Technology industry marketing effectiveness is hindered by a status quo bias present in website image selection.

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Thesis Statement

The conditioned bias by the technology industry to predominantly use ineffective, non-emotional, logical imagery is limiting customer attention, engagement and buying behavior online via websites.

Abstract

IDC estimates that $7 trillion will be spent globally on IT between 2019–2022 (Forbes, 2017). Software providers spend approximately 15% of their revenue on marketing (Deloitte Digital, 2018). An opportunity exists to increase the effectiveness of this marketing expenditure. Neuromarketing research indicates that images with people are more emotional and engaging than non-human images. Our analysis of the content of 538 website images used on the home pages of the top 50 technology companies in the U.S. reveals that 81% of the images are non-emotional. This research provides evidence that technology marketers have fallen prey to an industry status quo bias, and are predominantly using unemotional imagery when seeking to attract buyer interest online, thereby reducing the effectiveness of this marketing expenditure.

Increasing Digital Marketing Spend

As more and more buyers today search for new products and services online, the growth of digital marketing spend continues to outpace traditional advertising spend. This includes investments in digital marketing, social media as well as website content creation and design. In the next 12 months, digital marketing expenditures are expected to increase by 12.3% overall and digital marketing as a category is expected to increase from 44% of marketing budgets to 54% over the next five years (Deloitte, 2018).

The Problem: Status Quo Bias

During the past few decades, as a result of the complexity and expertise needed to evaluate and implement technology solutions, many technology buying decisions have been driven by technical buyers such as IT managers and CIO's. Bringing new technology products to market often requires educating the market, teaching early adopters about the features, functionality and benefits of the new technology. When marketers create a new website home page to promote their solutions, they are faced with two key decisions: the first is choosing what the focus of the content of their messaging will be; the second is choosing which medium will be used to communicate the message (i.e. text, images or video). Status quo bias is evident when people prefer that things stay the same, or they stick with decisions made previously (Samuelson, & Zeckhauser, 1988). It is our belief that because technology companies have repeatedly chosen logical, product-based content and images on their websites, the default option for new image choices once again involves product-based, non-emotional imagery. We

predict that, generally speaking, technology marketers will continue to use product-specific images on their websites. Since marketers are not aware that a bias is influencing their image decisions, they will likely continue using images that are less effective, thereby limiting the effectiveness of their overall marketing communications.

Visual Processing in the Brain is Rapid and Favors Human Images

With the significant advances in neuroscience, we have learned more about how the brain works in the past 10 years than we have over the last few decades. Our brains are wired to look for and read faces above all else. Research demonstrates that human images are more engaging to the brain than images of inanimate objects or scenes. Our visual processing system processes emotional and non-emotional images differently. The possibility of two separate human decision-making processes has been widely discussed by Schneider and Shiffrin (1977) as well as Kahneman (2003).

According to Frank & Stennett (2001), facial expressions are among the most important aspects of human communication. The face continually communicates not only thoughts or ideas, but also emotions. It also appears that some expressions may be biologically hardwired, and are expressed in the same way by all peoples of all cultures. It can therefore be hypothesized that using pictures of humans on website pages will gain the attention and interest of the human brain more effectively than using images of inanimate objects, icons or general scenes.

Many researchers have demonstrated that visual processing of face stimuli is faster and more efficient than visual processing of other objects. Tottenham et al.'s 2006 study revealed there is a face advantage effect at rapid presentation speeds, where faces were identified more readily than houses. Interestingly, it was found that general identification of objects, whether houses or faces, improved gradually with age. The belief is that our ability to recognize a highly familiar object such as a face developmentally precedes our ability to recognize a less familiar object. The study showed that faces maintain a more robust representation than houses, and this robustness is linked to age or is possibly experience dependent. The hypothesis is that, as we gain more visual experience with one class of objects, we become very efficient at processing these (Tottenham, Leon, & Casey, 2006). Similarly, when prospective buyers visit a new website, they will process the human images much faster than the non-human images.

