

How Emotional Arousal and Attitudes Influence Ad Response: Using Eye Tracking to Gauge Nonprofit Print Advertisement Effectiveness

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Abstract

The research objectives for this work were to determine whether an individual's willingness to donate to a cause was impacted by emotional appeals and attitudes toward the ad, helping others, and charitable organizations. Eye tracking was utilized to identify three areas of interest (AOIs) for print advertisements including Brand\Logo, Face, and Text. Time to First Fixation (TFF), First Fixation Duration (FFD), Fixation Count (FC), and Total Visit Duration (TVD) were four metrics calculated for the AOIs to determine if any of these gaze patterns revealed whether contributions to nonprofit organizations were influenced by different advertisement appeals. The results indicated a positive relationship between the emotion aroused by an ad and a respondent's engagement with that ad based upon select AOIs and attitudes toward the ad. Also shown were significant relationships between attitudes toward the ad and identified AOIs and willingness to donate. Donation likelihood was positively related to attitudes toward helping others and social cause organizations. Results for the four metrics revealed that Text generated the most significant relationship with the three AOIs followed by Face, and then last, Brand\Logo.

Keywords: Eye Tracking, Nonprofit Advertisements, Marketing Strategy

1. Introduction

A viewer's emotion induced response to advertisements has been linked to desired audience participation (Kemp, Bui, & Chapa, 2012; Faseur & Geuens, 2012; Morris, Woo, Geason & Kim, 2002). This research provides a theoretical framework for examining the impact emotional intensity has on donor behavior. Nonprofit organizations (NPOs) advertisements are examined using eye tracking technology to reveal audience engagement with the ads. Further, attitudes toward an ad, attitudes toward social cause organizations, and attitudes toward helping others are explored as to their propensity to impact this donor behavior. A research question is used to guide this study which asks whether NPO advertisements employing emotional appeals enhance these attitudes to the extent that organizations can garner increased financial support from their efforts. The metrics further provide a unique gauge as to which aspects of the ads, specifically areas of interest, generated the greatest donor responses. Eye tracking is an effective and popular tool to monitor this emotional engagement (Goldberg, 2014; Xing, 2014; Purucker, Landwehr, Sprott, & Herrmann, 2013). The technology can enable marketers to monitor an audience's emotional engagement with an ad and then, in turn, determine the most effective strategies for stimulating desired behaviors.

2. Background

2.1 Emotional Arousal

Emotional arousal or engagement with advertisements has been proven to be an effective tool for social cause initiatives (Bennett, 2015; Shier & Handy, 2012; Wang, 2008). There is common agreement that the appropriate emotional appeal be employed for the corresponding desired advertisement objective (Morris, Woo, & Singh, 2005; Bagozzi, Gopinath, & Nyer, 1999; Rossiter & Percy, 1991; Stout & Leckenby, 1986).

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For example, if discouragement of a behavior is the goal, then a fear appeal would be a likely deterrent for this consequence. In contrast, encouraging a positive behavior would likely suggest a positive emotional appeal to satisfy this objective. The premise is then that emotions may act as a stimulant to intensify the engagement and then further involvement with an ad. These heightened responses will then serve as a stronger catalyst to motivate audience response.

2.2 Attitude toward the Ad

Attitude toward the ad (Aad) is popularly presumed to be a reflection of what respondents' impressions are about the ad itself whereby the more positive the attitude then the more favorable the outcome (Wang, Shih, & Peracchio, 2013; Brown & Stayman, 1992; Shimp, 1981). Various relationships have been demonstrated between attitude toward the ad and behavioral intentions. For example, Henthorne, LaTour, and Natarajan (1993) proposed that emotional arousal generated by an ad stimulates formulation of an attitude toward the ad which then encourages behavioral intentions. Brunel and Nelson (2000) specifically studied charitable ads and provided evidence that attitude toward the ad served as an antecedent of behavioral tendencies and influenced responses to help ones' self and help others. Further, attitudes toward cause related marketing ads were tested by Manuel, Youn, and Yoon (2014). Using a before and after design with attitudes as a moderator the authors determined that the stronger the argument conveyed in the ad the greater the generated persuasion to support the cause.

