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Eye tracking analysis: engagement levels and donor tendencies using print advertisements with emotional appeals

Abstract

This paper provides a research framework for exploring the type and intensity level of emotional appeals employed by social cause print advertisements. Audience engagement with social cause print advertisements are studied using both positive and negative emotional appeal strategies. Attitudes of respondents across a broad spectrum of constructs are explored. Upon discerning the types and intensity of emotional appeals further discussion are forwarded regarding attitudes towards the social causes, social cause organizations, helping others, and selected print advertisements, and subsequent future donor tendencies. The research is unique in its suggested use of eye tracking technology to monitor audience engagement levels with social cause advertising. Upon identification of generated eye tracker results, a respondent's engagement level with print advertisements using emotional appeals may be revealed. These results then may become strategic summaries of important aspects of a social cause donor program. An eye tracking assessment of how well print advertisements convey the needs of a nonprofit organization may provide insight regarding much needed but often illusive donor participation. Such actions may ultimately sustain worthwhile associations for future growth and financial success. Relationships are then proposed between audience engagement levels, emotional appeals, and future donor tendencies. A sample using the technology is provided which indicates support for the research framework.

Keywords: eye tracking, social cause advertising, donor influences, emotional appeals.

Introduction

Eye tracking technology has evolved in recent years into a very robust marketing research tool (Logo, Jozsa, and Hamornik, 2010; Scheiter and Van Gog, 2009). It has been used to explore such phenomenon as an individual's attention, interest level, motivation, and behavior (Rayner, Miller, and Rotello, 2008; Pieters and Wedel, 2004; Pieters, Rosbergen, and Wedel, 1999; Russo and Leclerc, 1994). This research will discuss eye tracking technology in an effort to gauge a respondent's engagement level with social cause print advertisements. Specifically, the authors will explore the relationships between advertisement engagement levels and donor responses to print advertisements using emotional appeals. Relevant research in advertising, social cause marketing, and eye tracking technology will be integrated together to formulate a conceptual framework to advance theoretical understanding of audience engagement levels, emotional intensity, and donor tendencies. Research propositions are then presented regarding emotional appeal strategies for social cause print advertisements. A sample using this diagnostic tool is provided which explores these propositions.

The research framework proposed herein discusses several variables which may influence donor participation. Eye tracking technology is proposed to help monitor such phenomenon. Eye movements are potential indicators of an individual's visual attention (Wedel and Pieters, 2008; Janiszewski, 1998). Eye trackers monitor these eye movements the results of which are referred to as scan paths. The scan paths

are comprised of saccades and fixations. Saccades are actual scan paths which reveal eye movements along a visual field. Fixations identify visual field locations where the eye pauses and gazes on certain areas. These revealed scan paths are then suggested for gauging audience engagement levels. Next, attitudes toward charitable organizations and helping others, attitudes toward the advertisements, social causes, and sponsoring social cause organizations, and future donor tendencies are discussed. Increased levels of interests, potentially discerned from these prominent scan paths, may identify peculiar components of advertisements and possible future donor intentions. As the emotional intensity level of the message increases then so may the level of eye movement detected by the scan paths across the visual field. In turn, as this emotional intensity level increases audiences may be more likely to be persuaded by these passionate appeals.

The agenda for the above research objectives is outlined below.

- ◆ Discuss eye tracking technology as a marketing research tool to measure respondent engagement levels for social cause print advertisements.
- ◆ Explore the type and intensity of emotional appeals conveyed by social cause print advertisements.
- ◆ Examine relationships between engagement levels and emotional appeals.
- ◆ Study the impact engagement levels and emotional appeals have on attitudes towards charitable organizations and helping others, as well as attitudes towards the advertisement, the social cause, and sponsoring organization.

- ◆ Reveal influences the above relationships may have on future donor tendencies.
- ◆ Suggest propositions for encouraging these relationships and future donor participation.

