

Understanding the Impact Congruent Images and News Articles Have on Mood and Attitude

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Abstract. As more people turn online to get their news, the significance of on-line advertisements becomes even more important to companies seeking to enhance their bottom line. This paper is part of a larger project looking into how the congruency of online news articles and advertisements affect user's moods and attitudes towards both the ad and news article. Preliminary results indicate that congruency does impact user's moods and attitudes.

Keywords: Mood induction, online advertisement, Web, Internet.

1 Introduction

As the predominance of print media declines and online activities soar, the need to investigate and understand the significance of online advertisements becomes even more important to companies. Advertisers want to enhance their bottom lines while businesses hope to get their message out to potential consumers thereby increasing their revenues. This movement towards online advertisements was made clear by the significant increase in digital spending over the past several years. In fact, online advertising has grown to almost \$40 million and has surpassed that spent on print media (eMarketer 2012). This trend is projected to continue.

More and more people are looking to online news outlets to keep current on daily happenings. These sites attract a wide range of visitors. In fact, the top 25 news sites pulled in an average of 342 million unique visitors in 2011 (a 17% increase from 2010) (Mitchell and Rosenstiel 2012). Four out of ten Americans interviewed acknowledge receiving a majority of their news from the Internet (Center 2011).

Out of this phenomenon arises the question, how can advertisements placed on online news outlets be more effective in influencing potential customers?

2 Literature Review

A key influencer of decision making in general (Isen and Labroo 2003, Isen 2008), and consumer behavior in particular (Morrison, Gan et al. 2011, Swinyard 1993), is mood. Mood refers to an individual's mild, enduring, and objectless affective state (Lazarus 1991, Fredrickson 2003, Isen 2003). Previous affective literature reveals that factors such as music (Fulberg 2003), aroma (Chebat and Dube 2000), and images (Mathur and Chattopadhyay 1991) can impact a consumer's mood which in turn affects his or her attitude and subsequent behavior.

Specifically, research into advertisements has shown that induced moods can impact users' attitudes towards an ad. For example, viewers watching a happy program are more apt to have a positive attitude towards a commercial than the same ad presented within a sad show (Goldberg and Gorn 1987). These finding were supported using the mood congruency theory (Isen 1984) which states that people in a positive mood are more likely to recall information that is positive since it is congruent with their current mood. When studied in isolation, positive television ads induced a more positive attitude towards the ad than did those that were negative in nature (Russell 1979, Brown, Homer et al. 1998).

Within online ad research, multiple studies have investigated the annoyance of on-line ads. Not only are the multiple types of online ads, such as "pop-up," "floating," or "overlay", annoying (Segal 2006), they have resulted in a decline in click-through and attention to the ad (Yaveroglu and Donthu 2008). The response has been to focus on the impact ad-context congruency has on ad recognition. One such study found that depending on the task of the online user (information seeking or simply surfing), ad-context congruency does matter (Zanjani, Diamond et al. 2011). Information seekers are better able to recall an ad within an e-magazine when it is congruent with the context. This task is similar to a person seeking the latest news.

This preliminary study investigates the impact that congruent positive online images and news articles have on users' moods and their attitude towards the image and story.

H¹: Web users exposed to a (congruent) positive image and news article will have a positive influence on their mood compared to those who are exposed to a non-congruent image or news article combination.

H²: Web users exposed to a (congruent) positive image and news article will have a better attitude towards the story and image compared to those who are exposed to a non-congruent image or news article combination.

3 Methodology

In order to examine the impact of congruent images and news articles on one's mood, a series of t-tests and a two-way ANOVA method was employed to compare the four treatment groups. One group will receive a positive news article with a positive image. A second will be exposed to a positive article with neutral image, while the third will review a neutral story with a positive image. Finally, the last group will receive both a neutral news article and image (see Table 1).