2.3 Attitudes toward Helping Others and Social Cause Organizations

Past research has indicated that a willingness to help those of need may impact future donor behavior (Bennett, 2015; Schloderer, Sarstedt & Ringle, 2014; Wang, 2008). Attitude toward helping others (AHO) taps the universal belief that people who are less fortunate should be provided assistance and are deserving of charitable support (Morris, Harris, & Chen, 1995). Attitude toward charitable organizations (ACO) is a construct encompassing responses based upon whether individuals deemed money given to charities is justified, worthwhile, and whether or not social causes are beneficial to society (Morris, Harris, & Chen, 1995). A general overall premise being that if an individual feels a responsibility to help others and has a favorable opinion about charitable organizations the more likely they will be to support philanthropic initiatives.

2.4 Linking Donor Participation

The link between emotional intensity, attitudes, and stimulated behavioral intentions has been widely supported (Paulus & Wentura, 2016; P. Assyn & Sujan, 2012; Kemp & Kopp, 2011). More extensive analysis revealed that engagement levels, anticipatory emotions, and attitude formation may be stimulated by the emotional intensity conveyed by an ad (Kuppens, Tuerlinckx, Russell, & Barrett, 2013; Kemp, Bui, & Chapa, 2012; Taute, McQuitty, & Sautter, 2011; Moore, 2010). Emotions evoked from an advertisement's message have been proven to impact attitude development and favorability responses (Keshari & Jain, 2016; Panda, Panda, & Mishra, 2013; Moore, Harris, & Chen, 1995; Bagozzi & Moore, 1994; Olney, Holbrook, & Batra, 1991). Importantly, these attitudes toward an ad have been linked to the effectiveness of social cause appeals (Bennett, 2015; Manuel, Youn, & Yoon, 2014; Taute, McQuitty, & Sautter, 2011; Wang, 2008; Brunel & Nelson, 2000). As the emotional intensity of an ad increases, attitude changes may occur. It has been proposed that as emotional intensity and attitudes strengthen, audience engagement will increase further as well. Thus, behavioral intentions and or donor contributions may rise as a result of increases in engagement levels and emotional intensity (Bendapudi, Singh, & Bendapudi, 1996). This may suggest that as the emotional intensity of the ad increases, irrespective of whether it is positive or negative, the more inclined an individual will be to engage with the ad and then more likely the NPO.

2.5 Eye Tracking Applications

Research has demonstrated that a respondent's visual attention to marketing stimuli can have a relationship with future actions (Neudecker, Esch, Schaefer, & Valussi, 2014; Allen, Biggane, Pitts, Otondo, & Van Scotter, 2013). Attention may be an indicator as to how an individual engages and responds to a message because what type of stimulus attracts attention may reveal likely outcomes from that message. Monitoring attention with eye tracking technology may yield relationships between what was attended to and the resultant responses and actions on the part of the viewer (Hong, Misra, & Vilcassim, 2016; Meibner, Musalem, & Huber, 2016; Boerman, van Reijmersdal, & Neijens, 2015). Emotion has been recognized as a driver of this attention (Teixeira, Wedel, & Pieters, 2012; Maughan, Gutnikov, & Stevens, 2007; Nuemmenmaa, Hyona, & Calvo, 2006).

Past eye tracking studies have examined the influence emotions have on a respondent's subjective responses. For example, Goldberg (2014) employed eye tracking technology and explored relationships including emotional valence and software page screen complexity. Emotional valence from video applications revealed influences on subject ratings based upon the premise that screen complexity should be adapted to a user's role or situation. Importantly, this supports the notion that adaptability or tailoring of the ad's emotional appeal may impact the viewer's response patterns. Also, Xing (2014) revealed findings that whether an individual was angry or sad impacted their attending to information relevant to their decision making tasks. Angry individuals were more mindful of heuristic cues than factual information prior to a task than sad individuals whom did not convey either tendency. In particular, ad research has demonstrated that eye tracking enhances our understanding of viewer attention as gaze patterns illustrate which ad elements receive attention, the pattern of that attention, and the duration (Tangamane, 2013; Rayner, Miller, & Rotello, 2008; Maughan, Gutnikov, & Stevens, 2007). Hence, eye tracking metrics may indicate involvement with an ad which may then reflect the attention directed towards it (Matukin, Ohme, & Boshoff, 2016; Smit, Boerman, & Van Meurs, 2015; Atalay, Bodur, & Rasolofarison, 2012; Pieters & Wedel, 2004). Further, Olney, Holbrook and Batra (1991) proposed that the effects of emotions evoked by an ad and attitudes towards that ad were mediating variables which affected the relationships between ad content and tracked viewing time.

