Advertisers use online reviews to design more effective advertisements

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Abstract: The key advertisement element "text" has a unique effect on advertisements and a number of studies have examined how advertisements need to be effective and persuasive. This paper aims to mine the customer reviews for emotional, non-emotional content to design more effective advertisements. The results suggest that the recall effect is higher for print advertisements containing emotional content. Also, we found that advertisements with a mix of emotional and non-emotional content will have a positive attitude towards the print advertisements. Furthermore, It has been found that viewing advertisements with a mix of both emotional and non-emotional text will increase purchase intension among consumers.

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1. Introduction

Print advertisements are essential for marketers and are one of the most widely used tools to promote content to consumers. Many guidelines have been tested and formulated based on academic studies. Moriarty (1991) defines an advertisement as a communication with a customer that encourages them to purchase, try or provide information. Advertising is one of the most important elements in the promotional mix, which can create awareness, correct misconceptions, and reminds products in the consumer minds, as well as provide support for the sales force.

The print advertising message effectiveness depends on its elements which are mainly pictures, characters, or words and are connected to form a logical and clear message (Moriarty, 1991). The message in the print advertisements needs to be effective, simple, and persuading to communicate the message more effectively to consumers. Research has shown that consumers cannot fully understand and absorb about 50% of the typical print ad content in advertisements (Pieters & Wedel, 2004).

Previous studies about print advertisements discussed a lot about the ad elements such as the text sizes in advertisements, pictorial and attention effects of brand etc. For example, some researchers recommended the minimization and maximization of brand elements size in advertisements such as a brand should be prominent in an ad (Pieters & Wedel, 2004). In addition, identification of the brand is the most important thing to remember and should appear clearly and loud since it captures more attention towards the brand and is important to get brand and communication effects (Pieters & Wedel, 2004). Moreover, research of (Moriarty, 1991) highlighted that in an advertising messages two of the most important aspects are its structure and its elements. The structure is the way how the ad elements are connected and create an effect, while elements consist of the words, pictures, characters, and action (Moriarty, 1991). An important part of print advertisements is how it is created and perceived by the customers. The visual components of print advertisements that grab customer attention are the right choice of text and words. Therefore, to design the text message in advertisements, it is important and one should use a combination of the correct words in order to communicate the advertisement's message more effectively as this is proven to achieve long term marketing goals.

In this regard, online Word of mouth (WOM) communication among consumers has been very rich in its insights, because it is believed to be the direct voice of consumers. Prior WOM research investigated the importance of customer reviews in general, with a particular focus on user-generated reviews. For example, when a new product is released the marketing manager wants to know how the product performs against its competitors to extract information that helps managers in their marketing efforts. Recently, research has begun to examine the textual information contained in online user-generated content (Hu & Liu, 2004; Pang et al., 2002; Riloff & Wiebe, 2005) and looked into sentiment words classification as well as opinion mining (negative or positive) about an event. In addition, Ullah et al., (2015) focused on emotional words from online customer reviews by using natural language related to computer science. Therefore, the goal of this study is to extract key emotional and non-emotional content from online reviews and then use that emotional and non-emotional content in print advertisements to determine how advertisers use emotional and non-emotional language in advertising.

Furthermore, this study attempts to anylize content of online product reviews on Amazon.com using Natural Language Processing (NLP) techniques. While using an NLP strategy, we can understand the natural human linguistic aspects of WOM by observing it computationally. More specifically, using NLP, we are able to extract the emotional and non-emotional words in online product reviews and use them to design more effective advertisements regarding recall effect, purchase intention and expressed attitude, to compare which appeal is more effective. Since it is believed that online customer reviews have a lot of marketing insights, it is important to know which of the afore mentioned can be used more extensively.

