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Now or later: Delay's effects on post-consumption emotions and consumer loyalty ☆

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ABSTRACT

This study identifies differences in immediate and delayed post-consumption emotional assessments, triggering a dynamic shift in word-of-mouth evaluation and repurchase intention. Experiment 1 compares participants' responses to cellphone purchases in immediate and half-hour delay conditions. Experiment 2 generalizes the research scope by examining biscuit consumption and imposing an additional 24-hour delay. Results indicate that (1) products with higher hedonic value elicit excitement and cheerfulness, which intensify over time and increase consumer loyalty; (2) products with higher utilitarian value induce feelings of confidence and security, which gradually fade in intensity and diminish consumer loyalty over time; (3) products with lower hedonic value lead to dissatisfaction, which dissipates over time, and low-level consumer loyalty rises; and (4) products with lower utilitarian value generate feelings of anger, which grow over time and erode consumer loyalty.

1. Introduction

Purchasers often reflect on their purchases or consumption moments. These recollections, which may conflict with the emotions of the actual purchase, can affect subsequent behavior. For example, a male customer enjoys eating a specific brand of instant noodles. Several days later, he likely associates a lower satisfaction level with the noodles, and offers a relatively less positive product evaluation.

All other things being equal, time affects evaluations. Does time have a threshold point where consumption evaluations change measurably? Recent consumer behavior research examines how time affects post-consumption evaluations of emotion and loyalty. Immediate post-consumption evaluations seem to have close ties to the actual experience, while delayed evaluations require recollection of an emotional state (Robinson & Clore, 2002; Xu & Schwarz, 2009), increasing the likelihood of recall bias (Aaker, Drolet, & Griffin, 2008; Hsee & Hastie, 2006). However, is there a threshold point where consumption evaluations change measurably?

Information accessibility theory posits a distinction between current and noncurrent emotional assessments (Robinson & Clore, 2002). If such differences exist, the passage of time may affect the emotional response according to the product's hedonic and utilitarian dimensions. Hedonic and utilitarian benefits are arguably independent components of product evaluations and attitudes (Dhar & Wertenbroch, 2000). Hedonic benefits relate to multisensory, fantasy, and emotive aspects of the product usage experience (Hirschman & Holbrook, 1982), and utilitarian benefits to functional and instrumental tasks (Strahilevitz & Myers, 1998). Although hedonic and utilitarian attributes may produce different emotions (Chitturi, Raghunathan, & Mahajan, 2008), no known studies examine their strengths over time. The current study examines hedonic and utilitarian product dimensions and their relations to time differences, comparing immediate versus delayed consumer evaluations, and explores how these emotions affect consumer loyalty (e.g., repurchase intentions and word-of-mouth referrals) (Jacoby & Chestnut, 1978). The results contribute to both theory and practice. First, the findings extend theory by identifying how time evaluation delays affect emotions and consumer loyalty. Second, they help practitioners by providing insights for optimal timing and prioritizing of evaluations, referrals, and product failure recovery.

2. Theoretical background and hypotheses

2.1. Hedonic and utilitarian benefits' effects on post-consumption emotions

Post-consumption emotion evaluations depend on the consumers' pre-purchase goals and on the product's hedonic and utilitarian dimensions associated with goal attainment. Regulatory focus theory suggests a prevention focus and a promotion focus (Higgins, 1997, 2000). The former involves behavioral safety and responsibilities to eliminate or minimize possible painful or negative experiences (Chitturi, Raghunathan, &

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Mahajan, 2007; Higgins, 1997), while the latter suggests maximum need fulfillment, increasing pleasurable experiences and generating positive emotions in the consumer (Chitturi et al., 2008; Higgins, 1997).

A cellphone's prevention goals may be selecting a product with a long standby time or wide signal coverage, which give confidence and security, while the product's promotion goals may be a high screen resolution or fancy appearance, which cause happiness and excitement. Evidence confirms that a product's hedonic and utilitarian dimensions satisfy many consumer goals (Chernev, 2004). Utilitarian benefits—the product's functional, instrumental, and practical merits—help meet prevention goals; hedonic benefits—aesthetic, experiential, and enjoyment values—fulfill promotion goals (Chernev, 2004; Chitturi et al., 2007, 2008; Higgins, 1997).

How do consumers weigh prevention and promotion goals? Those viewing pain avoidance as a necessity and pleasure as a comparative luxury assign more weight to utilitarian benefits than to hedonic benefits (Chitturi et al., 2008; Higgins, 1997; Higgins, Friedman, Harlow, et al., 2001). Even if a cellphone is eye-catching, a short standby time is a deal breaker. Once consumers achieve their prevention goals, hedonic dominance shifts to implementing promotion goals. When both utilitarian and hedonic criteria are fulfilled or transcended, consumers typically focus on hedonic attributes (Chitturi et al., 2007). One such case is the stylish Apple iPhone, which consistently outsells durable Nokia phones.

