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Structural Analysis of Affect in the Pre-purchase Context

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Previous studies on consumption related affect did not identify specific components in the pre-purchase context. This article reviewed theoretical bases of affect and its relationship to product judgment and determined the components and structure of pre-purchase affect. Field studies were conducted to gather an initial list of affect experienced before purchasing "high-involvement" products. An initial list of 94 pre-purchase affect was identified and trimmed down to 18 after further statistical analysis. A second study was conducted to determine the structure of the pre-purchase emotion set (PES) derived from the first study. Multidimensional scaling was used and four clusters of emotion were found labeled satisfaction, positive enthusiasm, optimism, and amazement. The same results were found using factor analysis. It was proposed that pre-purchase affect experience followed the human information processing model.

Keywords: Consumer attitudes, consumer behavior, consumer spending

Marketing scholars have investigated the role of affect in consumer decision making (Mahajan & Wind, 2002; Westbrook, 1987). Most studies have centered on affective responses to advertisement, purchasing decision, and product evaluation (Adaval, 2001, 2003; Batra & Ray, 1986; Gardner, 1985; Mano & Oliver, 1993; Mattila & Wirtz, 2000; Maxwell & Kover, 2003). These studies generally explored how mood and the experience of positive and negative affect help or hinder the consumers' intention to purchase or consume a product or service.

Affect or emotion is a complex phenomenon that is difficult to define and measure. Plutchik reviewed 28 definitions of affect to find that the definitions were inconsistent and not illustrative (Richins, 1997). Psychologists, including Izard (1977) and Plutchik (1980), described emotion by enumerating its different types, while Russell (1980) focused on the experienced level of arousal.

In studies of affect and consumer behavior, one of the challenges faced by the researcher is the selection of an appropriate way of measuring emotion. Emotion can be measured in three ways using either self-reports, facial expressions, or autonomic responses (Larsen & Fredrickson, 1999). The most popular among these is the self-report which allows the subject to report the emotion felt and its intensity through the use of rating scales and adjective checklists.

In studies involving affect-related consumption, emotion was measured using scales developed in psychological studies. By categorizing facial expressions, emotions were enumerated by several researchers including Ekman, Friesen, and Ellsworth (1982) and Tomkins (1962). They were termed "fundamental" emotions, because each of them has a "specific neural substrate" (Izard, 1977, p. 83), a distinct facial expression and a unique subjective or phenomenological quality. The Differential Emotions Theory was used to distinguish basic emotions from facial expression (Izard, 1977). It has its roots on the study of animal behavior.

One of the most quoted models of affect is the Circumplex Model proposed by Russell (1980). This model postulates that affective dimensions are not independent but rather related in systematic fashion. Russell (1979, p. 345) defined affect as "emotion as represented in language". His conceptualization was based on Osgood's (1969) semantic differential technique, which considered evaluation, activity, and potency to be the primary dimensions of the meaning of words. Russell and Mehrabian (1977) imagined that these dimensions also engender affect and proposed a parallel framework to express emotion in words, namely, pleasure, arousal, and dominance or PAD. They identified emotions by asking subjects to rate physical environments using several adjectives. To identify potential structures, data were evaluated using methods such as principal components analysis, factor analysis, and cluster analysis. Russell later noted that dominance is not a dimension of affect (Russell & Pratt, 1980).

Plutchik (1980) proposed a model of affect based on a psycho-evolutionary theory. This suggests that as species evolve, they perform key adaptive functions that help them survive in each stage of the evolutionary process. According to Plutchik, there are eight adaptive functions and each of these functions is connected to a basic emotion and behavior as shown in Table 1.

The structural model of affect is a cross between Russell's Circumplex model and the fundamental emotions presented by Izard. However, unlike Russell (1980), Plutchik only

Table 1
Plutchik's Basic Emotions

Adaptive Function	Basic Emotion	Behavioral Expression
Incorporation	Acceptance	Affiliating
Rejection	Disgust	Repulsing
Protection	Fear	Escaping
Destruction	Anger	Attacking
Reproduction	Joy	Cooperating
Reintegration	Sadness	Crying for help
Orientation	Surprise	Stopping
Exploration	Expectancy	Exploring

considered one dimension of emotion, which is pleasure. In consumer research, the dimension of pleasure is crucial because it is an index of customer satisfaction. The model only explored the resulting feelings if the basic emotions became more intense and did not take into account what people feel if arousal and intensity vary at the same time.

