

# An Exploration into Emotional Tracking to Determine Consumer Emotional Responses: What do Consumers Think?

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## Introduction

Emotional responses from consumers when experiencing marketing stimuli, whether in the form of advertisements, shopping atmosphere or other attempts by marketers to influence consumers, are contributing factors to attitude, purchase and satisfaction. Marketers and marketing research organizations are attempting to determine emotional response and tailor marketing stimuli accordingly. This research examines the consumers' knowledge and attitudes toward the use of emotional tracking technology. Findings indicate consumers believe that the technology of emotional tracking, as described in a scenario, would soon be a reality, if not already. Respondents tended to report a high level of agreement with statements regarding needing regulation for the use of the technology and ethical concerns when used without consumer knowledge. Little difference occurred between gender and other demographic groupings.

## Background

Technology is playing a much larger role in obtaining data and information concerning consumers and their behaviors, beliefs and intentions. With the help of sophisticated scanning devices and analytics, marketers are able to uncover many consumer aspects previously only unearthed with an educated guess, possibly with the help of survey techniques and/or interviews.

Today, marketers are able to bypass the survey and delve into the consumer brain with the help of physiological scanning techniques, such as functional magnetic resonance imaging or fMRI. This expansion of the use of technology has allowed marketers access to a plethora of information that they previously were not privy to. Technology has not only increased how much consumers interact and share with each other, but has opened two-way communication between consumers and companies. Consumers are asked for personal information now more than ever, and more often than not, it is given willingly.

Previously, marketers were able to obtain consumer information through third party sources, such as Census data, and also using active participation from consumers themselves. Focus groups, interviews and surveys provided much needed and valuable information. Today, much of the information is collected passively from consumers, meaning that the consumers is not inconvenienced in any way providing data points to the marketing researcher. Data is collected and recorded in the course of consumers' daily activities with little to no action necessary from the consumer.

Using consumer online postings and responses, sentiment and content research allows for the dissection of themes and sentiment from consumers' written comments on social media sites. fMRI's and other physiological techniques allow for the measurement of changes in the human body's functioning, like perspiration rates, brain functions, speech pitch, etc., allowing researchers to gather information without having to rely on just the oral or written response to a questions from an interview or a questionnaire. These physio techniques measure simple levels of enhanced excitement to more detailed responses from brain functional areas.

A relatively new form of analysis involves identifying and tracking human emotional responses to marketing stimuli passively. Emotional analytics uses facial mapping and large data repositories of as much as 3.2 million facial videos to identify specific emotions consumers are experiencing while viewing content (Morris, 2015). Any device, desktop, lap top, mobile, tablet, using a webcam, can be utilized to track emotions (Levine 2016). Marketers are able to determine if their ads are conveying the appropriate message and are eliciting the emotion planned. Producers can determine the most engaging movie scenes and the level of dramatic engagement or comedic impact. ([www.Affectiva.com](http://www.Affectiva.com)) Several marketing research organizations (Realeyes, Affectiva, Apple/Emotient) are utilizing these techniques for many Fortune 500 companies which include the likes of Coca-Cola, Audi, Nestle and Adobe.

### **Privacy Concerns**

The current research will address aspects of privacy and awareness of emotional tracking of importance to consumers. As Morris (2016) points out, there could exist a privacy violation and, at the least, inconvenience related to highly targeted advertising exploiting current emotions of the consumer.

Privacy concerns have been widely studied by academicians in many fields. Malhotra, Kim and Agarwal (2004) investigated privacy concerns of Internet users, developing a scale, the Internet Users' Information Privacy Concerns scale (IUIPC). Findings indicate that consumers value awareness and control with regards to personal information being stored in a marketing or other database. Collection, meaning the amount of data collected versus the benefit received from such collection was also valued by consumers. Consumers like to be aware of when and how their

data is being collected and used; they are concerned about the privacy and protection of their data, but will agree to its use when perceiving a benefit in sharing.