The news articles and images included in the study were selected from previously tested and validated research to determined their type (i.e., positive or neutral in nature). The two images were taken from the International Affective Picture System

Table 1. Image and News Article Mood Type

		Image	
		Positive	Neutral
Article	Positive	n=53	n=49
	Neutral	n=55	n=51

(IAPS) (Bradley and Lang 2007), one representing a positive mood evoking image and the other a neutral one. The positive image contains three puppies next to each other. The neutral image is of several baskets lined up. The positive puppy picture has a valence measure of 8.34 (out of a scale from 1 through 10, 10 being the most positive) indicating a strong positive mood evocation. The image of the baskets had a moderate or neutral valence score of 4.99.

The two articles (one positive and one neutral in tone) were taken from a previous study looking at online mood induction (Loiacono, Taylor et al. 2005). The positive news article conveyed the story of a young woman who helped a drought devastated town in Kenya. It received a score of 6.94 (out of a 1 to 7 scale, 7 being the most positive). The neutral story was selected had a score of 4.5 and discussed Sprints create in-store solutions for customers. The stories were of similar length. The positive story was 312 words in length and the neutral story 297 words.

3.1 Participants

A sample size of 208 users has been collected. Such a sample size allows for the detection of significant differences with medium effect size and a 95% power level. Participants were recruited from a national online market research firm located in the United States. They are all adult online web users, over in age 18. Additional demographic information, such as gender, level of education, experience using the Internet, and Web usage was collected and appears in Table 2. All subjects will be asked to review and sign a consent form, approved by the Internal Review Board. The incentive to participate is the regular incentive provided by the marketing firm—points towards gift cards or prizes. All subjects received a similar reward.

Table 2. Demographic Information

	Average
Gender	72.6% females
Age	47.79 years
Education Level	10.1% Graduate degree 21.2% Bachelor degree 13% Associate degree 32.2% Some college, but no degree 22.6% High school or equivalent degree 1% Less than high school degree
Internet Experience	89.4% More than 7 years 8.2% 5 to 7 years 1.9% 3 to 4 years .5% 1 to 2 years
Web Usage	97.1% daily 2.4% once a week .5% once every two weeks

3.2 Measures

Mood. Consistent with previous research, mood data was collected using the Positive and Negative Affect Schedule (PANAS) (Watson, Clark et al. 1992) mood scale. It contains 20 items, wherein 10 items measure positive mood and 10 negative mood. The measure has been shown to have high internal reliability as well as discriminant and convergent validity.

Attitude towards News Article and Image. In addition to gathering mood information, data on the subjects' attitudes towards the news article and image were also collected. For example, was it worth remembering, amusing or meaningful to you were some of the questions asked. This paper uses the item, "worth remembering," to determine subjects' attitudes towards the news article and the image.

Task. After accessing the survey site, subjects were briefed on the study and asked to accept the terms of the consent form before proceeding. Those who declined to participate were thanked and taken out of the survey site. Those who agreed to participate were asked to answer some demographic information, such as gender, age, education level, and years of Internet and Web usage. They were then asked how they felt at this moment. Several words describing different feelings and emotions were presented and they were asked to rate each on a scale of 1 (very slightly or not at all) to 7 (extremely) based on how they feel "at the present moment" (Watson, Clark et al. 1992).

Next, the subjects were taken (randomly) to one of the four news article/image combinations. They were asked to read the article. Once they finish reading the article and click on the next button, they were asked to record their current mood similar to how they did prior to reading the article and seeing the image.

They were then asked to describe or summarize in 4 to 5 words the news article and image they saw. This information allowed for the confirmation that the subjects actually read the article and saw the image. It also provided additional information on how well they were able to recall the article and image.

After completing the survey, the subjects were thanked and taken to an exit site. The total survey time was approximated to take 20 minutes to complete.

4 Preliminary Results

Out of the 208 subjects, 57 were men. The average age of participants was approximately 47.56 years with a range of 18 to 81. Most (76%) had at least some college education. In terms of Internet experience and usage, 89.4% had over 7 years of Internet experience and approximately 97.1% use the Web on a daily basis.