1. Audience engagement eye tracking research and advertising planning

Past eye tracking research has supported the use of the technology for advertising planning and research (Rayner, Miller, and Rotello, 2008; Lohse, 1997; Krugman, Fox, Fletcher, Fischer, and Rojas, 1994). It is proposed that by examining eye fixations, durations, and saccades, the effectiveness of a given promotional tool may be determined and, in fact, approved upon. Wedel and Pieters (2000) examined an individual's eye fixations on print advertisements and their ability to remember brands. The authors monitored eye movements as indicators of visual attention. The research then examined the frequency of the respondent's eye fixations on print advertisements by monitoring their ability to store the attained information in their long-term memory. Three advertisement elements were manipulated including the brand, pictorial, and text during eye fixation tasks. Accuracy and latency of memory were then examined during the memory tasks. The authors reported that two advertisement elements, pictorial and brand, impacted eye fixation on accuracy of information while the text did not. In addition, the more information obtained during the eye fixations the more quickly the respondents identified advertisements from their memory. Of the three elements, brand surface notably generated the most significant effect. This may be a potential indicator of the power of clear sponsor identification for advertisement design.

Rosbergen, Pieters, and Wedel (1997) also monitored individual eye movements during exposure to print advertisements. The authors demonstrated the effect of segmenting consumers based upon their gaze intensity during testing. Unique patterns of visual attention (gaze duration) were detected for physical advertisement properties when consumers were segmented based upon their gaze duration. The authors' propositions were supported as the impact of physical advertisement properties on visual attention to an advertisement did differ among such consumer segments. Segmentation based upon varied patterns of attention coincided with differences among the segments with respect to involvement, brand attitudes, and recall.

Pieters and Wedel (2004) again demonstrated the effect of three ad elements including brand, pictorial, and text size have on attention to advertisements. The authors effectively reported the above relation-

ships with several hundred advertisements using eye tracking based upon attention capture and transfer attention. More recently, Pieters, Wedel and Batra (2010) measured the effect of two types of visual complexity on gaze duration to improve the stopping power of advertisements. The authors reported that visual complexity was detrimental to attention to the brand and attitude toward the advertisement. In contrast, design complexity stimulated attention to the advertisement, its comprehensibility, and attitude toward the advertisement. From another perspective, Logo, Jozsa, and Hamornik (2010) applied eye tracking analysis to examine respondent behavior regarding store outplacements and shelf displays for consumer goods products. The authors then explored significant relationships based upon the respondents' eye movements and brand preferences. In summary, the above research efforts contribute to the proposed research framework that the monitoring of eye movements may reveal a unique perspective for advertisement design and offer assistance for future planning efforts.

2. Emotional appeals and intensity

The persuasive style or emotional appeal of an advertisement may be revealed through its message content and affect intensity (Henthorn and LaTour, 1993; Bulbul and Menon, 2010). The manner by which the message is delivered and what is actually stated is reflective of the advertisement content. The level of an emotion is its intensity during exposure to the advertisement (Moore, Harris and Chen, 1995). The impact the message has on its intended audience is a measure of its affect or emotional intensity. Message strategies using emotional appeals are instrumental for enhancing the persuasive element of an advertisement (Shimp, 2012; Moore, 2010; Burt and Strongman, 2005; LaTour, Snipes, and Bliss, 1996). However, limited research is available examining the influence of emotional appeal strategies for social cause advertisements on audience engagement and future donor tendencies.

The emotional appeal or valence of an advertisement can be categorized as being either positive or negative. Both positive and negative valenced emotions are considered to be advertising response stimulants (Taute, McQuitty, and Sautter, 2011). These emotional appeals may be depicted by creating affective or subjective impressions of intangible aspects of a product. The seminal Mood Rating Scale developed by Plutchik (1980) has been commonly employed to tap emotional appeals. The scale was modified further by Hong, Muderrisoglu, and Zinkhan (1987) and includes happy, fearful, pleasant, angry, interested, disgusted, sad, and surprised. Many researchers have since conducted similar emo-

tion measurement exercises (Passyn and Sujan, 2006; Bagozzi, Gopinath, and Nyer, 1999; Moore, Harris, and Chen, 1995; Olney, Holbrook, and Batra, 1991). Positive emotions stimulate a respondent's desire to approach or attain worthwhile enticements. In contrast, negative emotions generally prompt tendencies to avoid or reject unwanted affective stimuli (Ohman, Flykt, and Esteves, 2001). Chowdhury, Olsen, and Pracejus (2008) determined that of those advertisements containing all positive or all negative images, the most intense images provoked the most responses irrespective of the emotion direction. However, when both positive and negative images were displayed together individuals created their own evaluative response procedures. As a result, minimal advantages resulted when multiple images were used with similar emotion types and levels of intensity. When differing levels were employed with mixed emotional images, positive images dominated. Thus, it is suggested that either all positive or all negative images be employed as an advertising strategy. Otherwise, the use of stronger positive emotions is advised when employing mixed emotional messages.

