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Giving the Expectancy-Value Model a Heart

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ABSTRACT

Over the past decade, research in consumer behavior has debated the role of emotion in consumer decision making intensively but has offered few attempts to integrate emotion-related findings with established theoretical frameworks. This manuscript augments the classical expectancy-value model of attitude with a dimensional model of emotion. An experiment involving 308 college students who face actual purchase decisions shows that predictions of attitudes, behavioral intentions, and actual behavior can be improved through the use of the augmented model for both hedonic and utilitarian products. The augmented model has theoretical implications for marketing scholars as well as practical uses for marketers. © 2012 Wiley Periodicals, Inc.

INTRODUCTION

Ever since its inception, the "information-processing view" has been the predominant paradigm of consumer behavior research (Bagozzi, Gürhan-Canli, & Priester, 2002). This paradigm mainly regards consumers as logical problem solvers and "thinking machines" (Shiv & Fedorikhin, 1999, p. 290). Prominent researchers now increasingly contend that the information-processing paradigm paints an incomplete picture of consumer decision making. Although it can explain and predict the consumption of functional, utilitarian goods, its adequacy for hedonic consumption decisions, in which "less experience is available, where the problem is not well-structured, and where emotional reactions are important" (Phillips, Olson, & Baumgartner, 1995, p. 284), appears questionable.

In turn, the role of affect[1] has become a central research topic in consumer research in the past decade (Cohen, Pham, & Andrade, 2008). However, the proliferation of research on seemingly contextual affective influences on behavior and the limited integration of new findings into established information-processing frameworks have led to growing concerns among decision-making researchers. Such concerns have prompted questions such as the one cited by Schwarz (2006, p. 20): "Whatever happened to Fishbein and Ajzen's theory of rational behavior and other such models? All we hear about from psychologists these days is how funny little things make people feel one way or another, influencing what they like and do."

This research attempts to address such concern by assessing the compatibility of the flourishing emotion research stream with cognitively dominated attitude-theory decision-making models. The manuscript begins with a theoretical discussion of whether Fishbein and Ajzen's (1975) expectancy-value model (EVM) of attitude is sufficient to capture the influence of emotion on decision making. Then, the EVM is augmented with anticipatory emotions and emotional expectation constructs (Bagozzi, Baumgartner, Pieters, & Zeelenberg, 2000), drawing on Larsen and Diener's (1992) circumplex model of emotion. With a controlled experiment involving 308 college students faced with actual purchase (*AP*) decisions, the authors test whether the augmented EVM performs better than the traditional EVM in predicting overall evaluations and attitudes, purchase intentions (*PI*), and actual behavior, using a series of multistage linear and logistic regressions.

[1] Regarding the terms affect, emotion, and mood, which are often used interchangeably, the authors follow the definitions offered by Ekman and Davidson (1994), according to which affect is an umbrella concept that encompasses both emotions and moods. Moods are longer lasting, less intense, and less directly coupled with action tendencies than are emotions; emotions typically are intentional (meaning that they have a specific referent object) whereas moods are generally nonintentional, global, and diffuse.

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To test Phillips and colleagues' (Phillips, Olson, & Baumgartner, 1995) proposition that the traditional model is sufficient for utilitarian but not hedonic consumption contexts, the analysis is performed for both consumption categories. Finally, the results are discussed and implications for researchers and marketing practitioners are offered.

THE LINK BETWEEN THE EVM AND EMOTION IN EXTANT RESEARCH

The Influence of the EVM

Using economic theories of rationality and utility as a foundation, Edwards (1954) introduced EVMs to psychological literature. According to his theory of subjective expected utility, the likelihood of an event's occurrence when an action is taken is the subjective probability *SP* of an outcome, and the desirability of this outcome is its subjective utility *U*. The product of subjective probability and desirability equals the subjective expected utility *SEU* from the action

$$SEU = \sum_{i=1}^{n} SP_i U_i. \tag{1}$$

In the realm of social psychology, Fishbein (1967) adapted this EVM to form the backbone of his theory of reasoned action. In Fishbein's variant—today considered "the most widely applied representation of attitude across many disciplines" (Bagozzi, Gürhan-Canli, & Priester, 2002, p. 7)—beliefs b_i about the probability of the presence of attributes in an object get multiplied with evaluations e_i of these attributes. This formulation of attitude forms the theoretical basis for more than 150 studies relying on the theory of reasoned action or the theory of planned behavior published in EBSCOhost Business/Economics database, and more than 830 in the PsycINFO and Medline databases (Francis et al., 2004). In studies of consumer behavior, b_i often is replaced with w_i, or the importance weight of the attribute (the so-called adequacy-importance formulation of the EVM), because a consumer often knows with certainty whether an attribute is present or absent in a decision object (Mazis, Ahtola, & Klippel, 1975). The product of belief b_i (or importance w_i) and evaluation e_i then can be summed over n attributes to determine global attitude toward the object A_{obj}. In turn, A_{obj} determines the intention to act, which, according to EVM, should trigger the corresponding behavior (Fishbein & Ajzen, 1975).

$$A_{Obj} = \sum_{i=1}^{n} b_i e_i. \tag{2}$$

EVM and Measures of Emotion

One of the main criticisms directed at the EVM by emotion researchers is its conceptualization of evaluation e_i. Fishbein and Ajzen (1975, p. 11) use the terms "evaluation" and "affect" synonymously, arguing that no reliable empirical distinction can be made between a person's judgment that an object makes him or her *feel* good and the evaluation that the object *is* good. Their assessment derives from earlier observations that failed to establish discriminant validity among the cognitive, affective, and conative components of the classic tripartite model of attitude (Ajzen & Fishbein, 2005), which may have been due "to a failure to adequately differentiate between evaluative measures [. . .] and antecedent or subsequent processes, which might be feeling-based" (Cohen, Pham, & Andrade, 2008, p. 297).

In response, the "experiential view" of consumer behavior was put forward in two seminal papers (Hirschman & Holbrook, 1982; Holbrook & Hirschman, 1982). The experiential view contrasted attribute beliefs/knowledge with fantasies/daydreams, tangible/objective benefits with symbolic/subjective ones, attitudes with emotions, and utility with aesthetic value. Like the information-processing view, the experiential view was not developed as a testable, mathematical model, but rather as an encompassing perspective of consumer behavior. It suggested that the information-processing view was adequate for studying utilitarian consumption contexts, but that affective responses had to be accounted for when studying hedonic consumption contexts. Likewise, in the realm of testable models, Phillips, Olson, and Baumgartner (1995) stressed that multiattribute EVMs had been successful in capturing utilitarian consumer decisions, but could not account for hedonic consumer decision making. Nonetheless, Holbrook and Hirschman (1982, p. 138) cautioned that "abandoning the information processing approach is undesirable, but supplementing and enriching it with an admixture of the experiential perspective could be extremely fruitful."

Hence, as theories of emotion have become more fine-grained and measurement methods advanced, several studies have empirically demonstrated the discriminant validity between evaluations and affect (Bodur, Brinberg, & Coupey, 2000; Breckler & Wiggins, 1989; Richard, Van der Pligt, & De Vries, 1996), and several theoretical arguments distinguish affect and evaluation. These arguments broadly can be grouped into four main categories: conceptual breadth, possibility versus probability, dynamic appraisals versus static predispositions, and temporal focus. These categories represent underlying features of evaluations versus affect and highlight where these constructs differ:

- *Conceptual breadth.* Affect encompasses the entire spectrum of human moods and emotions, whereas evaluative liking or disliking is widely considered just a tiny subset of this broad spectrum (Allen, Machleit, & Kleine, 1992).

- *Possibility versus probability*. Although affect is sensitive to mere possibility and can influence intentions, even when the probability of an outcome is nearly zero, attitudes usually are conceptualized as a direct function of probability and thus are very weak when the probability is close to zero (Loewenstein, Weber, Hsee, & Welch, 2001; MacInnis & de Mello, 2005).
- *Dynamic appraisals versus static predispositions.* Attitudinal evaluations are defined as a consumer's learned static predispositions that are activated when the consumer is confronted with the stimulus object. Emotional reactions depend instead on context-sensitive dynamic appraisals (Bagozzi, Dholakia, & Basuroy, 2003).
- *Temporal focus*. Although attribute evaluations are traditionally measured as preconsumption judgments, affective reactions include the consumer's actual and expected emotions before, during, and after consumption (Bagozzi, Dholakia, & Basuroy, 2003; Richard, Van der Pligt, & De Vries, 1996).

