THE ECONOMICS OF EMOTIONS: HOW TO VALUE EMOTIONAL UTILITY

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ABSTRACT
This paper describes a method for determining the value of the emotional component in a product or service. Specifically, it describes a validated means for measuring emotions, a means for computing changes in emotions associated with exposure to a product, and a method for estimating the dollar value of those emotional responses. The paper provides a means of measuring emotional utility and the foundation for a new line of inquiry into the economics of emotions. The product design and marketing implications associated with identifying emotional responses to a product to maximize its emotional utility are discussed.

INTRODUCTION

The importance of emotions to an individual's intent to purchase a product or service has been established by others (Morris, et al.) and the importance of emotions in advertising is well known (Hill). However, the extent of the role emotions play in establishing a value for a product or service has remained elusive. Because of difficulties in measuring emotions, product design, manufacture, and marketing must center largely on the functional utility of a product with attempts to incorporate emotionally-laden attributes such as usability, ergonomics, and style as additional qualities that are difficult to value and price. It is easy, therefore, to compare two products on functional value (e.g. price versus functional performance) but here-to-fore impossible to compute a return-on-investment for money spent improving individual's emotional reactions to a product. If it was possible to place a dollar value on the emotional response one receives from a product, we would gain access to an entirely new dimension of product utility; that being emotional utility. Basic human emotions include Surprise, Fear, Anger and Contempt and knowing how these emotions change in response to a product makes it possible incorporate these responses into design considerations. For example, one could know when to add features that solicit Interest, guarantees that mitigate Fear, and improved assembly instructions that prevent Anger and Contempt. The key to making these types of calculations is being able to place a dollar value on emotional responses.

The difficulty in valuing the emotional components of a product is due to a variety of facts. These include a lack of understanding about basic emotions, no convenient means of measuring emotions, and an absence of measurement scales and metrics that allow a calculation of product utility to product price.

While often ignored, the literature is rich with insight into human emotions with Charles Darwin being one of a dominant pioneer on the subject (Darwin). Recent works have related emotions to decision-making which is closely related to product evaluation (Lowenstein, Rajeev). Descriptions of basic emotions are also available in the literature providing a foundation for measurement and valuation (Shalif, Izard).

More recently, a means for measuring emotions has been developed and applied in a variety of settings (Priesmeyer & Mudge). The technique employees a computer program called Emogram

that presents a set of thirty-three facial expressions of emotions and records subject responses (Priesmeyer & Knickerbocker).The photographs comply with the Facial Action Code (Ekman) and the responses are used to compute measures of eleven basic emotions. The metrics provided by Emogram have been validated and the technique has been used in several doctoral dissertation studies (Mudge, Capps, Edralin, McGinnis).

The measures of basic emotions produced by Emogram provide the metrics necessary for relating emotions to product price. Specifically, the changes in measures of emotions can be used to compute a measure of *emotional utility* separate from the functional utility in a product. Decomposing total utility into functional and emotional utility makes it possible to allocate product price in a similar way. The result is a specific price for the functional value of a product and a separate price for the emotional utility it provides.

BASIC EMOTIONS AND PRODUCT ATTRIBUTES

The list of the eleven basic emotions measured by Emogram and the product attributes associated with each are provided in Table 1. One will notice that only the first three of these emotions offer a generally pleasant emotional experience while the remaining eight produce unpleasant experiences. Because any combination of emotions may be appropriate in a given situation, a concept called ecological by mental health professionals, none of these emotions should be considered "good" or "bad". However, they can be classified as "positive" or "negative" to reflect the influence they have on an individual's overall emotional state.

