A Study of Appeals and Argument Types on Web Advertisement

Huei-Chen Hsu  Shu-Min Hsu

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Abstract

The model of belief processing provides insights into cognition that can increase our understanding of how patients process the information presented in these advertisement and from beliefs about medication. By using an online environment database along with individual advertising exposure, this study was conducted to measure the effect of sidedness of appeals and argument types in understanding beliefs that are formed after exposure to advertisements. A 2(1-sided vs. 2-sided appeals) × 2(casual vs. authoritative arguments) factorial MANOVA experimental design was used to guide the research design. A total of 620 Internet users completed the questionnaire after presented a negative scenario. The dependent measures included belief change, change in intent to inquire, and standardized price change. We find the significant relationships between these variables and dependent variables and support the hypothesized tests. Managerial implications for the user of these ad execution cues are discussed and future research suggestions are proposed.

Keywords: Advertising Appeal, Advertising Argument, Web Advertising Belief

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Introduction

The twenty-first century is shaping up to be a knowledge-driven society in which the basic economic resource is not materials, labor, or capital, but knowledge (Drucker, 1993). No wonder the Internet is becoming a helpful hand to business when it comes to marketing and sales development. Likewise, market-relating skills, such as brand and image building, marketing communications, customer service, and loyalty program, will continue to be salient. Successful networks will be more customer-focused and market-driven and will deliver better value and satisfaction than ever before.

While Web advertising appears to be the most important influence on the future of the advertising industry over the next ten to fifteen years (Ducoffe, 1996), advertisers are uncertain about its effectiveness. As online shopping creates new market opportunities, businesses can have a better grip of consumer behavior through the Internet and respond quickly to each individual consumer as consumers browse through the Internet advertisings and purchase items they need.

Despite the increases research investigate the online advertising and information-processing environment (Wang et al., 2000; Vakratsas & Ambler, 1999; Papacharissi & Rubin, 2000), many questions remained to be addressed. Undoubtedly, as advertisers contemplate the value of investing in banner ad, it would be helpful to understand how banner ad appeal affects Web browsers’ attention to the ad, as well as belief toward the Web advertising.

Past research in the area of appeal effect can be explained through different psychological processes and factors, among them: interest in the subject, overall involvement, and attitude strength (Kardes & Herr, 1990). Yet those studies have analyzed the impact of variation in the format of risk disclosure on consumers’ perceptions of attitude in print ads. Empirical knowledge about the impact of Web ad is still emerging. Our study attempts to gain an understanding of the influence of message presented in the Web ad on consumers’ beliefs.

We choose the health-care medication as the advertised Web ad. For it includes both the benefits and risks; therefore, the ad messages are essentially 2-sided
promotional appeals in which positive and negative product information is emphasized. The inclusion of data to support claims in 2-sided appeal in message results in beliefs that are more resistant to change in the face of contradictory of belief formation (McCroskey, 1967; West et al., 2004). This phenomenon is described using the theory of belief formation, according to which beliefs formed based on the casual evidence presented in the form of arguments are stronger and therefore more resistant to “attack” than beliefs formed based on unsubstantiated claims.

Two-sided appeals can be considered as a promotional message strategy. Additionally, the arguments used to persuade the target audience can be viewed as elements within that message strategy. The purpose of this study was conducted to measure the effect of sidedness of appeals and argument types in understanding beliefs that are formed after exposure to advertisements. Given that subjects are presented with contradictory information in the form of experiences with the medication and competitive advertising, it is valuable to understand the fundamental aspects of belief tenacity (the ability of the beliefs to withstand contradictory information) in the context of Web advertising.

**Background Literature and Hypotheses**

The Internet is a unique medium that differentiates itself from other advertising media with its interactive capacity in facilitating the communication process. Recent studies of online consumers now conceptualize them as active seekers of product related information. Such as Brunel & Nelson (2003) pointed out that “In an interactive context, consumers have more influence on the information processes and on subsequent marketing communications by searching for, selecting, processing, using and responding to information.

To explain the concept of “Consumers’ Information Processing” in more details, we have these theories exerted in following sections.

**Elaboration Likelihood Model (ELM)**

According to the ELM (the elaboration likelihood model of persuasion is a theory about the processes responsible for yielding to a persuasive communication and the strength of the attitudes that result from those processes), there are two different persuasion routes that consumers follow when they come across
persuasive communication: (1) the central route and (2) the peripheral routes. When consumers having high involvement (personal or situational) or high MAO (Motivation, Ability, and Opportunity) to process communication, they are willing or able to exert a lot of cognitive processing effort which called high elaboration likelihood. In this situation, central cues such as existing beliefs, argument quality, and initial attitude are important in determining persuasion effects (i.e., enduring positive attitude change or boomerang effects). In contrast to high MAO situations (high involvement), when MAO is low, consumers are either not willing or unable to exert a lot of processing effort. In this low elaboration situation, peripheral persuasion cues such as attractive sources, music, humor and visuals are determining factors of persuasion effects (a temporary attitude shift or retaining the initial attitude).