The Role of Emotions for Attitude and Behavior

While emotions and evaluation can be theoretically (and empirically) distinguished, as shown above, there is considerable debate about how emotions affect consumers' decision making—by functioning as an antecedent of attitude, by influencing behavior in addition to attitudes, or by both.

Regarding emotions as attitude antecedents, Cohen, Pham, and Andrade (2008, p. 309) perceive an emerging consensus that emotions are "one of several potential antecedents or determinants of overall evaluation or attitude." Early evidence for this position was provided by Breckler and Wiggins (1989), who showed in the context of blood donations that evaluations and emotions, as measured by Izard's (1977) differential emotion scale (DES), are distinguishable components of overall attitude. Kempf (1999) studied the effects of two emotion dimensions (pleasure and arousal) and expectancy-value (measured as the product of attribute evaluations, attribute beliefs, and belief confidence) on product trial evaluations for a computer game and grammar checker software. Her results suggest that pleasure and arousal are antecedents of A_{obj} for hedonic products, whereas expectancy-value is not. Conversely, pleasure and expectancy-value are antecedents of A_{obj} for utilitarian products, whereas arousal is not. Bodur, Brinberg, and Coupey (2000) showed that affect, as measured by arousal, elation, pleasantness, and distress constructs, has a direct effect on attitudes toward risky behaviors. More recently, Kulviwat, Bruner, Kumar, Nasco, and Clark (2007) tested whether the Technology Acceptance Model—an adaptation of the theory of reasoned action—could be improved by augmenting it with a dimensional model of emotion, namely Mehrabian and Russell's (1974) Pleasure-Arousal-Dominance paradigm. The authors found that the prediction of technology adoption attitudes and intentions could be significantly improved by accounting for affect.

A related stream of research on persuasion and the elaboration likelihood model has emphasized the role of affect as a significant antecedent of attitude, moderated by message elaboration and involvement (e.g., Batra & Stayman, 1990; Petty & Cacioppo, 1986; Petty, Schumann, Richman, & Strathman, 1993). In particular, Mano (1997) found evidence for indirect effects of the pleasure and arousal emotion dimensions on A_{obj} (mediated by elaboration and thought positivity) as well as direct effects of pleasure on A_{obj} in one experimental condition.

Regarding the effect of emotions on behavior, human emotions appear to have evolved as drivers of behavior because of their approach/avoidance function (for a review, see Ekman & Davidson, 1994)—positive emotions impel the person experiencing them to approach the emotions' referent object, whereas negative emotions elicit avoidant behavior. However, it is unclear whether this effect exists above and beyond the effect of attitude. Again in the context of blood donations and employing the DES as a measure of emotion, Allen, Machleit, and Kleine (1992) demonstrated that emotions can have a direct effect on behavior, not explained by attitudes. They limit their study to behaviors for which previous experiences were not freely chosen. Richard, Van der Pligt, and De Vries (1996) empirically showed that attitudes and emotional expectations have parallel effects on behavioral intentions for four different behaviors (i.e., eating junk food, using soft drugs, drinking alcohol, and studying), but measure both attitudes and emotions with the same three semantic differential measures. Most recently, Perugini and Bagozzi (2001) have augmented the theory of planned behavior with desires, frequency, and recency of past behavior, as well as a selection (not explained theoretically) of positive and negative anticipated emotions added as independent variables for two utilitarian behaviors (bodyweight regulation and studying). They find that the variance explanation of intentions and behavior increases significantly when they include emotion constructs.

This research builds on these findings and extends them. It is the first study that comprehensively tests the influence of emotion on attitude formation, intention formation, and behavior, and systematically analyzes potential differences between hedonic and utilitarian behaviors, extending knowledge of how emotions affect consumers' decision making. This research aims to overcome limitations inherent with the studies listed above, such as the conceptualization of attitude as a global "good/bad"-type evaluation instead of attribute-level measurements.[2] Forgoing attribute-level measurements makes it nearly impossible to differentiate between the effects of cognitive evaluation versus emotion on the formation of attitudes, intentions, and actual behavior. The authors also account for the recently suggested distinction between "anticipatory emotions" and "emotional expectations" (also termed "anticipated emotions"; Cohen, Pham, & Andrade, 2008) in the decision-making process.

AUGMENTING THE EVM: HYPOTHESES DEVELOPMENT

To augment the EVM with measures of affect, this research draws on Larsen and Diener's (1992) circumplex model of emotion. The circumplex model groups emotions into two bipolar dimensions based on empirical associations: pleasant versus unpleasant affect and high activation versus low activation. Dimensional models of emotions such as this one have been criticized because they do not provide any insights into the conditions that give rise to the different emotion states, in contrast with appraisal theory models that conceptualize emotions as discrete entities and explain their genesis (for an overview, see Bagozzi et al., 2000). However, this research is concerned not with the antecedents of emotions but rather their consequences in the decision-making process, so dimensional models are adequate due to their parsimony and intuitiveness (Bagozzi, Gopinath, & Nyer, 1999). Kulviwat et al. (2007) also cite parsimony as their main reason for choosing a dimensional model of emotion for augmenting the Technology Acceptance Model.

Traditionally, dimensional models of emotion such as Larsen and Diener's (1992), the PA/NA (Positive Activation – Negative Activation) model by Watson and Tellegen (1985; "PA/NA"), or the PAD paradigm employed by Kulviwat et al. (2007) rely on just two or three bipolar dimensions anchored in phenomenologically opposing emotions, for example, "elated/euphoric" on one end of the scale and "dull/drowsy" on the other end. This implies that these emotions are conceptualized as perfectly mutually exclusive. However, recent research has shown that consumers can experience different emotions at the same time, a phenomenon referred to as "mixed emotions" (e.g., Aaker, Drolet, & Griffin, 2008). To account for such nonexclusiveness of pleasant and unpleasant affect, four unipolar emotion constructs listed in Table 1 are conceptualized, instead of using two bipolar dimensions.

Bagozzi et al. (2000) also stress that currently experienced and future emotions should be differentiated in consumer decision making. Consumers' *a priori* experience of emotions felt during or after a future event, brought about by their mental simulation of these events, has been termed anticipated emotions, affective expectations, affective forecasts, or how-do-I-feel-about-it heuristics (e.g., Mellers, Schwartz, & Ritov, 1999; Pham, 1998; Wilson & Gilbert, 2005). Yet Bagozzi et al. (2000, p. 50) assert that "little is known [especially] about positive anticipated emotions, even though it is likely that many consumer behaviors are the result of, say, the anticipation of future joy."

Scholars also have debated whether anticipated emotions are genuinely experienced in the present, when the expectation about the future is formed, or whether they are mere cognitive predictions about future emotional states. Mellers, Schwartz, and Ritov (1999) find for the former, whereas Bagozzi et al. (2000) declare the point an open research question. Cohen, Pham, and Andrade (2008) consider both possibilities equally valid and make a theoretical distinction between "anticipatory emotions" (i.e., currently experienced emotions that result from mental simulations of future events) and "anticipated emotions" (i.e., mere cognitive beliefs about future emotional states). The latter have also been termed "emotional expectations" (Neelamegham & Jain, 1999).

If anticipatory emotions and emotional expectations can indeed be distinguished empirically, they may also exhibit differential effects on the different stages of decision making. For example, both anticipatory emotions and A_{obj} are conceptually anchored in the present: Anticipatory emotions are what the consumer is *currently* experiencing, and A_{obj} measures his *current* evaluation of an object. Emotional expectations and behavioral intentions, on the other hand, are expectations of *future* emotions and behavior. In terms of the EVM, anticipatory emotions may therefore have a stronger influence on A_{obj} than emotional expectations do, while emotional expectations may have a stronger influence on behavioral intentions than anticipatory emotions do. Following this logic, conceptual differences between the evaluation component of attitudes and emotions, and the effect of emotions on consumer decision making, as demonstrated in the emotions literature, it is argued that adding emotions to the EVM may increase the variance explanation associated with the model's established outcomes, namely, attitudes, *PI*, and *AP*. Kulviwat et al.'s (2007) findings when adding emotions to the Technology Acceptance Model further strengthen this hypothesis. Formally,

H1: The variance explanation (a) attitude toward the object, (b) *PI*, and (c) *AP* will increase significantly when the EVM includes anticipatory emotion and emotional expectation dimensions.