3. Emotional intensity, engagement levels, and donor tendencies

Contributions to a social cause organization have proven to be impacted by the emotional appeals contained in its message strategy (Fisher, Vandebosch, and Antia, 2008; Burt and Strongman, 2005) and by assorted donor behavior influences (Snipes and Oswald, 2010; Sargeant, 1999). The emotional intensity of images has been demonstrated to be a stimulant for donations including time and money (Burt and Strongman, 2005). Green and Webb (1997) explored factors which influence monetary donations to social cause organizations. The authors developed scales measuring attitudes towards charitable organizations and helping others. Especially noteworthy was the purposeful separation of these validated scales measuring attitudes directed toward charitable organizations and those directed toward helping others as separate phenomena. The first construct, Attitudes Toward Charitable Organizations (ACO), was a comprehensive evaluation of an individual's perspective with regards to social cause organizations and helping those in need. The second construct, Attitudes Toward Helping Others (AHO), provided a global assessment of an individual's willingness to help or assist other people. These donor attitude scales were modified further in an attempt to recognize socioeconomic and psychological influences (Webb, Green, and Brashear, 2000), the results of which indicated a positive relationship between Attitudes Toward Charitable Organizations (ACO) and Attitudes To-

ward Helping Others (AHO), and subsequent donor behavior.

Research suggests that helping behavior is also influenced by the cost-benefit analysis an individual presumes will be the consequences of partaking in a social cause activity (Bendapudi, Singh, and Bendapudi, 1996). In addition, the level of emotional appeals conveyed by the advertisement may impact participation in the social cause initiative (Lennon and Rentfro, 2010; Bagozzi, Gopinath, and Nyer, 1999). A social cause print advertisement which evokes a high level of positive emotional intensity will spur audience participation with the promoted social cause. For instance, if a respondent reveals a strong positive emotion for a social cause print advertisement which touts the positive outcomes of mentoring a child, that individual may be more inclined to support or encourage such future activities. In agreement, a social cause print advertisement with high levels of negative emotional intensity will discourage behavior or activities that are conveyed in the advertisement. For example, if a respondent feels strong negative emotions for a social cause advertisement displaying detrimental consequences of poverty, the individual will respond in a manner that will reduce such ills in the future.

As stated earlier, the level of emotional intensity induced by the advertisements may serve as a catalyst for increased engagement levels and attitude development (Taute, McQuitty, and Sautter, 2011; Bagozzi, Gopinath, and Nyer, 1999). Attitude formation has been demonstrated to be influenced by the emotions evoked from a message (Bagozzi and Moore, 1994; Moore, Harris and Chen, 1995). Another factor, Attitudes Toward the Advertisement, has been proven to be a relevant predictor of behavioral intentions (Olney, Holbrook, and Batra, 1991; Gardner, 1985). Further, Attitudes Toward the Advertisement has been linked to the effectiveness of social cause appeals (Taute, McQuitty and Sautter, 2011; Brunel and Nelson, 2000). As the strength of an emotion increases, attitude changes may occur. As a consequence, audience engagement and their attitudes may be stronger as emotional intensity increases. It may then be supported that as emotional intensity and engagement levels increase the donor tendencies may increase too (Bendapudi, Singh, and Bendapudi, 1996). The impetuses then are either to avoid a stimulus when negative consequences are anticipated or induce participation when positive consequences are predicted. It is, therefore, reasonable to propose that the stronger the level of emotional intensity, whether positive or negative, the greater the likelihood that an individual will en-

gage in the advertisement and social cause. Also, as the engagement level increases, there is an increased tendency for an individual to participate accordingly.