In the first stage, this study, has collected the existing advertisements of the selected products. It is then followed up by modifying the available advertisements using the extracted emotional and non-emotional words from online reviews. Finally, what is measured is the attitude effect, purchase intention and recall effect towards specifically designed advertisements. In Section 2, the Literature review is discussed. Section 3 presents the methods and experiment used to test the hypotheses. Section 4 provides the results and discussion regarding the three hypothesis suggested in section 2. Lastlly, in section 5 conclusions are discussed about important managerial implications of the findings.

2. Literature review

2.1. Recall effect of advertisements
Of the many major measures used for the advertising value and effectiveness, recall effect is one of the important and major factors for an ad measurement. Various approaches have been developed by marketing academics and applied by advertisers to get high level of brand recall among consumers. For example, MacInnis and Price (1987) noted that instead of words in advertisements, pictures are quickly and easily recalled and recognized. In addition, research has shown that advertisements having words and pictures together will be

recalled higher than advertisements showing only words (Leong et al., 1996). Moreover (Houston et al., 1987) noted that the recall effect is higher for discrepant advertisements when compared to consistent advertisements. Advertisers normally think that text and pictorial parts of an ad should communicate the similar meaning however, advertisements in which the picture and text convey the discrepant information about the product, their recall will be superior based on experimental results (Houston et al., 1987).

2.2. Attitude effect towards advertisements

Attitude of an individual means liking or disliking of something such as, place, person, or event etc. which may be positive or negative. Attitude towards advertising is a key concept and one of the most important determinants towards specific advertisements effectiveness (Lutz, 1985). It usually changes with experience. In advertising literature, attitude towards the advertisements are defined a response in a favorable or unfavorable way to particular ad stimulus during exposure to those advertisements (MacKenzie et al., 1986). A consumer's attitude can influence how they respond to advertising (Mehta, 2000). According to studies, the public attitude towards advertising has deteriorated over time (Ogilvy & Mather, 1979), while on the other hand studies are available which shows more favorable evaluation of advertising (Shavitt et al., 1998). However, these studies looked at consumer's attitude towards the advertisements in general rather than particular. It has been described that if a person is seeing an advertisement and is very familiar with a brand, which the person likes or positively evaluates should not have a strong effect on his/her brand attitude since the attitude is already well-formed (Fazio & Zanna, 1981).

2.3. Purchase intention towards advertisements

Purchase intention is a plan to purchase a particular good or service in the future. It is one of the key concepts in marketing. Today a lot of companies spend a lot of money for the advertising and can hire popular endorsers for their products with an expectation that these will receive more brand attractiveness and will have a significant contribution for consumer purchase intentions. Research has shown that endorser credibility and corporate credibility both affect attitude towards the advertisements however, corporate credibility have a higher influence on purchase intentions (Lafferty & Goldsmith, 1999). In addition, research has shown that there is a positive association of purchase intention and perceived value of advertisements (Dodds et al., 1991). It is

noted that comparative advertisements for a new brand have more positive effect on purchase intentions than non-comparative advertisements (Gotlieb & Sarel, 1991).

In this study, the aim is to highlight and measure the comparative effectiveness of advertisements having emotional words, non-emotional, or a combination of both. More specifically, the responses among those who have a favorable or unfavorable disposition towards the three types of advertisements are compared. This study will suggest which advertisement message is highly effective with regards to expressed attitude towards the advertisement, recall effect, and intentions to purchase.

3. Methodology

We used online customer reviews from Amazon.com. We build software to obtain all customer reviews automatically. We chose 15 random products from the general product classifications on Amazon.com "Electronics"; "Computers and Offices"; "Books"; "Movies, Music and Games"; "Toys, Kids and Babies"; Home and Garden"; and "Grocery, Health, and Beauty," as shown in Table 1. In order to extract the topmost emotional and non-emotional words for each product based on the content of the reviews, we used natural language processing techniques. Natural language processing techniques (NLP) includes unigram and bigram models as well as feature selection. In a unigram, each word's probability occurrence is assumed independent and is a one-word sequence, while in the bigram model two word phrases probabilities are considered and is a two word sequence of words (Arnon & Snider 2010). We analyzed the word frequencies from reviews by using the unigram and bigram models (Coenen et al., 2007).