The ELM assumes that the very first stage of the persuasion process is awareness through advertising exposure. Whether an individual will follow the central or peripheral route to persuasion is determined by the likelihood of elaboration, which, in turn, is influenced by the individual’s motivation and ability to process. Petty et al. (1983) define motivation and ability in terms of their antecedents. Some antecedents are situational factors, whereas others are individual factors. Some variables influence the extent of information processing, whereas others tend to influence the direction of thinking (i.e., objective or biased processing). Factors that enhance processing motivation include perceived personal relevance, need for cognition, increased number of message sources, and personal responsibility for evaluating the message.

**Advertising Appeals**

Gaining consumers’ attention and generate favorable attitudes are two key advertising objectives. An important issue is the design and appeal of advertising message. One of the fundamental elements related to advertising strategies was the selection of an appeal (Turley & Kelley, 1997). Past research has indicated that effectiveness of advertising appeals depended on types of advertised products (Turley & Kelley, 1997; Aaker et al., 1992).

**2-sided message appeals**

Previous research uses a physiological analogy to explain resistance to
counter-persuasion using 2-sided message appeals (Ahn & Edwards, 2002). They suggest that pre-exposure to counter-arguments (negative information) makes a person aware that his or her beliefs are vulnerable to attack and reduces the impressiveness of subjects are impressiveness of subsequent counterarguments. Thus, subjects are pre-exposed to potential counterarguments, thereby bolstering their negative views.

Ahn & Edwards (2002) investigated resistance to persuasion in an advertising context. The results suggested that if advertisers were aware of claims that their competitors were likely to attack, they would obtain greater resistance to the attack by adapting their advertising strategy to use 2-sided ads rather than 1-sided ads.

Ahn & Edwards (2002) used 1-sided (only positive information) and 2-sided (positive and negative information) comparative advertising appeals for new product introductions to determine the impact on consumers’ attitude in absence of prior belief. The opposite of the “boomerang effect” was obtained and was consistent with earlier studies in a higher initial belief (Darely & Smith, 1995). They measures belief change in subjects exposed to 1-sided, 2-sided refutation, and 2-sided non-refutation appeals, where 1-sided appeals were defined as those that presented only supportive claims about the product, 2-sided refutation appeals were those presenting negative claims in addition to positive claims about the product and at the same time refuting these negative claims. The results showed that beliefs were significantly more resistant to attack when subjects were exposed to 2-sided appeals than 1-sided refutation appeals.

How to attract online consumers’ motivation depends on the advertising appeal and the effects. This issue is particularly important for Internet advertising because many scholars pointed out that average click-through was about 1% (Rossiter & Bellman, 1999). Rapid development in the online retailing industry has led to a wide variety of products and services available on the Internet. As a result, Internet advertisements employ 1-sided/2sided advertising appeals are common practices by Internet advertisers nowadays.

If the belief of an individual exposed to a 2-sided appeal is likely to be more resistant to change following an “attack” condition than that of an individual
exposed to a 1-sided appeal, in this case, this implies that the result may actually be beneficial to marketers because it results in belief about the product that are stronger and therefore less likely to collapse.

**Theory of Belief Formation and Argument Types**

The theory of belief formation has been used to study the influence of argument structure on the persuasiveness of the advertising message (Brunel & Nelson, 2003; Darley & Smith, 1995). The theory suggests that appeal arguments have six components: data, warrants, claims, backing, qualifiers, and rebuttals (Figure 1: six components of appeal arguments).

The claim is the proposition being argued by the communicator. Data are the facts advanced in support of the claims, and warrants are the assumptions that connect the data to the claims. In addition to these integral components of an argument, there are three optional components: backing, rebuttal, and qualifier. The backing of an argument is used to support the warrant and justify the connection between the data and the claim. The part of the argument that provides the reasons why the claim may not be true is called the rebuttal. The qualifier is an explicit acknowledge of the uncertainty of the argument (e.g., sometimes, probably and maybe).

![Figure 1 Six Components of Appeal Arguments](source: Toulmin (1958))

For marketing applications, researchers have concentrated their efforts on the essential elements of an argumentative message that influence reasoning, namely data/evidence, claims, and warrants. Because the truth value of a claim is not known before its adoption, acceptance depends on evidence and warrants cognitively processed in support of (or against) the assertion. For example,
Suppose a marketer wanted consumers to believe that “Two PrevOprs (fictitious name) antacid tablets a day can help prevent osteoporosis.” He could support his claim by presenting data: “PrevOpr contains calcium.” To provide a rationale for the connection between data and claims, the warrant could be “Calcium is a key component of bones and by taking it; one can prevent stooping back that comes from osteoporosis.”