Initial analysis of the data reveals partial support for H¹. Congruency does impact a user's mood, but only if the congruency is positive. Through the use of paired sample t-tests, analysis was conducted on the positive and negative moods of subjects receiving each of the four treatment groups. For those receiving a congruent positive image and news article, there was no significant change in their positive mood

(t -value = $-.221$, $p = .826$), however, there was a decrease in their negative mood (t -value = 2.902 , $p = .005$). Similarly, those who received a non-congruent (neutral) image and (positive) news article, did not have a significant change in their positive mood (t -value = $-.672$, $p = .505$), but there was a drop in their negative mood (t -value = 3.050 , $p = .004$). It appears that the impact of the story on individuals' moods was more powerful than that of the image. Regardless of the image (positive or neutral), the positive mood of the participants stayed the same. A follow-up analysis, comparing the post-treatment moods of both groups receiving the positive news article, revealed no significant difference in mood (positive t -test = $-.257$, $p = .798$; negative t -test = $-.304$, $p = .762$). This suggests that the news story's mood induction may have a strong influence on a person's negative mood regardless of the image type (positive or negative) that is placed near it.

As expected, the exposure to a non-congruent (neutral) story and (positive) news article did not have any significant impact on subjects' positive (t -value = $.937$, $p = .353$) or negative (t -value = 1.534 , $p = .131$) moods. Interestingly, a comparison of the pre and post-treatment moods of those receiving a congruent (neutral) image and news article, revealed that the positive mood actually decreased (t -value = 2.317 , $p = .025$), while their negative mood (t -value = 1.809 , $p = .076$) did not. Table 3 shows changes in moods for each group.

This is interesting because it indicates that mood congruency may have different affects depending on the type of mood influencer (news story or image). When both image and news articles are positive, mood is affected in a more positive manner (negative mood decreases). However when both image and news story are neutral, users may have an overall negative mood response. Further analysis is warranted in this area to see if the resulting change in mood is due to annoyance of image and news article topics being unrelated. In this study the neutral news story discussed Sprint services, while the neutral image was an unrelated picture of baskets. This is an area that will be investigated in future research.

Table 3. Preliminary Results based on Mood

		Image	
		Positive	Neutral
Article	Positive	$P_b = P_a$ $N_b \searrow N_a$	$P_b = P_a$ $N_b \searrow N_a$
	Neutral	$P_b = P_a$ $N_b = N_a$	$P_b \searrow P_a$ $N_b = N_a$

P_b = Positive mood before treatment, P_a = Positive mood after treatment.

N_b = Negative mood before treatment, N_a = Negative mood after treatment.

Further analysis looking into H^2 revealed that congruency does not appear to impact attitude. News articles do impact a user's attitude towards the image, but not vice-versa. In particular one variable, "worth remembering" captured how users' felt about the image or story they saw. An Analysis of Variance on the current sample revealed that the type (positive or neutral) of an news article has an influence on a

user's attitude towards the news story (F -test = 17.421, p = .000) and the image (F -test = 6.487, p = .012), however, the type of image only impacts one's attitude towards the image (F -test = 7.236, p = .008), but not his or her attitude towards the news article (F -test = .567, p = .452). There does not appear to be any interaction effect between image and news story, which indicates that congruency may not play as significant a role as hypothesized. Thus, H^2 is not supported.

5 Discussion and Future Research

These results are interesting because they suggest that when looking at news articles, the combination of images and story presented can impact a visitor's mood and subsequent attitude. The type of news story can impact the attitude one has towards the image that is near it. This is similar to the findings related to television viewers watching a happy program who were more apt to have a positive attitude towards a commercial than the same ad presented within a sad show (Goldberg and Gorn 1987). Thus, advertisers may want to consider the news stories they are presented near. Additionally, the congruency of the image to the text can influence a visitor's mood and may be helpful to advertisers, since people in a positive mood are likely to have a more positive attitude towards an ad.

There is much more work to be done. As mentioned earlier, this is the first step in much larger project. Future research should (and we plan to) look at the impact of negative mood inducing news article and image. This will allow for a fuller picture of how mood evoking articles and images together impact a visitor's mood. It may be that negative text and images have a stronger or different impact on mood, especially when there is congruency between them.