Moreover, it is argued that emotions may become more important in decision making when the product is perceived as hedonic as opposed to utilitarian. By definition, hedonic consumption is the facet of consumer behavior, which relates to "multisensory, fantasy, and emotive aspects" of the product usage experience (Hirschman & Holbrook, 1982, p. 92). When

[2] A noteworthy exception is the study by Kempf (1999).

Table 1. Emotion Constructs.

	Unpleasant Affect	Pleasant Affect
High activation	"Negative High Activated (NegHiAct)": Distressed, annoyed, fearful, sad	"Positive High Activated (PosHiAct)": Enthusiastic, elated, excited
Low activation	"Negative Low Activated (NegLoAct)": Bored, sluggish, dull	"Positive Low Activated (PosLoAct)": Relaxed, content, serene

Source: Adapted from Larsen and Diener (1992).

consuming hedonic products, consumers pay more attention to the emotional outcome of the consumption episode. In certain instances, such as the consumption of movies, the emotional outcome may itself be the goal of consumption (Neelamegham & Jain, 1999). Contemplating the consumption of hedonic products thus can trigger mood management and mood protection strategies (Caruso & Shafir, 2006).

A stream of literature on "affect-as-information" has shown that consumers rely on their current affective states when making decisions, and that this reliance is moderated by the extent to which these affective reactions are believed to have been caused by the target object (Schwarz, 2000; Schwarz & Clore, 1983, 1988). This has been termed the "how do I feel about it" or "representativeness" heuristic. Pham (1998) has argued that a second type of consideration will determine whether emotional responses are used as information, namely the perceived relevance toward the target. In his study, he demonstrates that emotional responses are perceived to be more relevant to hedonic consumption motives than to utilitarian consumption motives, and are therefore more relied upon in decision making.

In summary, even when emotional responses are present to a similar extent in both hedonic and utilitarian consumption episodes, consumers are more likely to infer that their emotional responses have been elicited by the stimulus object itself (rather than by external circumstances) in hedonic consumption episodes, and they will perceive these emotions to be more relevant to their decision. Thus, it is expected that the impact of emotions on the outcomes of the EVM is greater for products perceived as hedonic than for products perceived as utilitarian:

H2: The influence of anticipatory emotions and emotional expectations on (a) attitude toward the object, (b) *PI*, and (c) *AP* is significantly greater when the product is perceived as hedonic rather than utilitarian.

EMPIRICAL TEST OF THE AUGMENTED EVM

To test the EVM model, augmented with emotions, a controlled experiment with motion picture DVDs and pocket calculators as experimental stimuli for the hedonic versus utilitarian consumption context manipulation was performed. The choice of these stimuli reflects several reasons. Both products are multiattribute offerings, are in the same price range, and are common, such that the majority of the population likely has had personal experiences with them.

Many studies that probe the role of emotion in judgment and decision making manipulate affect through film clips (e.g., Lerner, Small, & Loewenstein, 2004), stories and introspection about emotional episodes (e.g., Tice, Bratslavsky, & Baumeister, 2001), or bogus feedback about personal performance (e.g., Forgas & Bower, 2000). The goal of this research, however, is not to manipulate emotion directly in such a fashion, but to recreate an actual purchasing decision in hedonic and utilitarian consumption contexts. Therefore, *product-generated* emotions and evaluations were measured to test whether accounting for emotions will improve behavioral prediction within the EVM framework.

Pretest

A pretest with 98 students at a German university was conducted with the goal of determining the modal salient attributes for the chosen stimuli, that is, the attributes considered by the majority of the target population when they form an attitude toward the object. The authors also controlled for differences of DVDs versus calculators on the Hedonic/Utilitarian (HED/UT) scale (Voss, Spangenberg, & Grohmann, 2003). The participants completed the online questionnaire, which was based on a modified rank-order elicitation technique (Breivik & Supphellen, 2003). The questionnaire contained the product images and descriptions of 10 motion picture DVDs, taken from online retailer Amazon.de, which appeared in five sets of randomized pairs. Therefore, the pretest consisted of 45 different DVD combinations. For each pair of DVDs, participants chose which they would rather buy and described the attributes they evaluated for each decision in a free response format. The procedure was then repeated for five pairs of pocket calculators.[3]

On average and per participant, 9.33 discrete attributes were elicited across the five choice sets in the DVD pretest, and 11.41 discrete attributes were elicited across the five choice sets in the calculator pretest. The attributes listed by the respondents were grouped and tabulated on the basis of the total frequency with which they were mentioned; then the frequency distribution

[3] The list and descriptions of the 10 DVDs and 10 pocket calculators are available from the authors upon request.

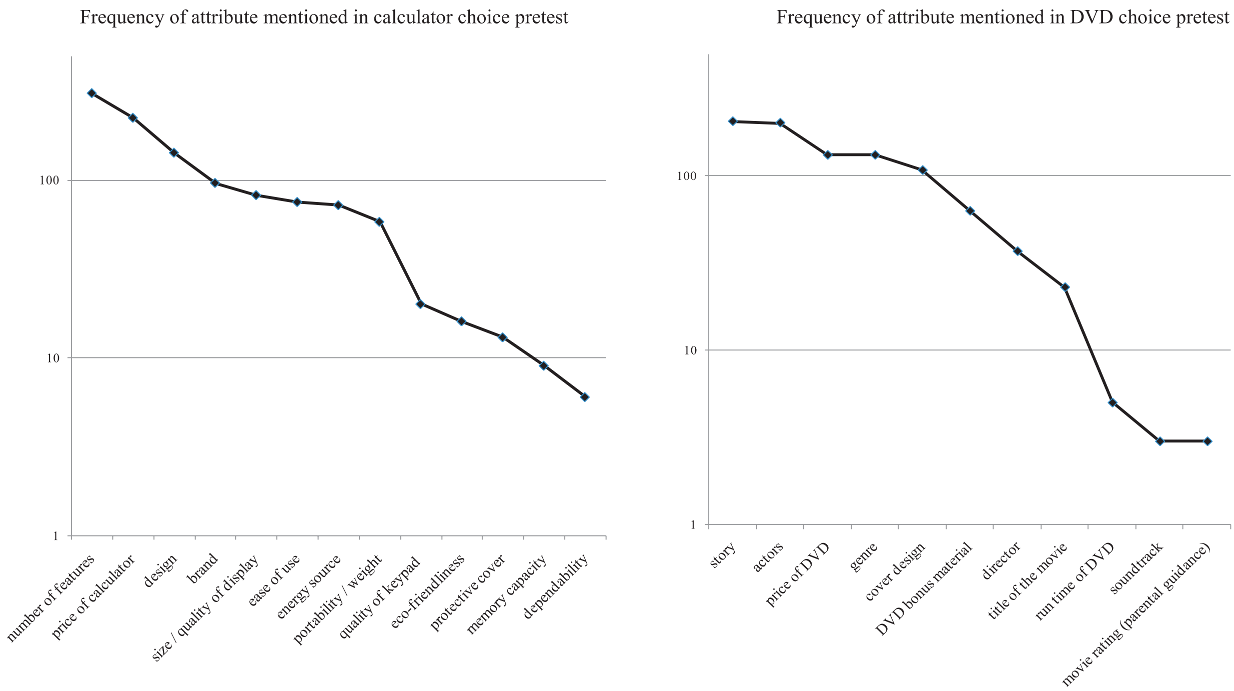

Figure 1. Scree plot of attribute importance for experimental stimuli.

was plotted on a log-scale chart (similar to the scree plot approach in cluster analysis). This plot, listing all elicited attributes, is shown in Figure 1. For both the DVDs and the pocket calculators, the frequency distribution curve dropped sharply after the eighth attribute. This suggests that, when asked to introspect on their decision, the majority of participants considered these eight attributes to have influenced their choice, whereas the remaining attributes appear to have been salient only for a minority of participants and choices. Thus, the eight most frequently listed attributes per product were retained as the salient attributes for the experiment.

Experimental Procedure

Three hundred thirty-four students were recruited on the campus of a German university as potential participants for the main experiment. After eliminating incomplete responses and participants who had already seen the movie that was used as the stimulus in the hedonic condition, the final data set contains 308 complete cases (55.3% females).

