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# “Banner Blindness” in Relation to Motivational Reactivity and Emotional Expression in Banner Advertisements

George Provotorov  
*Pace University*

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“Banner Blindness” in Relation to Motivational Reactivity  
and Emotional Expression in Banner Advertisements

George Provotorov

Advertising & Integrated Marketing Communications

Dr. Larry Chiagouris

Marketing

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## Abstract

Online banner advertising has been steadily growing in the United States over many years. But to what extent do people pay attention to them or find them to be appealing? The problem with online display advertisements is that many people are focused on the website content when they stumble upon an advertisement. According to research by Resnick and Albert (2014), some web viewers even learned to ignore and automatically scroll past these advertisements along with anything that resembles them. The goal of this study is to assess what advertisers should do to combat banner blindness. Given the short amount of time that is available to capture a web viewer's attention before they click out or scroll past an advertisement, the applied artistic elements are the key to stimulating the target's interest. But it is hard to determine what visual stimuli each person would be willing to see, especially if their attention is mainly devoted to the website content. For this reason, it can be assumed that the effectiveness of the visual stimulus (advertisement) is determined by the extent to which it relates to the website content and what type of person is viewing it. With a limited amount of words, an advertisement cannot present as much information as an article, but it can convey emotions to the same capacity through art. However, people have different reactions to visual stimuli and emotions that are expressed. These differences correlate with a person's motivational reactivity, the extent to which visual stimuli arouse them or induce a negative response.

To find out how advertisers should apply the visual elements/principles of art and match advertisements with online articles, two surveys were distributed with 65 respondents each (a total of 130). Article excerpts were found online, while advertisements were crafted using Adobe Illustrator to represent specific emotions through elements and principles of art such as balance,

contract of hue (color combinations) and shape. One survey included advertisements that expressed the same emotions as the article excerpts that they were positioned with, while the other survey positioned advertisements with articles that expressed opposing emotions. After viewing each advertisement with a corresponding article, respondents rated the advertisements. Both surveys also measured the motivational reactivity of respondents through a series of standardized images. The results showed that for the most part respondents did not have significantly distinguishable preferences for any specific advertisement regardless of their motivational activation measure. However, respondents who can be identified as “Risk Takers” given their high arousal ratings and low negativity ratings were the most attentive group and had the most favorable perception of advertisements that expressed the same emotions as the articles. “Coactives” who had both high arousal and negativity ratings preferred and were most attentive to advertisements that did not match the emotions expressed by the article. Survey participants with low arousal ratings but high negativity ratings, “Risk Avoiders”, gave the lowest ratings to all advertisements, suggesting that they are most prone to experience “banner blindness”. “Inactives”, the group with low arousal and negativity scores, had the second lowest ratings overall, but particularly favored the advertisement that reflected trust and were more attentive towards the ad that reflected fear. These results prove that the motivational reactivity of the target market should be considered by advertisers when they decide whether or not they should incorporate banner advertisements in their media plan.

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## Literature Review

With the growing popularity of online platforms, advertising in the digital world has become more desirable than traditional media such as newspapers. Many organizations aim to reach consumers through Google Search Ads, Facebook Ads, banner advertisements and etc. As the number of ad-buying opportunities proliferates, advertising automation has become inevitable (Paulson, 2018). With programmatic advertising technology, algorithms have been used to determine where ads should be placed to reach the right target. This way, in theory, advertisers should be able to match the right message with the right consumer. However, many web viewers learned to ignore these ads because of their high exposure to advertisements. Resnick and Albert (2014), call this concept, banner blindness, which is “the tendency for users to avoid attending to banner ads or anything that preattentively resembles banner ads,” (p. 206). As a result, even if advertisers offer the most relevant information, they must still take more steps to capture the attention of web viewers.

Studies by Lee (2009), Lang (2013), Samson (2017) and Hong (2018) explore the motivational activation measure (MAM) of participants. This measure identifies the level of activation in a person’s appetitive and defensive/aversive system. Appetitive and defensive motivation systems evolved to support a complex array of adaptive behaviors that support a person’s drive to survive by defending against threats and securing desirable resources. Activation of these systems engages processes that facilitate attention allocation, information intake, sympathetic arousal, and, depending on context, will prompt tactical actions that can be directed either toward or away from the strategic goal, whether defensively or appetitively determined. People with high appetitive system activation (ASA) scores have a greater need for

stimulation, novelty, and arousal. For this reason, ASA was positively correlated with pornography, sports, and adventure-like programming as well as war-games, sports games, fighting games, squadron games, role-playing games as well as rap and rock music. The study also found significant positive correlations with animal shows, talk-shows, documentaries and information-shows. High defensive system activation (DSA) scores on the other hand reflect risk-avoiding behavior and a need to scan the environment for danger. As a result, high DSA scores positively correlate with interest in news, weather, and daytime talk shows (Wise, Lee & Young, 2018). Additionally, DSA was found to have a significant, positive correlation with situation comedies, soap-operas, some game shows, puzzles or classical games, repetitive and familiar music such as Top 40, soft rock or country.