Focusing on mobile use and privacy concerns, Eastin, Brinson, Doorey and Wilcox (2016) examined trust in mobile advertisers, control over and type of data collected, awareness of use of data, concern levels on unauthorized use and privacy concerns to predict mobile commerce activity. Mobile commerce activity was significantly related to trust in the mobile advertiser, along with control and unauthorized access. The authors explain that “many consumers accept that some loss of privacy is a cost of doing business in the digital age, despite expressing high levels of concern over their information privacy.”

In a broad review, Kesan, Haes and Bashi (2016) report results from a study examining consumer opinions and knowledge of commercial practices with regards to data use, online privacy and laws governing such. Theories of privacy have evolved, as has the laws developed to protect an individual’s privacy. Currently, federal laws could be described as patchy, developed when necessary due to technological or other advancements and targeted to specific areas of commerce or life of the populace. For example, federal privacy laws exist separately in regards to children, healthcare records, education records, financial records, etc. Other acts involving privacy include the 4<sup>th</sup> amendment protecting against unreasonable search that can sometimes be applied to electronic data and the Federal Trade Commission has some regulations regarding data and its use, but largely addresses issue of data collection and use by market self-regulation. Findings from the study indicate that individuals feel strongly about privacy with the majority of respondents indicating that personal privacy is a right (92%, n = 644). When asked about specific data collection activities of marketing companies, only 11% agreed that companies “should be able to track consumers’ online activity without asking permission” but 52% believed that companies should be allowed to “track consumers’ interactions with advertisements to determine which ones are the most relevant to individual consumers” possibly giving weight to the idea that consumers use a cost/benefit logic when agreeing to surrender their personal data, as found by Eastin, Brinsonm, Doorey and Wilcox (2016). It should also be noted that 72% of the respondents would be willing to get fewer features in order to increase their control of their personal information. Respondents also felt it was very important to have control over access to their online information and to be able to keep others from accessing that information. It was found that advertising agencies had the fewest number of people who would trust them to protect their personal information at just 4.6%. Respondents, while seemingly concerned about their online privacy, were not well versed in the laws and regulations related to online privacy with few respondents correctly answering questions regarding specific laws and rights.

## **Marketing and Emotions**

“Emotions are ubiquitous throughout marketing,” as stated in Bagozzi et al. Emotions play a part in almost every aspect from information processing and goal behaviors to use as measures of effective marketing stimuli and satisfaction (Bagozzi, Gopinath and Nyer 1999).

Determining the emotions consumers experience during all stages of the buying process is important to marketers to develop appropriate appeals during advertising campaigns and at other consumer touch points to improve purchase intentions and attitude toward the company or brand. From the results of a series of 6 studies, it was found that consumers experience a variety of emotions during consumption activities including excitement, joy, pride, contentment, optimism, relief, peacefulness, and love. Other emotions were displayed less frequently included romantic love, envy, guilt and fear, along with other negative feelings, labeled the Consumption Emotions Set or CES (Richins 1997).

Several researchers have studied various components of the emotional links to marketing efforts. Holbrook and Bahtra (1987) determined a link between emotional response to advertising and the attitude toward the brand. It was found that ad content impacts the emotions of pleasure and arousal, defined as pride, gratitude, joy and interest, surprise, involvement, respectively, but not dominion, which describes helplessness, sadness and fear. Ad content also contributes to the attitude toward the ad, but emotions serve as mediators between content and attitude. The effect of emotions on attitude toward the brand were also significant (Holbrook and Batra 1987).

Consumer emotions also play a part in viewing behavior for television advertisements, specifically zipping which is defined as using the remote to fast-forward through an advertisements and zapping, which is changing the channel when an ad is being aired. Combining the measures of zipping and zapping to get the variable *viewing time*, it was found that emotions played a part in increasing *viewing time* (Olney, Holbrook and Batra, 1991).

In a physical shopping environment, consumer mood was found to have an effect on satisfaction with the retailer. Positive consumer moods were related to high satisfaction. A negative consumer mood had the highest impact on satisfaction. A positive mood was related to increased spending, while a negative mood had little effect (Babin and Dardin 1996).