Chitturi et al. (2008) find that products with higher hedonic value cause greater excitement and delight, and those with higher utilitarian value, greater security and confidence levels, encouraging higher consumer satisfaction. Lower hedonic value products induce higher post-consumption dissatisfaction; those with lower utilitarian value, greater anger.

In summary, superior hedonic or inferior utilitarian benefits induce higher arousal emotions (see Section 2.3.), whereas inferior hedonic benefits or superior utilitarian benefits induce lower arousal emotions (see Section 2.3).

2.2. Differences in immediate and delayed post-consumption emotional evaluations

No known studies on post-consumption emotional evaluations of products' hedonic and utilitarian benefits consider the effect of time delays (Chitturi et al., 2008; Erevelles, 1998). Post-consumption evaluations change as delays affect the process. Consumers' actual consumption experiences determine immediate post-consumption evaluations, while delayed evaluations depend on memory (Robinson & Clore, 2002; Xu & Schwarz, 2009).

Many scholars note the existence of recall bias (Aaker et al., 2008; Hsee & Hastie, 2006). Since the utilitarian and hedonic product benefits differ, how does recall bias enter into delayed post-consumption evaluation of emotions?

To explain differences between emotional experiences and recall, Robinson and Clore (2002) propose the accessibility model, which states the consumer emotions are accessible for self-reports of a current emotional experience. For self-reports of noncurrent emotions, however, the previous episode's emotions are no longer clearly accessible, so the retrospective reports are based on episodic or semantic memory.

For consumers reporting their post-purchase experiences, a distinction exists between current and noncurrent emotional assessments. They forget or diminish certain information and magnify other information, forgetting the mundane and remembering the impressive. This study aims to identify emotions leaving strong impressions.

2.3. Emotional arousal and emotional recall evaluation

Emotions directly connect to memories of emotionally arousing experiences. McGaugh (2004) reveals that an emotion's arousal level closely correlates with follow-up memories. Positive, highly arousing emotions include excitement, happiness, and delight. Conversely, negative highly arousing emotions are frustration, anger, anxiety, and sorrow (see Roseman, 1991; Russell, 1980). Post-consumption confidence, security, satisfaction, and dissatisfaction are less emotional (Chitturi et al., 2008).

Empirical studies confirm that highly arousing emotions enhance recall of the events causing them. Thomas and Diener (1990) find that people often overestimate their emotional intensity for positive and negative emotions. Painful experiences (e.g., a medical procedure) tend to be recalled more intensely than the actual experience (Miron-Shatz, Stone, & Kahneman, 2009; Morewedge, Gilbert, & Wilson, 2005). If the entire experience is negative and highly arousing, people report higher negative emotion levels in delayed assessments. For highly arousing positive emotions, the same effect exists. For example, parents tend to overestimate the happiness they feel when with their children (see Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004).

Chitturi et al. (2008) suggest that an inferior product with utilitarian benefits evokes negative, high-arousal emotions such as anger, while a product providing superior hedonic benefits induces positive, high-arousal emotions such as cheerfulness and excitement. Over time, these emotions become stronger, and consumers overestimate their original experiences.

Few studies investigate delay's effect on low-arousal emotions. Some indirect evidence suggests that evaluations of such emotion change over time. Bywaters, Andrade, and Turpin (2004) find that memories evoking low-arousal emotions fade over time. The evidence suggests that assessments of low-arousal emotions decrease as time passes.

The literature suggests high arousal emotions intensify over time, while low arousal emotions weaken. These findings inform the following hypotheses.

H1. Positive high arousal emotions resulting from consuming products with superior hedonic value (SH products) are more intense in delayed evaluations than in immediate evaluations.

H2. Positive low arousal emotions resulting from consuming products with superior utilitarian value (SU products) are less intense in delayed evaluations than in immediate evaluations.

H3. Negative low arousal emotions resulting from consuming products with inferior hedonic value (IH products) are less intense in delayed evaluations than in immediate evaluations.

H4. Negative high arousal emotions resulting from consuming products with inferior utilitarian value (IU products) are more intense in delayed evaluations than in immediate evaluations.

2.4. Post-consumption emotions and consumer loyalty

Prior research suggests a relationship between post-purchase emotions and consumer behavior (Holbrook, Chestnut, Oliva, & Greenleaf, 1984; Holbrook & Hirschman, 1982). Westbrook (1987) verifies that post-consumption emotions are directly related to complaint behavior and word-of-mouth transmission. Positive emotions lead to higher loyalty levels (Jang & Namkung, 2009; Lee, Lee, Lee, & Babin, 2008; Walsh, Shiu, Hassan, Michaelidou, & Beatty, 2011). Recent post-consumption studies assert that cheerfulness and excitement induced by SH products generate a higher level of delight (Chitturi et al., 2008). Previous studies also confirm that delight affects consumer loyalty (Oliver, Rust, & Varki, 1997; Rust & Oliver, 2000). SU products generate consumer security and confidence encouraging greater consumer satisfaction and ultimately producing consumer loyalty differences (e.g., word-of-mouth and repurchase intentions). Conversely, IH and IU products produce negative post-consumption emotions of dissatisfaction and anger, respectively. However, anger is far more likely than dissatisfaction to discourage consumers from making positive word-of-mouth referrals (Westbrook, 1987).