Results from past studies showed that motivational activation predicts the media preferences of a person, something that companies should consider for the visual experience that their consumers should receive while media outlets need to consider variance in motivational activation when selecting online content. This can be measured through a set of pictures through which survey respondents rate their level of arousal and how positively or negatively they perceive the image. The set of pictures come from the International Affective Picture System (IAPS; Lee & Lang, 2009). The IAPS is a set of hundreds of pictures that have been standardized according to their valence and arousal ratings on a 9-point scale over numerous experiments. Defensive system activation is calculated through participants' ratings on how negative they felt during viewing the IAPS images while appetitive is calculated through a participants' ratings on how aroused they felt during viewing the IAPS.



The correlation between motivational activation and media preferences highlights the importance of acknowledging the sensitivity of a consumer to threats and/or desires. According to Plutchik (2001) stimulus events affect a person's emotional state. Although the emotions of a consumer can be hard to pinpoint for marketers considering that people may experience multiple emotions at once, they can still be broken down and targeted if the content that a consumer is viewing is kept in mind. Plutchik places a higher emphasis on emotions like joy, anticipation, sadness, trust, surprise, fear, disgust and anger based on the idea that they are the most basic feelings that humans express. All other emotions stem from them and are distinguished based on intensity or combination of two or more of them.

Rao (2016) and Zhao's studies have looked at how image emotion can be recognized through image semantics, image aesthetics and low-level visual features from both global and local views. The software that they developed to determine the level of excitement, amusement and etc. that images exhibit can be used by marketers to target consumers with specific predispositions to find more appeal in the expression of specific emotions.

Guerrilla marketing tactics such as ambient advertising have been used to break through the advertising clutter offline by promoting products and services in a manner that the target would not expect (Jurca, 2015, p. 50). Considering the negative perception of pop-up ads, a surprise message would not appeal to consumers online. Web viewers go online because they are searching for something that would satisfy their needs or wants which is why distractions would only annoy them. Studies found that similarity between the unexpected distracter and the center of attention increases its attraction and therefore decreases banner blindness (Resnick and Albert, 2014, p. 207). This means that the most effective way to capture the attention of consumers is to

give them not only the information that they want, but also adjust to the online experience that a web viewer is focused on. In order to tailor a message to the web viewer's experience, it must reflect the emotions that come with the center of attention. These emotions can be conveyed in advertisements through the visual elements of art such as line, shape, color, value, space and etc. Johannes Itten's (1977) Color Theory suggests that interpretations of the emotions that color combinations express come from nature. As a result, a blue moonlit sky and rain evoke passive feelings and a subtle sense of nostalgia. Combining yellow and orange creates the effect of a sunrise while combining green with gray creates a sense of decay. Itten also suggests that color positioning and contrast matters in expressing a specific emotion. Combining contrasting hues can express excitement (surprise) while a combination of red and black is typically used to portray something demonic. Dark red at the top creates a sense of heaviness, but a sense of stability at the bottom.

The ability for art to convey emotion can be applied so that consumers receive a message from an ad with only a brief glance at it. According to van Niekerk and Conradie (2016, p. 237), art is widely recognized as a powerful communicative resource on both intellectual and emotive levels. Owing to this unique valence, it has been influential, in one form or another, across all cultures and historic periods, often as a staple for political, religious as well as commercial endeavors. Selection of colors is a very critical process in the product's marketing strategy which is the reason why businesses spend a lot of money to associate their products with a particular color to increase its remembrance in the consumer's mind (Seher, 2012, p. 2089). In terms of lines and shapes, modern work in cognitive psychology analyzing visual perception has presented evidence that suggests human beings have a natural inclination to prefer curved objects

and patterns to angular variations (Urquhart and Wodehouse, 2018, p. 31). Therefore, it can be acknowledged that the manner in which different visual elements of art are applied can influence a person's interest in a specific design. My hypothesis is that web viewers prefer advertisements that artistically express the feelings they wish to experience based on their intentions when they go online.

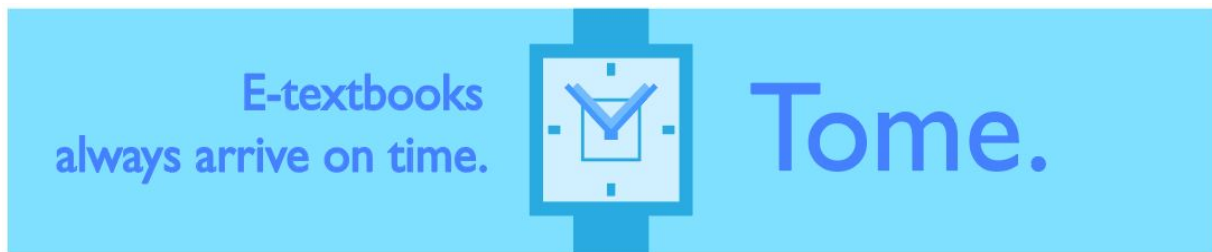
### Methodology

Using Adobe platforms each advertisement has been created by applying the principles/elements of art in a manner that represents the eight basic emotions which come from Plutchik's Wheel of Emotions (Plutchik, 2001) including joy, sadness, anger, fear, surprise, anticipation, trust and disgust. Rao (2016) and Zhao (2014) address the application of Itten's Model to assign warm colors like red and yellow to strong emotions (joy, anger and fear) while cool colors like blue and green are associated with low energy emotions (sadness, anticipation and disgust). Trust can be represented with neutral colors (black, gray, brown and white) due to its formality while surprise can be represented with complementary colors since it is one of the most dynamic emotions. According to a study by Sartori (2014), paintings with dark colors, rough textures and sharp lines are more likely to be associated with negative emotions while paintings with light colors and geometric shapes were attributed to positive emotions. This determines how the elements of art should be applied in advertisements for this experiment to represent negative emotions which would be fear, sadness, anger and disgust along with positive emotions: joy, trust, surprise and anticipation. Zhao (2014) also points out the importance of emphasis and harmony in emotional recognition relating to abstract art. Balance and harmony