Magids, Zorfas, and Daniel (2015) have identified hundreds of emotional motivators that drive consumer behavior, including the following which impact consumer actions at all behavioral categories.

### **Fig. 1 – Emotional Motivators**

Stand out from the crowd

Feel a sense of thrill

Have confidence in the future

Feel a sense of belonging

Enjoy a sense of well-being

Protect the environment

Feel a sense of freedom

Be the person I want to be

Feel secure

Succeed in life

Consumers are described as being on an emotional connection pathway with 4 stages: unconnected, highly satisfied, perceiving brand differentiation and, finally, fully connected. The authors have shown that the fully connected consumer is 52% more valuable than the consumers that are highly satisfied, in the online purchase category. The values changed with the category being studied. For example, consumers in a discount store visit were 37% more valuable than those that were highly satisfied and in the household cleaner purchases category, fully connected consumers were 103% more valuable. Besides varying from purchase category, the motivators also vary by segment with “protect the environment” and “be the person I want to be” both important to Millennials in the banking purchase category.

## Research Objectives

As emotional tracking is a newer technology that has potential for privacy concerns from consumers, this exploratory study will examine consumers’ knowledge of the technology and their beliefs concerning how emotional tracking should or should not be utilized and regulated. It is proposed that most respondents will not be aware that emotional tracking is a technology currently in use and that they will also have some concerns regarding their privacy and the issue of the technology.

A survey was electronically administered to the campus population presenting them with a simple scenario describing the technology and its uses. In short, the scenario described a mobile shopping situation with seemingly altered search results related to the emotions the consumer was experiencing at the time of viewing specific items. Respondents then answered questions concerning the plausibility of this type of technology and attitudes towards the commercial use of emotional tracking. Respondents also were given the Mobile Users’ Internet Privacy Concerns scale, developed by Xu, Gupta, Rosson and Carroll (2012) which measures perceived surveillance, perceived intrusion and secondary use of personal information. In addition, a self-assessment of adopter category (innovator, early adopter, etc.), as well as items measuring demographics were included in the survey.

## Results

A sample size of 133 was obtained from an email request using campus email accounts with 70.5% reporting to be female, the remaining male. Most respondents had some level of college education, but no college and advanced degrees were also reported. Most respondents used some type of technology (smartphone, tablet, laptop, etc.). While all income levels were represented, 50% of the sample reported income in the ranges of \$10,000 to 99,999.

The results are significant in that there were no statistical significant results found when testing the various means available with demographic and other groupings. No matter gender, education level, income level, etc., respondents were concerned with the perceived privacy resulting from unregulated and unaware use of emotional tracking technology. Most respondents however believed the technology to be in use in the very near future if not already. A scenario was provided describing a situation in which a consumer shopping via mobile phone was being presented with items based on their emotional response to previously presented items. See Scenario in Appendix. When asked of the likelihood of the scenario situation scenario, over 50% stated it was very likely or somewhat likely that the scenario situation was already taking place. Close to 90% felt that the scenario situation would become a reality in the near future. See Table 1.

**Table 1: Emotional Tracking Likelihood\***

Statement	Very Likely	Somewhat Likely	Somewhat Unlikely	Very Unlikely	Mean
The scenario situation is already taking place.	12.8%	44.4%	27.1%	105%	2.47
The scenario situation will probably become a reality in the near future.	44.4%	42.9%	7.5%	1.5%	1.70
The scenario situation will not become a reality.	2.3%	8.3%	36.1%	43.8%	3.48

\*5 pt. scale where 1 = Strongly Agree

Respondents were asked about their thoughts concerning the ethical use of such technology, the privacy of the data collected using emotional tracking and the need for regulation. Responses indicated that consumers have some privacy and ethical concerns. Most respondents agreed that the data obtained was private and there should be regulations for analyzing and using emotional data. Consumers were not comfortable with the use of the technology. See Table 2 for statements and corresponding response categories and means.