The neural response evoked by the viewing of faces was also investigated by Ishai et al. (2005) via fMRI. They found activation in a network of face-responsive regions, including the IOG, FG, STS, amygdala, hippocampus, IFG, and OFC. Within these regions, they found that all stimuli (line drawings of unfamiliar faces and photographs of unfamiliar, famous, or emotional faces) evoked significant activation, with stronger responses in the right hemisphere of the brain. Interestingly, the responses to famous and emotional faces were stronger than the responses to unfamiliar faces. In addition to the reaction in the cortical visual areas, the amygdala was also more active when participants observed faces as opposed to control stimuli such as mosaics and houses (Ishai et al., 2005).

Images of Humans are More Emotionally Engaging than Non-Human Images

Marketing researchers have leveraged neuroscientific methods to study how a buyer's brain responds to marketing, messaging and imagery. This body of research has revealed that buying decisions are more heavily influenced by emotions than by logic. Research conducted by Wataru et al. (2012) suggests that the human amygdala is involved in face processing. The amygdala is located deep and medially within the temporal lobes of the brain, and has been shown to perform a primary role in the processing of memory, decision-making and emotional responses.

It is believed that on websites, effective visual designs can bring about a positive emotional experience in consumers. Wang et al. (2014) developed a research model to explore the impact of human images as a visual element on consumers' online shopping emotions and subsequent attitudes towards websites. The research included an eye-tracking experiment to collect both eye movement data and questionnaire data to test this model. The researchers found that product pictures combined with human images induced positive emotions among participants, thereby improving their attitudes towards online shopping websites. Specifically, product pictures with human images first produced higher levels of image appeal and perceived social presence, thus evoking higher levels of enjoyment and subsequent more positive attitudes towards the websites. Moreover, the researchers discovered that a moderating effect of product type was demonstrated in the relationship between the presence of human images and the level of image appeal. Wang et al. (2014)'s eye-tracking data analysis further supported these results and indicated that the presence of human images significantly increased participant pupil size, regardless of product types.

Images on Websites Activate More Online Engagement and Buying Behavior

In the context of evolutionary pressures, efficient detection/recognition of faces would have helped humans take collective action in response to threatening events, such as an encounter with predators (Tottenham, Leon, & Casey, 2006).

Including emotional images vs. unemotional images on websites could function to not only increase engagement, but also to stimulate online buying action. A study by Sajjacholapunt and Ball (2014) tracked participants' eye movements, but this time in relation to banner advertisements online. Banners either contained no face, a face with a direct gaze or a face with an averted gaze. The researchers discovered that gaze cues conveyed by faces can in fact influence where viewers look. They also assessed people's memories for brands and advertising messages, and their results indicated that relative to other conditions, the condition involving faces with an averted gaze drew more attention to the banner overall, as well as to the advertising text and product (Sajjacholapunt & Ball, 2014). This would suggest that technology marketers should not only include faces in their online marketing, but should also use them strategically to direct the visitor's gaze to specific information or call to action buttons linked to free trials, pricing or contact information.

Operational Definitions

The variables in our study are measured according to the following:

An image that contains a human face or full body, with a positive, smiling facial expression, is considered an "emotionally-engaging" image.

Images that do not contain a face or full human body are considered unemotional. Such unemotional images fall into the following categories: a computer, iPhone, software screen shot, stock photo of an office or similar non-human scene, a cluster of icons, an infographic or photo of an inanimate object such as a coffee cup, etc.

The list of technology companies we chose to include and analyze were those with the highest annual revenue. We did not filter by profitability, marketing budget or other factors.

We have defined "emotional engagement" according to standard neuromarketing definitions that examine frontal asymmetry in an EEG output. This measure involves computing the differences in activity between left and right frontal regions, generally in the alpha band. Greater left frontal activity suggests a measure of approach motivation, whilst greater right frontal activity relates to avoidance (Newson, 2017).