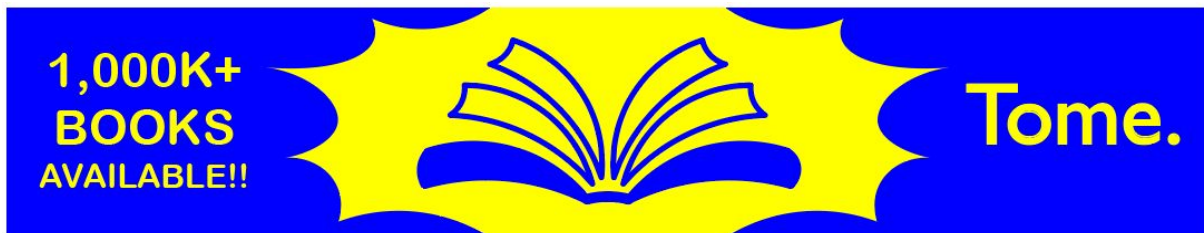
tend to express positive emotions more often, while emphasis, contrast and variety can be used to represent each emotion more specifically. Emotions that are more chaotic (anger, fear, disgust and surprise) can be expressed with a higher level of contrast and free-form shapes. While sadness is more peaceful, contrast should be applied to place emphasis on the feeling of emptiness that stimulates it. Aside from that, some level of context is used to provoke specific emotions. This is done by complementing abstract imagery with subject matter and that represents stimulus events which correspond to certain emotions (Plutchik, 2001).

	<b>Stimulus</b>	<b>Color Combinations</b>	<b>Lines/Shapes</b>	<b>Balance</b>
<b>Anticipation</b>	expected event	Light cool colors (analagous)	Angular, Geometric	symmetrical
<b>Surprise</b>	unexpected event	Bright warm and bright cool colors (complementary)	Curved, Free-form	symmetrical
<b>Joy</b>	gain of valuable object	Light warm colors (analagous)	Curved, Geometric	symmetrical
<b>Sadness</b>	loss of valuable object	Monochromatic cool and light neutral colors	Curved, Geometric	asymmetrical
<b>Anger</b>	obstacle	Dark warm and dark neutral colors	Angular, Free-form	asymmetrical
<b>Fear</b>	threat	Dark warm and light neutral colors	Angular, Free-form	asymmetrical
<b>Trust</b>	proof of credibility	Bright neutral colors	Angular, Geometric	symmetrical
<b>Disgust</b>	unpalatable object	Dark cool and dark neutral colors	Curved, Free-form	asymmetrical

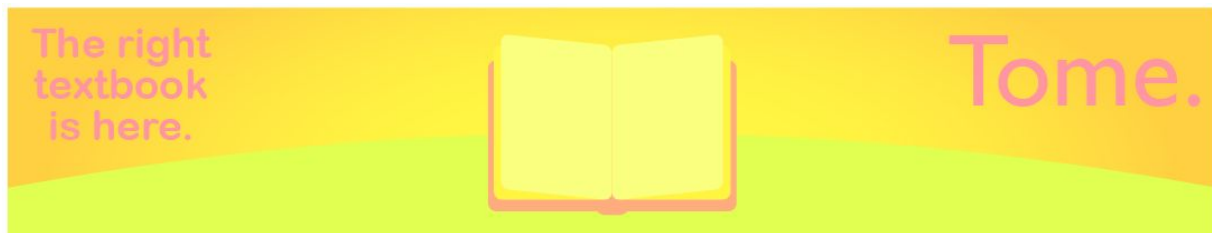
Anticipation



Surprise




Joy



Sadness



Anger



Ripped pages **shouldn't stop** you from getting an A.  
Get the online version.

Tome.


Fear




25- page essay due tomorrow?!  
Get the right books NOW!!!

Tome.


Trust



Rent  
books reliably.

Tome.