Richins (1997) supposed that the nature of emotion in the consumption experience is different than the framework of emotion developed by psychologists. Consequently, the measures used in the consumption experience may not be appropriate for the situation. Richins, therefore, proposed an alternative method for assessing consumption related emotions and tested its validity. The result of Richins' (1997) study yielded the Consumption Emotion Set (CES), consisting of 43 emotions derived from the analysis of three consumption situations, namely, automobile, recreational, and sentimental products. The emotion set was constructed considering all facets of consumption from anticipation to actual use of the product. Richins developed this emotion set to cater to the needs of consumer researchers; however, she predicted that some of the emotions enumerated may still be irrelevant for very specific consumption situations such as pre-purchase.

Affect in consumption is experienced differently in the pre- and post-purchase stages. Many researchers have noted that purchase decisions are based on experience of affect, especially in situations where there is not enough time to make a formal evaluative decision, or if the product is categorized as "high involvement" such as clothes and personal effects. Although Richins' study focused on the consumption situation, the list obtained covered all facets of consumption from buying to actual use and may not all be very relevant in measuring the emotional experiences in the pre-purchase situation.

Emotional experience is primarily driven by perception of stimuli from the environment which includes products that are on display in the shopping context. Such being the case, it may be helpful to understand emotional experience using the model proposed by Wickens and Hollands (1999) on the stages of human information processing (HIP). According to the HIP model, information is processed in stages starting with sensory processing followed by perception, response selection, and response execution. This model was used as a framework for analyzing psychological processes in human-systems interaction but it is not known if this framework is parallel to stages of emotional experience in the pre-purchase context.

Pre-purchase is defined in this study as the stage when consumers are attracted to the product and consider buying it. At this point, one or more products are evaluated according to their physical characteristics and are also tried or fitted if vendors permit. The usage of the product, however, is superficial due to time constraints and limitations imposed by the vendor. Pre-purchase was differentiated from post-purchase because in the latter situation consumers had more time to evaluate the product. The consumption experience is comprehensive and more negative emotions may be felt such as guilt and disappointment.

During the pre-purchase stage, the emotion felt for the product can be a deciding factor in making a purchase. As such, a method for measuring emotions in this situation needs to be devised for researchers who are interested to investigate the capabilities of products to engender emotion. The self-report is one of the methods that can reliably do this but the checklists available enumerate numerous emotions that may be irrelevant.

The purpose of this study was to examine the nature of pre-purchase affect and determine its structure. The empirical investigation focused on "high-involvement" products that are likely to cause intense emotional responses to the consumer. Two studies were conducted. The first study sought to enumerate pre-purchase affect from a field study of consumers. The second study investigated the dimensionality and structure of the affect obtained from the first study using data reduction techniques.

STUDY 1

This study was conducted to identify the experience of pre-purchase affect when shopping for "high involvement" products. In this study, emotions were identified and analyzed for their frequency of incidence.

Method

Participants. A total of 69 participants took part in the survey voluntarily and were paid SGD 5 for their time. They were all Singaporeans aged 18-28 years old with an average age of 22.8 years. Sixty-eight percent were students and the remaining 32% were professionals.

At the time they were interviewed, they had just purchased clothing items, electronic products, or watches. These products were chosen because they are key symbols for personalities, attachment, and interests and have the potential to engender emotion among users (O' Cass, 2004). The age range of 18-28 was considered for two reasons: volume of spending and buying behavior. Consumers in this age range constitute a significant percentage of the buying population in Singapore. Wood (2004) noted that this group is worth investigating because of the volume of their spending and the fact that they constitute a fairly homogenous group; they share an aptitude for new technology; and they purchase many new things on impulse. People in this age range are building up their wardrobes, because they are building a career and need to dress up for it. They have also started to earn money and invest in electronic products that they find useful such as cellular phones and PDAs. A survey in UK estimated that the spending of 18-24 year olds to be about £10 billion which makes them worth investigating. On the other hand, according to a study of U.S. marketing (Fetto, Whelan, & Yin, 2001) young adults between 18-34 years of age are most concerned about their image. Because of their intention to exhibit a unique personality, they are meticulous in choosing products. Considering their concern to display an interesting image, their purchases are guided by emotion aside from reason.