Thus, warrants justify the leap from the evidence to the claim when a person cognitively created the arguments when forming the belief. Causal arguments are based warrants that make a causal association between the data and the claims in the statement. Authoritative arguments are based on warrants that defer to the knowledge of an external source of information (Brunel & Nelson, 2003). Return to the PrevOpr example, an authoritative argument would read, “Two PrevOprs antacid tablets a day can help prevent osteoporosis.” This statement forces the reader to trust the source of the information as no other information is prevented to support the claim.

A casual argument would read, PrevOpr contains calcium and therefore two PrevOprs antacid tablets a day can help prevent osteoporosis.” This claim is supported by data and states the reason for its effect against osteoporosis.

Whereas authoritative arguments have been found to be used by individuals with less experience, casual arguments have been demonstrated to be most prevalent overall in the process of belief formation. However, the influence of casual argument in persuasion attempts (belief change) has met with mixed results. McCroskey (1967) found that speeches that included casual arguments (arguments wherein claims are supported with evidence that is casual in nature) produced more belief change than speeches that included authoritative arguments (arguments wherein claims are not supported with evidence forcing the individual to trust or rely on the source of the information).

West et al. (2004) reported no significant difference in trustworthiness beliefs formed about a pharmacist when casual or authoritative arguments were used. Although no consensus exists on belief change of individuals following exposure to the different argument types, belief change (which is the extent to which a belief withstands contradictory or disconfirming information) has been found to
be related to argument types. Belief formed using casual arguments have been found to be more tenacious than beliefs formed using authoritative arguments (West et al., 2004).

Thus, resistance to counter-persuasion has been found to be greater when casual evidence is used to support argument claims when forming beliefs. Similar findings have been reported for 2-sided messages wherein inclusion of negative product information has been shown to counter-persuasion. The purpose of this study was to examine the 2 message variables together to investigate their influence on belief tenacity. No a priori interaction effects were predicted. The hypotheses were as follows:

\[ H1: \text{Across argument types, subjects exposed to ads with 2-sided appeals will show higher belief tenacity following an attack condition than subjects exposed to 1-sided appeals.} \]

\[ H2: \text{Across appeal types, subjects exposed to ads with causal arguments will show higher belief tenacity following an attack condition than subjects exposed to authoritative arguments.} \]

**Methodology**

**Research Framework Overview**

In this study, a survey of Internet users investigated by which a between-subject MANOVA factorial design is used to guide the research design and the systematic analysis procedure. The research framework of experiment was showing as figure 2.
This experiment was conducted to evaluate the effect of sidedness of appeals and argument types in understanding beliefs tenacity that is formed after exposure to advertisements. Experiment was employed a factorial MANOVA experimental design to test H1 and H2. The dependent variable was (1) web advertising beliefs, and the independent factors were (2) appeal types (1-sided vs. 2-sided), (3) argument types (causal vs. authoritative arguments). All the subjects are Internet users assuming knowing the osteoporosis.

Also, this experiment conducted an online feedback by cooperating with one well-known Website in Taiwan (www.payeasy.com.tw). E-mails including the experimental Webs were sent to subscribers’ addresses according to Web databases. Four different Internet advertisements were developed to remove extraneous factors when existing Internet advertisements were used. Interface designs, layers of information, and layouts for Internet advertisements were made identical to control for potential confounding variables. Only pictures of the
products, fictional brand name, and product description were manipulated to correspond to product characteristics and advertising appeals.

**Pilot test**

One hundred and sixty (80 male and 80 female) college students in department of business administration at the TransWorld University in middle Taiwan, and the same number of working adults all with online shopping experience were recruited. The survey site was hyperlinked to a Web within our school server. Before the main experiment, four different Web ads were designed to correspond to the respective treatment groups. All ads had identical layout. Two types of arguments which used in the ads, were selected after pretest a set of 20 arguments in a class of 45 students and choosing those that were rated to be most convincing using a 9 point scale from “not at all convincing” to “extremely convincing.” For the 1-sided advertising message, positive attributes of the medication were described. For the 2-sided ad, the same positive attributes were presented and the advertisement was tempered by negative information on effectiveness, safety, and convenience. Effectiveness, safety, and convenience were the most convincing of the arguments tested in the pretest. All ads had the caption: *Prevent the osteoporosis with ...PrevOpr.*

The product---PrevOpr used was a hypothetical osteoporosis prevention medication. PrevOpr was chosen to eliminate any bias that would be introduced as a result of using a familiar product. We decided on an osteoporosis prevention medication because of its prescription status and students can identify with and whose consequences they understand.

Each subject was randomly assigned to 4 experimental groups (there are two scenario---not and after attacked osteoporosis) in computer lab. Subjects were presented with a Web ad for a fictitious medication, And then, a between-subject experiment where each subject was randomly exposed to the treatments. Subjects were told that the purpose of the study was to evaluate a Website with an ad and were presented with a Web ad.