3. Research Design

As explained above, eye tracking is an effective advertising research tool as it identifies the areas of interest for an ad. For this study the areas of interest (AOIs) are the Brand\Logo, Face, and Text for the NPO ads. The technology monitored eye movement pertaining to these AOIs as a viewer was exposed to the visual NPO ad stimulus. Patterns of eye movements were recorded across the visual field and were indicators of visual attention referred to as scan paths. Saccades and fixations comprise the scan paths. Saccades reveal actual eye movement paths across these fields. In comparison, fixations depict points where the viewer's eyes stop, gaze, and fixate on select areas of interest. From these generated scan paths detailed gaze plots emerge to reveal a vast amount of information about the referenced visual field. The plots are evidence of the sequential nature of the user's gaze. For example, where did the user look first, last, and how frequently are possible notable fixations. The length of time focused on an area of interest or fixation duration is an indicator of how long a viewer devotes to gazing at or obtaining information from a particular location on the ad. In general, the level of attention a participant devotes to an AOI is reflected by the number of times that individual fixates on that focal point. The faster, longer, and more frequently, a participant responds to the AOI, the greater their attention level.

Again, for this study three areas of interest (AOIs) were designated for each ad to monitor users' attention – Brand\Logo, Face, and Text. The attention levels directed towards these AOIs were deemed as indicators of ad engagement. Four eye tracking metrics were calculated for the three AOIs including Time to First Fixation (TFF), which measures how long in seconds it takes a viewer to fixate on the AOI for the first time, First Fixation Duration (FFD), a measure of time spent on that first fixation, Fixation Count (FC), which calculates how often the viewer fixated on the AOI, and last Total Visit Duration (TVD), the total time or duration of all fixations on the AOI. In other words, ad engagement was operationalized with these four eye tracking metrics. In summary, it may be proposed that the more emotion evoked from an ad, the more attention a viewer will give to that ad, and more likely they are to have a stronger attitude toward that ad. Thus, the greater the emotional intensity and attitudes toward the ad, helping others, and NPOs, the more engaged the respondent is with the ad, which may then increase the donation likelihood for that advertised NPO.

3.1 Hypotheses

Based upon the discussion above, the following hypotheses are tested to examine if there are significant relationships between viewers' attention (TFF, FFD, FC, and TVD) to AOIs (Brand\Logo, Face and Text), aroused emotions, attitudes toward the ad, helping others, and social cause organizations, and donor intentions:

H01: There is a positive relationship between emotional arousal induced by the ad and audience engagement (visual attention to AOIs) with the ad.

H02: There is a positive relationship between emotional arousal induced by the ad and attitude toward the ad.

H03: There is a positive relationship between audience engagement (visual attention to AOIs) with the ad and attitude toward the ad.

H04: There is a positive relationship between attitude toward the ad and willingness to donate to the cause.

H05: Attitude toward the ad will mediate the relationship between emotional arousal induced by the ad and willingness to donate to the cause.

3.2 Research Framework and Data Collection

Our proposed research framework conceptualizes unique areas of interest and their relationships with emotional appeals and attitudes toward an ad. The hypothesized paths begin with an ad's ability to stimulate an emotional response, then triggering attitudes toward the ad, which in turn is impacted by the respondent's attitudes toward social cause organizations and helping others. Last, a behavioral response is measured to signal donor intentions. Eye tracking metrics provide a visual portrait of the respondent's reactions to the ads while a questionnaire taps construct measurements. The hypotheses are based upon the assumption that the faster, more frequently, and longer a participant gazes upon the ad stimuli, the greater the opportunity to engage with that viewer, and ultimately produce a desired response.