Table 1
Product Attributes Associated with the Eleven Basic Emotions

Emotion	Interpretations of Emotion Increases
Happiness	Supports consumer's desires
Interest	Draws and holds attention
Surprise	Offers unexpected features
Disgust	Has distasteful features
Contempt	Creates animosity toward product or manufacturer
Anger	Product should be eliminated
Fear	Product has specific threatening features
Anxiety	Product has features that solicit unspecified fears
Shame	Makes customer feel incompetent
Distress	Customer needs more help with the product
Sadness	Product creates a feeling of personal loss

The interpretations offered in Table 1 are based upon careful study of the basic emotions. For example, Contempt is invoked when one believes that the stimulus deliberately acted in a way so as to cause unpleasant emotions. It is a profoundly meaningful emotion because it clearly communicates an assignment of blame and responsibility to the stimulus. It is a near polar opposite of Shame which emerges from self-blame. Contempt means "You deliberately made me feel bad." When considered as a response to a product it is fair to interpret an increase in Contempt as "Creates animosity toward product or manufacturer". Similarly, Shame is a very common emotion that emerges whenever a person attributes blame to self for any perceived failure or shortcoming. Shame presents as an attempt to minimize one's presence to others and the interpretation of an increase in Shame when related to a product is "Makes customer feel incompetent". Likewise, Distress is well understood to mean "Help me". It communicates helplessness and vulnerability. We see the purest expression of Distress in infants who are uncomfortable and about to cry. The expression of Distress seeks to solicit others to provide

comfort and support. When related to a product it is fair to say that an increase in Distress is interpreted to mean "Customer needs more help with the product". In a similar way, all of the interpretations provided in Table 1 are based upon careful study of basic human emotions.

A measure of the overall emotional state is provided by Emogram. It is termed "Emotional Quality" and it is computed by subtracting the average of the eight negative emotions from the average of the three positive emotions and then rescaling the difference onto a scale with the range of +100 to -100. To the extent that a product offers attributes that increase the positive emotions and minimize the negative ones it increases the customer's Emotional Quality. Changes in the Emotional Quality score reflect the emotional utility for the product. When combined with other product attributes, it can be used to assign a value to the emotional components intrinsic in the product.

AN EMOTIONAL VALUE EQUATION
Changes in the Emotional Quality score are computed by completing a pre-test to establish an individual's baseline emotional state, exposing the individual to the product, and then administering a post-test to again measure the emotional state. The differences between the post-test measures and the pre-test measures reflect the changes in each basic emotion and make it possible to compute the change in the overall Emotional Quality score (Priesmeyer, Mudge).

The value of the emotional content in a product can be determined from its current market price if we decomposing the price into its functional and emotional components and allow for some other product attributes. For example, some products are not immediately consumable and offer repeated use which compounds the emotional value in the product. Further, the value of the emotional content in a product may extend beyond that of the immediate user; there can be a dissemination of the emotional effect that extends the influence of the product through the user to a spouse, immediate family, or co-workers. Figure 1 provides an Emotional Value Equation that represents an attempt to capture and quantify the Emotional content in a product.

Figure 1
An Emotional Value Equation

$$E_v = EQ_\Delta * P_{eq} * R * D * V_{eq}$$

Where:
E_v = Value of the emotional content
EQ_Δ = Change in Emotional Quality on a single exposure
P_{eq} = Proportion of total utility attributable to emotional utility
R = Repeated uses available in the product
D = Dissemination index
V_{eq} = Value of an Emotional Quality unit

This equation attempts to estimate a value (E_v) which is the dollar amount an individual is willing to pay for the emotional response one receives from a product or service.

The change in Emotional Quality as a result of a single exposure to the product (EQ_Δ) is computed by measuring the difference between a post-test EQ score and a pre-test EQ score as described above. This measure, however, includes the emotional response to both the functional utility of the product and the emotional utility of the product. To isolate the emotional utility, the