After viewing the ad, subjects assessed their initial belief about the medication. And after assessing their initial belief about the medication, a negative scenario (attack condition) was presented where subjects were asked to assume that they
contracted the osteoporosis despite taking the PrevOpr (“Now please assume that you took PrevOpr per day but still contracted the osteoporosis.”). Respondents were asked to provide their view about the medication and filled out the questionnaire on computer. The last part of each Website was linked to a Web page containing a questionnaire. The measurement scales are also included in Appendix B. After completing Part I, each subject was asked to continue with Part II of the online questionnaire, which asked him/her several questions about his/her demographic information. The participation for each subject took approximately 10 minutes. To stimulate response, all subjects were paid to participate. Pretest showed that this was an attractive stimulus for tasks such as this.

The main purpose of this study is to investigate the web users’ web ad belief tenacity by a presentation online advertising appeal and argument in different scenarios. The experimental advertising scenarios were listed as Table 1.

Table 1 Advertising Scenarios in Experiment

<table>
<thead>
<tr>
<th>Scenario 1: 1-sided casual advertising</th>
</tr>
</thead>
<tbody>
<tr>
<td>A landmark 6-year study showed that fewer people contracted the osteoporosis when taking PrevOpr as compared to osteoporosis shot, proving that it is more effective than the osteoporosis shot. PrevOpr is convenient because it requires only an oral dose per day. PrevOpr has a patented gel coating that makes it easy to swallow. PrevOpr is safe because it can be used in all osteoporosis situations. PrevOpr does not require an injection and hence is better tolerated than osteoporosis shot. Just 1 dose per day provides osteoporosis shot prevention, making it a powerful medication.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario 2: 1-sided authoritative advertising</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrevOpr is more effective than the osteoporosis shot. PrevOpr is convenient. PrevOpr is easy to swallow. PrevOpr is safe. PrevOpr is better to tolerated than osteoporosis shot. PrevOpr is powerful.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario 3: 2-sided casual advertising</th>
</tr>
</thead>
<tbody>
<tr>
<td>A landmark 6-year study showed that fewer people contracted the osteoporosis when taking PrevOpr as compared to osteoporosis shot, proving that it is more effective than the osteoporosis shot. Just 1 dose per day provides osteoporosis shot prevention, making it a powerful medication. PrevOpr is convenient because it requires only 1 oral dose per day. PrevOpr is not 100% effective because a small percentage of people contracted the osteoporosis. PrevOpr may cause allergy because unusual physique.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario 4: 2-sided authoritative advertising</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrevOpr is more effective than the osteoporosis shot. PrevOpr is convenient. PrevOpr is powerful medication. PrevOpr may cause allergy.</td>
</tr>
</tbody>
</table>
Prior to testing the hypotheses, the multi-item measures were subjected to a series of validity checks of these constructs. These items were borrowed from previous studies listed as Appendix B. A reliability analysis indicated high internal consistency for those constructs, which together with statistical properties (Table 2), indicates that these theoretical constructs assess convergent validity by variance extracted (.5) (Fornell & Larcker, 1981).

The reliability of the constructs was showed as Table 2. The construct of “web advertising beliefs” was included as dependent variable.

| Table 2 Pretest Results of Experiment |
|-------------------------|---------------------|--------|------------------|------------------|
| Constructs              | Treatments          | Mean(SD) | Reliability | Variance Extracted |
| Independent Variables   |                     |         |              |                  |
| Appeals                 | 1-sided             | 5.92(1.25) | 0.85       | 0.78             |
|                         | 2-sided             | 5.51(1.46) |            |                  |
| Argument                | casual              | 5.23(1.05) | 0.89       | 0.82             |
|                         | authoritative       | 5.38(1.32) |            |                  |
| Dependent Variable      | Belief change       | 5.82(1.12) | 0.86       | 0.80             |
|                         | Standardized price change | 5.51(1.07) |          |
|                         | Change in intent to inquire | 5.25(1.36) |          |

Measurement Variables

**Dependent Variable:**

*Web advertising beliefs*

Three dependent variables were used to measure on the changes that result after the presentation of negative information. (Appendix B).

1. **Belief change**

Subjects were asked to indicate their beliefs about PrevOpr by rating it on a 9 point semantic differential scale on 4 attributes (Good-Bad, Beneficial-Harmful, Safe-Dangerous, Effective-Ineffective). This scale was used in a study by West et al. (2004) and was found to be a reliable measure of Ad belief tenacity. Beliefs were measured before and after the negative information were presented. Belief change was calculated by subtracting the summated scores.
2. **Standardized price change**

Subjects were asked to estimate the price of the product before and after the negative information was presented. “Standardized Price Change” was obtained by subtracting the before and after price estimates.

3. **Change in intent to inquire**

Given that a patient needs a prescription from a physician to obtain a prescription medication, the first step in the intent to inquire about a medication is to ask the physician about the medication. Intent to inquire was measured on a 4 items, 9 point semantic scale that asked subjects to rate the likelihood of asking their physicians about prescribing PrevOpr. The anchor points of the scale were No chance-Sure to ask, Unlikely-Likely, Not possible-Very possible, Certain not to ask-Certain to ask. This scale has been found to be a sufficiently reliable measure of the construct of behavioral intent (West et al., 2004). The change in intent to inquire was calculated by subtracting the summated post-negative information intent from the summated initial intent.