Disgust

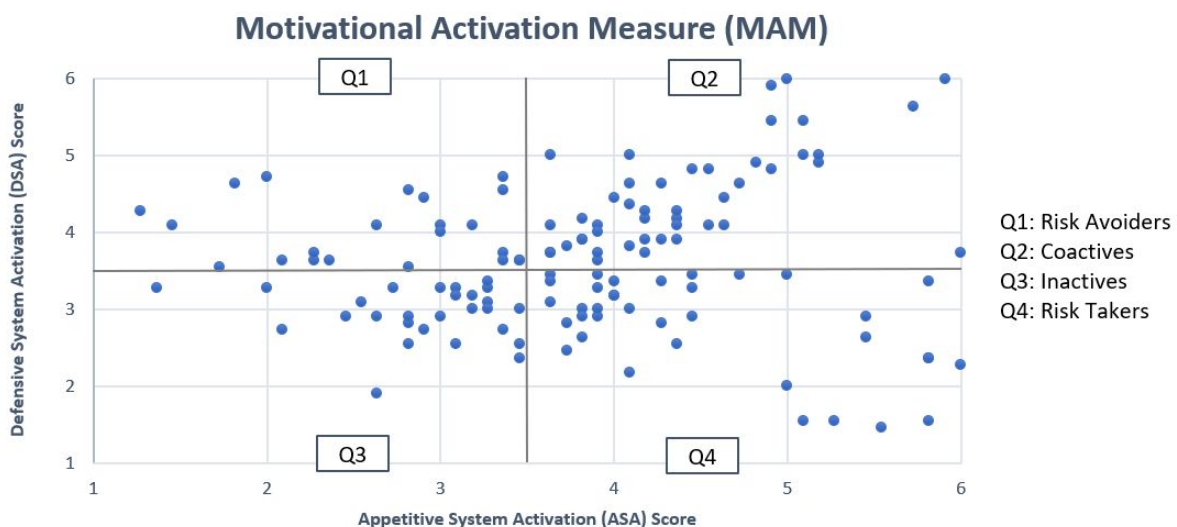


"Used textbook" shouldn't mean  
"Used in BATHROOM."

Tome.

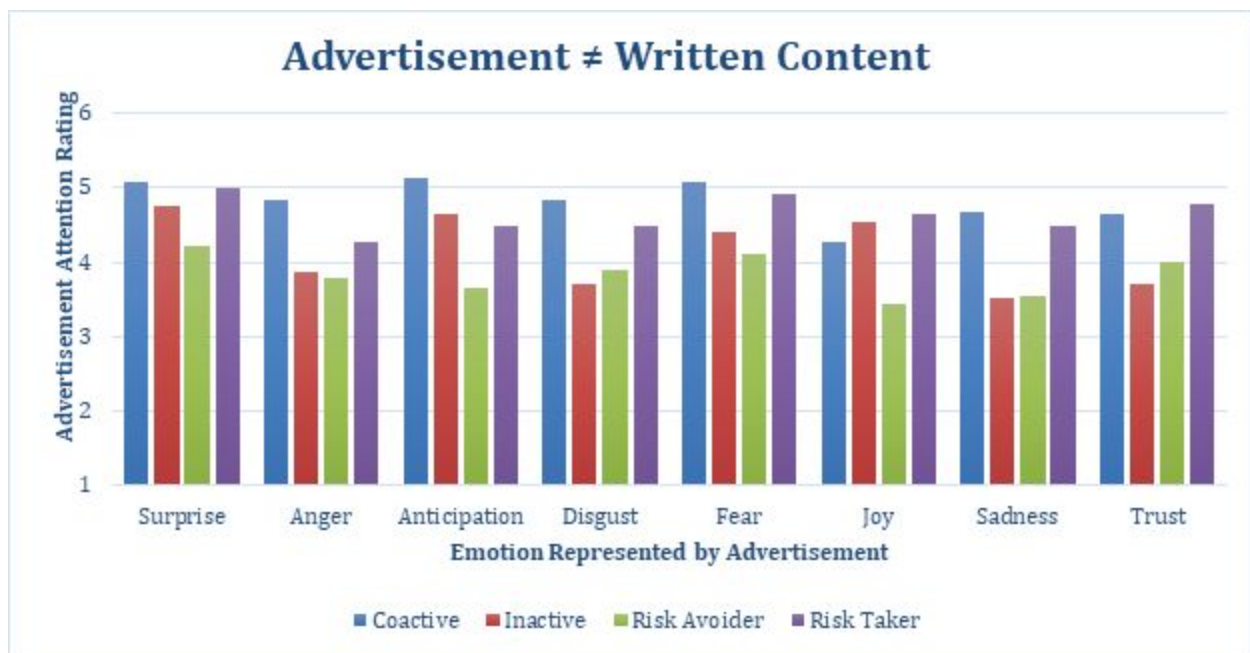
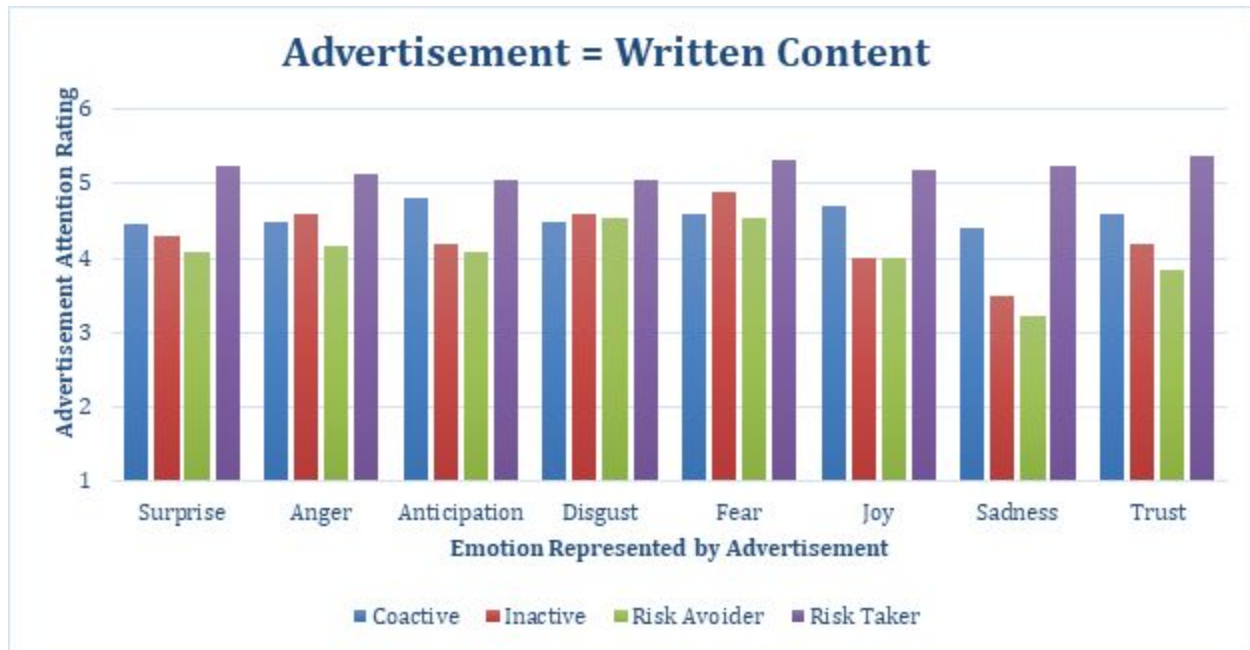
To test the hypothesis, two types of online surveys have distributed using both Qualtrics and Amazon Mechanical Turk with 130 respondents in total. In the first part, participants were exposed to written content with the advertisements. This section varies in the two surveys that were distributed. While one survey contains advertisements that match the emotions that the content reflects, the other one showed mismatched advertisements and written content. Doing so would determine how advertisements should be adjusted to the written content. Since outside the experiment web viewers will not be intentionally searching for advertisements that appeal to them, the banner ads were presented alongside the written content which was addressed as the main focus of the experiment. The topics of the content and advertisements reflected the 8 basic emotions from Plutchik's Wheel of Emotions. Other feelings like pride, shame, guilt, regret, and embarrassment, require a sense of self, more time and the ability to reflect upon what a person has done which is why they will not be used (Silvia, 2009). Anticipation, surprise, joy and trust can be associated with high ASA scores while anger, sadness, fear and disgust are aversive feelings that can be connected to DSA. Participants were asked about the emotions that the written content and the advertisements conveyed. The answer choices came from Plutchik's Wheel of Emotions as well. Then, survey respondents were asked to rate the extent at which the advertisements distracted them from the content or captured their attention. After that, just the banner advertisements were shown to them and participants specified which advertisement they preferred. The advertisement effectiveness rating was determined through semantic differential scales and adjective checklists that address both awareness and preference (Lavidge, 1961).