Questionnaire development. A questionnaire was developed to determine the components of pre-purchase affect. The questionnaire presented three scenarios that a consumer may have experienced while shopping; namely, purchase an item of clothing, an electronic product, and a watch. The questions for each scenario sought to identify the affect they experienced while they were examining the products they bought or chose from. The interviewer prompted the participants to recall their feelings while shopping and determine the most appropriate words to describe their feelings. The consumers were incited to think of appropriate words that described their experience. These words were then used to generate a set of affect descriptors. However, a list of emotions was also provided to assist the consumer in identifying pre-purchase affect that they may have missed in the process. The emotions in this list were taken from the Consumption Emotion Set proposed by Richins (1997) in her study of consumption-related affect.

Survey procedure. Data was collected in several shopping malls in Singapore. The interviewer approached 69 shoppers who purchased clothes, electronic product and watch subsequently asking permission to interview them. Although pre-purchase affect was sought to be identified in this process, a post-hoc survey was utilized because it is rational to think that all pre-purchase affect would have been experienced only until the end of the shopping activity. If the interview had been done before the end of the shopping activity and the consumer has not made a decision, it is possible that some pre-purchase affect may have been missed by the interviewer. Moreover, although it is a post-hoc survey, the survey was done immediately after the shopping activity; thus, the consumer's memory of the experience is still fresh in the mind. This method, however, has its

limitations. The method depends so much on memory recall. It assumes that the experience can be recalled perfectly and comprehensively because the experience happened a while ago. This assumption may not always be true because some people may not be able to recall feelings as readily as information.

Using the questionnaire, each subject was asked to identify the emotions felt while inspecting the product bought and the products that one selected from or evaluated before making a purchase. The pre-purchase affect were either identified by the customer independently or prompted by the emotion checklist mentioned earlier.

Results

Eighty-nine pre-purchase emotions were identified and classified according to their valence. Forty-nine percent of the emotions were classified as positive and 39% were negative. Neutral emotions (12%) were those that were neither negative nor positive such as interest and surprise.

The 89 descriptors were deemed too many to be used in more detailed analysis. As such, the number of descriptors was reduced by considering the frequency that participants cited them. Table 2 lists emotions that were cited by at least 40% of the participants. As can be seen in Table 2, the remaining emotions can be classified as 83% positive, 6% negative ("concerned"), and 11% neutral ("interested" and "surprised"). Negative emotions were less frequently cited by the participants in the field study and were judged to be insignificant to be subjected to further statistical analysis.

STUDY 2

The purpose of Study 2 was to determine the structure of pre-purchase affect and validate if it is arranged in any order. Multidimensional scaling and factor analysis were used to classify the data obtained. In order to perform these analyses, a similarity matrix of emotions was generated using pairwise comparisons.

Methods

Participants. A total of 91 participants were included in this study. The participants are undergraduate and graduate engineering students in a university. They were selected because the research method requires a good understanding of the English language. The participants were compensated by giving them extra credit for the course.

Measures. The similarity matrix was generated by asking the participants to rate word pairs according to their similarity. A total of 153 pairs of words that were randomly arranged were compared by the participants. The 153 pairs were obtained by taking all possible combinations of words from the 18 affect words obtained from the previous study. A seven-point Likert scale was used to indicate the similarity of the words. The scale was anchored at "1" – totally different and "7" – almost the same. The participants indicate in a column the rating of similarity for each pair presented.

The task of comparing the words was done using an Excel file that contained all the word pairs arranged randomly for each trial. The outcome of the rating process generated an 18x18 lower

Table 2
Pre-Purchase Emotion Set with 18 Descriptors

Amazed	Contented	Enthusiastic	Glad	Hopeful	Pleased
Cheerful	Delighted	Excited	Good	Interested	Surprised
Concerned	Encouraged	Fulfilled	Happy	Joyful	Thrilled

triangular matrix which is the average of the 91 matrices from the participants.

Multidimensional scaling (MDS). The MDS procedure was performed using the ALSCAL procedure of the SPSS software, with the Euclidean distance option. This procedure made it possible to view the relationship of the different emotions in a two-dimensional graph. Solutions for one to six dimensions were obtained and the stress values obtained were: 0.216, 0.124, 0.098, 0.070, and 0.055. Stress values are expected to decrease as the number of dimensions increase and in order to know the number of dimensions, a sharp decrease in the stress value must be apparent. The values of stress obtained showed a sudden decreased from two to three dimensions. This indicates that a two-dimensional solution is evident. The outcome of the multidimensional scaling can be seen in Figure 1.

The emotion descriptors are widely dispersed in the two dimensional space. As can be seen in the figure, the emotions are clustered into four main groups. The cluster on the upper right hand corner of the graph represents words that are used to describe feelings of amazement. The clusters on the right are somewhat spread compared to the other clusters on the left of the map.