Methodology

Our research aimed to prove our hypothesis that the majority of technology company marketing imagery used on websites today is predominantly focused on communicating logical product information about features and functionality to influence and persuade prospects to buy. The websites analyzed are those of top technology companies in the U.S. including Microsoft, SAP, Oracle and others.

We visited the home page of 50 of the top U.S. technology publishers and captured a screen shot of each company's home page. 538 images were manually coded only July 18, 2019 according to the following categories:

(1) Human face, not smiling
(2) Full human, no face, not smiling
(3) General inanimate object/scene (i.e. office scene with coffee cup) with no humans
(4) Computer, mobile phone, computer screen shot
(5) Infographic/icons

Results

19% of the images used included humans, of which 9% had a positive expression or smile. 10% of the images with humans were unemotional. The remaining 81% of the images were logical, nonhuman and emotionless. These results provide evidence that there is a status quo bias in the technology industry towards using non emotional imagery in website home pages.

Human face, smiling	6%
Full human smiling	3%
Human face, not smiling	2%
Human no face, not smiling	8%
General inanimate/scene no humans	34%
Computer, mobile phone, screen shot	9%
Icons/infographic	38%
Total Images = 538	100%

Sample of iconography:
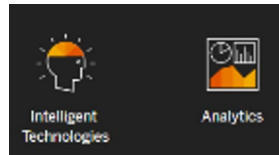
Applied Implications

The results of this study can be used to help technology providers increase the emotional engagement level of their website/digital marketing content imagery. If they were to replace non-emotional images with emotional ones and then tested their online engagement analytics before and after, they would likely determine that their user visit duration in minutes (a good indicator of online engagement) and more would increase. This also suggests that technology publishers who use more emotional imagery than their competitors could potentially have a competitive advantage or increased emotional differentiation from those who use unemotional images.

Limitations & Acknowledgements

Many factors influence buyer engagement online; images are only one particular factor. More research needs to be conducted to isolate and understand the influence of other factors such as image location, text-based messaging, website layout and design, etc.

We did not explore or measure how effective current technology company marketing messaging is as a benchmark, nor did we measure the impact of adding more emotional imagery to a website to measure the overall impact or outcome. The next step in our research would be to measure the actual change in bounce rates, visit duration, number of clicks, etc. when more emotional images are used throughout a website.

Our study analyzed U.S. technology companies. We chose the U.S. as this is the largest economy in the world representing 24% of global GDP. An interesting further study could be conducted to measure the cultural differences in the content and use of images in countries such as China and India.

We only analyzed the website home page images of large technology companies. There could be varied results in the use of similar imagery among smaller technology companies.

We only analyzed the images on the companies' home page. The images on subsequent landing and content pages on any given company's website were not analyzed. We would have liked to conduct a further study to analyze all of the images on each company's website, but considering the time and effort involved in manually coding all images, we would need to leverage artificial intelligence or some other means to do so at scale.

Future Research

Further research could be conducted to extend this hypothesis to include the analysis of the text content used on technology company websites vs. images, to see whether the status quo bias is also present in terms of unemotional text content.

A study using EEG could also be used to measure the differences in brain activation between text heavy websites vs. those with more images.

More research needs to be conducted to better understand buying behavior. Heightened emotions and brain activation do not necessarily mean the online visitor will take buying action.

Other studies have measured the impact of website layout design on online buying behavior (in a simulated test environment). However, research focusing specifically on the influence of images on conversion or buying behavior is sparse. More research needs to be conducted in order to better define and understand online attention, engagement and conversion.

Conclusion

In this study, we have demonstrated that technology marketers have a status quo bias, leading them to predominantly use logical product, screen shots, iconic imagery and other non-emotionally-engaging images when attempting to attract the interest of online buyers. With the technology industry continually increasing its investment in digital marketing, and the explosion of content available on the web today for prospects on their buying journey, technology publishers could increase their differentiation, engagement and digital marketing effectiveness if they replaced many of their unemotional digital images with human images.

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