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The role of frequency of experience with a product category and temporal orientation in self-referent advertising

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Abstract

Previous research conceptualized consumers' evaluations of self-referent advertisements as discrete episodic processing instances requiring the ad-hoc matching of ad and personal knowledge detail. The present research proposes that consumers with frequent (infrequent) experiences in a product category are primarily semantic (episodic) processors. Consequently, consumers with frequent experiences have an illusion of detail matching in retrospective self-referencing resulting from schema-driven memory intrusions induced by highly detailed ads. Alternatively, consumers with infrequent experiences exhibit intrusions in anticipatory self-referencing due to imagination inflation prompted by these ads. Two experiments demonstrate how consumer knowledge-based details interact with message details in retrospective and anticipatory self-referencing situations to alter ad evaluations depending on the extent of prior experience.

Keywords: Self-referencing; Familiarity; Memory intrusions

A common advertising technique encourages viewers to process ad information in relationship to specific aspects of their selves, such as their traits and experiences (Burnkrant & Unnava, 1995). Promotional campaigns such as Mocha Kiss Coffee's "You'll always remember your first kiss," Disney's "Remember the Magic," Ford Corporation's "Imagine yourself in a Mercury," and Samsung's simple "Imagine…" exemplify various attempts at getting consumers to process ads by relating them to the self. The self-related elaboration of advertising information is presumed to result in both more positive evaluations and superior recall thereof (Debevec & Romeo, 1992). The usual explanation for the self-reference effect is that the knowledge structure of one's self is abundant and includes many favorable associations that can be related to incoming information (Bosmans, Van Kenhove, Vlerick & Hendricks, 2001). In marketing, advertisers expect to benefit when consumers relate the product information furnished in the ad to positive personal aspects of their lives.

Extant consumer research has found that self-referencing significantly impacts both recall of information and evaluations of advertised products (Baumgartner, Sujan & Bettman, 1992). Recent efforts that focus on moderating variables and process mechanisms (Bosmans et al., 2001; Krishnamurthy & Sujan, 1999; Meyers-Levy & Peracchio, 1996) have furthered our understanding of self-referencing in response to persuasive messages. The present research identifies consumer frequency of experience in the product category as another moderating condition for self-referencing effects in marketing communications and proposes memory intrusions as a parsimonious explanation for its impact. We explain how knowledge organization and the temporal perspective employed in self-referencing (as related to the episodic and temporal dimensions of the self, respectively) jointly contribute to consumers' specific response to self-referent ads.

To illustrate the topic in practical terms, consider the following two TV advertisements for a particular Caribbean destination—say Aruba—during a show on the Travel Channel. One ad without much detail simply asks the viewer to remember

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laying on a beach in the Caribbean at some point in the past and enjoying the warmth of the sun. The other uses a lot more detail and prompts consumers to recall a specific day on a Caribbean beach, when lying on the sand with a piña colada in hand, a cruise ship sailed in the distance and a large iguana slowly passed by. The audience watching the show is likely to include both seasoned and neophyte Caribbean travelers. If you are in the seasoned group, your extensive travel experience has created a very detailed and comprehensive schema of what sitting on a Caribbean island beach entails. For you, the high-detail ad is likely to elicit matching pleasant memories and thus more favorable attitudes: it is plausible that—among the numerous beach episodes of your past—the scenario described happened (even if it did not). However, the low-detail ad does little for you, as there is simply not enough detail in the ad to personally resonate with you. On the other hand, if you are an infrequent Caribbean traveler, the detailed ad is likely to clash with your personal memories: no, that scenario has definitely not happened to you. However, simply lying on the beach (as the low-detail ad suggested) has likely happened to you once or twice and the warmth of the sun did feel good.

Now consider a different pair of thematically similar TV commercials. First, one ad for Aruba suggests that the viewer imagine (instead of remember) laying on a beach in the Caribbean at some point in the future and enjoying the warmth of the sun. The other, more detailed ad asks you to imagine sitting on the sand, the piña colada, the cruise ship, and the iguana. What are the likely reactions of the two types of consumers to these anticipatory self-referent advertisements? If you are a seasoned traveler, the high-detail ad may cause some reactance: for you, enjoying the beach sun involves a hammock, beer, and colorful parrots instead. The low-detail ad is better, as it allows you to imagine the fun Caribbean beach outing in whatever way resonates with you. Alternatively, if you are an infrequent traveler, you need help imagining what a day on a Caribbean beach feels like. Thus, you will appreciate the high-detail ad more than the low-detail one.

Conceptually, the retrospective–anticipatory distinction is akin to that between factual information (past) and fictional ideals (future). The detailed retrospective advertisement is in fact asking consumers whether the described scenario is similar to one of their experiences. For the seasoned consumer with a broad distribution of such episodes, the response is more likely to be positive than for the infrequent consumer of the product or service. The detailed anticipatory ad on the other hand is asking whether the advertised scenario is similar to an experience that they would like to have. Here, the infrequent consumer's response is more likely to be positive than the seasoned consumer's. To summarize, described ad detail is the experienced reality under retrospection but is the ideal to achieve under anticipation. Thus, ad detail is more functional for high frequency of experience consumers under retrospection and more functional for low frequency consumers under anticipation.[1]

[1] We thank the Associate Editor for this intuitive and helpful way to summarize our conceptual account.

The frequency-temporal orientation distinctions and the match with personal experience are important (see Gershoff, Mukherjee & Mukhopadhyay, 2003). Making indiscriminate use of self-referent advertising to approach consumers can backfire if careful targeting is not pursued. Creating reactance among individuals with a long history of category purchases can mean losing them (and their lifetime value) to competition. On the other hand, not helping infrequent category buyers make sense of the product can put them off and prevent the firm from expanding market share.