**Table 2: Consumer Agreement Levels to Ethics and Regulation Statements\***

Statement	Strongly Agree	Somewhat Agree	Neither Agree/Disagree	Somewhat Disagree	Strongly Disagree	Mean
Using technology to analyze emotional responses to mobile content without consumer knowledge is ethical	6%	8.3%	8.3%	13.5%	56.4%	4.15
Emotional responses to mobile content is private. personal information	52.6%	27.1%	6.8%	4.5%	.8%	1.62
The process of analyzing emotional responses to mobile content should be regulated	58.6%	18%	11.3%	1.5%	3%	1.62
The data made available through emotional response analysis should be regulated	63.2%	21.8%	5.3%	.8%	1.5%	1.44
Organizations should be allowed to analyze consumer emotional responses without obtaining consumer consent	2.3%	6.0%	6.0%	9.8%	68.4%	4.47
Consumers should be notified when their emotional responses to content are being recorded for marketing purposes	79.7%	11.3%	1.5%			1.15
I would be comfortable using a device knowing it was analyzing my emotional responses	8.3%	13.5%	12%	18.8%	39.8%	3.74

\*5 pt. scale where 1 = Strongly Agree

Consumers seem to be concerned in general with the use of mobile apps and lack of privacy, whether due to location knowledge and tracking or personal information use and privacy. The questionnaire included the Mobile Users Concerns for Information Privacy scale developed by Xu, Rossen, Gupta and Carroll, 2012. The scale examines secondary use of personal information, perceived surveillance and perceived intrusion. In all scale items, this research's respondents were pragmatic concerning the activities of app in use on the mobile, agreeing at a high level with statements of

loss of personal information and surveillance. For example, when given the statement “I believe that the location of my mobile device is monitored at least part of the time”, 59% of the respondents Strongly Agree and another 26% Somewhat Agree. Similar results were associated with statements about monitoring mobile activities, the use of information by secondary parties, the use of personal information without knowledge, as well as the other items in the MUCIP scale. See Table 3 for statements and corresponding responses and means.

**Table 3: Consumer Agreement Levels to MUCIP Scale Items\***

Statement	Strongly Agree	Somewhat Agree	Neither Agree/Disagree	Somewhat Disagree	Strongly Disagree	Mean
I believe that the location of my mobile device is monitored at least part of the time	59.4%	25.6%	4.5%	1.5%	.8%	1.46

I am concerned that mobile apps are collecting too much information about me	42.1%	33.1%	12.8%	3.0%	.8%	1.77
I am concerned that mobile apps may monitor my activities on my mobile device	43.6%	36.1%	8.3	3.8%	0	1.70
I feel that as a result of my using mobile apps, others know about me more than I'm comfortable with	33.1%	36.8%	12.0%	7.5%	2.3%	2.01
I believe that as a result of my using mobile apps, information about me that I consider private is more readily available to others than I would want	46.6%	35.3%	5.3%	3.0%	1.5%	1.66
I feel that as a result of my using mobile apps, information about me is out there and if used, will invade my privacy	39.8%	36.1%	9.8%	3.8%	2.3%	1.83
I am concerned that mobile apps may use my personal information for other purposes without notifying me or getting my authorization	55.6%	29.3%	3.0%	2.3%	1.5%	1.52
When I give personal Information to use mobile apps, I am concerned that apps may use my information for other purposes	52.6%	29.3%	6.8%	1.5%	1.5%	1.58
I am concerned that mobile apps may share my personal information with other entities getting my authorization	54.1%	30.1%	3.8%	2.3%	1.5%	1.55

\*5 pt. scale where 1 = Strongly Agree

As mentioned earlier when testing means for the statements above with regards to gender, educational level, income level and self-assessed adopter category, there were no significant differences. Consumers seem to be concerned, in general, with their privacy, data collection and the subsequent use of that data once collected.

When using the MUICP (alpha = .90) scale to classify respondents into groups of levels of concern for their internet privacy, significant differences were found between the groups and their responses to the ethical and regulated use of emotional

tracking. Two groups were formed based on the MUICP mean using a cut point of 1.56. This left approximately 505 of the sample in a higher concern group and the remaining in a group with slightly lower levels of concern for privacy, unauthorized use and surveillance. Significant differences for several of the items concerning the use of emotional analytics were found. See Table 4.