The data required for purposes of this study was collected from a convenience sample of college students from a variety of disciplines. The sample originally totaled 63 students but upon refinement of the preliminary data only 60 were included in the final eye tracking analysis. Respondents were eliminated due to insufficient responses or technical malfunctions. Before actual data analysis was conducted several steps were necessary to execute the research design including selection of the NPO ads for the main study. NPO ads were selected based upon an extensive sampling from a variety of publications. Presentation of ads was randomized to ensure a diverse pool of organizations, causes, and message themes. The ad categories included human services, health, environment, animals, community development, education, and the arts. To verify the accuracy of this selection process, a pilot study rating emotional responses both positive and negative to these advertisements was conducted with approximately 100 respondents. As a result of this initial exercise, the ad pool was reduced to no more than 50 ads. A manipulation check was then conducted whereby a second questionnaire was given to more than 200 respondents again asking them to describe their emotional responses to this refined grouping of ads. It is noted that neither of these respondent groups were part of the main eye tracking study. Further scrutiny of these ads revealed statistical support that they were adequate to forward for further review. The researchers then purposefully ensured that the final pool of NPO ads was further reduced to ensure no replicated organizations or causes were included. This resulted in six final ads that were manageable for the research model and mechanical apparatus employed. More detailed discussion regarding verification of the adequacy of this representative ad pool will be provided later as part of the main study analysis. Evidence is provided that the ads chosen are reflective of emotion-based appeals.

Once the final six NPO advertisements were selected data collection was initiated for the main study. Procedurally, participants received a brief introduction of the purpose of the study including how their assistance will help the researchers provide enhanced knowledge of stimulants to donor activity. They were given a description of what to expect during their study participation including activity steps and time to completion. First, participants viewed the six NPO advertisements using Tobii eye tracking equipment. A Tobii T-60 eye tracker (www.tobii.com) measured eye movements as the participants viewed the ads. The device employs corneal and pupil reflection tracking to capture images of the eyes and subsequent viewing patterns. Algorithms are then employed to generate space and gaze activity. The order of the advertisements was varied to ensure no order bias occurred. The eye tracker monitored the indicated three AOIs and four designated eye metrics. Upon completion of the eye tracking portion of the study, respondents immediately completed an electronic questionnaire, again displaying the ads, assessing emotions evoked from the six ads and their willingness to donate to the corresponding causes. This research instrument for the main study administered after the eye tracking exercises were completed tapped the type and intensity of emotions evoked by the ads, attitudes toward the ads, helping others and NPOs, as well as willingness of respondents to donate. Importantly, the eye tracking data provided temporal responses which can then in turn be linked to these stimuli and desired responses. Last, all participants responded to questions regarding their demographic characteristics and prior philanthropic behavior. After viewing of the print ads and surveys were completed respondents were debriefed by the research assistants and any questions were answered.

3.3 Emotional Arousal Construct

Rating scales for emotional valence have included multiple dimensions to assess the many aspects of this response.

The techniques implemented to measure emotions for this work were similarly employed in many prior emotion measurement studies (Passyn & Sujan, 2012; Bagozzi, Gopinath, & Nyer, 1999; Moore, Harris, & Chen, 1995; Olney, Holbrook, & Batra, 1991; Hong, Muderrisoglu, & Zinkhan, 1987; Plutchik, 1980). In general, positive emotions are advanced as evoking more optimistic assessments and kindle an individual's effort to attain pleasure seeking experiences. In contrast, negative emotions are opposite in nature and evoke more pessimistic assessments resulting in an effort to avoid or reject unwanted consequences (Xing, 2014; Ohman, Flykt, & Esteves, 2001). However, these responses are often much more complex as there is disagreement regarding the factors that affect responses to emotional advertisements and this disparity may be due to the magnitude of negative versus positive emotions evoked from the messages (Taute, McQuitty, & Sautter, 2011; Small & Lerner, 2008; Lerner, Small, & Loewenstein, 2004). As a result, for this study both the type and intensity of the emotional appeals used in the NPO advertisements were measured.

Based upon the prior research above, twelve emotion items selected for inclusion in the measurement were happy, angry, good, disgusted, glad, fearful, joyful, bad, unpleasant, surprised, sad, and pleasant. Respondents were asked on a 7-point Likert-type scale whether they strongly disagreed to strongly agreed that the advertisement evoked each of these twelve items. Two separate constructs resulted. One factor consisted of averaged scaled items indicating a positive appeal and the other factor average scaled items indicating a negative appeal. As discussed earlier, during the pretesting phase six advertisements were chosen ensuring that those selected evoked a range of emotions from either a high positive emotional response to a high negative emotional response. This same scale was then employed for the main study such that upon completion of the eye tracking task for each ad respondents repetitively completed the questionnaire for each ad using the 12 item scale. Again, statistical analysis confirmed the ads were appropriately categorized based upon the evoked emotion. The corresponding positive versus negative emotional scores were then averaged to create an emotional arousal score and reflected the degree of the emotional reaction (EMOT) or emotional orientation to each of these ads.