The manuscript begins by distinguishing two dimensions of the self, temporal and episodic. This is followed by considering memory and imagery-based roles of self-referencing in the persuasion process. Two experiments then assess how consumer knowledge-based detail interacts with message details in retrospective and anticipatory self-referencing situations. In study 1, we find that individuals with more (less) frequent experiences with the product category tend to have a detailed (limited) schema of their self-product interactions, a fact that leads to semantic (episodic) processing of ad stimuli. This results in a three-way interaction of ad detail, temporal orientation, and consumer frequency of experience in the product category. In study 2, we identify the proposed processing mechanism underlying differential consumer response to self-referent ads: the experience of memory intrusions that are incorrectly assumed to come from personal experience.

Conceptual background and hypotheses

The temporal dimension of the self

Self-knowledge is organized around specific contexts of one's life. When talking about the self, only a subset of context-specific identities will be momentarily active in cognition. Accordingly, the accessibility of self-knowledge may derive from contextual cues or momentary priming in the immediate environment (Linville & Carlston, 1994). When these information cues are positioned along the time axis, past and future accounts of the self describe what cognitive researchers have termed *the temporal dimension of the self* (cf. Krishnamurthy & Sujan, 1999).

Along these lines, consumer research has addressed two advertising-related forms of self-referencing: retrospective and anticipatory. Retrospective self-referencing invites consumers to reminisce about past personal brand experiences, whereas anticipatory self-referencing encourages consumer-originated imagination exercises that promote favorable self-brand associations. Krishnamurthy and Sujan (1999) analyzed the role that contextual ad detail plays for each method of self-referencing. They contend that both retrospective and anticipatory cases involve a self-referencing mechanism indissolubly linked to a memory matching effort on the consumers' part—particularly of the episodic memory variety. To test this view, Krishnamurthy and Sujan (1999) manipulated the temporal orientation of consumers' thoughts by requiring them to either imagine or remember their experience with an exotic, Caribbean vacation. Subsequently, participants attended to an advertisement

promoting such a vacation, varying whether the message was presented in a contextually detailed or impoverished manner. The results showed that the high-detail message was detrimental to retrospective attempts at self-referencing, presumably because of the high likelihood of memory-ad detail incongruity. This problem was not evident for the low-detail ad. Conversely, the anticipatory attempt at self-referencing was impeded by the use of a low-detail ad, presumably because of consumers' difficulty in engaging in an ad detail-guided imagination exercise. This problem was attenuated in the high-detail ad condition.

In presenting their account of the moderating role of ad detail, Krishnamurthy and Sujan (1999) state that it is important to explicitly consider not only the type of self-referencing encouraged by the self-referent ad but also the one most likely to be used by the consumer. In suggesting likely individual differences in self-referencing, the authors identify possible moderating variables such as consumer expertise. Furthermore, recent research suggests that the ease with which individuals self-reference may be another important factor to consider and that based on it self-referencing effects (in particular of the imagination variety) may sometimes backfire (Petrova & Cialdini, 2005). These points motivated the current work, which proposes that the detail matching account mentioned above is qualified by addressing individual differences in terms of match likelihood. Krishnamurthy and Sujan (1999) essentially argue that thinking about *oneself as having been a brand user* versus *oneself as potentially being a brand user* entails distinct reference points that differentially guide consumer information processing. We extend this view by proposing that these temporal-driven variations in cognition patterns are further compounded by an episodic-semantic dichotomy of knowledge organization.

The episodic dimension of the self

A relatively simple way of contrasting episodic and semantic memory is in terms of their elementary functions: episodic memory is concerned with *remembering*, whereas semantic memory is concerned with *knowing* (Tulving, 1993). Episodic processing takes the form of "mental travel through subjective time" (Tulving, 1993), accompanied by a special kind of awareness (*autonoetic*, or self-knowing). Semantic knowing on the other hand takes the form of thinking about what is, was or could be in the world; it is accompanied by another kind of awareness (*noetic*, or knowing). When one recollects an event autonoetically, one re-experiences aspects of a past experience, whereas when one recalls a fact learned in the past re-experiencing of the learning episode[s] is not necessary (Tulving, 1993). In cognitive psychology, Conway and Pleydell-Pearce (2000) present a similar dichotomy under the labeling of "event-specific knowledge" and "general events," respectively. The former type of knowledge is more difficult to access with age (when multiple episodic memories accumulate and can create confusion), whereas recall of the latter is not similarly impaired (Levine, Svoboda, Hay, Winocur & Moscovitch, 2002).

Consumer research also informs us as to what types of consumers are likely to re-experience specific episodes versus recall generic facts. When dealing with self-related memories, the accessibility of behavioral information has been shown to be influenced by two dimensions: the regularity and similarity of individual behaviors (Menon, 1993). In terms of regularity, it is intuitive that a consumer with infrequent consumption experiences in a product category is likely to have stored these few experiences as individual occasions that are available for recall as episodic information (cf. Menon, 1993). However, consumers with frequent consumption experiences in the category are less likely to be able to recall specific episodes out of a wide distribution of such occasions (which are also highly similar within the same product category) and will have to resort to accessing their available semantic information (i.e., schema) for that product consumption experience. For brevity purposes, we will term the two categories "frequent" and "infrequent consumers," respectively. Formally put:

H1. When processing self-referent advertising, frequent consumers are more likely to engage in semantic processing, whereas infrequent consumers are more likely to engage in episodic processing of self-related information.

In jointly considering the temporal and episodic dimensions of the self and their role in self-referent processes, one may wonder what episodic or semantic future thinking would entail. This is exactly what cognitive researchers Atance and O'Neill (2001) addressed in their work, positing that—just as is the case with retrospective thought—thinking about the future also involves generalized (semantic) or specific (episodic) modes of processing, with different impact on behavioral outcomes. They argue that, when faced with planning a task for the first time (low task familiarity), one is likely to engage in episodic future thinking, whereas for routine planning (high task familiarity) semantic future thoughts will be processed (Atance & O'Neill, 2001).

The interaction of amount of ad detail and the temporal orientation of the ad should consequently be observed for infrequent consumers but the pattern of this interaction should reverse for frequent consumers of the product category. The former group will find that high ad detail complicates episodic processing when considering their limited past experiences but is useful when imagining the future. On the other hand, the processing mode of consumers in the latter group makes use of their detailed existing schema and thus can accommodate all of the ad-suggested details. However, more self-generated knowledge prompted by detailed retrospective ads will be beneficial for frequent consumers' attitudes (as it elicits multiple self-brand concordant thoughts from memory), whereas detailed anticipatory ads that are unlikely to allow for any self-generated imagination will attempt to guide imagery in ways that may not fit the consumer (by eliciting multiple self-

Table 1
Hypothesized effects of ad temporal orientation and amount of detail on consumer attitudes.