References

1. Bradley, M.M., Lang, P.J.: Affective Norms for English Text (ANET): Affective ratings of text and instruction manual. University of Florida, Gainesville (2007)
2. Brown, S.P., et al.: A Meta-Analysis of Relationships Between Ad-Evoked Feelings and Advertising Responses. *Journal of Marketing Research* 35, 114–126 (1998)
3. Center, P.R.: Internet Gains as Public's Main News Source (2011), <http://pewresearch.org/pubs/1844/poll-main-source-national-international-news-internet-television-newspapers> (retrieved December 1, 2012)
4. Chebat, J., Dube, L.: Evolution and challenges facing retail atmospherics: the apprentice sorcerer is dying. *Journal of Business Research* 49(2), 89–90 (2000)
5. eMarketer. US Digital Ad Spending to Top \$37 Billion in 2012 as Market Consolidates (2012)
6. Fredrickson, B.L.: Positive Emotions and Upward Spirals in Organizations. In: Cameron, K.S., Dutton, J.E., Quinn, R.E. (eds.) *Positive Organizational Scholarship*, pp. 163–175. Berrett-Koehler Publishers, Inc., San Francisco (2003)

7. Fulberg, P.: Using sonic branding in the retail environment: an easy and effective way to create consumer brand loyalty while enhancing the in-store experience. *Journal of Consumer Behavior* 3(2), 193–198 (2003)
8. Goldberg, M.E., Gorn, G.J.: Happy and Sad TV Programs: How They Affect Reactions to Commercials. *Journal of Consumer Research* 14, 387–403 (1987)
9. Isen, A.M.: Towards Understanding the Role of Affect in Cognition. In: Wyer, R.S., Srull, T.K. (eds.) *Handbook of Social Cognition*, vol. 3, pp. 179–236. Erlbaum, Hillsdale (1984)
10. Isen, A.M.: Positive Affect as a Source of Human Strength. In: Aspinwall, L., Staudinger, U.M. (eds.) *A Psychology of Human Strengths*, pp. 179–195. American Psychological Associations, Washington, DC (2003)
11. Isen, A.M.: Some Ways in Which Positive Affect Influences Decision Making and Problem Solving. In: Lewis, M., Haviland-Jones, J.M., Barrett, L.F. (eds.) *Handbook of Emotions*, 3rd edn. Guilford Press, New York (2008)
12. Isen, A.M., Labroo, A.A.: Some Ways in Which Positive Affect Facilitates Decision Making and Judgment. In: Schneider, L.S., Shanteau, J. (eds.) *Emerging Perspectives on Judgment and Decision Research*, pp. 365–393. Cambridge University Press, Cambridge (2003)
13. Lazarus, R.S.: *Emotion and Adaptation*. Oxford University Press, New York (1991)
14. Loiacono, E., et al.: Online Mood Induction. In: *Americas Conference on Information Systems*, Omaha, NE (2005)
15. Mathur, M., Chattopadhyay, A.: The Impact of Moods Generated by Television Programs on Responses to Advertising. *Psychology & Marketing* 8(1), 59–77 (1991)
16. Mitchell, A., Rosenstiel, T.: *The State of the News Media 2012*. Pew Research Center's Project for Excellence in Journalism (2012)
17. Morrison, M., et al.: In-store music and aroma influences on shopper behavior and satisfaction. *Journal of Business Research* 64, 558–564 (2011)
18. Russell, J.A.: Affective Space is Bipolar. *Journal of Personality and Social Psychology* 37, 345–356 (1979)
19. Segal, D.: Annoying Floating Ads Are This Guy's Fault. *Washington Post* (2006)
20. Swinyard, W.: The effects of mood, involvement and quality of store experience on shopping experience. *Journal of Consumer Research* 20(2), 271–281 (1993)
21. Watson, D., et al.: Affect, Personality, and Social Activity. *Journal of Personality and Social Psychology* 63(6), 1011–1025 (1992)
22. Yaveroglu, I., Donthu, N.: Advertising Repetition and Placement Issues in On-Line Environments. *Journal of Advertising* 37(2), 31–44 (2008)
23. Zanjani, S.H.A., et al.: Does Ad-Context Congruity Help Surfers and information Seekers Remember Ads in Cluttered e-magazines? *Journal of Advertising* 40(4), 67–83 (2011)