The second part will be the same for both surveys. The motivational reactivity of participants will be determined by the procedures described by Lang and colleagues (Lang et al., 2011). Survey respondents viewed 11 images from the Open Affective Standardized Image Set (OASIS), a more modern iteration of the IAPS image set (Kurdi, B., Lozano, S., & Banaji, M. R., 2017). After viewing each picture, participants rated how aroused and how negative or positive they felt on 6-point scales. The arousal scale ranged from 1 (= not at all aroused or not at all excited) to 6 (= extremely aroused or excited). The positivity scale ranged from 1 (= extremely positive or happy) to 6 (= extremely negative or unhappy). When put into a formula, these ratings will determine Defensive System Activation (DSA) and Appetitive System Activation (ASA) scores. Survey participants are sorted into 4 motivational types based on their average DSA and ASA scores. “Risk Takers” have low DSA and high ASA scores, “Risk Avoiders” have low ASA scores and high DSA scores, “Coactives” score highly for both and “Inactives” score low for ASA and DSA.

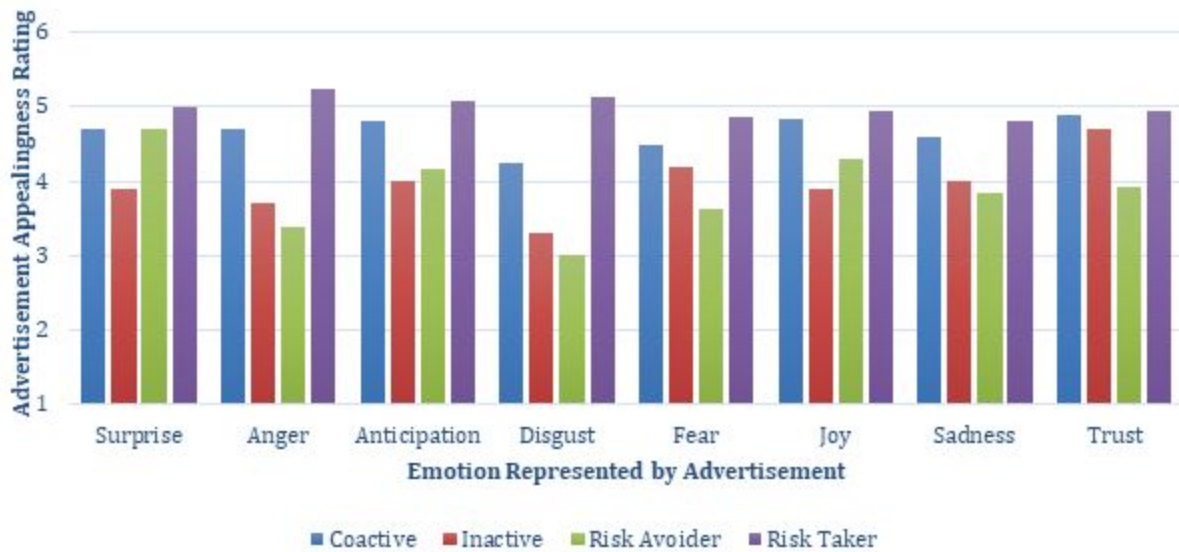




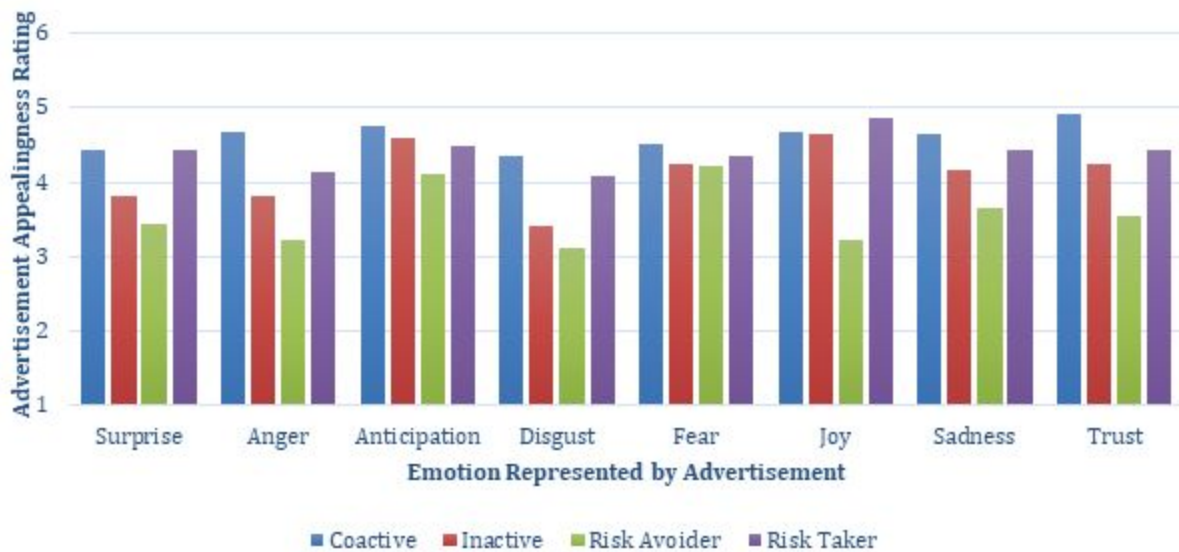
From the gathered data each survey participant's perception of the emotions that are expressed by the advertisements and written content will be evident. Along with that, their advertisement preferences, DSA and ASA scores will be available. This information will help determine if there is a correlation between a person's motivation activation measure, perception of emotions expressed in advertising through the principles of art and their advertisement preferences. The existence of a correlation between any of these factors can help assess whether or not advertisers can appeal to their target audience by making campaign executions express a specific emotion or a specific range of emotions.