equation includes a term (P_{eq}) which is an estimate of the proportion of total utility that is associated with the change in Emotional Quality. While it may seem such a measure is difficult to determine, there is prior research that addresses this issue. Morris reports a large study (n=23,168) in which he and others estimated the degrees of association between cognitive measures, measures of emotions, and purchase intent. The objective of the study was to test a model which included determining the extent to which purchase intent was associated with cognitive effort and affect. The study addresses this question across a broad range of products and services and provides R^2 measures for each. Some results from that study are instructive: The R^2 measures between cognitive effort (C) and purchase intent and between affect (A) and purchase intent are as follows for selected industries: alcoholic beverages (C=6.6, A=30.1), autos (C=6.8, A=20.3), and pharmaceuticals (C=7.9, A=15.4) (Morris). While these are not direct measures of functional and emotional utility, these scores do reveal the dominant role emotions play in purchase intent and they suggest values for the measure P_{eq}. If the R^2 values cited here are converted into proportions, we get the following proportions for emotional quality (P_{eq}): alcoholic beverages (.820), autos (.749), and pharmaceuticals (.661). Clearly, the dominant amount of utility even in rather functional products is emotional utility.

The remaining terms in the Emotional Value Equation are repeated uses (R), the dissemination index (D) and the value of an Emotional Quality unit (V_{eq}). The repeated uses measure recognizes that the product may offer more than a single serving. For example, while a 12 ounce can of soda provides a single use, a 48 ounce bottle of soda offers four times that much whether those uses are repeated uses for a single individual or shared by four individuals. The measure included here can be considered naïve in that it is assumed that the emotional utility is equal for each use and not subject to a diminishing return (a consideration which could be added with a negative exponent). The dissemination index differs from repeated uses in that the emotional responses resulting from the use of the product occur to others because of changes in the emotions of the primary user. It allows for consideration of the value of the product to others not directly consuming the product. The dissemination is greater than one in cases such as gift giving where the value to the giver is due to the dissemination of positive emotional responses by the recipient. The dissemination index is less than one when the response of secondary individuals is opposite to that of the primary user. For example, use of illicit drugs may make the primary user feel better temporarily but result in considerable emotional cost to friends and family. In such a case the dissemination index is below one and results in a reduction of the overall emotional utility of the drug.

Of the five variables in the Emotion Value Equation, the change in Emotional Quality (EQ_Δ) can be determined experimentally, the number of repeated uses (R) is known, and two other measures, the proportion of total utility that is emotional utility (P_{eq}) and the dissemination index (D) can be estimated. One measure, however, depends entirely upon the instrument used to measure changes in emotions and must, therefore, be calibrated. That value is V_{eq}, the value of an Emotional Quality unit.

THE VALUE OF EMOTIONAL QUALITY
The price one is willing to pay for a change in one unit on the Emotional Quality scale (i.e., one unit of emotional utility) depends on both the emotional response to a product and the scale used to measure emotional responses. Emogram's +100 to -100 scale provides a total of 200 units of division for any emotional response. The price per unit is, therefore, based upon each unit being $1/200^{th}$ of the maximum possible change in one's emotions. This means that an increase of 20 Emotional Quality units on the Emogram scale is equivalent to a 10 percent improvement in one's emotional state. The question we seek to answer is: How much is an individual willing to pay for that 10 percent improvement in emotions?

What is needed is some basis for determining what individuals pay for emotional change. For this we can turn to observable market behavior. Many products are purchased almost entirely for their emotional utility; if we select one such product we can use tangible evidence from the marketplace to establish a price for the emotional utility in the product. If we then measure the emotional response to the product we then can compute a price per Emotional Quality unit (V_{eq}). Specifically, the price per Emotional Quality unit can be determined by dividing the price of the product by the number of units change in Emotional Quality associated with a single-use.

The product chosen to illustrate these computations is a $20 bottle of wine. We will assume that the bottle is purchased entirely for its emotional utility ($P_{eq}=1.00$) and that there are five servings in the bottle (R=5). We will also specify that there is no emotional effect on others due to the consumption by the primary user (D=1.00). The fact that the wine sells successfully in the marketplace for $20 provides evidence that $20 is the price individuals are typically willing to pay for the emotional contents of the bottle. When divided by the five servings in the bottle we can establish a price per serving of $4.00.