The participants were randomly assigned to two experimental conditions. The stimulus in the hedonic condition was the motion picture DVD *Stay* (USA 2006, directed by Marc Foster, starring Ewan McGregor, Ryan Gosling, and Naomi Watts), and the stimulus in the utilitarian condition was a pocket calculator, the Sharp EL-W531H. Both stimuli could be purchased at the time of the experiment from online retailers for approximately €10. The participants entered separate rooms that contained each condition's respective stimulus and a paper-based survey for measuring the hypothesized constructs. After completing the questionnaire, they were directed into a second room, where an interviewer (the same person for both conditions and for all participants) offered them the chance to buy the DVD or calculator, for a price of €4.99. The physical separation of the survey-based intention measures and measures of actual behavior makes it possible to reduce potential self-generated validity and interviewer compliance effects (Chandon, Morwitz, & Reinartz, 2005). The purchases were recorded as a binary measure of actual behavior. Twenty-nine of 146 (19.9%) participants in the hedonic condition and 14 of 163 (8.6%) participants in the utilitarian condition purchased the respective product.

Manipulation Checks and Scale Validation

To check the effectiveness of the experimental manipulation of hedonic value, the HED/UT scale developed by Voss, Spangenberg, and Grohmann (2003) was used. As expected, the movie DVD scores significantly higher on the five-item HED subscale (4.69) than the calculator (3.07; F (1,308) = 139.25, $p < 0.001$; Cronbach's α = 0.880). Likewise, the calculator scored significantly higher on the five-item UT subscale (5.13) than for the movie DVD (2.32; F (1,308) = 417.34, $p < 0.001$; Cronbach's $\alpha = 0.927$). Subsequently, only the HED subscale was used to evaluate the hedonic value of the stimuli. The attribute importance w_i and evaluations e_i were gathered for the eight attributes per stimulus, using

Table 2. Descriptive Statistics and Correlations.

	Construct	M[a]	SD[a]	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)[c]
1	HED score	3.83	1.45	0.88												
2	Adequacy importance[b]	191.40	52.47	0.33	n.a.											
3	Ay PosLoAct	3.37	1.51	0.16	0.21	0.93										
4	Ay PosHiAct	2.80	1.42	0.61	0.49	0.18	0.92									
5	Ay NegLoAct	2.43	1.37	−0.40	−0.30	−0.11	−0.33	0.87								
6	Ay NegHiAct	2.29	1.18	−0.09	−0.20	−0.37	−0.14	0.43	0.90							
7	Exp PosLoAct	3.71	1.62	−0.06	0.24	0.57	0.11	0.03	−0.19	0.93						
8	Exp PosHiAct	2.78	1.43	0.49	0.35	0.12	0.70	−0.23	0.00	0.16	0.91					
9	Exp NegLoAct	2.02	1.02	−0.04	−0.21	−0.25	−0.13	0.39	0.74	−0.30	−0.07	0.84				
10	Exp NegHiAct	2.45	1.36	−0.23	−0.37	−0.16	−0.26	0.63	0.51	−0.15	−0.18	0.60	0.89			
11	A_{obj}	4.31	1.53	0.55	0.67	0.30	0.57	−0.42	−0.34	0.24	0.44	−0.30	−0.41	0.88		
12	Purchase intention	4.36	1.96	0.31	0.52	0.18	0.39	−0.37	−0.26	0.22	0.37	−0.32	−0.45	0.66	n.a.	
13	Actual purchase[c]	0.14	0.35	0.31	0.25	0.02	0.27	−0.23	−0.10	0.02	0.23	−0.13	−0.21	0.33	0.40	n.a.

Note: Numbers on the diagonal are Cronbach's alpha scores; n.a. = no alpha score calculated because the construct is measured by a formative scale or single item. All correlations $r \geq |0.15|$ are significant at the level of 0.01 (two-tailed), and all correlations $|0.11| \leq r \leq |0.14|$ are significant at the level of 0.05 (two-tailed).

[a]Means and standard deviations are calculated for the average of construct items.

[b]Means and standard deviations are calculated for the product of attribute importance (i_{1-8}) and attribute evaluation (e_{1-8}).

[c]Point-biserial correlations (actual purchase is a binary variable with 0 = no purchase and 1 = purchase).

the adequacy-importance formulation (Mazis, Ahtola, & Klippel, 1975). The attitude toward the object A_{obj} measure contains two items ($\alpha = 0.882$), and *PI* is a single item. All the items appear in the Appendix.

In both temporal dimensions (anticipatory emotions and emotional expectations), the four emotion constructs (Positive Low Activation, Positive High Activation, Negative Low Activation, Negative High Activation[4]) were measured as reflective constructs with three to six items each, based on the emotions listed for each dimension in Larsen and Diener's (1992) circumplex model. Cronbach's alphas for the constructs range from 0.835 to 0.930. The discriminant validity between the emotion constructs was assessed with a confirmatory factor analysis (employing LISREL) of the eight emotion constructs (four emotion constructs in both anticipatory emotion and emotional expectation dimensions). Then, the χ^2 of a model in which constructs are allowed to correlate freely ($\chi^2 = 5772.96$) was compared with several constrained models. Specifically, when constraining the correlation between any pair of anticipatory emotion constructs to 1, the chi-square increases significantly (all χ^2 differences >528.89, df change $= 1$, $p < 0.001$). Similarly, when constraining any pair of emotional expectation constructs to unity, it was found that the chi-square also increases significantly (all χ^2 differences >111.80, df change $= 1$, $p < 0.001$). It was thus concluded that within their temporal dimensions, anticipatory emotions, and emotional expectations exhibit discriminant validity (Bagozzi, Yi, & Phillips, 1991). The same conclusion emerges when pairs of anticipatory emotions and emotional expectations were constrained to unity, with the exception of two pairs that fail to exhibit discriminant validity as a result of their high correlation: anticipatory NegLoAct–anticipated NegLoAct and anticipatory NegHiAct–anticipated NegHiAct. This result may be explained by the finding that consumers are likely to infer their future (expected) emotions from their current (anticipatory) emotional experience (Wilson & Gilbert, 2003). In the calculations, this was remedied by removing the effect of anticipatory emotions on emotional expectations through adjusted regressions, as described subsequently. The descriptive statistics and correlations appear in Table 2.

The data support the use of four unipolar emotions instead of two bipolar dimensions. The latter conceptualization would have required that emotions are mutually exclusive, so that the unipolar scales of PosHiAct versus NegLoAct (and PosLoAct vs. NegHiAct) would have to correlate with close to -1. However, the actual correlations were r (anticipatory PosHiAct, anticipatory NegLoAct) $= -0.33$, r (anticipatory PosLoAct, anticipatory NegHiAct) $= -0.37$, r (expected PosHiAct, expected NegLoAct) $= -0.15$, and r (expected PosLoAct, expected NegHiAct) $= -0.07$, pointing to the existence of mixed emotions. This suggests that the emotion dimensions anchoring the bipolar scales are far from mutually exclusive. While having two emotion dimensions per time frame would be more parsimonious than having four, the four emotion constructs were employed due to the observed correlations and discriminant validity.

Results for Hypothesis 1

The hypotheses were tested with a series of adjusted multistage regression models that use the standardized residuals of the initial regression steps as independent variables in subsequent regression steps. This

[4] For the sake of brevity, the authors will refer to Positive Low Activation as "PosLoAct," Positive High Activation as "PosHiAct," Negative Low Activation as "NegLoAct," and Negative High Activation and "NegHiAct."