An individual's willingness to donate may also be impacted by their assessment and or experience with the specific cause or subsequent sponsoring organization (Snipes and Oswald, 2010; Venable, Rose, Bush and Gilbert, 2005; Ross, Patterson, and Stutts, 1992). This is reflected in the respondent's reactions as to whether or not they feel the cause and organization are worthwhile and deserving of their time, attention, and financial resources (Cermak, File, and Prince, 1994). An individual may be a generous donor to a specific social cause but discriminatory as to which social cause organization that sponsors the cause will receive their support. Thus, attitudes toward the social cause and the sponsoring organization will also impact responses generated from the advertisements.

Given that there is some consensus regarding emotional intensity and engagement levels with print advertisements, and their influence on donor tendencies, this work proceeds with a discussion of relevant research propositions.

4. Research propositions

The fundamental premise of this research framework is that donor tendencies are expected to vary based upon advertisement engagement levels and emotional intensity for social cause print advertisements. The framework has been supported by the literature reviewed above. It has been proposed that both attention selection (what the respondent chooses to attend to) and attention engagement (sustained attention) are instrumental in the choice of which advertisements an audience opts to gaze upon, and eventually stimulate desire for the product featured in such advertisements (Pieters, Wedel, and Zhang, 2007). It may then be forwarded that in the same capacity both attention selection and attention engagement may be future indicators of donor tendencies. This suggests that eye tracking data may assist researchers in monitoring attention and cognitive tasks as well as serve as a tool to facilitate and recognize future audience behaviors (Scheiter and Van Gog, 2009; Janiszewski, 1998; Russo and Leclerc, 1994). Thus, it is predicted that both strong positive and negative emotional intensity will illicit higher levels of audience engagement and willingness to offer support for a social cause. As emotional intensity increases, an individual's engagement with an advertisement will increase. Moreover, an increase in an individual's emotional intensity and engagement level will result in increased donor participa-

tion as well. This participation may be in the form of money, goods, or time contributed by the individual.

The previous discussion leads to the following propositions.

Proposition 1. Advertisements with high levels of emotional intensity will have a positive relationship with attitudes towards that advertisement, helping others, the social cause, and its sponsoring organization.

Proposition 2. Advertisements with low levels of emotional intensity will not have an effect on attitudes towards that advertisement, helping others, the social cause, or its sponsoring organization.

Proposition 3. Advertisements with high levels of audience engagement will have a positive relationship with attitudes towards that advertisement, helping others, the social cause, and its sponsoring organization.

Proposition 4. Advertisements with low levels of audience engagement will not have an effect on attitudes towards that advertisement, helping others, the social cause, or its sponsoring organization.

Next, with established support for the propositions above, the following two are forwarded.

Proposition 5. Advertisements with high levels of emotional intensity will stimulate a positive relationship with levels of donor participation.

Proposition 6. Advertisements with high levels of audience engagement will stimulate a positive relationship with levels of donor participation.

5. Discussion

A sample was conducted using two social cause print advertisements in an effort to explore the proposed research framework. The work applied eye tracking methods and offers illustrative support for the propositions above (see Figures 1 through 4). Figure 1 and Figure 2 display two social cause print advertisements as they would appear in a published magazine opposite editorial content. Figure 3 and Figure 4 show two correspondent sample heat maps for the advertisements as generated using Tobii eye tracker equipment. Heat map illustrations indicate the areas of fixation. Darker shades indicate areas which were either fixated (gazed) upon for an extended period of time or at many instances. Audience engagement reflected in the eye movements and subsequent information extracted from the fixations were indicators of attention to the advertisements. The heat maps illustrated the prominent advertisement design features including photos, headlines, text, and sponsor identification as indicators of interest. After monitoring eye tracking movements for the two advertisements

further questioning indicated that Figure 1 was exemplary of a negative emotion intensity advertisement. In contrast, Figure 2 displayed an adver-



Fig. 1. Negative emotion advertisement



Fig. 3. Heat map negative emotion advertisement

The heat map results indicated that the photo in Figure 3 was fixated on much more frequently as was the same for the photo in Figure 4 compared to other advertisement features. These gaze durations may suggest that photos generate much expected interest and importance in advertisement design. Similarly, the text and sponsor identification were prominently attracted as well. However, such results may also indicate that some areas of the advertisements are attracting minimal attention while others are stimulating too much. Thus, this sample encourages future analysis using a much larger sample pool which combines eye tracking data with emotion intensity and donor intention measures. The additional research may offer a more comprehensive and in-depth perspective for

tisement with positive emotion intensity. Both advertisements stimulated participation interest for their respective causes.