3.4 Attitudes toward the Ad, Helping Others, and Social Cause Organizations, and Donation Constructs

Popularly chosen measures of Attitude Toward the Ad (Aad) (Cistulli, Jacobs, & Snyder, 2015; Halkias & Kokkinaki, 2014; Um, 2014; Lee & Mason, 1999; Moore & Harris, 1996; LaTour, Snipes, & Bliss, 1996; Pollay & Mittal, 1993; Mackenzie & Lutz, 1989) were used for this study. Participants rated their overall impression of the ads based upon six items using a 7-point Likert-type scale (strongly disagree to strongly agree) including good \ bad, high quality \ low quality, interesting \ not interesting, appealing \ not appealing, useful \ not useful, and informative \ not informative. This method of calculating the mean average for these selected items to represent the construct Aad is consistent with past research efforts mentioned above.

Attitude toward Helping Others (AHO) and Attitude toward Charitable Organization (ACO) were calculated using Webb, Green, and Brashear (2000) scales. The construct AHO was measure with four items including people should help others who are less fortunate, helping others with their problems is very important to me, people should be more charitable toward others in society, and people in need should receive support from others. ACO was operationalized with five items including the money given to charities contributes to good causes, much of the money donated to charity is wasted, my image of charitable organizations is positive, charitable organizations are successful in helping others, and charity organizations perform a useful function for society. Again, 7-point Likert-type scales were employed for both constructs.

In the effort to gauge an individual's willingness to donate to the cause (DONATE), respondents were asked on a 7-point Likert-type scale whether they would donate money to the organization sponsoring the ad with 1 indicating strongly disagree to 7 strongly agree to donate.

4. Data Analysis

The respondents were shown the six ads first and then directed to the questionnaire site. An ad from these six was chosen for illustrative purposes only for a resultant heat map and gaze (scan) plots and are provided (see Figures 1 and 2). Figure 1, is a heat map which is evidence of a participants' engagement with the ad for the three AOIs. Correspondingly, Figure 2, shows scan plots and provides their gaze patterns about the ad. Correlation analysis is appropriate given the chosen method of analysis which employs eye tracking related data. To determine relationships between the constructs EMOT, Aad, AHO, ACO, and DONATE corresponding means (correlations) were obtained.

Mean (correlations) scores for EMOT and Aad, and the three AOIs (BRAND, FACE, and TEXT) were calculated as an indicator of ad engagement based upon the four eye metrics (TFF, FFD, FC, and TVD). Respondent's visual attention to the ads was measured by the various fixation rates for the AOIs.

Figure: 1 Heat Map

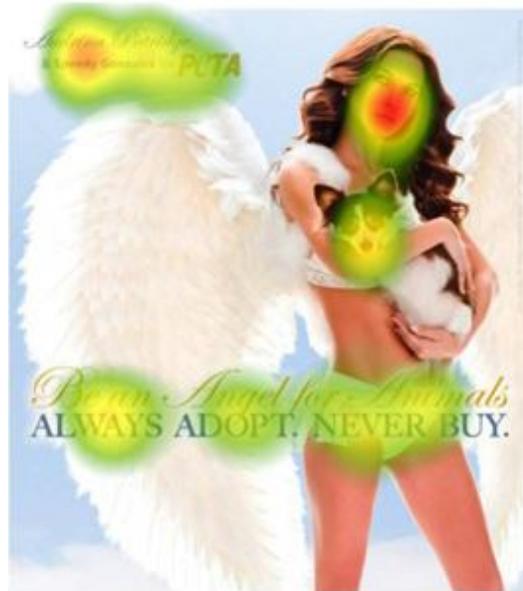


Figure 2 Scan Plots



The results of this data analysis for the hypothesized paths are provided in Diagram 1. For efficiency purposes, the results display only those relationships that were correlated at .05 or greater level of significance. Varying levels of areas of interest and relationships with these constructs demonstrate correlations with desired donor behavior.