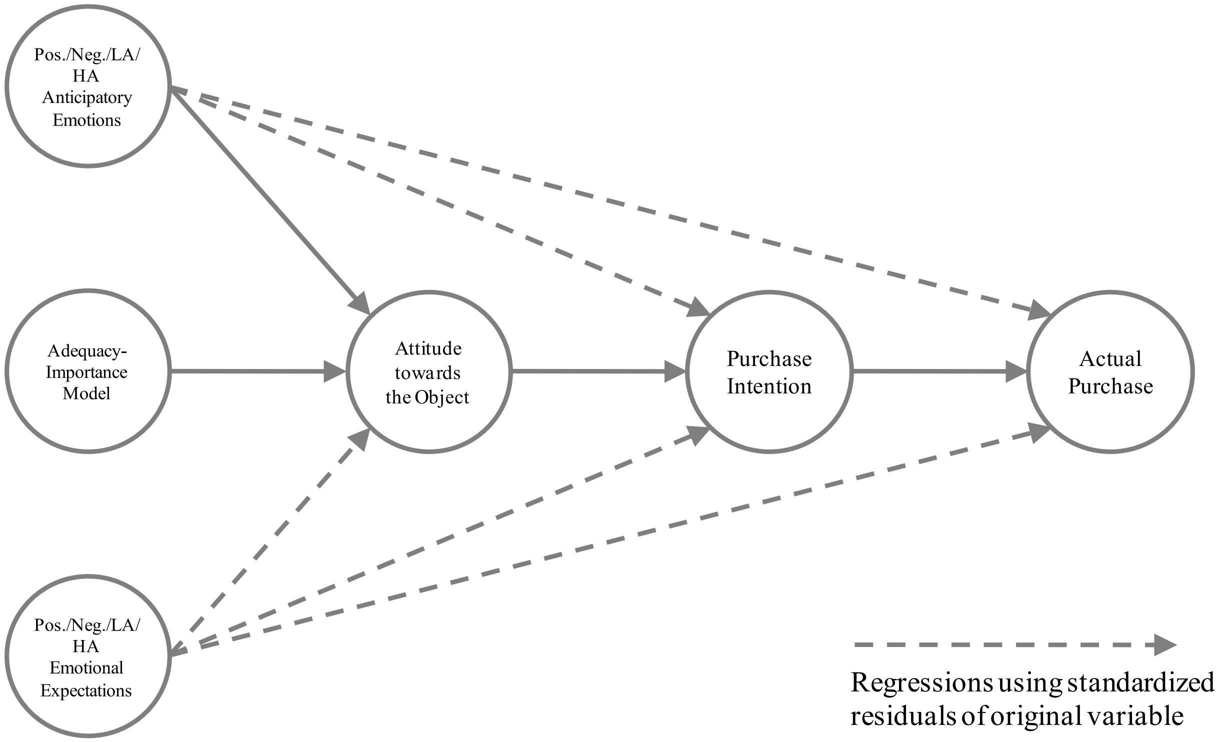

Figure 2. Augmented EVM framework.

procedure decomposes effects in path analysis and makes it possible to estimate models that contain both linear and logistic relations among the variables, as is the case for the EVM outcomes of attitude, intentions, and *AP* (Lance, 1988). In short, the purpose of calculating the residuals through multistage regressions is to test (1) the effect of emotions on attitude, (2) the effect of emotions on intentions that is *not already* contained in attitude, and (3) the effect of emotions on *AP* behavior that is *not already* contained in either attitude or intention. Figure 2 shows the general augmented EVM framework, outlining which variables are exogenous and which are included as standardized residuals for each of the three regressands A_{obj}, *PI*, and *AP*.

In the augmented EVM models, linear regressions of each expected PosLoAct, PosHiAct, NegLoAct, and NegHiAct emotion on its anticipatory counterpart were first run and the standardized residuals were saved. This approach removes any effect of anticipatory emotions on emotional expectations from subsequent regressions that involve both temporal emotion dimensions. To test H1a, A_{obj} was regressed on the adequacy-importance score, anticipatory emotion, and the emotional expectation residuals, and then compared with the "traditional" EVM model in which A_{obj} is regressed only on the adequacy-importance model. For support, H1a would require a significant increase in R^2. The traditional EVM model attains an R^2 of 0.443, and the model that includes the emotion constructs produces an R^2 of 0.586 for A_{obj} (see Table 3).

As the augmented model uses more information, it must be determined whether this increase in variance explanation is trivial. However, because the R^2 difference of 0.143 (F (8,308) = 12.823, $p < 0.001$) between the two models, which balances variance explanation against the amount of used information is significant, it can be claimed that the inclusion of anticipatory emotions and emotional expectations significantly improves the prediction of A_{obj}, in support of H1a. However, though the adequacy-importance model and all four anticipatory emotion constructs directly influence A_{obj} as expected, none of the emotional expectation dimension residuals has a significant effect. When separate regressions for the hedonic condition and utilitarian condition subsamples were conducted, H1a holds true in both the hedonic condition (traditional EVM $R^2 = 0.529$, augmented EVM $R^2 = 0.663$, R^2 difference = 0.134, F (8,146) = 6.66, $p < 0.001$) and the utilitarian condition (traditional EVM $R^2 = 0.411$, augmented EVM $R^2 = 0.566$, R^2 difference = 0.155, F (8,162) = 6.78, $p < 0.001$). In the hedonic condition, anticipatory PosHiAct and anticipatory NegLoAct are significant at $p < 0.01$, and expected PosHiAct is significant at $p < 0.05$. In the utilitarian condition, on the other hand, anticipatory PosLoAct and anticipatory NegHiAct are significant at $p < 0.01$, and anticipatory PosHiAct is significant at $p < 0.05$. The adequacy-importance score is significant at $p < 0.001$ in both subsamples. That is, counter to the prediction, including emotion measures significantly improves the

Table 3. Path Coefficients of Traditional EVM Versus Augmented EVM, $n = 308$.

Model	H1a (Linear Regression) Regressing A_{obj} on	H1a β	H1a p-Value	H1a R^2	H1b (Linear Regression) Regressing PI on	H1b β	H1b p-Value	H1b R^2	H1c (Logistic Regression) Regressing AP on	H1c B	H1c p-Value	H1c Nagelkerke R^2 (-2LL)
Traditional EVM	Adequacy importance	0.665	0.000	0.443	A_{obj}	0.662	0.000	0.439	A_{obj} residuals[d]	0.374	0.097	0.390 (173.944)
									PI	1.357	0.000	
Augmented EVM	Adequacy importance	0.435	0.000	0.586 R^2 diff.: 0.143, $F(8,308) = 12.823$, $p < 0.001$	A_{obj}	0.664	0.000	0.483 R^2 diff.: 0.059, $F(8,308) = 4.363$, $p = 0.001$	A_{obj} residuals[d]	0.387	0.090	0.438 (163.383) -2LL diff.: 10.611, diff. in df = 8, $p = 0.225$
	Ay PosLoAct	0.102	0.014		Ay PosLoAct residuals[b]	−0.020	0.652		PI	1.553	0.000	
	Ay PosHiAct	0.279	0.000		Ay PosHiAct residuals[b]	0.004	0.917		Ay PosLoAct residuals[e]	−0.322	0.122	
	Ay NegLoAct	−0.144	0.002		Ay NegLoAct residuals[b]	−0.117	0.014		Ay PosHiAct residuals[e]	0.135	0.457	
	Ay NegHiAct	−0.111	0.024		Ay NegHiAct residuals[b]	0.006	0.913		Ay NegLoAct residuals[e]	−0.620	0.043	
	Exp PosLoAct residuals[a]	0.027	0.516		Exp PosLoAct residuals[c]	0.050	0.260		Ay NegHiAct residuals[e]	0.052	0.847	
	Exp PosHiAct residuals[a]	0.060	0.119		Exp PosHiAct residuals[c]	0.105	0.013		Exp PosLoAct residuals[f]	−0.020	0.929	
	Exp NegLoAct residuals[a]	−0.012	0.790		Exp NegLoAct residuals[c]	−0.158	0.001		Exp PosHiAct residuals[f]	0.100	0.601	
	Exp NegHiAct residuals[a]	0.001	0.984		Exp NegHiAct residuals[c]	−0.044	0.351		Exp NegLoAct residuals[f]	0.031	0.916	
									Exp NegHiAct residuals[f]	−0.068	0.797	

Note: Due to the adjusted regression procedure, there are no problems of multicollinearity (all variance inflation factors ≤ 1.71).

[a]Standardized residuals of regressing each emotional expectation on the corresponding anticipatory emotion (e.g., expected PosLoAct on anticipatory PosLoAct).

[b]Standardized residuals of regressing each anticipatory emotion on A_{obj}.

[c]Standardized residuals of regressing the residuals obtained in Footnote "a" on A_{obj}.

[d]Standardized residuals of regressing A_{obj} on PI.

[e]Standardized residuals of regressing each anticipatory emotion on A_{obj} and PI.

[f]Standardized residuals of regressing the residuals obtained in Footnote "a" on A_{obj} and PI.

prediction of A_{obj} for not only hedonic products but also utilitarian objects.