Based on the relationships among evaluation timing, emotional arousal dimensions, and consumer loyalty, immediate and delayed

evaluations of products with varied attribute values should lead to differences in consumer loyalty. Superior benefits lead to loyalty, but the effect strengthens over time for hedonic benefits and weakens for utilitarian benefits. Inferior benefits decrease loyalty, but the effect is weakened for hedonic benefits and strengthened for utilitarian benefits. Specific consumption emotions mediate these effects.

This inference generates four detailed patterns. First, SH products induce positive high-arousal emotions (i.e., excitement and cheerfulness) strengthen over time and enhance consumer loyalty. Second, SU products produce positive low-arousal emotions (i.e., confidence and security), fading over time and diminishing consumer loyalty. Third, IH products elicit a negative low-arousal emotion (i.e., dissatisfaction) also dissipating over time and allowing low-level consumer loyalty to rebound. Finally, IU products generate a negative high-arousal emotion (i.e., anger) growing over time and eroding consumer loyalty. These considerations lead to the following hypotheses:

H5. Intense positive emotions from a delayed evaluation for SH products increase word-of-mouth referrals and repurchase intentions over time.

H6. Weak positive emotions from a delayed evaluation for SU products decrease word-of-mouth referrals and repurchase intentions over time.

H7. Weak negative emotions from a delayed evaluation for IH products increase word-of-mouth referrals and repurchase intentions over time.

H8. Intense negative emotions from a delayed evaluation for IU products decrease word-of-mouth referrals and repurchase intentions over time.

3. Experiment 1: cellphone purchase scenario

3.1. Pretest

This experiment used cellphones as the stimuli because prior research often tests this category (Chitturi et al., 2007, 2008) and the product is familiar to undergraduate students in China. A pretest helped determine the hedonic and utilitarian characteristics and their levels in each of the cellphones used in the experiment. First, instructors recruited 20 undergraduate students to list the cellphone characteristics important in purchase decisions. That list generated 20 distinct attributes. Second, instructors asked another 50 students to rate the attribute's importance on a 10-point scale (1 = not important at all; 10 = very important). Next, eight students (50% male) participated in a focus-group interview of the 15 attributes that scored higher than seven points. In this interview, the moderator employed the hedonic/utilitarian (HED/UT) scale proposed by Voss, Spangenberg, and Grohmann (2003) to measure each attribute's relevant value, including ten 10-point semantic differential items (hedonic dimension: not fun/fun, dull/exciting, not delightful/delightful, not thrilling/thrilling, and unenjoyable/enjoyable; utilitarian dimension: ineffective/effective, unhelpful/helpful, not functional/functional, unnecessary/necessary, and impractical/practical). The most important hedonic attributes were phone style, screen resolution, and color; the most important utilitarian attributes were standby time, signal coverage rate, and voice quality. Based on the current specifications of mobile phones and past research, high, moderate, and low levels of the six attributes were determined and tested on 20 participants. These attributes produced significant differences in perception (see Table 1).

3.2. Methodology

This experiment's primary purpose is to validate whether or not the evaluations of emotions (as well as resultant levels of consumer loyalty) differed in immediate and delayed post-consumption evaluations by a 4 (hedonic/utilitarian benefits: superior hedonic (SH) attributes, superior utilitarian (SU) attributes, inferior hedonic (IH) attributes, and inferior utilitarian (IU) attributes) × 2 (duration of delay: immediate, delayed) two-factor between-subject design. SH (SU) cellphones were defined as those models with high-level hedonic (utilitarian) attributes and moderate-level utilitarian (hedonic) attributes. IH (IU) cellphones were those models with low-level hedonic (utilitarian) attributes and moderate-level utilitarian (hedonic) attributes (see Table 2).

Table 1
Descriptions of selected hedonic and utilitarian attributes for different levels (cellphone scenario).

	Levels		
	High	Moderate	Low
Hedonic attributes			
Style	Modern	Classic	Outdated
Screen resolution	480 * 800	320 * 240	128 * 128
Colors available	5 colors	2 colors	1 color
Utilitarian attributes			
Standby time [a]	1600 mAh	1000 mAh	300 mAh
Signal coverage rate[b]	100%	98%	90%
Voice quality[b]	Good	Medium	Poor

[a] Standby time is determined by battery capacity. mAh: milliamp hours.
[b] Adapted from Chitturi et al. (2008).