The second cluster consists of feelings of happiness. The descriptors joyful, glad, happy, and cheerful are all used to express feelings of happiness that may be used to describe feelings experienced when a captivating or exceptional product is chanced upon in the marketplace. The cluster located on the lower left hand corner exemplifies positive feelings associated with satisfaction such as pleased, good, contented, and fulfilled. The group on the lower right hand corner includes words used to express optimism such as hopeful and encouraged. It can be seen from the graph that the emotion concerned is too far from the other points. This emotion is only one with a negative connotation and did not mix well with the predominantly positive pre-purchase affect.

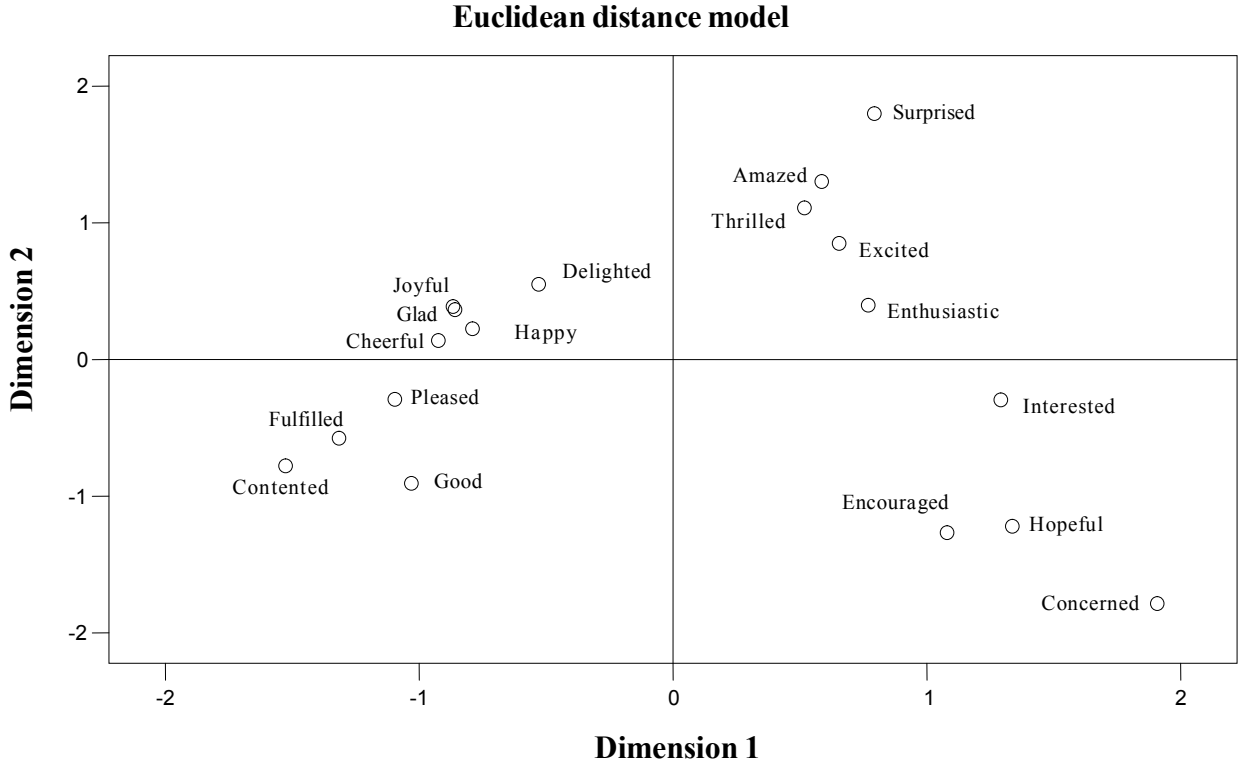

Figure 1. *Two-dimensional plot of pre-purchase affect.*

Table 3
Factor Loadings after Varimax Rotation

Emotions	Factors			
	1	2	3	4
	Satisfaction	**Positive Enthusiasm**	**Optimism**	**Amazement**
Contented	0.822	0.056	0.084	0.007
Fulfilled	0.801	0.135	0.082	0.055
Pleased	0.764	0.175	0.069	0.172
Good	0.651	0.115	0.261	0.060
Glad	0.641	0.453	-0.018	0.115
Delighted	0.508	0.499	-0.033	0.318
Cheerful	0.374	0.714	0.076	0.063
Joyful	0.445	0.692	0.000	0.080
Enthusiastic	0.029	0.630	0.456	0.190
Happy	0.590	0.605	-0.086	0.062
Excited	0.018	0.574	0.336	0.424
Hopeful	0.052	0.154	0.740	0.024
Encouraged	0.141	0.152	0.695	0.043
Concerned	0.050	-0.256	0.652	0.082
Interested	0.075	0.179	0.636	0.301
Amazed	0.207	0.093	0.148	0.806
Surprised	0.069	0.054	0.058	0.825
Thrilled	0.037	0.445	0.220	0.596
Explained Variance %	**20.866**	**16.408**	**13.091**	**12.027**