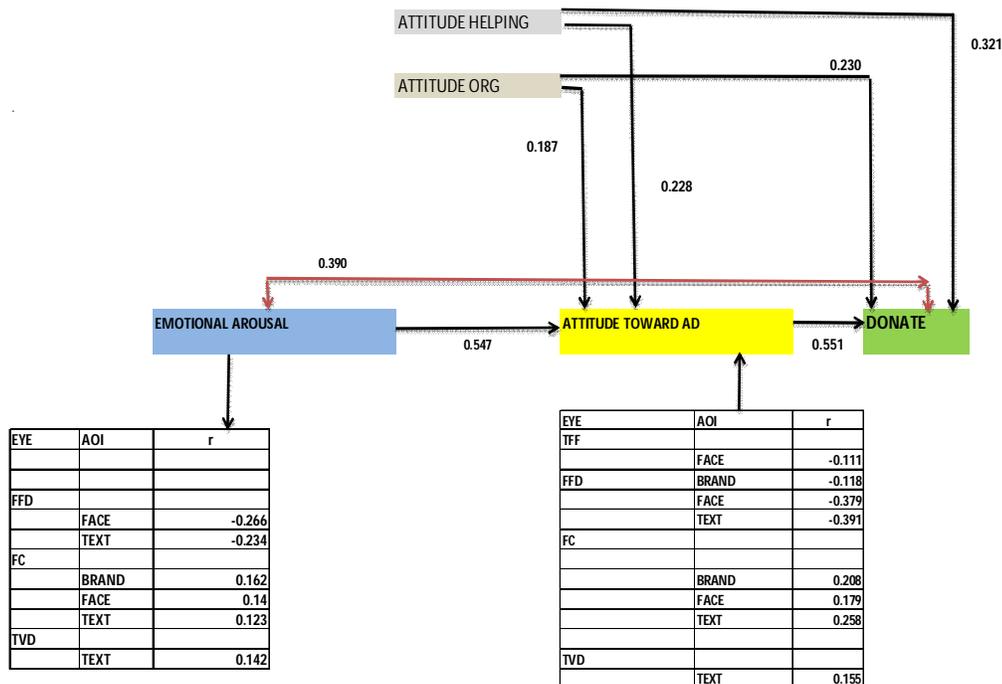


DIAGRAM 1
CORRELATION ANALYSIS RESEARCH CONSTRUCTS
.05- Sign. Level

The Time to First Fixation (TFF) refers to the time it takes for the subject's eyes to stop on an area of interest. A NPO ad that draws attention immediately to the FACE in that ad has a significant negative correlation with the subject's Aad. Using the eye tracking metric TFF, the less time that fixation took to the FACE in the ad, the higher the score measuring the subject's Aad (TFF, $r = -.111$). No significant correlations between TFF and EMOT or the FACE, or any other AOIs were found. The First Fixation Duration (FFD) refers to the length of time the subject spends on the designated AOI when they first look at it. The FFD for the FACE and TEXT are negatively correlated with EMOT, meaning that the more emotionally arousing the ad the less time is spent on that area on the first fixation (FACE, $r = -.266$, TEXT, $r = -.234$). When less time is spent on the first fixation (FFD), the Aad increases (BRAND, $r = -.118$, FACE, $r = -.379$, and TEXT, $r = -.391$).

The number of times a subject's gaze returns to a specified AOI is referred to as Fixation Count (FC). The FC on the BRAND, FACE, and TEXT of the ad are all significantly correlated (.05 or higher) with both the degree of emotional arousal (BRAND, $r = .162$, FACE, $r = .14$, and TEXT, $r = .123$) and Aad (BRAND, $r = .208$, FACE, $r = .179$, TEXT, $r = .258$). This means that an NPO ad that is arousing emotion is correlated to how many times the subject goes back to look at the areas of the BRAND, FACE, and TEXT, and likewise, the subject's Aad. An emotionally arousing NPO ad will create more interest with viewing these parts of the ad than one that is not emotionally arousing and the same for generating more positive attitudes.

The Total Visit Duration (TVD) is an eye tracking metric that measures the total time (in seconds) that the subject spends on an AOI including the number of times the subject goes back and fixates again on that AOI. A high degree of emotional arousal from the ad is positively correlated with the TVD of the subject on the AOI of the TEXT ($r = .142$). The more time the subject spent on the TEXT, the greater the Aad ($r = .155$).