3.3. Materials, measurements, and procedure

The positive/negative emotions scale adopted from Mano and Oliver (1993) and Chitturi et al. (2008) assessed six post-consumption emotional responses (i.e., dissatisfaction, anger, security, confidence, excitement, and cheerfulness) using the following statement: "Based on the overall experience of using the current cellphone, you feel…" (seven-point scale anchored by 1 = "not at all" and 7 = "extremely"). Four seven-point semantic differential items (relaxed/stimulated, calm/excited, unaroused/aroused, and dull/jittery) adopted from Mehrabian and Russell (1974) measured arousal. To assess consumer loyalty, this study employed the word-of-mouth and repurchase intention framework developed by Jacoby and Chestnut (1978), comprising two seven-point Likert-type scale items (1 = "not at all likely" and 7 = "extremely likely") (see Appendix A). Prior to the experiment, instructors randomly assigned 240 participants into eight groups of 30 based on the design. The four groups in the immediate condition sat in the lab in a prearranged order and received a consumption decision-making scenario presenting four cellphones of fictitious brands (A, B, C, and D) and their attributes. After reading the descriptions, the participants imagined that they had bought and used a certain phone, based on their groups, and provided their post-consumption emotional responses, arousal levels, loyalty evaluations, and manipulation checks accordingly.

The four groups in the delayed evaluation, after imagining purchasing and using a cellphone as above, then spent 30 min using a specific computerized number-counting program adapted from Liu (2008) to create a delay. After the delay task, the participants began their post-consumption evaluations of emotions and loyalty.

3.4. Manipulation checks

The last section of the questionnaire included the manipulation checks of the cellphones' hedonic and utilitarian attributes. The participants rated

Table 2
Properties of the stimuli in the experiments.

Products	Hedonic attributes[a]	Utilitarian attributes[b]
A: superior hedonic	High	Moderate
B: superior utilitarian	Moderate	High
C: inferior hedonic	Low	Moderate
D: inferior utilitarian	Moderate	Low

[a] In Experiment 1, hedonic attributes include style, screen resolution, and colors available. In experiment 2, hedonic attributes include degree of crispness and texture. Each attribute contains high, moderate, and low levels.
[b] In Experiment 1, utilitarian attributes include standby time, signal coverage rate, and voice quality. In Experiment 2, utilitarian attributes include net weight and nutrient elements. Each attribute contains high, moderate, and low levels.

the cellphone using the HED/UT scale from the pretest (Voss et al., 2003). Results show that manipulations of both hedonic and utilitarian attributes were successful. On a scale of 1 to 10 (10 being highest), the participants posted an average score of 8.33 for the superior attributes of the cellphones and one of 4.43 for the inferior attributes; the moderate levels fell between six and seven. Table 3 shows the means for the hedonic attributes of the SH cellphone (A) were higher than those of the IH cellphone (C) ($t_{immediate} = 17.07$, $t_{delayed} = 18.18$; $p < .001$), whereas the means for the utilitarian attributes of the SU cellphone (B) were higher than those of the IU cellphone (D) ($t_{immediate} = 17.43$, $t_{delayed} = 18.05$; $p < .001$).

3.5. Results

The participants' arousal levels using different cellphones were checked before verification of the hypotheses. Compared to the SU model (B), the SH cellphone (A) produced higher arousal levels ($M_A = 6.12$ vs. $M_B = 2.53$; $t = 24.94$, $p < .001$). IU phone users (D) report higher arousal levels than IH phone users (C) ($M_C = 1.73$ vs. $M_D = 5.97$; $t = 30.62$, $p < .001$). As expected, average arousal level and the emotions highly correlate (see Table 4). The results verify that SH benefits induce highly arousing positive emotions (i.e., excitement and cheerfulness), whereas SU benefits induce low-arousal positive emotions (i.e., security and confidence). Similarly, IU benefits generate highly arousing negative emotions (i.e., anger), whereas IH benefits generate low-arousal negative emotions (i.e., dissatisfaction).

The results show that consumers' post-consumption evaluations of differ significantly under immediate and delayed conditions (see Table 4). When delays are imposed, excitement, cheerfulness, and anger increase, but security, confidence, and dissatisfaction decrease. Thus, the analysis supports H1 through H4.

The reported emotions greatly influence both the immediate and delayed loyalty assessments (see Table 5). Excitement and cheerfulness increase word-of-mouth referrals and repurchase intentions for products with SH benefits, even when assessments are delayed. Since security and confidence decrease over time, word-of-mouth and repurchase intentions for products with SU benefits shift downward in the same pattern. However, because dissatisfaction with IH attributes decreases over time, consumer loyalty rose accordingly. The magnified evaluations of anger at IU attributes further erode loyalty during delayed evaluations.

Mediation analyses further examined the indirect effects of a delay on consumer loyalty using bootstrapping procedures (Preacher & Hayes, 2008). Bootstrapping analysis used the current data as the population, randomly drawing samples with replacements and creating 1000 datasets equal to the study sample size. Each dataset generated estimates of the indirect (mediational) effects. These estimates construct confidence intervals to test whether or not each indirect effect differs from zero. As shown in Table 6, the four positive emotions mediated one-half of the relationships between time delay and consumer loyalty, whereas the negative emotions mediate all of the delay–loyalty relationships. Therefore, the results support H7 and H8 but only partially verify H5 and H6.

Table 3
Univariate statistics for cellphone perceptions of hedonic and utilitarian values.