	Retrospective self-ref		Anticipatory self-ref	
	Low detail	High detail	Low detail	High detail
Low Frequency of Experience Consumers	+ (few self-brand discordant thoughts) *It wasn't exactly like that, but mostly so.*	− (multiple self-brand discordant thoughts) *Most of that did not happen to me.*	− (few self-brand concordant thoughts) *Can't quite imagine it.*	+ (multiple self-brand concordant thoughts) *Now I can imagine it and it looks good.*
High Frequency of Experience Consumers	− (few self-brand concordant thoughts) *This is not even close to all that this entails.*	+ (multiple self-brand concordant thoughts) *Yes, all of that has happened to me.*	+ (few self-brand discordant thoughts) *I can imagine it and it looks good.*	− (multiple self-brand discordant thoughts) *This is not the way I like to imagine it.*

brand discordant thoughts), and will thus not help attitudes. Table 1 describes the predicted effects.[2] Formally put:

H2. The self-referent advertisement's temporal orientation, its amount of detail, and the consumer's frequency of experience in the product category will interact, such that:

(a) for infrequent consumers, high (low) advertisement detail will lead to more favorable attitudes in the anticipatory (retrospective) condition; and
(b) for frequent consumers, high (low) advertisement detail will lead to more favorable attitudes in the retrospective (anticipatory) condition.

The memory intrusions account

Our theoretical framework argues that frequent consumers self-reference retrospective and anticipatory advertisements in a manner distinct from consumers with infrequent experiences in the promoted brand's category. To further demonstrate that the differential effect of frequency of experience is due to the dichotomy of episodic versus semantic processing, specific theoretical accounts of memory encoding and retrieval errors from cognitive psychology are reviewed next. They show how individuals often claim to recall impossible past experiences and to believe that something has occurred just because it was imagined at some point.

[2] We asked 212 subjects how they would feel (1 = would not like it at all, 7 = would like it a lot) if an advertiser told them to remember/imagine something they knew little/a lot about and gave them a lot of detail on how to do it. Being given details on what to remember was appreciated if subjects had topical knowledge but not if they lacked it (4.12 versus 3.82, $t(211)=2.63$, $p<.01$). Alternatively, being given details on what to imagine was appreciated if subjects lacked topical knowledge but not if they had it (4.30 versus 3.92, $t(211)=3.28$, $p<.001$).

Recall

Cognitive psychology research has shown that memory is constructive and its retrieval mechanisms are imperfect, commonly suffering from biases, distortions, and intrusions. The associative view of memory (McClelland & Rumelhart, 1986) as a network of connected nodes includes the concept of retrieval paths—the routes allowing for the recovery of previously acquired knowledge from long-term storage. However, the very same connections can also serve as sources of memory errors, as the interweaving of new information and prior knowledge has the potential to create confusion, leading to recall mistakes (Reisberg, 1997). The most extreme case is that of remembering things that never took place, intrusions that often display full (but unwarranted) confidence. Loftus (1997) demonstrated the emergence of such false memories in the case of events that supposedly occurred during subjects' childhood and which—while plausible per se (e.g., meeting Bugs Bunny at Disneyland)—were in fact made up and factually impossible.

Both accurate and inaccurate source attributions can occur from heuristic processes that evaluate a mental experience for qualities such as amount and type of perceptual, contextual, affective, and cognitive texture, as well as from more reflectively complex processes that retrieve supporting or disconfirming evidence and evaluate plausibility given general knowledge, schemas, assumptions, and biases. Pezdek, Finger and Hodge (1997) proposed that the success of planting false childhood memories will vary along the event plausibility dimension. The moderating role of this variable is conceptually explained by a schema-based account, which argues that the likelihood of subjects' taking ownership of a suggestion for a false childhood event increases whenever they possess relevant mental schemas for such events. The authors concluded that a well developed schema addressing an event is the *sine qua non* for developing related false memories.

Menon's (1993) work is consistent with this account. Since the frequent occurrence of a relatively similar product consumption episode will create a related mental schema,

"given the homogeneity of the different occurrences, it is likely that semantic information is more accessible" for these consumers (Menon, 1993, p. 432) than episodic data. In other words, asking frequent consumers to recall the details of a specific product interaction instance will bring about responses that are constructed ad-hoc and, while having applied to some of the episodes, they need not have applied to the specific one being evaluated. Thus, although it is likely that frequent consumers will be quite confident that they can recall a specific episode, when trying to do so they will in fact experience memory intrusions produced by their readily available semantic information.

Schema theory research finds that errors in memory tend to support the schema rather than contradict it. Individuals are particularly inclined to falsely remember that schema relevant material has been presented when it has not (e.g., Castel, McCabe, Roediger & Heitman, 2007; Sherman & Bessenoff, 1999). People also show a relative inability to discriminate presented from non-presented material that is relevant to a general knowledge structure (Woll & Graesser, 1982). Reisberg (1997) adeptly summarized the issue: "intrusions from prior knowledge require that you *have* the prior knowledge […and] ignorance about the to-be-remembered material can actually protect you from intrusion errors" (p. 229).

Braun's consumer behavior studies are relevant and congenial to this view. Investigating whether advertising can change our memories of the past, she and her colleagues (Braun, Ellis & Loftus, 2002) showed that, much like hypnosis, self-referent promotional messages allow the consumer to become highly involved with the product and be guided by the marketer's message in terms of the specific past memory recalled.

Imagery

Garry, Manning, Loftus and Sherman (1996) provide an interesting account combining the autobiographical and imaginative aspects of the self. They show that when adult subjects imagined childhood events, these events were subsequently judged as more likely to have occurred than events that were not imagined. The authors termed this effect *imagination inflation* (Garry et al., 1996).