**Independent Variables:**

In this study, the ad design consisted of two independent variables: (a) appeal type (1-sided vs. 2-sided) and (b) argument type (casual vs. authoritative).

1. **Appeal type**

This manipulation is specified here as virtual medication in a Web environment. Two treatments of advertising appeal type were provided. For the 1-sided appeal, the ad described PrevOpr on 6 positive attributes and for the 2-sided appeal the ad described PrevOpr on 3 positive and 3 negative attributes. The number of arguments was kept constant in each treatment condition.

2. **Argument type**

For casual arguments, data were used to support claims and for authoritative arguments, the data were eliminated and only claims were provided.
Main Experiment Procedures

Data Collection

As noted earlier, Chen & He (2003) stated that the online population is highly educated with over 50 percent having a college education or higher. Therefore, we chose users aged 10-60 as the respondents from database (offered by: www.payeasy.com.tw) to send e-mail. The subjects were selected randomly and read the description of the experimental procedure from the e-mail. Also prizes (i-pod nano) were offered for randomly selected winners from all completed questionnaires. Participants saw the advertisements on the Web following by the hyperlinked instruction. A total of 2,500 (all the online customers aged 10-60 with online shopping experience in the database) e-mails have been sent. Data collection in this study is still considered a convenience sample, and is consisting of 620 completed questionnaires. Male composed 50.6% (or 314) of the sample, 49.4% (or 306) of the sample were females and 0.6% (or 4) for missing. Approximately 98% of respondents reported understanding osteoporosis. The majority 78.3% of the subjects were 20-40 years of age, with a mean age of 27.3 years. Demographically, the male and female respondents were similar in age (about 65% of both men and women were under 25 years; \( \chi^2(5)=2.01, p>0.1 \) with similar education levels (around 61% of both men and women had college degree; \( \chi^2(3)=4.68, p>0.1 \)). Also males and females had similar purchase frequency (\( \chi^2(3)=1.56, p>0.1 \)). The information showed the sample was representative of the online population. Table 3 exhibits the samples’ characteristics.
### Table 3 Sample Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>50.6</td>
</tr>
<tr>
<td>Female</td>
<td>49.4</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>Under 10 years</td>
<td>0.02</td>
</tr>
<tr>
<td>10-20 years</td>
<td>7.19</td>
</tr>
<tr>
<td>20-30 years</td>
<td>50.2</td>
</tr>
<tr>
<td>30-40 years</td>
<td>21.7</td>
</tr>
<tr>
<td>40-50 years</td>
<td>16.3</td>
</tr>
<tr>
<td>over 50 years</td>
<td>4.59</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
</tr>
<tr>
<td>Under High/trade school</td>
<td>2.1</td>
</tr>
<tr>
<td>High/trade school</td>
<td>10.7</td>
</tr>
<tr>
<td>College</td>
<td>70.2</td>
</tr>
<tr>
<td>Post college graduate</td>
<td>17.0</td>
</tr>
<tr>
<td><strong>Online purchase frequency</strong></td>
<td></td>
</tr>
<tr>
<td>Below one time/per month</td>
<td>27.6</td>
</tr>
<tr>
<td>1-2 times /per month</td>
<td>40.3</td>
</tr>
<tr>
<td>2-3 times /per month</td>
<td>16.2</td>
</tr>
<tr>
<td>over 3 times /per month</td>
<td>15.9</td>
</tr>
</tbody>
</table>

### Measures Procedure

Two levels of appeals (1-sided and 2-sided) 2 levels of arguments (casual and authoritative) were used to assess the effect of these manipulations on belief, as measured by belief change, standardized price change, and change in intent to inquire. A fully between-subject experiment was used to analyze the results.

E-mails with purpose description and incentives were sent to subjects. Receivers could click the highlighted hyperlink in the e-mail and instantly access the experimental Website. The subjects were expected to browse the context on the Web; he/she was then requested to fill the online questionnaire and mail back to us.

### Analysis and Results

The purpose of this experiment is to examine the main and interactive effects of those constructs mentioned above. The means and standard deviation values for dependent measures within each treatment were showed as Table 4. On all 3 dependent variables, subject exposed to 2-sided appeals showed lower belief change following an attack condition than subject exposed to 1-sided appeals. Table 4 exhibits the operational results of means and standard deviation values for
dependent measures within each treatment.