	Products	N	Hedonic Mean (SD)	Utilitarian Mean (SD)
Immediate evaluation	SH (A)	30	8.17 (.79)	6.43 (.93)
	IH (C)	30	4.37 (.92)	6.73 (.82)
	SU (B)	30	6.67 (.80)	8.36 (.72)
	IU (D)	30	6.96 (.89)	4.63 (.93)
Delayed evaluation	SH (A)	30	8.23 (.86)	6.20 (.89)
	IH (C)	30	4.17 (.87)	6.30 (.84)
	SU (D)	30	6.50 (.90)	8.57 (.73)
	IU (D)	30	6.90 (.84)	4.56 (.97)

Table 4
Immediate and delayed evaluations of emotions after using cellphones with varying levels of hedonic and utilitarian attributes.

Products	Emotions	Correlation between arousal and emotions	Immediate Mean (SD)	Half-hour delay Mean (SD)	t
SH (A)	Excitement	.31[a]	5.40 (.72)	5.93 (.87)	2.58[b]
	Cheerfulness	.29[a]	5.47 (.78)	6.13 (.68)	3.54[b]
SU (B)	Security	−.42[a]	5.87 (.94)	5.17 (.99)	2.82[b]
	Confidence	−.33[a]	5.73 (.83)	5.23 (.97)	2.15[b]
IH (C)	Dissatisfaction	−.34[a]	5.67 (.88)	4.90 (1.16)	2.89[b]
IU (D)	Anger	.32[a]	5.27 (.91)	5.73 (.83)	2.09[b]

[a] $p < .01$.
[b] $p < .001$.

3.6. Discussion

Experiment 1's results show that the high-arousal emotions of cheerfulness and excitement caused by SH products strengthen during delayed evaluations. Loyalty is higher for delayed than immediate SH product assessments. Also, higher security and confidence levels caused by SU products diminish during delayed assessments. Consumer loyalty is lower in delayed than immediate SU assessments. Third, greater dissatisfaction with IH products tend to abate gradually in delayed assessments. Loyalty is higher during delayed IH product assessments. Finally, higher anger levels triggered by IU products intensify during delayed assessments. Consumer loyalty is lower in delayed than in immediate post-consumption IH product assessments.

Experiment 1 examines only the post-consumption evaluations of emotions and loyalty at two time points (i.e., immediate and half-hour-delay situations). An interesting issue is whether the evaluation patterns continue over time. Experiment 2 further examines the bias trends with a longer delay in evaluation.

4. Experiment 2: biscuit consumption scenario

4.1. Methodology

In addition to the variables in Experiment 1, the second experiment adds a 24-hour delay to further verify the hypotheses. Experiment 2 features a 4 (hedonic/utilitarian benefits: SH attributes, SU attributes, IH attributes, and IU attributes) × 3 (duration of delay: immediate, half-hour delay, and 24-hour delay) two-factor between-subjects design. This experiment employs a biscuit consumption scenario to test the result's generalizability.

4.2. Pretests, materials, measurements, and procedure

An open-ended questionnaire survey, attribute importance rating, and a focus group identified two important hedonic attributes for the biscuits (degree of crispness and texture) and two important utilitarian attributes (net weight and nutrient elements), with varied levels for each (see Table 7). Like Experiment 1, the design selected four biscuit types with

Table 5
Immediate and delayed evaluations of loyalty after using cellphones with varying levels of hedonic and utilitarian attributes.

Products	Loyalty	Immediate Mean (SD)	Half-hour delay Mean (SD)	t
SH (A)	Word-of-mouth	5.43 (.86)	5.97 (.81)	2.48[a]
	Repurchase intentions	5.17 (.79)	5.70 (.88)	2.47[a]
SU (B)	Word-of-mouth	4.83 (.75)	4.37 (.85)	2.26[a]
	Repurchase intentions	4.50 (.82)	4.07 (.74)	2.15[a]
IH (C)	Word-of-mouth	3.33 (.88)	3.77 (.68)	2.13[a]
	Repurchase intentions	3.07 (.78)	3.50 (.77)	2.15[a]
IU (D)	Word-of-mouth	2.73 (.91)	2.20 (.76)	2.47[a]
	Repurchase intentions	2.40 (.97)	1.60 (.67)	3.71[a]

[a] $p < .001$.

Table 6
Bootstrapping results for indirect effects of time delay on consumer loyalty through emotions (cellphone scenario).

Products	Mediators	Dependent variables	Mean indirect effect estimates	Bias corrected 95% CI	
				Lower	Upper
SH (A)	Excitement	Word-of-mouth	.15[a]	.00	.44
		Repurchase intention	.24[a]	.05	.55
	Cheerfulness	Word-of-mouth	.25[a]	.02	.60
		Repurchase intention	.12	−.08	.36
SU (B)	Security	Word-of-mouth	−.25[a]	−.65	−.05
		Repurchase intention	−.12	−.42	.04
	Confidence	Word-of-mouth	−.06	−.28	.06
		Repurchase intention	−.12	−.34	.02
IH (C)	Dissatisfaction	Word-of-mouth	.34[a]	.13	.66
		Repurchase intention	.37[a]	.13	.67
IU (D)	Anger	Word-of-mouth	−.33[a]	−.68	−.03
		Repurchase intention	−.26[a]	−.52	−.03

[a] The mediating effect is significant.

varying degrees of hedonic and utilitarian benefits (see Table 2). To eliminate the influence of the original branding and packaging, all four types of biscuits were put in identical paper bags with corresponding attribute descriptions. Post-consumption emotional responses, consumer loyalty, and arousal measures were the same as the variables used in Experiment 1.