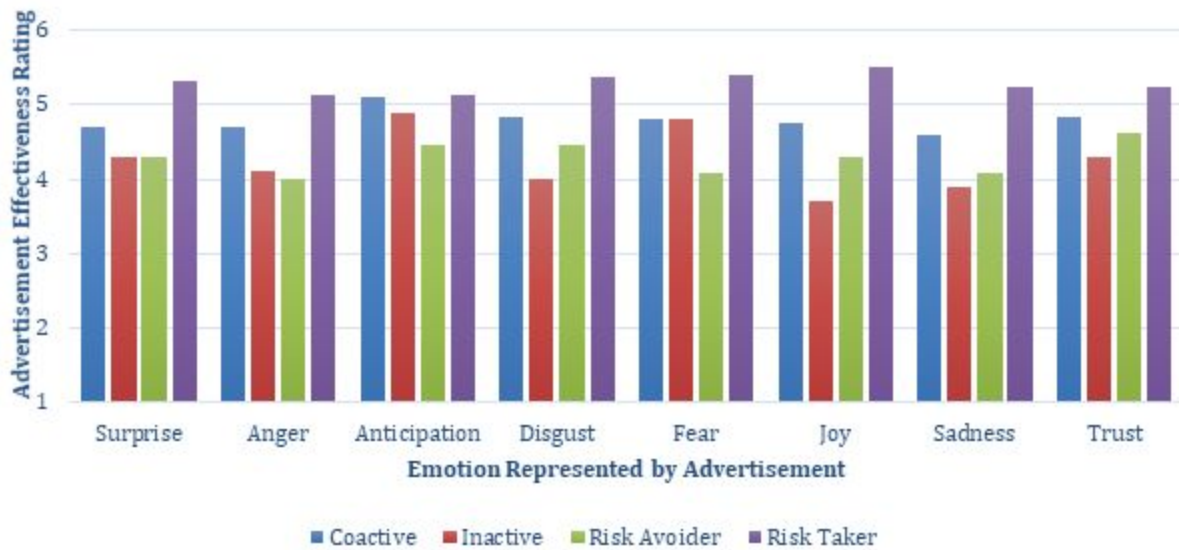
### Advertisement = Written Content



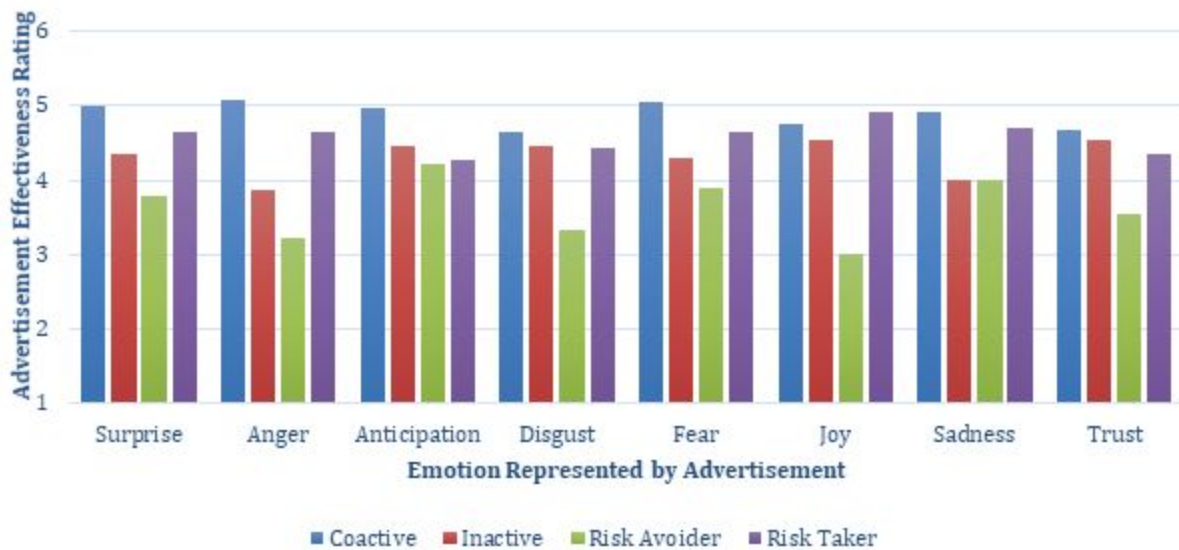
### Advertisement ≠ Written Content



### Advertisement = Written Content



### Advertisement ≠ Written Content



## Results and Discussion

Overall, respondents recorded mixed emotional responses to each article and advertisement regardless of what emotion each article and advertisement were meant to represent in both matched and mismatched groups. This may be explained by the fact that every person has their own perception of how they feel when they see abstract imagery and have different opinions about specific topics. However, in terms of advertisement ratings there is a visible trend.

Survey participants rated the advertisements based on how attention grabbing, appealing and effective they believe them to be. In the survey with emotionally matched article and advertisement, Risk Takers gave the highest ratings to advertisements in all categories. On average, advertisement attention, appeal and effectiveness were given ratings of approximately 5 out of 6 by Risk Takers regardless of what emotion each advertisement represented. The fact that Risk Takers like the advertisements most when they are matched with articles that represent the same emotion can be explained by their highly active appetitive system and low defensive system activation. They are more easily aroused by advertisements that are meant to appeal emotionally because of their appetitive system and are less likely to perceive them negatively because a low defensive system activation means more openness to emotional stimulation.

Advertisements that were placed with articles that represented different emotions were not rated as highly as in the other survey by Risk Takers. This may imply that Risk Takers get more aroused when the emotions represented by an advertisement build on the emotions represented by the article that they read. In this case, respondents were exposed to contradicting

emotions, which may have kept them from paying as much attention to the mismatched advertisements.

Coactives had the second highest ratings for advertisements that represented the same emotions as the article. This is consistent with the idea that Coactives can get aroused as much as Risk Takers, but are more likely to have negative feelings towards the same stimulus because of their high defensive system activation. However, ads that reflect disgust and fear were not as attention-grabbing as for other groups which may suggest that Coactives focus more on the first negative stimuli, the article which reflects the corresponding emotion.

The Coactives that were exposed to emotionally mismatched articles and advertisements gave higher ratings for all advertisements than any other group within the same survey. This likely means that Coactives are more aroused by contradicting emotional stimuli than stimuli that represent the same emotion. High defensive and appetitive system activation correlate with high arousal ratings given to images that are perceived to be negative which explains why Coactives are more open to mixed feelings compared to other groups.

The group with low appetitive and defensive system activation, known as Inactives, had the second lowest advertisement ratings for both surveys and perceived the advertisement that reflected trust to be relatively more appealing to other ads when it was placed with an article that reflected the same emotion. Additionally, the advertisement that portrayed fear captured their attention more significantly compared to other ads. This suggests that Inactives are only triggered by select emotional stimuli in which they see value.