Table 4  Operational Results of means and standard deviation values for dependent measures within each treatment

<table>
<thead>
<tr>
<th>Treatment conditions</th>
<th>n</th>
<th>Belief change mean(SD)</th>
<th>Standardized price change mean(SD)</th>
<th>Change in intent to inquire mean(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-sided casual</td>
<td>154</td>
<td>6.80(3.79)</td>
<td>4.62(0.41)</td>
<td>6.64(5.41)</td>
</tr>
<tr>
<td>1-sided authoritative</td>
<td>156</td>
<td>7.60(4.29)</td>
<td>4.54(0.46)</td>
<td>8.42(5.12)</td>
</tr>
<tr>
<td>2-sided casual</td>
<td>153</td>
<td>4.76(3.47)</td>
<td>4.46(0.61)</td>
<td>5.61(4.18)</td>
</tr>
<tr>
<td>2-sided authoritative</td>
<td>157</td>
<td>5.35(3.03)</td>
<td>4.67(0.93)</td>
<td>5.97(4.05)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>1sided appeal ad</th>
<th>2sided appeal ad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoritative</td>
<td>6.85(4.21)</td>
<td>5.33(3.59)</td>
</tr>
<tr>
<td>Casual</td>
<td>6.03(4.58)</td>
<td>4.94(3.65)</td>
</tr>
</tbody>
</table>

Figure 3 showed result between appeal type and argument type on belief. Overall analysis of variance result for the dependent measures was showed as Table 5. The results were statistically significant for belief change ($F=23.93, p=.001$), standardized price change ($F=328.89, p=.000$), and change in intent to inquire ($F=11.05, p=.007$). Also, MANOVA test result for the influence of appeal type on all dependent measures was showed as Table 6. Therefore, $H1$ received statistical support.

Table 5 Overall analysis of variance results for the dependent measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Appeal type</th>
<th>Argument type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belief change</td>
<td>$F=23.93(p=0.001)**</td>
<td>$F=21.59(p=0.002)**</td>
</tr>
<tr>
<td>Standardized price change</td>
<td>$F=328.89(p=0.000)**</td>
<td>$F=26.14(p=0.001)**</td>
</tr>
<tr>
<td>Change in intent to inquire</td>
<td>$F=11.05(p=0.007)**</td>
<td>$F=20.15(p=0.003)**</td>
</tr>
</tbody>
</table>

Multivariate Tests

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai’s trace</td>
<td>.849</td>
<td>576.425</td>
<td>6</td>
<td>613</td>
<td>.000**</td>
</tr>
<tr>
<td>Wilks’ Lambda</td>
<td>.151</td>
<td>576.425</td>
<td>6</td>
<td>613</td>
<td>.000**</td>
</tr>
<tr>
<td>Hotelling’s trace</td>
<td>5.642</td>
<td>576.425</td>
<td>6</td>
<td>613</td>
<td>.000**</td>
</tr>
<tr>
<td>Roy’s largest root</td>
<td>5.642</td>
<td>576.425</td>
<td>6</td>
<td>613</td>
<td>.000**</td>
</tr>
</tbody>
</table>

** p<0.01, * p<0.05
Figure 3 The influence of argument type and appeal type on belief

Table 6  MANOVA test result for the influence of appeal type on all dependent measures

<table>
<thead>
<tr>
<th></th>
<th>Appeal type</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belief change</td>
<td>Intercept</td>
<td>513.87</td>
<td>1</td>
<td>513.87</td>
<td>23.93</td>
<td>.001**</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>13269.55</td>
<td>618</td>
<td>21.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corrected Total</td>
<td>13783.42</td>
<td>619</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in intent to inquire</td>
<td>Intercept</td>
<td>351.72</td>
<td>1</td>
<td>351.72</td>
<td>11.05</td>
<td>.007**</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>19680.34</td>
<td>618</td>
<td>31.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corrected Total</td>
<td>200032.06</td>
<td>619</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized price change</td>
<td>Intercept</td>
<td>2.96</td>
<td>1</td>
<td>2.96</td>
<td>328.89</td>
<td>.000**</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>55.75</td>
<td>618</td>
<td>0.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corrected Total</td>
<td>58.71</td>
<td>619</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** p<0.01, * p<0.05

From Table 7 (MANOVA test result for the influence of argument type on all dependent measures), on all 3 dependent measures there were significant difference between groups exposed to casual and authoritative arguments. The results for argument type were statistically significant for belief change (F=21.29, p=.002), standardized price change (F=6.14, p=.001), and change in intent to inquire (F=20.15, p=.003).
Table 7 MANOVA test result for the influence of *argument type* on all dependent measures

<table>
<thead>
<tr>
<th>Argument type</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Belief change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1298.26</td>
<td>1</td>
<td>1298.26</td>
<td>21.29</td>
<td>.002**</td>
</tr>
<tr>
<td>Error</td>
<td>37685.64</td>
<td>618</td>
<td>60.98</td>
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<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>37690.78</td>
<td>619</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Change in intent to inquire</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1811.28</td>
<td>1</td>
<td>1811.28</td>
<td>20.15</td>
<td>.003**</td>
</tr>
<tr>
<td>Error</td>
<td>55552.02</td>
<td>618</td>
<td>89.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>55555.82</td>
<td>619</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standardized price change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>10.97</td>
<td>1</td>
<td>10.97</td>
<td>26.14</td>
<td>.001**</td>
</tr>
<tr>
<td>Error</td>
<td>259.56</td>
<td>618</td>
<td>0.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>260.78</td>
<td>619</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** p<0.01, * p<0.05

*H2 was supported, a significant interaction effect was observed between appeal type and argument type on initial belief, initial intent to inquire and standardizes price change.* Across appeal types, subjects exposed to ads with causal arguments will show higher belief tenacity following an attack condition than subjects exposed to authoritative arguments.