All participants were undergraduate students. The instructors divided a total of 360 participants into 12 groups of 30 students each. The immediate and half-hour-delay conditions were similar to those in experiment 1. Each participant read the attribute descriptions and tasted of one type of biscuit without seeing the original brand or packaging. After sampling the biscuits, the four groups in the 24-hour-delay evaluation completed the manipulation check section of the questionnaire, but not the emotional response assessment and loyalty evaluation. These four groups returned to the lab to complete the experiment on the following day, at the same time and in the same seats. The second day, the instructors asked them to conduct the emotional and loyalty assessments of the biscuits they had eaten the day before. After completing the questionnaire, they were debriefed and dismissed.

4.3. Manipulation checks

Manipulation checks also used the HED/UT scale (Voss et al., 2003) to measure the participants' perceptions of the biscuits. Results indicate that both manipulations of hedonic and utilitarian benefits were successful. On a scale of 1 to 10 (10 being the highest), the participants reported averages of eight for those benefits they considered superior, and of three to four for those attributes they considered inferior; the moderate levels fell between five and six (see Table 8).

4.4. Results

ANOVA results show that consumers' post-consumption evaluations of their emotions significantly differ between immediate and delayed conditions (see Table 9). Excitement, cheerfulness, and anger increase over time, whereas security, confidence, and dissatisfaction gradually diminish. In terms of pair-wise comparison, all p-values of Tukey's HSD tests are less than 0.05. Thus, the analysis supports H1 through H4.

The immediate and delayed loyalty assessments demonstrate trends corresponding to the emotional evaluations (see Table 10). For products with superior and inferior hedonic attributes, longer delays increase word-of-mouth and repurchase intentions; however, while longer delays for products with superior and inferior utilitarian attributes decrease these actions. All p-values of Tukey's HSD pair-comparison tests are less than 0.05.

As in Experiment 1, bootstrapping procedures tested the emotions' mediating effects. Table 11 shows most emotions mediate the relationships between time delay and consumer loyalty (i.e., word-of-mouth and repurchase intention). Exceptions are excitement and cheerfulness. These results verify H6 through H8 and partly support H5.

4.5. Discussion

Experiment 2 extends and confirms the research hypotheses in a scenario of biscuit consumption, enhancing this study's external validity. This study also finds that the extent to which the evaluations of emotions change based on delay is greater as time passes.

Highly influenced by emotions, consumer loyalty moves in a corresponding pattern. Longer delays increase word-of-mouth and repurchase intentions for products with superior and inferior hedonic values. On the other hand, delays decrease word-of-mouth and repurchase intentions for SU and IU products.

5. General discussion and managerial implications

These two experiments confirm consumer loyalty is a dynamic process dictated by the emotions evoked by the products. Post-consumption emotions mediate the relationship between time delay and consumer loyalty. Specifically, this study's four major findings clearly illustrate this process for different product attributes and attribute

Table 7
Descriptions of selected hedonic and utilitarian attributes for different levels (biscuit scenario).

	Levels		
	High	Moderate	Low
Hedonic attributes			
Degree of crispness	Good	Medium	Poor
Texture	Good	Medium	Poor
Utilitarian attributes			
Net weight	200 g	150 g	100 g
Nutrient elements	3	2	1

Table 8
Univariate statistics for perceptions of hedonic and utilitarian values of biscuits.

	Products	N	Hedonic Mean (SD)	Utilitarian Mean (SD)
Immediate evaluation	SH (A)	30	8.33 (.96)	5.67 (.80)
	IH (C)	30	3.70 (1.06)	5.90 (.80)
	SU (B)	30	5.80 (.71)	8.43 (.86)
	IU (D)	30	5.60 (1.00)	3.30 (1.09)
Half-hour delayed evaluation	SH (A)	30	8.27 (1.05)	5.43 (1.07)
	IH (C)	30	3.13 (1.11)	5.20 (.92)
	SU (B)	30	5.53 (.82)	8.37 (.89)
	IU (D)	30	5.47 (.90)	3.33 (.96)
24-hour evaluation delayed	SH (A)	30	8.07 (.98)	5.30 (.88)
	IH (C)	30	3.13 (.90)	5.27 (.83)
	SU (B)	30	5.43 (.82)	8.13 (.94)
	IU (D)	30	5.70 (1.02)	3.27 (1.08)

Table 9
Immediate and delayed evaluations of emotions after consuming biscuits with varying levels of hedonic and utilitarian benefits.