Table 2 provides an example of the calculation necessary to compute the only remaining value in the equation; value of an Emotional Quality unit (V_{eq}). It provides a set of data from ten hypothetical subjects each sampling one $4.00 serving of the same wine. The table provides pre-test and post-test emotional scores and it includes the change in the Emotional Quality scores for each subject. A value for each Emotional Quality unit (V_{eq}) is computed by dividing the price per serving ($4.00) by the change in the Emotional Quality scores (EQ_Δ).

Table 2
Estimating the Value of an Unit Change in Emotional Quality

Subject	1	2	3	4	5	6	7	8	9	10	Average
Pre-test	34	35	28	32	18	18	34	22	34	32	28.70
Post-test	44	51	65	76	56	73	81	67	75	48	63.60
EQ_Δ	10	16	37	44	38	55	47	45	41	16	34.90
V_{eq}	0.40	0.25	0.11	0.09	0.11	0.07	0.09	0.09	0.10	0.25	0.15

The price one is willing to pay for one unit change in Emotional Quality is shown on the bottom row titled V_{eq} with the average for the sample provided in the lower right corner of the table. Stated directly, these computations suggest that the average amount individuals are willing to pay for each unit of emotional utility is fifteen cents. The example suggests some individual are willing to pay considerably more ($.40 for subject #1) and some considerably less ($.07 for subject #6). With values for V_{eq} computed, it is now possible to explore the values for emotional content (E_v) that the Emotional Value Equation provides.

THE EMOTIONAL UTILITY SURFACE
For any given product, three of the values in the Emotional Value Equation are, essentially, parameters. These are P_{eq}, the proportion of total utility that is emotional utility, R, the number of repeated uses in the product and D, the dissemination index. That means that the value of emotional content in a product (E_v) is largely a function of the other two variables in the equation: the change in Emotional Quality the product offers to the individual (EQ_Δ) and the value of each Emotional Quality unit (V_{eq}).

Because it is likely there is considerable variability between individuals in their emotional response to a product and the price individuals are willing to pay for each unit of Emotional Quality (as suggested in Table 2 above) it is important to allow for differences in both of these key variables. Table 2 relates these two measures in a matrix indicating the emotional values

intrinsic in a product over varying values for Emotional Quality and over increasing changes in Emotional Quality. If the price per serving for the product is $4.00 and all of the utility is emotional then the highlighted curve indicates the emotional utility threshold for the wine.

The matrix in Table 2 is a utility surface and it can be computed by using the Emotional Value Equation in Figure 1. The values in the table are simply the solutions to the equation for different values of (EQ_Δ) and (V_{eq}) holding the other values in the equation constant. Individuals below the highlighted curve will not purchase the product, those on or above the curve will consider the value of the emotional utility greater than the cost and will consider the product a good value proposition. Those who find larger increases in Emotional Quality from a single serving or who are willing to pay more for each unit change in Emotional Quality will value the product above its $4.00 price per service and likely purchase the product.