In general, people increase their likelihood estimates for specific events after imagining related self-referent scenarios (Gregory, Cialdini & Carpenter, 1982). The underlining reasoning has to do with the availability heuristic, which impacts both probability judgments and subsequent behavior. According to the availability-valence hypothesis (Kisielius & Sternthal, 1986), consumers asked to imagine their experience with a product are more likely to elaborate on the product information and self-generate either positive or negative arguments. Depending on the favorability of the accessible cues, product evaluations can improve or worsen. The imagery accessibility account (Petrova & Cialdini, 2005) further argues that imagery produces readily available mental images of the consumption experience and that consumers' attitudes depend on the ease with which such images come to mind. These accounts strongly suggest the plausibility of individuals' appropriating imagination-originated memories.

Finally, recent consumer research by Lakshmanan and Krishnan (2009) argues that, in general, "imagery-driven consumption contexts are more likely to exhibit false memory" and that "imagery, as a style of thinking, causes false memory to be more likely" (pp. 460).

These findings must be qualified, however, by other research on imagination and the frequency dimension. In terms of differences in types of consumer processing of product information, knowledgeable individuals have been found to "look beyond the obvious" and rely on schematic knowledge, discounting to some extent salient (i.e., ad-originated) facts (Mitchell & Dacin, 1996). Experts emphasize thus information that novices would find of limited relevance (or not even have access to because of lacking the appropriate schema) at the expense of information that novices would find highly relevant such as specific, *facsimile* advertisement detail (cf. Mitchell & Dacin, 1996). This account is complemented by cognitive psychology results suggesting that imagined self-referent events are relatively frequently rehearsed (Johnson, Foley, Suengas & Raye, 1988), a process that augments the disparity between the two groups: while experts are confined to re-experiencing their generic schema, novices keep exercising the ad-suggested information and with time take ownership of it due to source memory confusions (Loftus, 1997).

Foley and Johnson (1985) tested imagery's role in memory confusion among children and adults. They found that, compared to adults, children had particular trouble distinguishing what they did from what they imagined doing, across a wide range of activities. Proposing that memory representations of internal and external events hold the key to these differences, the authors argue that perhaps "there is a general tendency, with age, for imagination to become more schematic" (Foley & Johnson, 1985). Similar conclusions are reached by subsequent cognitive research, which posits that age is inversely related to imagination inflation (Garry & Polaschek, 2000). In an appealing conceptual parallel to these findings, we propose that the child-adult dichotomy is quite similar to that separating infrequent from frequent consumers. Imagination inflation after exposure to self-referent imagery would therefore be expected to occur more for individuals lacking the schema relevant to the imagined activity than for people who possess such generic knowledge.

Based on the conceptual accounts reviewed above, we propose that under retrospective self-referencing more memory intrusions should occur for frequent consumers as a plausible event makes schema-based intrusions likely (in particular if the ad provides sufficient detail that can be accommodated with previous experience), whereas under anticipatory self-referencing more intrusions should occur for infrequent consumers as imagination inflation errors are more likely for inexperienced individuals (in particular if the ad provides sufficient detail that can be employed in the imagination exercise for those lacking personal experience). The processes underlying consumer response to self-referent advertising thus involve intrusions/elaborations from memory for high frequency consumers under

high detail and retrospection and intrusions/elaborations directly from the ad (imagination inflation) for low frequency consumers under high detail and anticipation. Formally put:

H3. The self-referent advertisement's temporal orientation, its amount of detail, and the consumer's frequency of experience in the product category will interact, such that:

(c) for infrequent consumers, high (low) advertisement detail will produce more memory intrusions in the anticipatory (retrospective) condition; and
(d) for frequent consumers, high (low) advertisement detail will produce more memory intrusions in the retrospective (anticipatory) condition.

A related point to the present theoretical argument refers to the conceptual linkage between memory intrusions patterns and subsequent consumer attitudes. Along these lines, Sujan, Bettman and Baumgartner (1993) found that the retrieval of autobiographical memories (characteristic of self-referent processing) changes consumers' thoughts by placing the emphasis on personal memories and away from product/ad information. Furthermore, the authors find that, in a persuasion context, pertinent (i.e., advertisement- and product-focused) evaluative judgments require satisfying two simultaneous conditions: first, a self-related knowledge structure (in our terminology, a relevant self-schema) and second, a target stimulus closely linked to that structure (in our terminology, a relevant self-product interaction schema). In the absence of both these elements (e.g., for consumers lacking experience with the product category promoted in the ad), memory-based evaluations occur, and subsequent ad and brand judgments are biased by potential memory-suggested intrusions. Whereas these intrusions are differentially likely to occur due to the presence or absence of relevant schemata, the psychological literature previously discussed argues that these patterns are also likely to differ along the ad's temporal orientation dimension. These memory intrusions will translate thus into an illusion of cognitive resource ownership that is ad-induced (i.e., the [falsely] resonating personal memories will be in fact "planted" via the information presented in the advertisement, leading to favorable responses toward it). Consumers' attitudes toward both the ad and the brand are therefore proposed to closely follow the pattern described by these intrusions. Formally put:

H4. Memory intrusions will mediate consumer attitudes in self-referent advertising.

Study 1

Method

The first experiment employed a design similar to that of Krishnamurthy and Sujan (1999), while also bringing to bear the role of consumers' processing type (i.e., episodic or semantic, based on product category frequency of experience). It employs a 2×(temporal orientation: retrospective/anticipatory self-referent advertisement)×2 (amount of ad detail: low/high)×2 (frequency of experience: low/high, measured) between subjects factorial design.

Participants and procedure

Self-reported frequency of experience data on 15 product and service categories (including vacations in Florida) were collected from 501 undergraduate students in an introductory marketing course at a major West Coast university who participated in the experimental session in return for course credit. Subsequently, they performed several filler tasks and then attended to a computer-based version of a print ad that—via both words and pictures—encouraged them to either remember or imagine details of their own Florida vacation. The low-detail advertisement included a single photo featuring a shell in the sand of a generic ocean beach on a sunny day and a remember/imagine verbal reference to it. Besides this, the high-detail version of the advertisement also included photos and verbal references to a variety of beach vacation activities (e.g., ocean sailing, beach volleyball, and nightlife fun). Dependent measures were subsequently collected and participants were finally debriefed, thanked, and dismissed.