**Table 4: Means for MUICP Groups\***

Statement	Mean High Concern	Mean Lower Concern	Sig.
Using technology to analyze emotional responses to mobile content without consumer knowledge is ethical	4.24	4.03	3.71
Emotional responses to mobile content is private. personal information	1.44	1.82	.02
The process of analyzing emotional responses to mobile content should be regulated	1.5	1.75	1.64
The data made available through emotional response analysis should be regulated	1.27	1.62	.015
Organizations should be allowed to analyze consumer emotional responses without obtaining consumer consent	4.66	4.27	.035
Consumers should be notified when their emotional responses to content are being recorded for marketing purposes	1.08	1.23	.038
I would be comfortable using a device knowing it was analyzing my emotional responses	4.23	1.25	.000

\*5 pt. scale where 1 = Strongly Agree

In most cases, while significant, the means are relatively close with one exception. The last scale item, asking respondents of their comfort level with using a device with an app tracking their emotions, the group with a higher concern on the MUICP scale mean was 4.23 and 1.25 for the lower concern group.

## Conclusion

Advancements in technology have provided marketers with the ability to collect massive amounts of data from consumers, store that data, and analyze it in finer and

finer detail. Consumers seem to be willing to supply that data when the benefits are positive. Consumers, however, are still very concerned with many aspects of this data collection. They are concerned with a breach in their privacy, with the use of their information by secondary parties, with seemingly constant monitoring of their activities and with unauthorized use.

Marketers, aware that these concerns exist, should educate consumers about the collection, storage and use of their information in consumer friendly language. While this is available in the TOS (terms of service) provided and agreed to by consumers before use of the app is allowed, most consumers do not read, nor is the TOS written in a style that is likely to be read with a high level of comprehension by most. Marketers should also calculate the cost/benefit ratio that would appeal to their target consumers, as consumers seem to be willing to give up some personal information, even while having concerns about doing so, in order to receive benefits, whether in cost, time or labor savings in doing business with the marketing organization. Additional research is necessary to determine more closely the level of benefits necessary to obtain the desired data, and a level of trust, from the consumer.

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## Appendix

### **Scenario Presenting Use of Emotional Analytics**

After installing the app for your favorite online retailer, to make shopping easier with your mobile phone, you open the app and begin to scroll through some items. Some

of the items you like and some you are not interested in at all. For a few items, you click to get more details. In the meantime the app is displaying suggestions for you. You notice that the suggestions seem to be very similar to the items you liked or clicked on for more information. The suggestions are not at all like the items you didn't like. Normally, you wouldn't notice this, but the app had eliminated from suggesting item that you had clicked on, but decided you did not like them after taking a closer look.

Consider the idea that the app you just installed has the ability to read your facial expressions in detail. In enough detail to determine if the items you were looking at were items you liked or disliked. Through your device's camera, the app was able to determine precise measurements of different areas of your face and determine to a high degree of accuracy what your emotion was at that moment - your emotional response to the item being displayed on your screen. Then based on that reading of your emotional response, the app was able to vary the items that were displayed for your viewing, giving you customized product suggestions.

Companies are interested in recording neurological, physiological and emotional responses to content exposure in an effort to create the most relevant and effective marketing as possible, and eventually determine intent to purchase. As a consumer, how comfortable would you be with this type of technology enabled on your phone, giving the ability to read and evaluate your emotions to a marketing organization? Please provide your answers below. There will also be section for you to add your own comments.

**Keywords:** *marketing research, emotional analytics, consumer privacy concerns*

**Relevance to Marketing Educators, Researchers and Practitioners:** Marketing practitioners, well aware of the value of emotions when designing elements of the marketing mix, must also weigh consumer concerns of privacy and trust against benefits of utilizing new technologies recording consumer emotions passively.

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**TRACK: Consumer Behavior/Marketing Research**