Factor analysis (FA). The similarity ratings obtained from the study may also be used to indicate correlations between the emotions investigated. As such, they were submitted to factor analysis using the SPSS software. The principal component method was used for extracting factors and varimax was used for rotation. The factor loadings are shown in Table 3.

Four factors were found after the analysis. The first three factors explained 50% of the variance while the fourth one explained 12% of the variance. The first five emotions were related to "satisfaction" and the next five were associated with "positive enthusiasm". The other two factors refer to "optimism" and "amazement". Unlike glad and delighted, the emotions contented, fulfilled, pleased, and good loaded highly on the first factor and not on the remaining three factors. The emotions cheerful, joyful, and enthusiastic were highly correlated to the second factor which was labeled positive enthusiasm. The word positive was added as a descriptor to the second set of factors to distinguish it from negative types of enthusiasm that may also be experienced by the consumer. Enthusiastic also loads slightly to the third factor called optimism. The emotions hopeful and encouraged loaded highly in this category and not on the remaining three. It can also be seen that "concerned" loaded negatively to the second factor. The last factor included the emotions amazed, surprised, and thrilled. Contrary to amazed and surprised, the emotion thrilled slightly loaded to cheerful enthusiasm.

DISCUSSION

The results of the first study showed that the emotions in the pre-purchase context are mostly positive emotions and are fewer in number compared to the CES proposed by Richins (1997) which considered pre- and post-consumption scenarios. The PES was derived to have a meaningful measurement of emotional experience before deciding to make a purchase. Such measurement is important for researchers who are interested to know how product attributes influence the experience of affect before purchase.

The predominance of positive emotion in the PES may be explained by the fact that shopping is an entertaining activity for many people. A study made by Jin and Stemquist (2004) showed that consumers derive great pleasure from shopping which they referred to as the "hedonic shopping value". Many consumers look forward to a day of shopping because it gives them a chance to see new and attractive products in the market and spend money on products that they evaluated positively according to their set purchase criteria. It is reasonable to assume that people who have the objective to enjoy the pleasure of shopping will try to preserve the positive mood and attitude that they had in them at the beginning. In other words, consumers try to avoid negative feelings while shopping and therefore look for products or services that can influence them to have positive feelings. The only negative emotion in the PES is the feeling of "concern" which is inevitably felt by consumers when they consider buying products that are not well publicized and may not be promising in terms of quality and reliability.

The findings obtained from factor analysis and multidimensional scaling has considerable similarities. The clusters obtained from MDS can be paired to the factors obtained using FA. Clusters 3 (satisfaction) and 4 (optimism) can be matched with Factors 1 and 3, respectively, but Factor 2 emotions were somewhat scattered in clusters 1 (amazement) and 2 (happiness). As can be seen from the two-dimensional map, "concerned" is too distant from the other emotions in the cluster. It is almost an outlier because it is the only negative emotion in the PES. It is closest to the word hopeful because both words indicate a feeling attached to an imagination of a future incident.

The result of the factor analysis showed that the greatest variance is explained by "satisfaction" followed by "enthusiasm". The emotions under each factor are not all well-defined. There are emotions that load on more than one factor such as "glad" and "delighted" which both load on satisfaction and enthusiasm. This result can be visualized in the multidimensional map where these two emotions clustered with "happiness" instead of "satisfaction". It suggests that some emotion words may be used to describe two constructs at the same time.

The structure of pre-purchase affect deviated significantly from the Circumplex model proposed by Russell (1979) and Plutchik (1980). The emotions in Russell's model were derived by studying physical environments. This context is much different from the shopping context where people seek pleasure. Plutchik's model, on the other hand, considered people's adaptive biological processes. The emotions enumerated by Russell and Plutchik are not all relevant in the assessment of emotional experience in the pre-purchase experience. The feeling "sleepy" for example that was included in Russell's model is very irrelevant in shopping. Similarly, "fear" and "anger", which are basic emotions from Plutchik's model, were also found to be insignificant in the study.