Products	Emotions	Correlation between arousal and emotions	Immediate Mean (SD)	Half-hour delay Mean (SD)	24-hour delay Mean (SD)	*F*
SH	Excitement	.70[b]	5.47 (1.01)	6.00 (.74)	6.53 (.63)	13.04[c]
	Cheerfulness	.64[b]	5.30 (.88)	5.93 (.78)	6.43 (.68)	15.73[c]
SU	Security	−.13[a]	5.50 (1.17)	4.77 (1.25)	4.03 (1.07)	11.91[c]
	Confidence	−.11[a]	5.37 (.93)	4.63 (1.21)	3.97 (1.00)	13.21[c]
IH	Dissatisfaction	−.35[b]	5.43 (1.14)	4.43 (.90)	3.83 (.83)	21.08[c]
IU	Anger	.23[b]	5.27 (.78)	5.80 (.85)	6.33 (.84)	12.51[c]

[a] $p < .05$.
[b] $p < .01$.
[c] $p < .001$.

values. SH products elicit excitement and cheerfulness. These emotions become stronger over time, so consumer loyalty trends upward. SU products induce confidence and security. Over time, intensity fades so consumer loyalty trends downward. IH products lead to dissatisfaction which dissipates in memory. For IH products, low-level consumer loyalty trends upward. Finally, IU products generate feelings of anger, which grow with time. Consumer loyalty trends downward for IU products.

These long-term trends in the delayed evaluations of emotions and consumer loyalty deserve attention. The present research's results demonstrate delays of just 24 h show clear trends. What trends would emerge for SH products after several weeks? Would emotions keep increasing, level off, or begin to decline?

Prior research suggests the recollection of past emotions depends on an individual's current emotional status (Levine & Pizarro, 2004; McFarland, Ross, & DeCourville, 1989). Beliefs regarding whether or not the earlier status differs from the present status also depend on the informant's present state of mind (McFarland et al., 1989). If an individual believes the two statuses are consistent, she or he adopts a theory of stability. Past emotional memory reconstructs to become similar to the present status. Otherwise, she or he adopts a theory of change and reconstructs a previous memory quite different from the present status. Although most people incorrectly recall their earlier high-arousal emotions, they believe the prior emotions differ from their current state. Therefore, recalled memories of emotions and customer loyalty exist at higher SH levels and lower IU levels. On the other hand, low-arousal emotions vanish quickly after the events. People likely believe that their prior emotions are similar to their current emotions. Emotion and customer loyalty evaluations in the SU and IH conditions tend to approach a neutral level in the long run.

This study expands the scale of singular, individual post-consumption emotions and consumer loyalty evaluations. Study results show how delays affect consumer behavioral dynamics. Based on the accessibility model of emotional self-reporting (Robinson & Clore, 2002), the results verify the existence of recall bias during memory restructuring (Hsee & Hastie, 2006) that ultimately triggers a bias in consumer loyalty. This study builds a foundation for future studies on consumer loyalty dynamics.

Related studies on emotional recall also confirm that consumer emotions either intensify or weaken over time (Aaker et al., 2008; Ramanathan & Williams, 2007). Nevertheless, these studies have yet to specifically pinpoint time-driven emotional effects and patterns. The neuropsychological literature (e.g., McGaugh, 2004) informs the present study to address this gap. Findings show that high-arousal emotions persist in consumer memories and intensify and low-arousal emotions weaken over time.

Study results apply to customer relationship management (CRM) and product failure recovery. First, companies can invite evaluations and referrals from consumers at different times based on the product's attributes to maximize consumer loyalty evaluations and to stimulate effective word-of-mouth referrals. Since positive emotions toward products with higher utilitarian value tend to wane over time, companies marketing those products should invite consumer evaluations and encourage product recommendations soon after consumption. On the other hand, positive emotions toward high hedonic value products likely intensify over time, practitioners should invite evaluations and recommendations at a carefully chosen point after consumption.

Second, companies can summarize a consumer's emotional status based on the product's attributes and then resolve the negative response or set marketing priorities accordingly. For instance, suppose the company receives complaints from two individual consumers, one bought a hedonic product and the other bought a utilitarian product. The first customer's negative emotions should abate time. The second customer's anger is because the product fails to meet utilitarian expectations.. Such anger will exacerbate if customer service does not act promptly to restore customer satisfaction. The company should make the second customer a top priority and conduct damage control accordingly to minimize any negative impressions resulting from product failure.

Table 10
Immediate and delayed evaluations of loyalty after consuming biscuits of varying levels of hedonic and utilitarian benefits.