Pretest

Ninety-four respondents from the same subject population as the main experiment confirmed the ad detail manipulation to be reliable. On a scale of 1 through 7, the low-detail ad was rated as significantly less detailed than the high-detail version ($M_{\text{lo-detail}}=3.10$ and $M_{\text{hi-detail}}=5.20$, $t(93)=-4.50$, $p<.001$).[3] Pretest participants were also requested to describe the thoughts elicited by the ad along the dimensions of their choice. The critical dependent measure for this task was whether or not respondents provided cognitive responses of the episodic or the semantic variety. In order to classify these protocols, a coding procedure was developed by adapting the classification scheme used by Haque and Conway (2001). The three protocol and thought classes were: (1) protocols with event-specific knowledge (Conway & Pleydell-Pearce, 2000) were classified as *specific episodic memories*, (2) protocols without event-specific knowledge or general events which clearly did not refer to single events or short series of events but which might feature schematic images, names, statements, or other information about generic personal knowledge were classified as *general schematic events*, and (3) other responses were classified as *nothing in mind*. Examples of the first category included "My spring break vacation was nothing like the ad" and "Brought back happy memories of going to the beach in Florida." In the second category, participants provided responses such as "The beach [in the ad] looked pleasant, but [it was] not a typical spring break picture" and "Warm and sunny climate, girls, fun times with friends." Finally, responses such as "Pictures looked

[3] Alternatively, we collected in the main study latency data for the time respondents spent looking at the ad. The high-detail ad took longer to process than the low-detail version ($M_{\text{lo-detail}}=3.1$ and $M_{\text{hi-detail}}=5.2$, $t(93)=-4.50$, $p<.001$).

Table 2
Sample open thoughts in study 1.

	Retrospective self-ref		Anticipatory self-ref	
	Low detail	High detail	Low detail	High detail
Low Frequency of Experience Consumers	▪"I thought about my Florida spring break. It made me remember all of the fun times."	▪"Confusing. Only liked the warm weather and the college age people in the ad."	▪"Very bland and unimaginative—the ad needs better copy and graphics."	▪"Pictures promoted positive emotions. I would like to be in a place like that."
	▪"Been to Panama City for spring break once, had a great time. Definitely would do it again."	▪"I have been to a couple of those places and they did not have that image."	▪"Thought about the beach in the summer. How is Florida different than any beach though?"	▪"Beaches, sun, relaxation, games, nightlife. Everything you want in a spring break vacation."
High Frequency of Experience Consumers	▪"It was a little dull. It was pretty simple and did not have much impact on me."	▪"Thought about everything positive that is associated with the beach—my favorite place to go."	▪"I thought of a nice, relaxing break away from school—just the way I like it."	▪"Not the greatest pictures, presentation, and destination. Florida has better to offer than this."
	▪"Simple. Easy to read but the message not very exciting. Florida can be a lot of fun but not this ad."	▪"Memories of past spring breaks: laying on the beach, frozen drinks, friends."	▪"Beautiful color of the ocean and sun. I really want to be there right now. I can already picture it."	▪"Poor choice of photos. I don't like to be told what to imagine either."

nice" and "Didn't like the colors of the ad" showed no autobiographical, self-referent processing at all. Using our protocol classification scheme, independent classifications by two coders blind to the experimental hypotheses were performed for these answers. Agreement occurred in 90% of the cases and disagreements between the coders were resolved through discussion. H1 predicts that respondents of low frequency of experience with spring break vacations ($N=52$) will engage in episodic processing and those of high frequency ($N=42$) in semantic processing of self-referent information. After eliminating 9 respondents with thoughts only in the *nothing in mind* category, a chi-square test was run: 63% of the infrequent consumers exhibited episodic processing whereas 67% of the high frequency ones showed semantic processing ($\chi^2=7.44$, $p<.01$). H1 was thus supported. Table 2 presents a selection of the open thoughts expressed by pretest participants.

Measures

In the main experiment, we assessed consumer frequency of experience with the product category by having participants self-report their perceived (experience-based) level of familiarity with 10 specific products/services (e.g., cell phones, museums, photo cameras, Florida beach vacations) on a scale of 1 through 6. We placed consumers scoring 3 or lower into the infrequent consumer category ($N=325$) and those scoring 4 or higher into the frequent consumer category ($N=176$).[4] A multiple-item scale with 7-point semantic differential item scoring was developed for attitude-toward-the-ad (A_{Ad}, Cronbach's $\alpha=.87$, items anchored at disliked/liked, very bad/very good, useless/useful information, very unpleasant/very pleasant feelings, and uninformative/informative). We also elicited open thoughts capturing respondents' reactions to the ad, which were coded in terms of their valence (−1=*negative*, 0=*neutral*, and 1=*positive*) by two research assistants blind to respondent condition.

Results

An ANOVA on A_{Ad} with ad's temporal orientation, amount of detail, and respondent category frequency of experience found the predicted three-way interaction: $F(1, 493)=31.58$, $p<.001$, wherein the attitudes pattern for the two categories of consumers is largely reversed.[5] To more closely pursue this, analyses of variance were pursued for each of the frequency groups. Responses for infrequent Florida beach vacation consumers replicated the pattern described by Krishnamurthy and Sujan (1999), such that the advertisement's detail and temporal orientation interacted significantly: $F(1, 493)=14.65$, $p<.001$ (see Table 3 for relevant means and contrasts). As expected, when prompted to think about their past product-relevant memories, these participants ($N=155$) liked the low detail ad more than the high detail ad ($M_{retro\text{-}low}=4.72$, $M_{retro\text{-}high}=4.15$, $t(153)=2.99$, $p<.01$), whereas the suggestion to consider product-relevant imagery led them to prefer the high detail over the low detail ad ($M_{anti\text{-}low}=4.04$, $M_{anti\text{-}high}=4.55$, $t(168)=-2.56$, $p<.02$).