Risk Avoiders gave the lowest advertisement ratings. They are least aroused by emotional stimuli and are more likely to rate images negatively. This suggests that Risk Avoiders

perceive such online advertisements as a distraction. The most negative rating was given by them to an advertisement that reflected joy next to an article that reflected sadness. That means that they are particularly hostile towards ads which appear to be placed insensitively. The results suggest that they are the most likely group to be receptive to fact-based advertisements rather than advertisements that are meant to appeal emotionally.

### Conclusion

Marketers should consider dividing potential customers into segments based on their motivational activation measure. Doing so may help them consider whether or not digital advertisements are best suited to reach them and to what extent emotions will matter to the consumer. This study shows that people with high appetitive system activation and low defensive system activation are most receptive towards digital advertisements with a message that uses emotion, especially if it matches the emotion conveyed by the center of attention. On the other hand, low appetitive and defensive activation measures suggest that the customer needs data and solid facts rather than emotions to be interested in a purchase. Often times that would mean that they are most affected by “banner blindness” meaning that blogs and reviews would be the best way to reach them. Inactives will only pay attention to ads that show a threat that may occur from not making a purchase or are shown that a brand can be trusted. Coactives are the only group which should be targeted with emotionally mismatched advertisements.

In future studies researchers should consider arranging advertisements with social media posts that reflect different emotions to determine how consumers should be reached on Facebook, Instagram and etc. Additionally, in order to understand how to target consumers based

on their motivational activation measures, future studies should aim to determine who is most likely to be a Coactive, Inactive, Risk Avoider or Risk Taker based on demographics and psychographics other than media consumption habits.



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### Survey Questions

#### Part I: Advertisement Effectiveness (x8)

Which emotional response best represents your reaction to the article?

☐ Joy   ☐ Sadness   ☐ Trust   ☐ Disgust   ☐ Fear   ☐ Anger   ☐ Surprise   ☐ Anticipation

Which emotional response best represents your reaction to the advertisement?

☐ Joy   ☐ Sadness   ☐ Trust   ☐ Disgust   ☐ Fear   ☐ Anger   ☐ Surprise   ☐ Anticipation

Rate the advertisement.

Not attention grabbing at all | ☐ ☐ ☐ ☐ ☐ ☐ | Extremely attention grabbing

Extremely unappealing | ☐ ☐ ☐ ☐ ☐ ☐ | Extremely appealing

Extremely ineffective | ☐ ☐ ☐ ☐ ☐ ☐ | Extremely effective

(Question given after all 8 advertisements are shown.)

Rank order the advertisements based on preference.

Advertisement	(uses joy in its message/design)
Advertisement	(uses fear in its message/design)
Advertisement	(uses anticipation in its message/design)
Advertisement	(uses disgust in its message/design)
Advertisement	(uses sadness in its message/design)
Advertisement	(uses trust in its message/design)
Advertisement	(uses surprise in its message/design)
Advertisement	(uses anger in its message/design)

Part II: Motivational Activation Measurement



Valence mean: 6.257 Arousal mean: 4.903

Please rate your reaction to the image above.

Not at all aroused | ..... | Extremely aroused  
Extremely negative | ..... | Extremely positive



Valence mean: 2.137 Arousal mean: 3.069

Please rate your reaction to the image above.

Not at all aroused | ..... | Extremely aroused  
Extremely negative | ..... | Extremely positive



Valence mean: 3.96 Arousal mean: 4.68

Please rate your reaction to the image above.

Not at all aroused | ..... | Extremely aroused  
 Extremely negative | ..... | Extremely positive



Valence mean: 4.108 Arousal mean: 3.485

Please rate your reaction to the image above.

Not at all aroused | ..... | Extremely aroused  
 Extremely negative | ..... | Extremely positive



Valence mean: 4.637 Arousal mean: 3.891

Please rate your reaction to the image above.

Not at all aroused | ..... | Extremely aroused  
 Extremely negative | ..... | Extremely positive



Valence mean: 3.454 Arousal mean: 4.058

Please rate your reaction to the image above.

Not at all aroused | ..... | Extremely aroused  
 Extremely negative | ..... | Extremely positive



Valence mean: 4.222 Arousal mean: 3.981

Please rate your reaction to the image above.

Not at all aroused | ..... | Extremely aroused  
 Extremely negative | ..... | Extremely positive



Valence mean: 3.99 Arousal mean: 4.168

Please rate your reaction to the image above.



Not at all aroused | . . . . . | Extremely aroused  
 Extremely negative | . . . . . | Extremely positive



Valence mean: 4.685 Arousal mean: 3.904

Please rate your reaction to the image above.

Not at all aroused | . . . . . | Extremely aroused  
 Extremely negative | . . . . . | Extremely positive



Valence mean: 5.137 Arousal mean: 3.673

Please rate your reaction to the image above.

Not at all aroused | . . . . . | Extremely aroused  
 Extremely negative | . . . . . | Extremely positive



Valence mean: 2.902 Arousal mean: 4.703

Please rate your reaction to the image above.

Not at all aroused | . . . . . | Extremely aroused  
Extremely negative | . . . . . | Extremely positive