To test H1b, each anticipatory emotion dimension and the residuals of each emotional expectation dimension was linearly regressed on A_{obj} and the standardized residuals were saved. Consistent with the objectives of this research, this was done to obtain the incremental effect of anticipatory emotions and emotional expectations on the subsequent outcome variables *PI* and *AP*, that is, the effect not already included in A_{obj}.[5] Then, the augmented EVM model was calculated as the regression of *PI* on A_{obj} and the residuals of anticipatory emotions and emotional expectations. Table 3 lists the results; for the augmented EVM model, R^2 reaches 0.488, compared with an R^2 of 0.439 for the traditional EVM model in which *PI* are regressed on A_{obj} only. The R^2 difference of 0.049 (F (8,308) = 3.55, $p < 0.01$) is again significant, in line with H1b. Similar to when attitudes are the dependent variable, regarding influencers of *PI*, anticipatory NegLoAct, expected PosHiAct, and expected NegLoAct are significant, whereas the other emotions are not. H1b receives support for both hedonic (traditional EVM $R^2 = 0.560$, augmented EVM $R^2 = 0.629$, R^2 difference $= 0.069$, F (8,146) $= 3.16$, $p < 0.01$) and utilitarian (traditional EVM $R^2 = 0.356$, augmented EVM $R^2 = 0.429$, R^2 difference $= 0.073$, F (8,162) $= 2.45$, $p < 0.05$) conditions. In the former, anticipatory PosLoAct is significant, in addition to the emotions that are significant in the full sample analysis, whereas in the latter condition, only expected PosHiAct and expected NegLoAct are significant at $p < 0.10$.

To test H1c, each expected emotion was regressed on its anticipatory emotion counterpart and the residuals were saved. Next, each anticipatory emotion and each expected emotion residual were regressed on A_{obj} and *PI* and the residuals were saved to obtain the effects of anticipatory emotions and expected emotions on *AP* that are not already contained in A_{obj} and *PI*. Then, A_{obj} was regressed on *PI* and the residuals were saved to capture the direct effect of A_{obj} on *AP* that is not already contained in *PI*. As a fourth and final step, a logistic regression of *AP* on *PI*, the A_{obj} residuals, and the residuals of anticipatory and expected emotion was run. For the traditional EVM model, a logistic regression of *AP* on *PI* and the A_{obj} residuals (saved from the regression of A_{obj} on *PI*) was calculated.

The results are also included in Table 3. For the augmented EVM model, a Nagelkerke R^2 of 0.438 (-2LL = 163.383) was obtained; only anticipatory NegLoAct directly influences *AP*. In the case of the traditional EVM model, the Nagelkerke R^2 is only 0.390 (-2LL = 173.994), but the likelihood ratio test (Hosmer & Lemeshow, 2004) indicates that the -2LL difference is not significant ($\chi^2 = 10.61$, Δdf $= 8$, $p = 0.225$). Therefore, predictions of *AP* do not improve significantly when anticipatory and expected emotion constructs were included, and H1c must be rejected. The same result occurs for both the hedonic and utilitarian condition subsamples.

Results for Hypothesis 2

To test H2, it was calculated whether the effects of the anticipatory and expected emotion variables on A_{obj}, *PI*, and *AP* in the three augmented EVM models may be moderated by the hedonic versus utilitarian conditions. To do so, the residual-centering procedure introduced by Lance (1988) was employed. For H2a, an interaction term was created first for each anticipatory emotion and each residual of the expected-on-anticipatory emotion regressions by multiplying the respective values with the binary condition (i.e., hedonic = 1, utilitarian = 0). Then, each interaction term was regressed on its two main effects, that is, the anticipatory emotion (expected emotion residual) and the hedonic (utilitarian) condition. The resulting residuals were used alongside the other independent variables and the main effects from the augmented EVM regression model, with A_{obj} as the outcome variable.

The results, reported in Table 4, uncover three significant interaction residual terms: anticipatory PosHiAct × condition ($\beta = 0.093$, $p < 0.05$), anticipatory NegLoAct × condition ($\beta = -.116$, $p < 0.05$), and anticipatory PosLoAct × condition ($\beta = -.092$, $p < 0.05$). Because interaction effects represent the estimated change in the slope of Y on X1, given a one-unit change in X2 (Jaccard, Wan, & Turrisi, 1980), this means that anticipatory PosHiAct emotion (i.e., enthusiasm, elation, excitement) has a stronger positive effect, and its opposing dimension of anticipatory NegLoAct emotion (i.e., boredom, sluggishness, dullness) has a stronger negative effect on A_{obj} when the product is hedonic, in partial support of H2a. However, the positive effect of anticipatory PosLoAct emotions (i.e., relaxation, contentedness, serenity) on A_{obj} becomes weaker when the product is hedonic though, which partially contradicts H2a.

For the tests of H2b and H2c, interaction terms were analogously created by multiplying the residuals of each anticipatory and expected emotion contained in the augmented EVM models with the binary hedonic versus utilitarian condition, then regressed the interaction terms on the main effects to obtain the interaction residuals. Next, they were added to the respective augmented EVM model. In the linear regression with *PI* as the dependent variable, a significant anticipatory PosHiAct × condition interaction ($\beta = 0.088$, $p < 0.05$) was found, which indicates that the direct effect of enthusiasm, elation, and excitement on *PI* (which is not mediated through A_{obj}) becomes stronger when the product is hedonic, in support of H2b (see Table 4).

[5] Please note that the direction of this regression, from A_{obj} to anticipatory emotion and the emotional expectation residuals, does not imply that the theoretical and causal relationship between these variables is suddenly reversed. Instead, the purpose is to partial out from anticipatory emotion and the emotional expectation residuals the variance explanation of *PI* that is already contained in A_{obj}.

Table 4. Moderator Effects of Hedonic Condition in Augmented EVM, $n = 308$.

H2a (Linear Regression)				H2b (Linear Regression)				H2c (Logistic Regression)			
Regressing A_{obj} on	β	p-Value	R^2	Regressing PI on	β	p-Value	R^2	Regressing AP on	B	p-Value	Nagelkerke R^2 (−2LL)
Adequacy importance	0.410	0.000	0.617	A_{obj}	0.645	0.000	0.525	A_{obj} residuals[e]	0.206	0.447	0.508
Ay PosLoAct	0.146	0.001		Ay PosLoAct residuals[c]	– 0.023	0.609		PI	2.026	0.000	
Ay PosHiAct	0.251	0.000		Ay PosHiAct residuals[c]	0.029	0.507		Ay PosLoAct residuals[f]	– 0.116	0.660	
Ay NegLoAct	– 0.112	0.020		Ay NegLoAct residuals[c]	– 0.120	0.014		Ay PosHiAct residuals[f]	– 0.138	0.505	
Ay NegHiAct	– 0.143	0.004		Ay NegHiAct residuals[c]	– 0.007	0.891		Ay NegLoAct residuals[f]	– 0.304	0.401	
Exp PosLoAct residuals[a]	0.027	0.531		Exp PosLoAct residuals[c]	0.016	0.744		Ay NegHiAct residuals[f]	– 0.528	0.227	
Exp PosHiAct residuals[a]	0.077	0.042		Exp PosHiAct residuals[c]	0.122	0.004		Exp PosLoAct residuals[f]	0.244	0.419	
Exp NegLoAct residuals[a]	0.004	0.933		Exp NegLoAct residuals[c]	– 0.139	0.004		Exp PosHiAct residuals[f]	0.190	0.395	
Exp NegHiAct residuals[a]	– 0.071	0.696		Exp NegHiAct residuals[c]	– 0.050	0.296		Exp NegLoAct residuals[f]	0.366	0.285	
HED/UT condition (binary)	0.058	0.192		HED/UT Condition (binary)	– 0.105	0.027		Exp NegHiAct residuals[f]	– 0.633	0.148	
Ay PosLoAct—condition interaction residual[b]	– 0.092	0.027		Ay PosLoAct residuals—condition interaction residual[d]	– 0.036	0.436		HED/UT condition (binary)	2.416	0.001	
Ay PosHiAct—condition interaction residual[b]	0.093	0.021		Ay PosHiAct residuals—condition interaction residual[d]	0.088	0.035		Ay PosLoAct residuals—condition interaction residual[g]	– 0.069	0.796	
Ay NegLoAct—condition interaction residual[b]	– 0.116	0.014		Ay NegLoAct residuals—condition interaction residual[d]	– 0.015	0.761		Ay PosHiAct residuals—condition interaction residual[g]	– 0.080	0.678	
Ay NegHiAct—condition interaction residual[b]	0.051	0.288		Ay NegHiAct residuals—condition interaction residual[d]	0.055	0.295		Ay NegLoAct residuals—condition interaction residual[g]	0.007	0.982	