The opposite results were observed for respondents of high frequency of experience with the promoted category. For these consumers, the advertisement's detail and temporal orientation interacted significantly: $F(1, 493)=17.37$, $p<.001$. As hypothesized, when prompted to think about their past product memories, these participants ($N=78$) like the high detail ad more than the low detail ad ($M_{retro\text{-}low}=4.12$, $M_{retro\text{-}high}=4.86$, $t(176)=-2.48$, $p<.02$), whereas the suggestion to consider product-relevant imagery leads them to prefer the low detail over the high detail ad ($M_{anti\text{-}low}=4.70$, $M_{anti\text{-}high}=3.82$, $t(96)=3.26$, $p<.01$). H2 was thus supported.

The pattern described by consumers' attitudes toward the ad is mimicked by the valence of the thoughts they expressed. An ANOVA on this measure uncovered the same three-way

[4] The main reason behind our dichotomizing of continuous variables has to do with ease of following and the fluency of reading associated our conceptual explanations. All of our analyses have also been run with familiarity as a continuous variable and effects did not change.

[5] Each of these analyses uses the mean square residual from the respective overall (three-factor) model.

Table 3
Main dependent variables in studies 1 and 2.

	Retrospective self-referencing				Anticipatory self-referencing			
	Low detail (N=120)		High detail (N=113)		Low detail (N=105)		High detail (N=163)	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
Study 1								
Low frequency of experience (N=325)								
Attitude toward Ad	4.72[a]	.12	4.15[b]	.14	4.04[b,c]	.15	4.55[a,d]	.13
Thoughts valence	.31[a]	.10	.10[a]	.10	.00[b]	.11	.25[a]	.08
Memory intrusions	10%[a]		8%[a]		15%[a]		52%[b]	
High frequency of experience (*N*=176)								
Attitude toward Ad	4.12[a]	.20	4.86[b]	.21	4.70[b]	.21	3.82[a]	.17
Thoughts valence	.30[a]	.13	.44[a]	.16	.39[a]	.13	.08[b]	.12
Memory intrusions	15%[a]		50%[b]		10%[a]		10%[a]	

	Retrospective self-referencing (N=135)		Anticipatory self-referencing (N=136)	
	Mean	S.E.	Mean	S.E.
Study 2				
Low frequency of experience (N=120)				
Attitude toward Ad	4.24[a]	.17	4.70[b]	.15
Memory intrusions	2.95[c]	.21	3.70[d]	.14
High frequency of experience (*N*=151)				
Attitude toward Ad	4.69[a]	.14	4.29[b]	.12
Memory intrusions	3.74[c]	.18	3.27[d]	.15

Means within the same row with different superscripts are significantly different at $p<.05$ or lower.

interaction ($F(1, 493)=7.32$, $p<.01$), such that more favorable attitudes were created by more favorable thoughts about the ad. For infrequent consumers, this meant a significant interaction of ad temporal orientation and ad detail ($F(1, 493)=5.56$, $p<.02$), whereby more favorable thoughts were observed toward the retrospective low-detail ad and the anticipatory detailed ad. For frequent consumers, a marginally significant similar interaction ($F(1, 493)=2.66$, $p=.10$) showed that more favorable thoughts were observed toward the retrospective detailed ad and the anticipatory low-detail ad (see Table 3 for relevant means and contrasts).

To gather some initial support for the memory intrusions account, we also collected data from a subset ($N=150$) of the respondents on whether they remembered seeing three different things in the ad they were exposed to: a shell (actually present in both low and high detail ad versions), a beach volleyball net (present in the high detail version only), and a jet ski (not present in either version). The recognition of the shell and the volleyball net were well aligned with respondents' experimental cell assignment, suggesting that they paid attention to the advertisement. The intrusions literature and Hypothesis H3 predict that memory intrusions (i.e., false recognition of the jet ski) will occur for infrequent consumers in the high detail anticipatory condition (due to imagination inflation) and for frequent consumers in the high detail retrospective condition (due to schema activation). This is precisely what we observed: under retrospective self-referencing, 10% of the low frequency of experience respondents evaluating the low detail ad exhibited intrusions and 8% of them did so when evaluating the high detail ad, whereas under anticipatory self-referencing 11% of the low frequency of experience respondents in the low detail ad condition showed intrusions and 52% of them did so when evaluating the high detail ad (see Table 3 for all relevant means). The related binary logistic regression uncovered a main effect of the ad's temporal orientation ($B=2.55$, $SE=1.10$, $p<.03$), such that—while driven by the high-detail ad—the anticipatory conditions overall produced more intrusions than the retrospective ones ($\chi^2=10.23$, $p<.001$), as predicted by the imagination inflation account. A marginal effect of ad detail ($B=2.15$, $SE=1.12$, $p<.06$) also suggested that imagination inflation is enhanced by more detailed suggestions in the self-referent ad.

Conversely, under retrospective self-referencing, 15% of the high frequency of experience respondents evaluating the low detail ad exhibited intrusions and 50% of them did so when evaluating the high detail ad, whereas under anticipatory self-referencing 10% of the high frequency of experience respondents exposed to the low detail ad experienced intrusions and 10% of them did so when evaluating the high detail ad. The related binary logistic regression uncovered a main effect of the ad's temporal orientation ($B=2.23$, $SE=.84$, $p<.01$), such that—while driven by the high-detail ad—the retrospective conditions overall produced more intrusions than the anticipatory ones ($\chi^2=3.71$, $p<.05$), as predicted by the schematic activation account. Interestingly, the valence of the ad-elicited thoughts correlated with the occurrence of memory intrusions ($r=.30$, $p<.01$), suggesting that the more self-generated thoughts were retrieved (even if not present in the ad), the better consumers felt about the ad. H3 was thus supported.