The MDS solution showed clusters of emotions that illustrated the kinds of affect that occur before purchase. The clusters of emotion may be interpreted as occurring simultaneously or in sequence. We favor the latter interpretation because during the data gathering process, the participants were asked to identify the emotions they felt when they saw the product that attracted them without regard to the stage of the information processing. From the results obtained, it is logical to think that emotions follow the information processing stages proposed by Wickens & Hollands (1999). Amazement is something that you feel when you see an attractive product that you

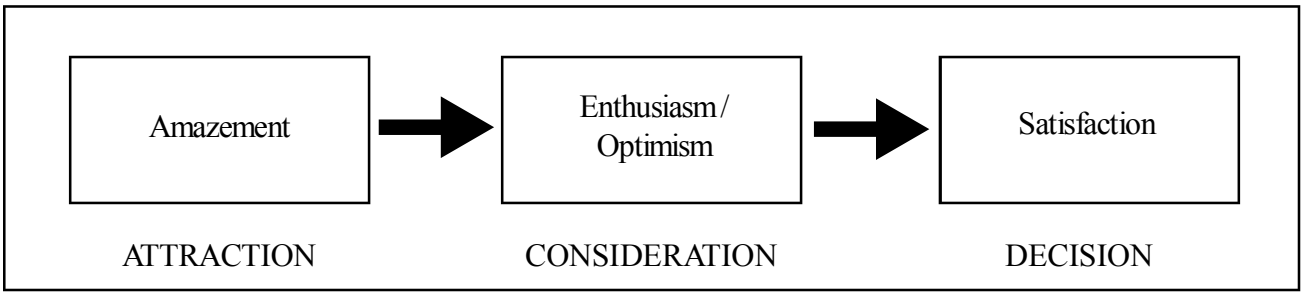

Figure 2. *Conceptual model of emotional experience in the pre-purchase context.*

planned to buy or a product that is very outstanding that it captured one's attention. Such feelings of amazement are followed by enthusiasm to do cursory product evaluation. During this evaluation, s/he becomes optimistic that user trials will yield positive results and that the decision to purchase can be arrived at. Satisfaction is a feeling that is experienced towards the end of the evaluation process as a result of a perceived accomplishment of a sound decision or a fulfilling product trial.

We think that it is not plausible to assume that upon seeing an interesting product, the consumer is able to feel all these emotions at the same time. Two clusters of emotion that are not possible to occur at the same time are amazement and satisfaction. People are amazed because of seeing something they did not expect. In the shopping context, it can be a product that is so unbelievably beautiful or even ugly. Satisfaction, on the other hand, is a feeling that is associated with a deeper understanding and experience of the product that cannot be attained by immediate perception. Product trial takes time and emotions change from awe to satisfaction

As a consequence, a serial model of emotional experience in the pre-purchase context is proposed in Figure 2.

It is also suggested in the model that the clusters of emotions are serially related, that is, unless there is "amazement", "positive enthusiasm" and "optimism" will not occur and so on. As mentioned, this model is parallel to the human information processing (HIP) model proposed by Wickens & Hollands (1999). Attraction is parallel to perception, consideration to cognition, and decision to response selection. The model customized the HIP to the shopping situation in order to facilitate identification of appropriate emotional responses.

The knowledge of the serial model of emotional experience in the pre-purchase context would inspire businesses to sell products that elicit amazement as it is the first emotion that prompts a shopper to consider purchasing a product. This kind of emotion can be derived by either adding functions to an existing product, improving its aesthetics, or making it easier to use such that it warrants one's attention and incite amazement. However, amazement is not enough for the shopper to make a purchase. It is just the feeling that stimulates them to further inspect the product. It should comply with customers' expectations especially in terms of value for money because at the onset of interest, consumers develop feelings of optimism that they would be able to buy the product. Upon successful product evaluation, satisfaction may or may not ensue consequently leading the consumer to a final decision. Any failure or negative feelings developed during this process may impede the desire of the consumer to purchase.

The list of pre-purchase affect unearthed in this study may not be applicable to other shopping contexts as the emotions were obtained from people who were in shopping malls. In this case, the consumer has the conscious intention to find something interesting to buy or consider or to get entertained in the process. A new set of emotions may be discovered if the context had been different such as a salesperson visiting a potential client. This

is an area that may be considered for future investigation by other researchers.

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