Table 1. Name of selected products.

HP Office jet 6310 Printer	Panasonic Lumix 10 MP Digital
Adobe Photoshop Elements Software	Panasonic Automatic Rice Cooker
Canon Power Shot 8 MP Digital Camera	Sanyo Micro Computerized Rice Cooker
Microsoft Office Professional 2007	Zojirushi Rice Cooker
Dior Show Mascara	The Shack Book
The Twilight Saga, Book 1	Planet Earth - The Complete BBC Series TV Show
True Blood: HBO Series	Movie Quantum of Solace 2008
QuickBooks Software 2009	

4. Experiment

4.1. Design

In our study, we designed four types of print advertisements. First, the existing original advertisements of the selected products were randomly downloaded from the web. In all advertisements, the same advertisement copy was used. However, the difference among each advertisement comprised of different emotional, and or non-emotional words. The second type of advertisements were copies of the original ad, where the two most frequent emotional words from online reviews were added. This is followed by a third type of advertisement, in which two most frequent non-emotional words were included. Finally, the designed advertisements, which were the modified version of the original advertisements, both emotional and non-emotional mix words were added and named as "Mix advertisements". An example of all four types of advertisements for the product "The Shack paper book" is shown in Figure 1.

4.2. Questionnaire design

The content of questionnaire is divided in to three main sections 1) Purchase intension 2) Attitude towards advertisements 3) Recall effect of advertisements. Purchase intension was operationalized through the three questions Likert scale from 1 "strongly disagree" and 7 to "strongly agree" (After viewing the Advertisements, I am willing to try using this product) (After viewing the advertisements, I become interested in making a purchase) and (After viewing the Advertisements, I will Purchase the products). Recall Effect was operationalized through a three question Likert scale from 1 "strongly disagree" and 7 to "strongly agree" (I can remember the Advertisement content) (Advertisement enhances my impression towards a product) and (I can describe advertisement content.). Similarly, attitude effects were operationalized through a three question Likert scale from 1 "strongly disagree" and 7 to "strongly agree" (After viewing advertisement, I like more the advertised products) (After viewing advertisement, I developed preference for the products in the advertisement) and (After viewing advertisement, my impression for the products is strengthened). This approach of questionnaire design is in line to that of (Wu et al., 2008).

4.3. Development of advertisements and procedure

A notice was posted on a university notice board for subjects. Each subject makes an appointment via email or phone for participation and $5 coffee coupon was awarded to each subject. One hundred students participated as subjects for the experiment in a leading university of South Asia. They were assigned randomly to four types of advertisements resulting in cell sample size of 25 subjects. The experiment was conducted in an individual setting, in which subjects were told they would be evaluating a set of advertisements early in the development stage. A4 size of colored designed advertisements was used in the experiment. Each type of advertisement was placed in a booklet. The text included advertisements that occupied about 10 to 15 % part of the booklet. All advertisements are the same across all treatments, we included only the emotional, non-emotional, and the mixed text (emotional and non-emotional) in the advertisements for different treatment groups. Subjects were exposed to each ad for 5 to 10 seconds and then told to turn the page. After this, they were provided a one minute gap to think about advertisements and provided a questionnaire. Participants then had to complete a series of questions.

5. Results

The summary statistics of the selected products are shown in Table 2. As shown in Table 2, emotional advertisements having a higher recall effect with a mean value of (7.78), followed by non-emotional (4.44), mixed advertisements (4.29), and original advertisements (3.82). Also, mixed advertisements having a high purchase effect on consumers with mean value (3.90), followed by non-emotional (3.53), original (3.42), and emotional advertisements (3.2). Furthermore, mixed advertisements have a higher attitude towards advertisements (4.42), followed by emotional advertisements (4.33), non-emotional advertisements (4.20), and original (3.94).