Discussion

The first study provides substantial evidence toward the conceptually proposed role that consumer frequency of experience with the product category plays in self-referent advertising. On the one hand, it was shown that individuals with more frequent experiences with the product category tend to have a detailed schema of their self-product interactions, a fact that leads to semantic processing of ad stimuli. This results in high detail ads being more effective than low detail ads when the ad involves retrospective self-referencing but the opposite when the ad involves anticipatory self-referencing. Conversely, people with less frequent experiences with the category only rely on their occasional, specific instances of self-product interactions and therefore resort to episodic matching in their ad information processing. In this case, low detail ads are more effective than high detail ads when the ad involves retrospective self-referencing but the opposite is true when the ad involves anticipatory self-referencing. Overall support for the predicted three-way interaction involving ad detail and experience frequency suggests that the detail matching process proposed Krishnamurthy and Sujan (1999) can be complemented by our theoretical perspective explanation.

Study 2

The finding of an interaction between processing type and temporal orientation on ad effectiveness might be explained by the extent to which consumers assimilate or reject ad information into their overall mental framework. In essence, we argue that this is the result of memory intrusions and their direct impact on attitudinal evaluations. The second study was thus pursued in order to more closely assess the memory intrusions account for the temporal effect of self-referencing advertising messages. As the intrusion effect in study 1 was largely driven by high ad detail levels and given that in practical terms there are relatively rare cases of low-detail advertising (billboard messages notwithstanding), we chose to focus on the case of high-detail ads in study 2. We also employed a different method of assessing memory intrusions by looking for false recall for an impossible past event, along the lines of the "Bugs Bunny at Disneyland" procedure described by Loftus (1997).

Method

The study employed advertisements for Apple's iPod media player, which over multiple pictures prompted viewers to either remember their time using the player or imagine doing it in the future. The design was a 2 (temporal orientation: retrospective/anticipatory self-referencing advertisement) × 2 (frequency of experience: low/high, measured) factorial design.

Participants

Similar to study 1, personal experience data on a number of product categories were first collected for 271 students in an introductory marketing course offered at a metropolitan East Coast university, who then participated in the study in return for course credit.

Measures and procedure

Consumer frequency of experience with the product category was assessed by having participants self-report their frequency of use of media players and similar home electronics on a scale of 1 through 6. We placed respondents scoring 3 or lower into the infrequent consumer category ($N=120$) and those scoring 4 or higher into the frequent consumer category ($N=151$). A 3-item scale with 7-point semantic differential scoring was developed for attitude-toward-the-ad (A_{Ad}, Cronbach's $\alpha=.92$, items anchored at disliked/liked, very bad/very good impression, very unpleasant/very pleasant feelings). After providing their attitudes, participants were instructed to prepare a Life Events Inventory (LEI) by expressing their degree of certainty that specific events had happened to them during their years in junior high. One of the 10 items referred to seeing an iPod media player. LEI scores were recorded on a 5-point scale, ranging from 1 (convinced that the event did not happen) to 5 (convinced that the event did happen). This score captured memory intrusions on a continuous variable. The time interval was selected to ensure that our respondents, who attended junior high before the year 2000, could not have seen an iPod as it was only introduced in the second half of 2001.

Results

We expected that retrospective (anticipatory) self-referencing would produce memory intrusions for frequent (infrequent) consumers, but not for infrequent (frequent) consumers. Support for this hypothesis would be found through an interaction of ad temporal orientation with consumer frequency of experience on the memory intrusions measure. A two-way ANOVA found this significant interaction on the number of memory intrusions ($F(1, 270)=8.82$, $p<.01$). As predicted, in the anticipatory condition ($N=136$) infrequent consumers ($N=65$) showed significantly more intrusions than frequent consumers, whereas the pattern was reversed in the retrospective case ($N=135$) where frequent consumers ($N=80$) experienced more intrusions than infrequent consumers (see Table 3 for specific means, contrasts, and cell sizes). No similar changes occurred for any other LEI item.

We also hypothesized that, similar to the pattern described by memory intrusions, retrospective (anticipatory) self-referencing would produce more favorable attitudes toward the ad for frequent (infrequent) consumers. Support for this hypothesis would be found through an interaction of ad temporal orientation with consumer frequency of experience on the respective attitude measure, as indeed found by the respective two-way ANOVA: $F(1, 270)=8.82$, $p<.01$ (see Table 3 for specific means, contrasts, and cell sizes).

Finally, with the purpose of exploring the processes underlying the attitudinal responses (based on the type of elaboration characterizing consumer frequency of experience with the product category and the resulting memory intrusions),

a series of regressions were conducted using attitude-toward-the-ad as the dependent variable. Two sets of regressions were conducted (Baron & Kenny, 1986), one for each temporal orientation. The first set of equations (retrospective condition) indicated that (1) frequent as compared with infrequent consumers had more favorable attitudes toward the self-referent ad ($B=.46$, $SE=.22$, $t(134)=2.09$, $p<.04$); (2) frequent as compared with infrequent consumers experienced more memory intrusions ($B=.75$, $SE=.23$, $t(134)=3.16$, $p<.01$); (3) respondents experiencing more intrusions had more favorable ad attitudes ($B=.19$, $SE=.07$, $t(134)=2.48$, $p<.02$); and finally (4) the memory intrusions variable remained significant ($B=.16$, $SE=.08$, $t(134)=2.00$, $p<.05$), but frequency of experience did not ($B=.34$, $SE=.22$, $t(95)=1.51$, *ns*) in a model that included both variables, indicating mediation. A related Sobel test was significant ($z=2.09$, $p<.04$). In contrast, the second set of equations (anticipatory condition) indicated that (1) infrequent as compared with frequent consumers had more favorable attitudes toward the self-referent ad ($B=-.41$, $SE=.19$, $t(135)=-2.11$, $p<.04$), (2) infrequent as compared with frequent consumers experienced more memory intrusions ($B=-.47$, $SE=.23$, $t(135)=-2.01$, $p<.05$); (3) respondents experiencing more intrusions had more favorable ad attitudes ($B=.19$, $SE=.07$, $t(135)=2.69$, $p<.01$); and (4) the memory intrusions variable remained significant ($B=.17$, $SE=.07$, $t(135)=2.38$, $p<.02$), but frequency of experience did not ($B=-.33$, $SE=.19$, $t(135)=-1.71$, *ns*), indicating mediation. The related Sobel test was marginally significant ($z=-1.63$, $p<.10$). H4 was thus largely supported.