Table 3
The Emotional Utility Surface

Value of Emotional Quality Unit

	1	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50
0.50	0.50	2.50	5.00	7.50	10.00	12.50	15.00	17.50	20.00	22.50	25.00
0.48	0.48	2.40	4.80	7.20	9.60	12.00	14.40	16.80	19.20	21.60	24.00
0.46	0.46	2.30	4.60	6.90	9.20	11.50	13.80	16.10	18.40	20.70	23.00
0.44	0.44	2.20	4.40	6.60	8.80	11.00	13.20	15.40	17.60	19.80	22.00
0.42	0.42	2.10	4.20	6.30	8.40	10.50	12.60	14.70	16.80	18.90	21.00
0.40	0.40	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00
0.38	0.38	1.90	3.80	5.70	7.60	9.50	11.40	13.30	15.20	17.10	19.00
0.36	0.36	1.80	3.60	5.40	7.20	9.00	10.80	12.60	14.40	16.20	18.00
0.34	0.34	1.70	3.40	5.10	6.80	8.50	10.20	11.90	13.60	15.30	17.00
0.32	0.32	1.60	3.20	4.80	6.40	8.00	9.60	11.20	12.80	14.40	16.00
0.30	0.30	1.50	3.00	4.50	6.00	7.50	9.00	10.50	12.00	13.50	15.00
0.28	0.28	1.40	2.80	4.20	5.60	7.00	8.40	9.80	11.20	12.60	14.00
0.26	0.26	1.30	2.60	3.90	5.20	6.50	7.80	9.10	10.40	11.70	13.00
0.24	0.24	1.20	2.40	3.60	4.80	6.00	7.20	8.40	9.60	10.80	12.00
0.22	0.22	1.10	2.20	3.30	4.40	5.50	6.60	7.70	8.80	9.90	11.00
0.20	0.20	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
0.18	0.18	0.90	1.80	2.70	3.60	4.50	5.40	6.30	7.20	8.10	9.00
0.16	0.16	0.80	1.60	2.40	3.20	4.00	4.80	5.60	6.40	7.20	8.00
0.14	0.14	0.70	1.40	2.10	2.80	3.50	4.20	4.90	5.60	6.30	7.00
0.12	0.12	0.60	1.20	1.80	2.40	3.00	3.60	4.20	4.80	5.40	6.00
0.10	0.10	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
$\Delta EQ \rightarrow$	1	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50

The Emotional Utility Surface illustrates the value of adding Emotional Quality to a product. Doing so invites new consumers to a product; specifically, those unwilling to pay higher prices for each unit changes in Emotional Quality will purchase the product if it offers more emotional utility. Here, then, is the significance of this line of research. Any changes made to a product that result in changes to the emotional responses to that product will alter the consumer's value proposition. While that has been generally known, this line of research can reveal which specific emotions need to be altered and provide a specific price for the perceived value of the product.

EMOTION-BASED PRICING
If the price one is willing to pay for a unit change in Emotional Quality is known or can be estimated by a sampling procedure as demonstrated in Table 2 then one can use the Emotional Value Equation to compute the specific price one is willing to pay for a product.

Table 4 provides the actual emotional responses for one individual to two similar products; building on the earlier example, both products are red wines. The table includes the Emotional Quality (EQ) for each wine, the change in Emotional Quality compared to the baseline assessment (EQ_Δ), and the value of the emotional content (E_v). For each of the two products the Emotional Quality is provided by Emogram while the value of the emotional content is computed using the Emotion Value Equation. This computed value, which relates to a single serving, is

multiplied by five to provide the estimated price the individual is willing to pay for a bottle of the wine (Price).

It is interesting to note that the prices in Table 4 are computed exclusively from the emotional responses to the products. Emogram provides a measure ranging from 1 to 6 inclusive for each emotion with higher values indicating stronger manifestations of the emotions. The table includes these responses so it is possible to discern the reasons for the difference in prices. For example, the subject found Product A to be more interesting and surprising than Product B. Using the product attributes from Table 1 we can say that Product A "draws and holds attention" (Interest) and "offers unexpected features" (Surprise) more than does Product B. These two positive responses were more than enough to offset differences in the negative emotions and resulted in an increase in the Emotional Quality score of 31.50 for Product A compared to 29.90 for Product B. The result is a price of $23.63 for Product A and $22.43 for Product B; a difference of $1.20.