Products	Loyalty	Immediate Mean (SD)	Half-hour delay Mean (SD)	24-hour delay Mean (SD)	*F*
SH	Word-of-mouth	5.37 (.89)	5.90 (.76)	6.43 (.82)	12.58[a]
	Repurchase intentions	5.07 (.78)	5.57 (.77)	6.10 (.84)	12.46[a]
SU	Word-of-mouth	4.87 (.94)	4.27 (.74)	3.73 (.78)	14.90[a]
	Repurchase intentions	4.63 (.76)	4.10 (.80)	3.60 (.72)	13.28[a]
IH	Word-of-mouth	2.70 (.88)	3.20 (.71)	3.70 (.70)	12.70[a]
	Repurchase intentions	2.43 (.68)	2.96 (.81)	3.47 (.86)	12.96[a]
IU	Word-of-mouth	2.27 (.78)	1.80 (.76)	1.33 (.61)	12.54[a]
	Repurchase intentions	2.07 (.69)	1.67 (.55)	1.27 (.45)	14.70[a]

[a] $p < 0.001$.

6. Limitations and further research

Several limitations should be addressed. First, the participants in each experiment were undergraduate students. Scholars studying consumer behaviors and follow-up issues have sampled this particular group extensively (Lynn & Lynn, 2003), so this study arguably would benefit from surveying a more diverse group of participants.

Table 11
Bootstrapping results for indirect effects of time delay on consumer loyalty through emotions (biscuit scenario).

Products	Mediators	Dependent variables	Mean indirect effect estimates	Bias corrected 95% CI	
				Lower	Upper
SH	Excitement	Word-of-mouth	.25[a]	.14	.40
		Repurchase intention	.09	−.03	.24
	Cheerfulness	Word-of-mouth	.11	−.03	.30
		Repurchase intention	.24[a]	.06	.46
SU	Security	Word-of-mouth	−.20[a]	−.34	−.10
		Repurchase intention	−.14[a]	−.27	−.06
	Confidence	Word-of-mouth	−.12[a]	−.26	−.03
		Repurchase intention	−.17[a]	−.31	−.07
IH	Dissatisfaction	Word-of-mouth	.32[a]	.12	.54
		Repurchase intention	.34[a]	.19	.56
IU	Anger	Word-of-mouth	−.27[a]	−.42	−.16
		Repurchase intention	−.20[a]	−.35	−.12

[a] The mediating effect is significant.

Appendix A

Study measurement items

Hedonic/utilitarian scale (Voss et al., 2003)										
"Please rate the _____ (attribute or product) according tothe following feelings."										
Hedonic dimension										
Not fun	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Fun
Dull	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Exciting
Not delightful	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Delightful
Not thrilling	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Thrilling
Unenjoyable	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Enjoyable
Utilitarian dimension										
Ineffective	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Effective
Unhelpful	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Helpful
Not functional	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Functional
Unnecessary	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Necessary
Impractical	1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9 :	10 Practical

Positive/negative emotions (Mano and Oliver, 1993; Chitturi et al., 2008)							
"Based on the overall experience of using (tasting) the_____ (product), you feel…"							
	Not at all						Extremely
Dissatisfaction	1	2	3	4	5	6	7
Anger	1	2	3	4	5	6	7
Security	1	2	3	4	5	6	7
Confidence	1	2	3	4	5	6	7
Excitement	1	2	3	4	5	6	7
Cheerfulness	1	2	3	4	5	6	7

Arousal (Mehrabian and Russell, 1974)								
"Given the attributes the _____ (product) has and the overall usage (tasting) experience, you feel…"								
Relaxed	1 :	2 :	3 :	4 :	5 :	6 :	7	Stimulated
Calm	1 :	2 :	3 :	4 :	5 :	6 :	7	Excited
Dull	1 :	2 :	3 :	4 :	5 :	6 :	7	Jittery
Unaroused	1 :	2 :	3 :	4 :	5 :	6 :	7	Aroused

Consumer Loyalty (Jacoby and Chestnut, 1978)						
"Based on the experience with the _____ (product), how likely are you to recommend this phone to others?" (word-of-mouth)						
Not at all likely						Extremely likely
1	2	3	4	5	6	7
"Based on the experience with the _____ (product), would you repurchase the same phone?" (repurchase intention)						
Not at all likely						Extremely likely
1	2	3	4	5	6	7

Second, this study uses short delays. Future research should investigate time delays of different lengths. The current study uses a between-subject experimental design to avoid possible carryover effects and demand effects, which may affect the data because of the two relatively short delays (30 min and 24 h). Future studies should adopt a within-subject design for longer delays (e.g., one or two weeks) to investigate how post-consumption emotions and loyalty change.

Third, the current study only covers positive referrals because the incidence of positive word-of-mouth is three times that of negative word-of-mouth (East, Hammond, & Wright, 2007). Negative emotions may not necessarily cause complaining behavior (Yu & Dean, 2001). Prior studies show negative word-of-mouth is often more influential than positive word-of-mouth (Arndt, 1967; Assael, 2004). Further investigations could include this construct, especially when considering negative emotions' effects on consumer loyalty.

Consumer emotions, consumer loyalty, and post-consumption behaviors are at the forefront in marketing studies. Future investigations could use as research variables other loyalty dimensions such as emotional loyalty, behavioral loyalty, and attitudinal loyalty. Finally, this study includes only tangible products in the experiments. Does consumer loyalty to service-oriented offerings yield the same findings?

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