Fig. 2. Positive emotion advertisement

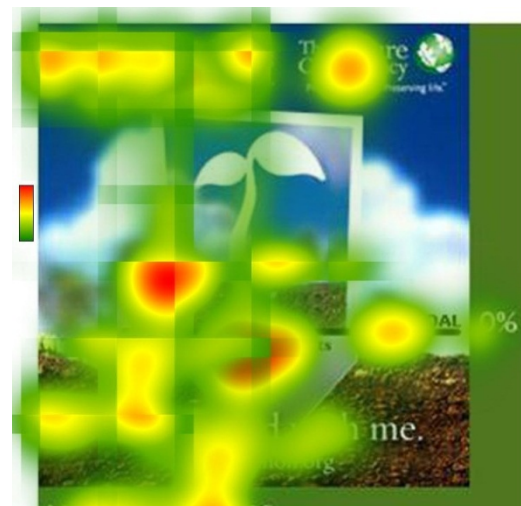


Fig. 4. Heat map positive emotion advertisement

advertisement design and donor participation. Although the sample is limited in scope, the objectives of this work were to provide an important foundation for future analysis.

In summary, the eye tracking figures used in this sample may provide evidence to support the research framework and warrant future analysis. This work reveals how emotion evoking advertisements with detected eye movements as indicators of audience engagement may stimulate audience attention and participation in a social cause. Implications of this study were that donor tendencies may be stimulated through improved advertisement design. The framework demonstrates the usefulness of eye tracking technology to assess advertisement effectiveness. The tech-

nology may complement existing research methods and offer more comprehensive visual analysis for advertisement planning and donor appeal strategies.

Conclusions and managerial implications

The authors attempted to advance theoretical understanding of what stimulates an individual's desire to help others and the promotional strategies that are most likely to motivate them to finally act. This research uniquely proposes the use of eye tracking technology to develop a better understanding of what influences individuals to participate in a social cause. With such a vast array of social cause organizations in existence, marketers are in need of better promotional strategies to attract donor participation. The work discusses future sponsor participation encompassing social cause organizations, print advertisements, and emotional appeals. Findings that stronger emotional appeals stimulate attention and concentration will further support our predictions that such appeals activate greater audience engagement levels, interest for the social cause, and willingness to support its mission. The framework suggests that low levels of emotional appeals will not register much interest regardless of the social cause.

This work offers insight for both researchers and managers. Utilization of this unique analytic tool may assist social cause organizations as they formulate donor appeal strategies and at the same time integrate them with other marketing research efforts such as surveys, ethnographic studies, and experiments. The propositions offer a framework which may now be pursued empirically. Further research may empirically test the above propositions offering much desired insight into donor behavior. In the future, hypotheses may be tested measuring both the type and intensity level of each emotion and subsequent audience engagement levels and proclivities for donor participation.

The eye tracking data presented was only intended to offer a sample using this diagnostic tool. It was not meant to be indicative of a statistically significant sample of a population. The illustrations provided served as a pedagogical snapshot for discussion and are used to simulate future research.

Eye tracking illustrations will assist marketers to better understand the effectiveness of identified promotional strategies, provide insight for improved message content, and reveal a new more desirable approach for reaching untapped consumers. Marketers may then be able to strengthen their communicative abilities by providing more stimulating messages. These exercises may provide insight as to what appeal strategies best differentiate an organization and its cause from competitors. Thus, individuals may be motivated to participate or contribute to what may have been a formerly unrecognized or unfulfilled need.

Diverse emotional appeals may impact individuals' engagement with social causes and subsequent responses to various solicitations. This integrated and measurable approach may then yield more desirable responses. Future comparisons with eye tracking technology versus other traditional marketing research methods may reveal the implications and avenues for integration for this worthwhile analytical tool. The theoretical and empirical opportunities for this marketing research tool are vast. Not only may appeals be examined but content, images, design, and sponsor identification as well. As solicitations increase and finances become tenuous, donors will likely become more resolute about charity affiliations. Organizations are often perplexed as to why donors contribute to one cause and not another. Theories may now be encouraged that explore respondent reactions to various nonprofit organizations, social causes, and emotional appeals.

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