We performed ANOVA test with pairwise comparison, to measure the means of advertisement types. The dependent variables are purchase intension, recall, and attitude towards the advertisements.

The results in Table 3 show that for dependent variable recall effect, the means of emotional and mix advertisements, emotional and original advertisements, non-emotional and original, and mix and original advertisements are significantly different. However, the mean values of emotional and mixed advertisements are higher for recall effect. Further, the mean value of emotional advertisements is greater than the mixed advertisements. These results epress that advertisements containing emotional text from reviews, have a higher recall effect.

For further analysis, of dependent variable attitude affect, the mean non-emotional advertisements and original advertisements, mix advertisements and original advertisements, are significantly different. However, the mean value of mixed advertisements is higher for the attitude which states that advertisements with a mix of emotional and non-emotional text extracted from reviews will have a positive attitude towards the advertisements.
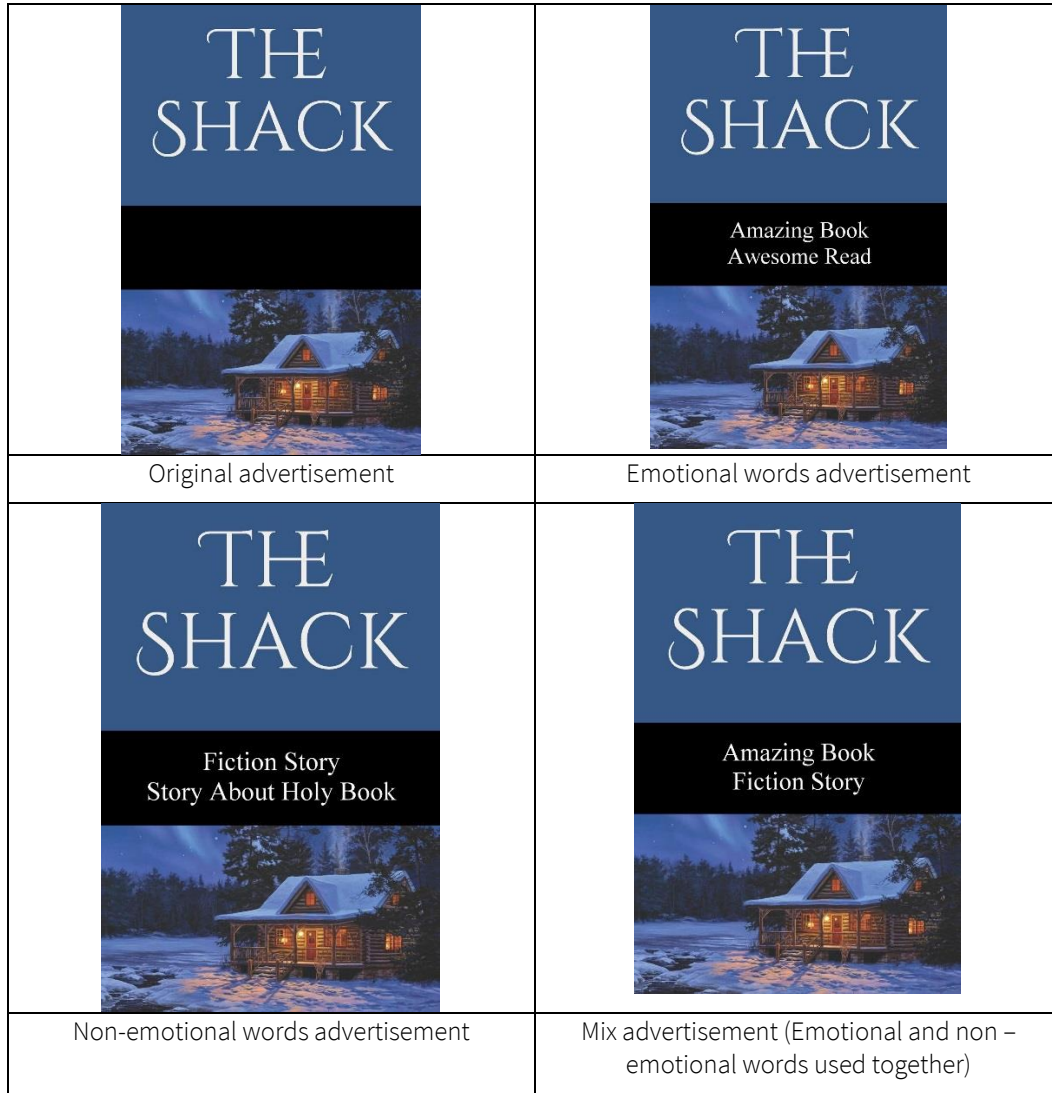
Figure 1. Example of four types of advertisements.