An additional interesting finding, subjects exposed to 1-sided authoritative ads were found to have higher initial beliefs (Figure 4) and higher intent to inquire (Figure 5).

![Figure 4](image)

**Figure 4** The influence of argument type and appeal type on initial belief
This experiment examined the effect of appeal types and argument types on change in belief, intent to inquire, and standardized price change. The results showed that 2-sided appeals reported greater belief tenacity than 1-sided appeals as measured by all 3 dependent measures, suggesting support for the H1. Argument types also did result in differences in belief tenacity. In another word, H2 was supported (argument type).

A significant interaction between appeal types and argument types seem to indicate that authoritative arguments in 2-sided appeals might result in lower belief scores compared with casual arguments in 2-sided appeals. Thus, argument types and presence of positive and negative information both could be useful in explaining web ad belief tenacity. This interesting finding makes this phenomenon worthy of additional study.

Limitations and Conclusion

Limitations

Our second experiment was conducted with particular manipulations of the
advertising appeal, argument on the Web ad belief tenacity. We note three limitations of our experimental results.

**Firstly**, attempts were made to control the influence of non-relevant information and details by randomization, use of hypothetical scenarios, and use of same ad layout. Although the product advertised a disease were assumed to be fully understood to the samples, the generalization of the findings is limited.

**Secondly**, for negative scenario, due to the nature of the product being promoted, subjects were not asked to use the product, but rather assume that they took PrevOpr but still contracted the osteoporosis. Although it is anticipated that this is relatively realistic and simple task, this may have comprised the practicality to a certain degree and is an inherent limitation of this research.

**Thirdly**, for advertising appeals in experiment II, were grouped into two kinds---1-sided and 2-sided appeals in this paper based on the previous researches we known; is there existing other appeals of ads, such as humorous/non-humorous or sincerely/exciting appeals which might have different effect on the consumer belief? It would have been better, if we were given some additional appeals to interpret the results though. For instance, it would be very informative to know the effect of the consumers’ perception on the humorous advertising appeal.

**Conclusion**

The objective of this study was to provide insight into the effect of appeal type and argument type influence on online consumers’ perception of ad belief tenacity; experimental manipulated these constructs to test their responses. The results of the experiment showed support for H1 (Across argument types, subjects exposed to ads with 2-sided appeals will show higher belief tenacity following an attack condition than subjects exposed to 1-sided appeals). And H2 (Across appeal types, subjects exposed to ads with causal arguments will show higher belief tenacity following an attack condition than subjects exposed to authoritative arguments) was supported.

In light of the limitations stated above, future research in this area should be suggested to include research on different gender’s information processing of
Internet advertising. In this sense, this paper provides some groundwork in this field. Most studies on Internet advertising have been conducted by Web publishers on audience measurement data i.e., how many people visit their sites, or how many people are exposed to ads, etc. But this kind of result-oriented data does not provide the understanding of consumers’ step-by-step information processing, e.g., why people click ads and why they click one ad more than another. In conclusion, information processing of Internet advertising is too important to leave unstudied, therefore, more future studies on this area are strongly recommended.

**Future Research**

The investigation of human cognition and behavior in the virtual world seems to be a task that is as interesting as it is complex. As evidenced by the research project, the investigation of the beliefs toward the product and persuasion in the virtual world appears to be a field in need of systematic-programmatic research. The nature of the Internet seems to offer opportunities for testing established theories that were developed for explaining consumer behavior in response to messages delivered through other media. Giving the complexity of Internet consumer behavior as suggested by scholars, more researches are clearly needed.

1. Although the measured data in this study is randomly selected from the customer database (which all the samples have online shopping experience) on “www.payeasy.com.tw”, these are convenient samples. Many scholars have pointed out the study of online consumer behavior is often deterred by the difficulty in complete set of data to represent their characters. Unfortunately, due to the technical constraints, this study did not collect other Website customer data on this aspect. Future study should aim to investigate other homogeneous Website customers and comparison from these online customers.

2. As Turley & Kelley (1997) stated that it may be unrealistic to understand human behavior without capturing linear, sequential, or dynamic aspects of consumer interactions with Internet advertising. Therefore, future research might employ the dynamic analysis to develop research framework and hypotheses.
3. Another issue that may warrant further investigation is the audience’s ability to process information. Given that the text in an argument-specific Web site in technical, it may be useful to investigate whether the effect of Web site elements is found only in audience lacking the ability to process such technical information. Ability to process is another motivational attribute and it would be useful to examine the effect of Web site design elements on another motivational attribute in addition to involvement.