Table 4
Value of the Emotional Content in Two Competing Products

| Emotion	Baseline	Product A	Product B	A-B
Happiness	3.52	5.00	5.00	0.00
Interest	4.00	5.29	5.00	0.29
Surprise	3.23	4.51	4.23	0.78
Contempt	1.52	1.00	1.00	0.00
Disgust	1.00	1.00	1.29	-0.29
Shame	1.23	1.00	1.00	0.00
Fear	1.00	1.00	1.00	0.00
Anger	1.76	1.23	1.00	0.23
Anxiety	2.00	1.47	1.29	0.18
Distress	1.52	1.29	1.00	0.29
Sadness	1.23	1.47	1.00	0.47
EQ	43.52	75.02	73.42	1.60
EQΔ	-	31.50	29.90	1.60
E_v	-	$ 4.73	4.29	$ 0.24
Price	-	$23.63	$22.43	$ 1.20

The scores in Table 4, when combined with the attributes for each emotion described in Table 1, suggest an entirely new approach to product design and marketing. They suggest that emotional responses might be engineered to increase a product's value. Specifically, any product attributes that foster greater Happiness, Interest, and Surprise will increase the product's value as will any features that decrease or prevent emotional responses of Contempt, Disgust, Shame, Fear, Anger, Anxiety, Distress or Sadness. Given the large number of negative emotions in the basic emotions set, eliminating or reducing that latter group of emotional responses may offer the greatest opportunity to improving a product's value. It should be noted that even if a product offers both functional and emotional utility the Emotional Value Equation can be used to compute a price directly from emotional responses by simply adjusting the proportion of emotional utility parameter (P_{eq}).

THE COST OF EMOTIONAL UTILITY
While the discussion above offers insight into how emotions add value to a product there is cost associated with adding product attributes or marketing that maximize emotional utility. Figure 2 provides a diagram that suggests how these values and costs are related. It relates increases in emotional utility to changes in total utility and the cost of producing (or improving) a product.

A position to the far left on the horizontal axis in Figure 2 corresponds to a product which offers functional utility only. The cost of producing the product is given by the dashed line. If we take the sum of functional utility and emotional utility as "price" then the distance marked "A" in the figure represents the difference between price and cost and is, therefore, the gross profit in the product as a strictly functional product. As we add emotional utility to a product by enhancing its design or offering attributes that minimize the negative emotions, we see the increase in emotional utility in the upward sloping solid line labeled "Price" and we see the increasing costs associated with adding this utility in the rise of the cost curve. At point "X" on the horizontal axis we find that the slope of the cost curve matches the slope of "Price" indicating that the marginal cost of adding emotional utility is equal to the marginal change in price for that additional utility. The difference between the product's price and cost is given by the distance marked "B" and corresponds to the gross profit of the product with that level of Emotional Quality. The optimal emotional utility to be incorporated into the product is given by the value "X" on the horizontal axis and the product's price is given as "Y" on the vertical axis.

Figure 2
The Cost of Emotional Utility
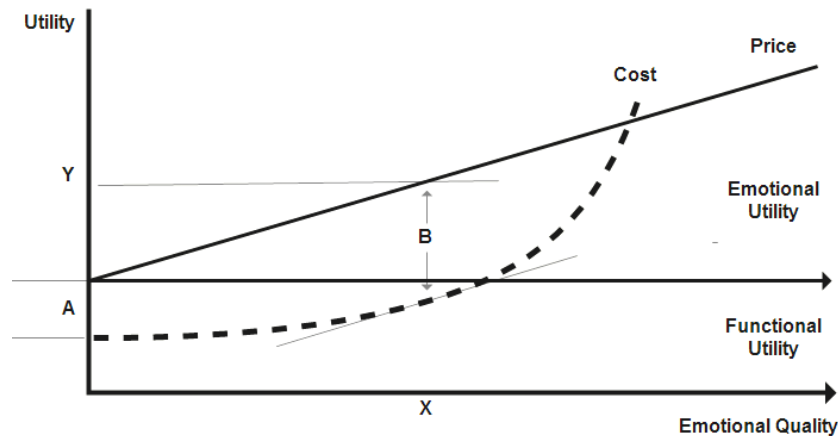
Any level of Emotional Quality less than "X" would be suboptimal since the marginal cost of adding the utility is less than the marginal price. Similarly, any increase in Emotional Quality more than "X" would be suboptimal since the marginal cost of that increase exceeds the marginal value.