Table 4. Continued

H2a (Linear Regression)				H2b (Linear Regression)				H2c (Logistic Regression)			
Regressing A_{obj} on	β	p-Value	R^2	Regressing *PI* on	β	p-Value	R^2	Regressing *AP* on	*B*	p-Value	Nagelkerke R^2 (−2LL)
Exp PosLoAct—condition interaction residual[b]	−0.028	0.492		Exp PosLoAct residuals—condition interaction residual[d]	−0.047	0.291		Ay NegHiAct residuals—condition interaction residual[g]	0.230	0.530	
Exp PosHiAct—condition interaction residual[b]	0.039	0.302		Exp PosHiAct residuals—condition interaction residual[d]	0.010	0.807		Exp PosLoAct residuals—condition interaction residual[g]	−0.255	0.409	
Exp NegLoAct—condition interaction residual[b]	0.008	0.855		Exp NegLoAct residuals—condition interaction residual[d]	−0.041	0.393		Exp PosHiAct residuals—condition interaction residual[g]	−0.309	0.168	
Exp NegHiAct—condition interaction residual[b]	0.018	0.679		Exp NegHiAct residuals—condition interaction residual[d]	0.079	0.093		Exp NegLoAct residuals—condition interaction residual[g]	−0.110	0.740	
								Exp NegHiAct residuals—condition interaction residual[g]	0.413	0.307	

[a]Standardized residuals of regressing each emotional expectation on the corresponding anticipatory emotion (e.g., expected PosLoAct on anticipatory PosLoAct).
[b]Standardized residuals of regressing each HED condition × anticipatory emotion (HED condition × emotional expectation residual obtained in Footnote “a”) interaction term on its main effects.
[c]Standardized residuals of regressing each anticipatory emotion (each emotional expectation residual obtained in Footnote “a”) on A_{obj}.
[d]Standardized residuals of regressing each HED condition × anticipatory emotion residual obtained in Footnote “c” (HED condition × emotional expectation residual obtained in Footnote “c”) interaction term on its main effects.
[e]Standardized residuals of regressing A_{obj} on *PI*.
[f]Standardized residuals of regressing each anticipatory emotion (each emotional expectation residual obtained in Footnote “a”) on A_{obj} and *PI*.
[g]Standardized residuals of regressing each HED condition × anticipatory emotion residual obtained in Footnote “f” (HED condition × emotional expectation residual obtained in Footnote “f”) interaction term on its main effects.

However, none of the other anticipatory emotion residual (expected emotion residual) $\times$ condition interactions is significant. In the augmented EVM logistic regression with *AP* as the outcome variable, no significant interaction residual term was found, which fails to provide support for H2c. Overall, support for H2 is limited, in that H2c must be fully rejected and, regarding H2a and H2b, that some but not all anticipatory emotions become more important to the decision-making process when the product is hedonic.

DISCUSSION AND IMPLICATIONS

This is the first study that attempts to broaden the EVM by integrating it with a dimensional theory of emotion and tests the effects of emotions on three stages of decision making: attitude formation, intention formation, and behavior. This research also accounts empirically for the distinction between anticipatory emotions and emotional expectations, an issue rarely addressed by extant research, and it joins various strands of emotion research by testing the moderating effects of hedonic value in this setting.

Our findings have implications both for marketing scholars and practitioners. In general, the results show that augmented EVM models explain significantly more variance of A_{obj} than does the traditional EVM, because several anticipatory emotion and emotional expectation constructs have strong direct effects on A_{obj} that are not captured by assessing product attribute evaluations and attribute importance (i.e., the adequacy-importance model of attitude). Similarly, the prediction of *PI* can be improved significantly by the inclusion of the direct effects of anticipatory emotions and emotional expectations that are not already contained in A_{obj}, as was demonstrated through the adjusted regressions approach. This is consistent with earlier findings (Kulviwat et al., 2007), which demonstrate that variance explanation attitudes and intentions in the Technology Acceptance Model, which has the same roots as the EVM, can be improved by augmenting it with a dimensional model of emotion. It is interesting to note that this study's findings hold for both hedonic and utilitarian conditions, which indicates that predictions of both global attitudes and *PI* for extremely utilitarian products, such as pocket calculators, can be enhanced by accounting for emotions. This appears to run counter to Pham's (1998) findings, which show that emotions play a more important role for hedonic (consummatory) than for utilitarian (instrumental) consumption episodes. The disparity may be explained by an important difference between Pham's and the present study. While the present research experiment used a product genuinely perceived as utilitarian (i.e., a pocket calculator), Pham merely gave participants a utilitarian motive for consuming a hedonic product (i.e., watching a movie in order to be able to write a better term paper essay and win prize money). Thus, in Pham's study, the relevance of emotional responses to the prospect of watching a movie was diminished by introducing the utilitarian (and extrinsic) motive, thus reducing the reliance on emotions in the consumption decision. In the present research study, participants appear to have viewed emotions elicited by the pocket calculator as both representative and relevant to their decision—for example, they may have wished to avoid feeling anxious and annoyed about it when having to rely on it during an important exam. Thus, just because a product is utilitarian, one should not assume that the emotions it elicits are automatically being viewed as irrelevant to the consumption decision.

An analysis of the subsamples also reveals that anticipatory emotions (vs. emotional expectations) play a relatively bigger role in the hedonic condition (vs. the utilitarian condition). This finding may be explained by the theoretical difference between anticipatory emotions and emotional expectations: The latter are phenomenologically closer in nature to cognitive expectations, whereas the former are truly experienced emotions. When evaluating emotion-related hedonic products, the aforementioned representativeness heuristic (Pham, 1998) may therefore explain why anticipatory emotions are weighted more heavily in hedonic consumption decisions than emotional expectations.

The prediction of *AP*, however, cannot be improved significantly by adding anticipatory emotions and emotional expectations as predictors. Evidently, the further one moves along the decision-making stages, the weaker are the direct effects of emotion because an increasing amount of variance is captured by the traditional EVM variables due to the adjusted regressions. Yet emotions indirectly influence *PI* through mediation by A_{obj} and *AP* through mediation by A_{obj} and *PI*. It was also found that anticipatory emotions and emotional expectations can be empirically distinguished, and that they influence consumer decision making at different stages. As conjectured, currently experienced (anticipatory) emotions have a stronger effect on A_{obj}, whereas expected future (expected) emotions have a stronger effect on *PI*, quite possibly due to their shared temporal anchor.

It may be argued that the relationship between anticipatory emotions and emotional expectations is the inverse of what is assumed in this research, that is, emotional expectations guiding the formation of anticipatory emotion. For example, anticipating the negative emotions associated with visiting the dentist in the future may make one feel dreadful at the moment. Or anticipating the positive emotions, for example elation/excitement, from the upcoming vacation may lead one to feel excited and elated right now. An alternative set of regression models (not reported in detail in the manuscript) was run incorporating this inverse relationship.[6] As would be expected due to the adjusted regression methodology, reversing the causal relationship between anticipatory emotions and emotional

[6] Detailed information on this additional analysis is provided by the authors upon request.

expectations does not influence the R^2 or Nagelkerke R^2 of the augmented EVM models, and therefore has no effect on the confirmation or disconfirmation of hypotheses. What happens, however, is that the effects of emotional expectations generally increase, whereas the effects of anticipatory emotions generally decrease (this shift is most pronounced when A_{obj} is the dependent variable, and less so when *PI* and *AP* are the dependent variables). Again, this is a result of the methodology, which reassigns variance explanation to emotional expectations that was previously attributed to anticipatory emotions. This also means that the interpretation of the relative effects strengths of anticipatory emotions versus emotional expectations is influenced by the theoretical perspective taken. If one assumes that anticipatory emotion guides emotional expectation (as originally argued in this research), and thus removes from emotional expectation all variance explanation already contained in anticipatory emotion, then the effects of anticipatory emotions will grow stronger relative to emotional expectations, and *vice versa*.

In terms of the emotion circumplex model, this research shows that the emotional axis of boredom/dullness versus excitement/elation is weighted more heavily during the formation of A_{obj} when the product is hedonic rather than utilitarian. This effect decreases when *PI* represents the dependent variable, and it disappears when *AP* is the dependent variable. It is also conceivable that the choice of hedonic stimulus, a motion picture DVD, may have contributed to the higher weighting of the PosHiAct/NegLoAct dimension. For different types of hedonic consumption experiences, for example a massage, the PosLoAct dimension (relaxation, contentment, serenity) may be a better predictor.