An important line for follow-up research also might be the development of the scale to measure Web site design. This research is comprised of content-related attributes (appeal and argument), peripheral attributes, and certain other functional attributes that are “central aids”. Systematic research to investigate the constitution of the Web site-design construct and develop a scale to measure these attributes is needed. Changes in the perception of these dimensions may explain post-exposure changes in cognition and behavior. Thus, if advertising beliefs tenacity, attitudes, and consumer behavior patterns exist, it is vital for E-market advertisers to recognize them, understand them, and use them to design appeal-argument specific advertisements.
References


Provo, UT: Association for Consumer Research.


Appendix A---Samples of Web Advertisements of Experiment

1-sided Casual advertisement

---

PrevoPr

預防骨質疏鬆...

PrevOpr

每日一粒
是現代人維持
骨骼健康
的最佳選擇...

特價：1000元
內含量：120錠/瓶1粒/日

一項为期六年的研究指出，罹患骨質疏鬆症的患者每日服用一颗PrevOpr，比不定期打針還有效...

PrevoPr(Prevent Osteoporosis)...

*每天只需一顆
*易吞服的錠囊
*適用於各種骨質疏鬆病患
*不需打針 可安心長期服用

PrevoPr 爲您的健康把關.....

---
1-sided Authoritative advertisement

罹患骨質疏鬆症的患者每日服用一顆PrevOpr，比不定期打針還有效...

*每天只需一顆...
*易吞服的膠囊
*適用於各種骨質疏鬆症
*不需打針 可安心長期服用

PrevOpr 爲您的健康把關.....
2- sided Casual advertisement

PrevOpr®

預防骨質疏鬆...

一項爲期六年的研究指出，罹患骨質疏鬆症的患者每日服用一顆PrevOpr，比不定期打針還有效...

PrevOpr（Prevent Osteoporosis）...

* 每天只需一顆
* 易吞服的膠囊
* 適用於各種骨質疏鬆症
* 不需打針，可安心長期服用

請注意...
PrevOpr並非100%有效，少數人服用仍會產生過敏。
請遵照醫師指示服用....

PrevOpr 爲您的健康把關.....
2-sided Authoritative advertisement

PrevOpr®

預防骨質疏鬆...

每日一粒
是現代人維持
骨骼健康的最佳選擇...

特價：1000元
內含量：120粒/瓶；1粒/日

罹患骨質疏鬆症的患者每日服用一顆PrevOpr，
比不定期打針還有效...

PrevOpr(Prevent Osteoporosis)...

*每天只需一粒...
*易吞服的膠囊
*適用於各種骨質疏鬆病症
*不需打針 可安心長期服用

請注意...
PrevOpr並非100%有效；少數人服用仍會產生過敏...
請遵照醫師指示服藥....

PrevOpr 爲您的健康把關.....PrevOpr®

Prevent osteoporosis
Appendix B---Manipulate Constructs

Manipulate Constructs
(7 point Likert Scales: 1 = Strongly Disagree; 7 = Strongly Agree)

Advertising Appeals Scales (Modified from: Jalnawala & Wilkin, 2007)
After seeing the ad, ____________  Item-Total correlation
1. The ad can concentrate me on the product’s function for human body.  0.83
2. The ad can concentrate me on the product’s negative Function for human body 0.80
3. The ad can concentrate me on the product’s characteristics 0.79
4. The ad attracts me on the sentiment that the ad brought to me.  0.82
5. The color, animator or picture on the ad attracts me.  0.82
(5 items, \( \alpha = 0.85 \))

Argument Types (Modified from: West et al., 2004)
After seeing the ad, ____________  Item-Total correlation
1. The ad can concentrate me on the casual argument.  0.88
2. The ad can concentrate me on the authoritative argument.  0.83
3. The ad can concentrate me on its arguments.  0.82
4. The ad attracts me on the arguments that it brings to me.  0.84
5. The arguments of ad remind me of some past experiences.  0.83
(5 items, \( \alpha = 0.89 \))

Dependent Variables
Consumers’ Beliefs toward the web ads
(Modified from: West et al., 2004; Jalnawala & Wilkin, 2007)

How likely is it that you think the product in this ad?

Belief change  Item-Total correlation
1. Good-------------Bad  0.80
2. Beneficial -------- Harmful  0.82
3. Safe-----Dangerous  0.81
4. Effective-----ineffective  0.78

Standardized Price change
5. No change-----Sure to change  0.79

Change in intent to inquire
6. No change-----Sure to ask  0.83
7. Unlikely ------Likely  0.82
8. Not possible---Very possible  0.84
9. Certain not to ask---Certain to ask  0.81
(9 items, \( \alpha = 0.86 \))