The illustrated paths indicate a positive relationship between EMOT and Aad (0.547), and with ad and DONATE (0.551). A proven positive correlation was shown (.390) for EMOT and DONATE without Aad included but not as strong as the above relationships. This finding then emphasizes the need for NPO ads to reflect a proven positive attitude beyond just an intense emotional response. AHO and ACO were positively correlated with Aad (0.228 and 0.187) and DONATE (0.321 and 0.230). Both findings demonstrate how the respondent's attitudes about helping others and social cause organizations impact not only their attitudes about an ad but their willingness to donate. This is in support of prior research studies discussed earlier.

In conclusion, H01 to H04 were supported. Positive relationships were demonstrated between EMOT and ad engagement with indicated AOIs as well as Aad. Also, positive relationships were shown with identified AOIs and Aad, and Aad with DONATE. H05 was not proven. In order to prove mediation, emotional arousal and attitude toward the ad must be positive correlated, attitude toward the ad and willingness to donate must be positive correlated, but, emotional arousal and willingness to donate cannot be positive correlated. Since all three relationships above were positively correlated (sign. $.05 > 0.547, 0.551, \text{ and } .390$), attitude toward the ad does not mediate the relationship between emotional arousal and willingness to donate. This conclusion is consistent with prior research methods related to mediation and correlation significance (Kemp, Bui, & Chapa, 2012; Baron & Kenny, 1986). Also, as indicated, there is a significantly stronger positive relationship between AHO and ACO with willingness to donate (0.321 and 0.230) than AHO and ACO with attitude toward the ad (0.228 and 0.187). This may indicate that respondents were more stimulated to donate to the cause based upon the universal willingness to help others and social cause organizations independent of their attitudes toward the ad which had attempted to stimulate their donor interests.

5. Conclusions, Implications, and Limitations

This research provides an opportunity to examine how emotions, attitudes, and donor intentions interrelate with each other during decision making. Eye tracking provides the means by which researchers can explore such real-time phenomenon as it relates to donor behaviors. The results objectively measured respondents' attention and their spontaneous responses to ad messages. Findings may assist marketers to effectively design communication strategies to better satisfy their audiences. The work explores the link between the attention directed towards an ad, participants' eye fixations, and their subsequent emotional responses, attitudes, and willingness to donate to a cause. It was demonstrated that gaze patterns may be an indicator of donor intentions when stimulated by emotional cues.

Specifically, focus was on the extent to which respondents' attention to and engagement with print ads was influenced by the emotional appeals of social cause ads which may then be reflective of their donor intentions. The stronger the emotion the less time for the first fixation duration to the face and text, but the greater the fixation count to the brand\logo, face, and text, and total visit duration to the text. Likewise, the greater the attitude toward the ad the less time to first fixation to the face and first fixation duration to all three AOIs, and the greater the fixation count to all three AOIs, and total visit duration to the text. Overall, the stronger the emotions evoked by the ad and more favorable the attitudes toward the ad, the more engaged a viewer may become, and as a result the greater the propensity for that individual to donate to that advertised NPO.

Regardless of much literature on the impact of emotion on an individual's response to an ad more needs to be examined about the processes by which respondents attend to and become engaged in ad appeals. Further, more exploration is needed as to how these revealed patterns relate to desired donor behavior. By isolating individual areas of interest, advertisers may be able to tailor strategies to better fulfill NPOs objectives whether they be attitude formation and or change, behavioral responses including activity based on encouraging or discouraging a behavior, as well as donation of either time or funds. Importantly, this study tested the processes that precede donor decision making by uniquely revealing what viewers visually attend to and the emotion intensity generated from an ad. The consequences of visual stimulants and emotion intensity on the viewer were shown to impact willingness to donate to a cause. In addition, the research investigated the effects of attention and emotion on attitudes toward the ad, helping others, and social cause organizations. All of which were demonstrated as having positive relationships with donor tendencies.

The study focused on four metrics for these three select areas which may consequently limit the generalize ability of the results and constrain researchers to these influence factors. Further, areas within the AOIs not related to the main purpose of the study may cause convoluted reactions resulting in unexpected or distorted attention and visual paths. However, the magnitude of the options available for the study due to the robust data which is possible from eye tracking technology demanded a limited scope of analysis due to feasibility constraints. Other influences beyond those indicated may impact viewer behavior. Future research is needed to monitor actual donor activity based upon revealed relationships.

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