	Original advertisement	Emotional words advertisement
	Non-emotional words advertisement	Mix advertisement (Emotional and non – emotional words used together)

Table 2. Summary statistics (Means and standard deviations).

	Emotional advertisements	Non-Emotional advertisements	Mix advertisements	Original advertisements
Purchase effect	3.2 (1.38) n=25	3.53 (1.07) n=25	3.90 (0.86) n=25	3.42 (0.99) n=25
Recall effect	7.78 (0.89) n=25	4.44 (0.92) n=25	4.29 (0.79) n=25	3.82 (1.11) n=25
Attitude towards ads	4.33 (1.17) n=25	4.20 (1.16) n=25	4.42 (1.13) n=25	3.94 (1.13) n=25

Standard deviations are in parentheses.

Table 3. ANOVA for emotional, non-emotional and mix advertisements.

DV	(I) ad type	(J) ad type	Mean Difference (I-J)	Sig
Purchase	Emotional	Non-Emotional	-.36	.29
		Mix	-.71*	.02
		Original	.05	.86
	Non-Emotional	Mix	-.34	.29
		Original	.42	.19
	Mix	Original	.76*	.01
Recall	Emotional	Non-Emotional	.47	.13
		Mix	.56*	.03
		Original	1.12	.00
	Non-Emotional	Mix	.09	.73
		Original	.65*	.02
	Mix	Original	.55*	.04
Attitude	Emotional	Non-Emotional	-.30	.41
		Mix	-.24	.45
		Original	.31	.35
	Non-Emotional	Mix	.05	.87
		Original	.62	.07
	Mix	Original	.56	.09

To further investigate, for the dependent variable purchase effect, it is obvious that the mean of mixed advertisements and original, emotional, and mixed advertisements are significantly different, and the mean value of mixed advertisements is higher than other values. These results show that viewing the advertisements with a mix of emotional and non-emotional text from reviews will increase purchase intension among consumers.

6. Discussion and conclusion

The brand, text, and pictorial elements of print advertisements have significant impact on the attention capture in advertising literature and practice. In this study, examined was the frequent words from online reviews focusing specifically on the role of emotional and non-emotional content. The results suggest that advertisements containing emotional text from reviews, means their recall effect will be higher. In addition, it was found that advertisements with a mix of emotional and non-emotional text extracted from reviews will have a positive attitude towards the advertisements. Finally, we found that viewing the advertisements with a mix of both emotional and non-emotional text from reviews will increase purchase intension among consumers.

Our results have significant managerial implications. First, with regards to our finding that advertisements containing extracted emotional text from reviews has a higher recall effect . The present findings suggest advertisers need to use these criteria when developing their advertisements to get a higher recall in the consumer's mind and may improve their product recognition. Second, advertisers can also use advertisements with a mix of emotional and non-emotional text to get a better attitude towards the advertisements. Third, using our findings and approach, to enhance the consumer's purchase intentions, advertisers can design more effective advertisements with a mix of both emotional and non-emotional text.

This study has also some limitations and extensions. To get more general findings, there should be a more diverse group of people in the sample rather than only students. Future work could expand the impact of emotional words on opinions and decision making.

Conflict of interest

The authors have no conflict of interest to declare.

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