For marketing practitioners, this study's results highlight the need to take emotional responses into account when using EVMs to predict consumers' brand attitudes and purchasing intentions. Examples abound of manufacturers, marketers, and marketing scholars having relied on EVMs to inform product-design decisions (Watkins, 2008) and predict attitudes and purchasing intentions toward utilitarian and hedonic products (online banking—Yousafzai, Foxall, & Pallister, 2010; tourism, local cuisine—Ryu & Han, 2010; games versus grammar checking software—Kempf, 1999). As Kempf (1999) argues, in all of these settings, practitioners can benefit from being able to predict which category of responses—attribute evaluations versus emotions—will be most important to attitudes, purchasing intentions, and choice. A more precise understanding of brand attitude determinants, as provided by the augmented EVM, can be used by marketers to tweak product feature sets prior to manufacturing, improve their understanding of the competitive landscape, and optimize product positioning for both functional and emotional qualities. This study's results demonstrate that these benefits are not only available to marketers of hedonic products, but also to marketers of utilitarian products where emotional responses have traditionally been viewed as irrelevant to consumer decision making. They show that just because a product or service fulfils a mainly utilitarian purpose, emotional responses cannot be safely ignored when studying attitude formation and *PI*. Instead, researchers and practitioners should consider whether emotional responses can conceivably be viewed as both representative and relevant to the target object; the answer may be "yes" even for many products heretofore considered purely utilitarian.

LIMITATIONS AND FUTURE RESEARCH

This study contains several limitations. First, by focusing on the EVM of attitude, the authors do not control for another component of Fishbein and Ajzen's (1975) theory of reasoned action, namely, subjective norms. This construct accounts for the normative beliefs of a person's significant others, as well as the person's motivation to comply with these beliefs. In the theory of reasoned action, it is modeled to have a direct effect on intentions, parallel to (and independent of) A_{obj}. There is little doubt about the power of subjective norms in most settings studied by social psychologists, yet their role in purchasing decisions for every day consumer goods appears more equivocal. At least five recent empirical studies based on the theory of reasoned action find no effect of subjective norms on *PI* or purchase behavior (Bosnjak, Obermeier, & Tuten, 2006; Helmig, Huber, & Leeflang, 2007; Hsu, Wang, & Wen, 2006; Njite & Parsa, 2005; Wang, Chen, Chang, & Yang, 2007). Similarly, the purchase of the pocket calculator or DVD in this study is not likely to engender strong approval or disapproval by participants' significant others, so subjective norms should not have biased the results. Nevertheless, accounting for subjective norms in further studies might prove instructive; it would be particularly interesting to examine the interplay between emotions and subjective norms in determining A_{obj} and intentions.

Second, Ajzen's (1991) extension of the theory of reasoned action, the theory of planned behavior, is ignored, which adds perceived behavioral control as an antecedent of intentions, alongside A_{obj} and subjective norms. Perceived behavioral control captures the perceived ease or difficulty associated with performing the behavior in question. In the context of this research, it is reasonable to assume that the participants did not associate any particular difficulty with the act of purchasing a simple consumer good for €4.99 and that the behavior was within their locus of control.[7]

Third, as with any study that relies on survey-based (self-reported) measures of emotion, the measurement method might have introduced distortions by prompting respondents to introspect on, cognitively process, and report on their emotional states. Thus, latent and unconscious processes that otherwise would not have

[7] If participant had no cash but stated an interest in purchasing the product, the researchers allowed him or her to return later to pay and pick up the product.

been salient or active during "normal" decision making might have become salient or activated. Conversely, respondents might not have been able to cognitively access their latent and unconscious emotional states, which would prevent their accurate reports. Therefore, though the survey-based emotion measures exhibit both internal and external validity, it could prove instructive to combine them with alternative, non–self-reported measures in additional studies. For example, physiological measures such as skin conduction resistance, blood pressure, pupil dilation, or heart rate could capture the activation dimension of emotion. However, there is great difficulty in using such autonomic nervous system measures to distinguish responses along the pleasantness dimension (Levenson, 1992). Modern brain-imaging techniques, such as functional magnetic resonance imaging (fMRI), may be used to observe the activation of brain areas generally associated with pleasure and arousal, but these techniques, too, highly depend on subjective interpretations by the researcher. Moreover, physiological and neurological measures are physically intrusive (i.e., electrodes applied to the respondents' skin or head, eye monitoring devices) or require extremely noisy machinery and claustrophobic environments. They therefore introduce their own set of problems and distortions. For decision-making studies such as this one, the most practical and unobtrusive external measure of emotion may be facial action coding. To apply the faction action coding system (FACS; Ekman & Friesen, 1978), participants would have to be filmed during the choice experiment, and specifically trained judges would then independently analyze and code the participants' facial expressions into the emotional states they believed the participants had experienced during the experiment.

The above limitations notwithstanding and without taking anything away from all research subsequent to the emergence of the EVM, it appears that for many practical situations the EVM with its simplicity may suffice. In this sense, a resurrection of the utility of the EVM in the literature seems in order. However, whether a researcher or practitioner should augment the EVM with anticipatory emotion and emotional expectation constructs depends on the trade-offs he or she is willing to make, as well as the stage of decision making under investigation. For some practical purposes, especially when the antecedents of overall attitude formation are not of interest, traditional EVM is more parsimonious and easier to handle. On the other hand, the additional variance explanation offered by anticipatory emotions and emotional expectations is huge for A_{obj}, considerable and significant for PI, but only marginal for AP. Thus, for researchers and marketing practitioners alike, the augmented EVM can deliver a richer picture of the decision-making process.

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APPENDIX

List of Items

Construct	Measurement	Scale
Hedonic value	"The DVD 'Stay'/the Sharp WriteView pocket calculator . . . is fun/exciting/tempting/thrilling/entertaining"	Ordinal 7-point scale, "not at all"–"completely"
Attribute importance, w_i	"When you're buying a DVD/ a pocket calculator, how important are the following attributes to you?" Story/ actors/ price of the DVD/ genre/cover design/DVD bonus material/director/ title of the movie (*DVD*); Number of functions/ price/design/brand/quality of the display/ease of use/energy source/overall size (*Pocket calculator*)	Ordinal 7-point scale, "less important"–"very important"
Attribute evaluations, e_i	"And how would you rate the DVD 'Stay'/the Sharp WriteView pocket calculator on these attributes?"—*See attribute list above*	Ordinal 7-point scale, "bad"–"good"
Attitude toward the object, A_{obj}	"In general . . . . . . I think the DVD 'Stay'/the Sharp WriteView pocket calculator is good . . . I like the DVD 'Stay'/the Sharp WriteView pocket calculator"	Ordinal 7-point scale, "not at all"–"completely"
Purchase intention	"If you were offered to buy the DVD 'Stay'/the Sharp WriteView pocket calculator for €4.99: Would you buy it?"	Ordinal 7-point scale, "absolutely not"–"absolutely"
AyPosLoAct/ AyPosHiAct/ AyNegLoAct/ AyNegHiAct emotion	"Please close your eyes for a moment and imagine seeing the movie 'Stay'/using the Sharp WriteView pocket calculator. Then please describe what you are feeling *right now*: When I imagine seeing the movie 'Stay'/using the Sharp WriteView pocket calculator, I feel . . . relaxed/content/calm (*anticipatory PosLoAct*); enthusiastic/elated/excited (*anticipatory PosHiAct*); bored/dull/sluggish (*anticipatory NegLoAct*); sad/depressed/nervous/anxious/ annoyed/angry (*anticipatory NegHiAct*)"	Ordinal 7-point scale, "not at all" – "completely"
ExpPosLoAct/ExpPosHiAct/ ExpNegLoAct/ExpNegHiAct emotion	"Now please imagine you had already purchased the DVD 'Stay' and had watched it/had already purchased the Sharp WriteView pocket calculator and were using it regularly. How would you feel *after watching the movie / after purchasing the pocket calculator and when using it regularly*? After watching the movie 'Stay'/after purchasing the Sharp WriteView calculator and when using it regularly, I would feel . . . " (*see emotion item list*)	Ordinal 7-point scale, "not at all"–"completely"