etc.) which university students usually enjoy shopping.

#### **3.2. Measure**

To test hypotheses, four measures of participants' information search patterns were constructed: (a) the number of e-WOM clicked to check, (b) the number of product web pages opened to find out detailed product information, (c) the average length of time spent viewing low level of information pages in which the most specific information are provided, (d) the average number of click activities in the low level of information pages in which the most specific information are provided.

Table 1: operational definition of main variable

Variable	Operational definition
e-WOM(electronic word of mouth) search	The clicked number of e-WOM (The number of product reviews clicked by participants)
the number of alternatives	The total number of product web pages accessed by participants
preference for low level of information	The average amount of time spent and the average number of click activities at low level of web pages which include specific information for product on sale

## 4. Results

<Hypothesis 1> states that prevention focused online consumers will search for more e-WOM than promotion focused online consumers. In order to test the hypothesis, we analysed ANCOVA(Analysis of Covariance) with the index of chronic regulatory focus as independent variable and the number of e-WOM clicked as dependent variable. Shopping mall familiarity, online shopping familiarity, and sex was put in to ANCOVA as covariate variable. Analysis showed that the effects of regulatory focus on the number of e-WOM clicked was statistically significant( $F(1,583)=15.04$ ,  $p<.001$ ). As predicted, prevention focused consumers( $M=6.71$ ) clicked more e-WOM than promotion focused consumers( $M=5.07$ ). And covariate variables such as shopping mall familiarity, online shopping familiarity, and sex seem to affect the results.

<Hypothesis 2> is about the relationship between chronic regulatory focus and the number of alternatives in online shopping. We expected that promotion focused consumers will have more alternatives compared to prevention focused consumers, since more alternatives enable to satisfy their growth goal. As mentioned above, participants with promotion focus( $M=7.54$ ) accessed to more product web pages than participants with prevention focus( $M=6.71$ ) indicating that promotion focused consumers consider a greater number of alternatives than did prevention focused participants( $F(1, 583)=7.199$ ,  $p=.008$ ). But, likewise the results of hypothesis1, all of covariate variables seem to correlate with the results.

Finally, to evaluate the sheer amount of search effort that promotion and prevention focused participants devoted to the low level of information pages, the average length of time and the average number of clicks were analyzed as dependent variable in ANCOVA and same covariate variables were considered. Consistent with <Hypothesis 3>, compared to participants with chronic promotion focus( $M=1.64$ ), participants with chronic prevention focus( $M=2.22$ ) devoted a relatively more time at the low level of information web pages( $F=(1, 583)=9.195$ ,  $p=.003$ ). Correspondingly, prevention participants( $M=5.27$ ) showed more active click activities at low level of information web pages than promotion participants( $M=4.54$ )( $F=(1, 583)=7.348$ ,  $p=.007$ ). And any covariate variables are uncorrelated with this result. Thus all of hypotheses were consistent with our expectations.

## 5. Conclusion

This study investigates the relationship between chronic regulatory focus and online consumer behavior, using the web log data. Results indicate that online search strategy could vary depending on whether consumers are chronically prevention focus or promotion focus. According to the results, prevention focus consumers tend to look for as many e-WOM as possible, referring a lot of reviews made by other consumers. It means that they are relatively sensitive to the opinions of other consumers since it can minimize the possibilities of making a wrong purchase decision. Instead, they seem to have a tendency to search for fewer alternatives than promotion consumers when they shop in online. Since comparison of many options could increase the difficulty of making correct rejections. Thus, although e-WOM is reviewed more actively by prevention focus consumers, those who access as many product web pages as are promotion focus consumers. Also, regulatory focus influences on preference of the level of information. What we found in this study was that compared to promotion focused consumers, prevention focused consumers are inclined to devote a greater proportion of their search at the low level of information, both in terms of time spent and the number of clicks at low level. These differences are expected to be derived from the fact that low level of information fits to the safety goal of prevention consumers, providing them with specific information such as product feature, image, profile of seller and so on.

The present research has a theoretical contribution for expanding the prior study by analyzing different behavior of online consumer derived from regulatory focus. Especially, it is meaningful that the study practically examined hypotheses through a web log program. Moreover, the study has implications for building online marketing strategy. It is recommended that site layout and information suggestion consider the consumer's regulatory focus. It means that for promotion consumer, the recommended alternatives should be offered as much as possible. But for prevention consumer, it will be better to design web layout enables them to search for e-WOM and product details easily, rather than offering and recommending excessive alternatives.

Although the research gives several implications as above, it also has many limitations. First, we need to consider more various determinants which can affect on the online consumers' behavior such as experience, characteristic of shopping item. Particularly, since covariate variable we consider in the analysis was statistically significant, further researches are necessary to identify them. Second, while the present research examined information search strategy in terms of the number of e-WOM clicked, the time spent on pages and so on, additional dependent factors need to be examined, for instance, purchase intention, use of shopping cart, brand image, and the time required to make purchase decision. Finally, we only focused on the low level of page in hypothesis 3. But not only low level of information but also high level of information pages are should be examined and compared each other in future research.

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