These relationships suggest there is real and measureable value in adding emotional utility to a product and that there is merit in pursuing the measurement, valuation, and design of the emotional utility. They also suggest there is a limit to the merits of adding emotional utility largely due to the increasing costs of doing so and the diminishing returns associated with those additional costs.

SUMMARY
This article provides some innovative approaches to valuing the emotional content of products and services. It is based on considerable prior work with emotions and seeks to relate measures of emotions to quantifiable values that can be associated with emotional utility. While the means by which emotions are measured are not discussed here, those methods are described at length in the references. The Emotion Value Equation is offered as a first attempt to relate emotional responses

to dollar values. It is hoped that the equation will invite others to explore its merits. The Emotional Utility Surface in Table 3 is likely a fundamental analytical tool in the study of emotional utility because of individual differences in emotional responses. Perhaps of greatest potential here is the opportunity to modify product designs or the marketing campaigns associated with those products to alter customer's responses to the eleven basic emotions. Attention to the set of basic emotions described here can suggest a broad range of changes in design and marketing. Further, these methods suggest that the economic value of making such changes can be estimated. Finally, the limits to improving Emotional Quality have been recognized in a set of relationships between cost and benefits.

REFERENCES

Capps, F.M. (2005). *The exact method: Resolution of substance abuse related trauma in couples counseling utilizing Eye Movement Desensitization and Reprocessing (EMDR).* Doctoral Dissertation. Texas A&M University Corpus Christi, Texas USA.

Darwin, C. (1897). *The expression of the emotions in man and animals* (New York: D. Appleton & Company).

Edralin, J.A. (2010). *Emotional Responses to Domestic Violence* (working title). A Doctoral Dissertation in process. Department of Counseling and Human Services, St. Mary's University, San Antonio, Texas.

Ekman, P. & W.V. Friesen (1978). *Facial Action Coding System: A technique for the measurement of facial movement.* Palo Alto, CA: Consulting Psychologists Press.

Hill, D. (2007). CMOs, Win Big by Letting Emotions Drive Advertising, *Advertising Age*, Vol. 78, Issue 34, p. 12.

Izard, C. E., B. Ackerman, K. Schoff, S. E. Fine (2008). "Self-Organization of Discrete Emotions, Emotion Patterns, and Emotion-Cognition Relations" from ScientificCommons (University of St. Gallen (Switzerland): Scientific Commons.org), p. 15.

Lowenstein, G. F., E.U. Weber, C.K. Hsee & N. Welch (2001). Risk as Feelings, *Psychological Bulletin*, Vol. 127, No. 2. 267-286.

McGinnis, L.D. (2008). Validation of the Emogram Shame Scale and the Personal Feelings Questionnaire: A Correlational Study. Doctoral Dissertation. St. Mary's University, 151 pages.

Morris, J.D., C. Woo, J.A. Geason & J. Kim (2002). The Power of Affect, *Journal of Advertising Research*, June, 7-17.

Mudge, S.D.(2003). *Validation of the Emogram anger scale and the State-Trait Anger Expression Inventory-2 (STAXI-2): A correlational study.* Doctoral Dissertation. St. Mary's University, San Antonio, Texas USA.

Priesmeyer, H. R., D.K. Knickerbocker, D.L. Comstock, S.D. Mudge (2001). "Emogram: a clinical tool for measuring and interpreting emotional dynamics", *National American Counseling Association Meeting, (*San Antonio, Texas), November.

Priesmeyer, H.R., & Mudge, S. (2008). Using Measures of Emotions to Improve Work Climate, Products, and Decision-Making. *Management & Marketing 3*, Spring.

Rajeev, P. & S. Bhattacharyya (2007). Regret and Disappointment: A Conceptualization of their Role in Ethical Decision-Making, *Vikalpa*, Vol. 32, No. 4, October-December, 75-85.

Shalif, I. (1991). *Emotions and the Dimensions of Discrimination among Them In Daily Life*, Ph.D. Thesis, Department of Psychology, University Ramat_Gan, Israel, January.