Discussion

The second study provides additional evidence for the conceptually proposed role that consumer frequency of experience with the product category plays in self-referent advertising. The exhibited memory intrusions pattern and the observed moderated mediation were along the predicted theoretical lines, and consumer attitudes were found to mimic these patterns. The latter finding also fits with a familiarity-affect explanation (Sujan et al., 1993) for the memory intrusions phenomenon, as attitudes appear to have been influenced by an illusion of cognitive ownership that was actually advertisement-induced.

General discussion

The present research addressed and clarified two important concerns related to self-referencing effects in a consumer setting. First, the observation that all consumers do not engage in the same type of information processing when asked to recall or imagine an event produced a necessary distinction between frequent and infrequent consumers in a specific product category. Previous research has established that the latter individuals lack the mental schemata following recurrent self-product interactions, and what guides their thinking and inferences (cf. Kardes, Posavac & Cronley, 2004) in self-referent advertising is the episodic matching of memory and ad elements. Cognitive research has also posited that these individuals are likely to experience memory intrusions in their imagination exercises (due to source memory confusions), but not in their recollections (lacking the necessary pre-existent knowledge). Conversely, consumers of high frequency of experience with the category possess these schemata, an ownership that will encourage memory intrusions under retrospective but not under anticipatory self-referencing. Results of two experiments support this conceptual account and show that episodic processing is employed by consumers of lower frequency of experience with the product category, whereas semantic processing characterizes frequent consumers.

The first study clarifies the previous explanation of the detail matching process presumed to be involved in self-referent advertising. Methodologically similar to Krishnamurthy and Sujan (1999), this experiment showed that consumer attitudes are also affected by the interaction of the temporal and episodic dimensions of the self, beyond the impact of the amount of detail present in the ad. While it is difficult to compare results from different studies and populations, it is likely that the specific (and one-sided) detail matching effects found in their study were inadvertently determined by a student sample consisting of many infrequent consumers who tend to engage in episodic processing. Indeed, one might reasonably expect little knowledge about exotic vacations or cruises from undergraduate students.[6] On the other hand, in the present research a related but more common product class (i.e., Florida vacation travel) provided the necessary schematic knowledge-based dichotomy. Moreover, it was shown that consumers' cognitive processing of self-referent advertising—while likely involving the detail matching effort described by Krishnamurthy and Sujan (1999)—is influenced by match likelihood estimates that also originate in pre-existent memory structures and vary according to consumer frequency of experience with the product category. The second study found additional support for our account in the context of another product category (personal media players) and by using a different memory intrusions measure. Participants of low (high) frequency of experience with the respective product category who were exposed to a retrospective (anticipatory) self-referent ad experienced memory intrusions due to schematic, domain-specific (imagination inflation) errors. Importantly, the intrusions were shown to mediate consumers' attitudinal response to the self-referent ads, suggesting that false memories are easily appropriated and important enough to improve cognitive responses due to their self-originated nature. These findings are highly robust. In a study not reported here, we manipulated consumers' processing type via the construal level variable (cf. Kardes, Cronley & Kim, 2006; Trope, Liberman & Wakslak, 2007) that produced a dichotomy similar to the episodic–semantic one characterizing low/high frequency of experience with a product category and found similar effects on the attitude-toward-the brand variable.

[6] It should be noted that one of the categories where we collected familiarity data from our student sample in study 1 was that of exotic cruises, and none of the respondents self-reported high familiarity levels.

Overall, our findings suggest that the manner in which self-referent processing is engaged may differ, but its consequences can be predicted by our conceptual account. This is in line with recent work by Martin, Veer, and Pervan (2007), who found that *internals* and *externals* (female consumer categories defined in terms of the locus of control of beliefs about their personal weight) engage in different kinds of self-referencing in ads featuring female models. The authors find that it is mostly internals who resort to self-referent processing of advertisement information, a conceptual parallel to our finding that personal knowledge-driven memory intrusions are conducive to self-referencing advertising effect. Our research is also consistent with the work of Wang and Calder (2009), who found that thematically congruent but intrusive (non-intrusive) ads are reacted to less (more) favorably if they produce high narrative transportation. This is similar to the case of frequent category consumers, who possess a large body of thematically congruent knowledge and when prompted by the ad to imagine (recall) specific things find the experience unpleasant (pleasant).

In terms of self-referent advertising copy suggestions, it is important to guide infrequent consumers' recall with unique personal matches and imagery with multiple ad suggestions (this will likely produce attitude-enhancing intrusions). Alternatively, it is important to guide frequent consumers' recall with multiple personal matches (this will likely produce attitude-enhancing intrusions) and anticipation with unique ad suggestions. A further practical implication of qualifying earlier consumer findings in self-referent advertising is—for example—that retrospective stimuli such as the earlier mentioned "Remember the Magic" series of ads by Disney are likely to be effective for consumers with frequent past visits to theme parks (and—importantly—not necessarily Disney-owned), while less so for occasional visitors. The theoretical account presented in this article and the results of our studies suggest that consumers of low frequency of experience with theme parks will not respond well to such campaigns. Relying on the episodic matching of ad and memory detail, these infrequent visitors are unlikely to experience enough overlap to produce effective self-referencing. However, more seasoned theme park patrons are the appropriate target market for such promotion (regardless of their brand patronage), as their extensive park visit schema will be more likely to accommodate the specific ad suggestions. Moreover, false memories of childhood brand use (along the lines of Braun et al., 2002) are predicted to occur under retrospective self-referencing among these more frequent users of the product category. Conversely, Ford Corporation's "Imagine Yourself in a Mercury" promotional campaign should work better for first-time buyers than for more seasoned consumers. Consumers with little experience in car buying or ownership are more prone to allowing the ad-suggested imagery exercise to guide their subsequent recollections and attitudes, whereas individuals that have owned several cars may deviate from the ad-suggested imagery.

A more general practical implication for consumer researchers stemming from the importance of considering individual difference variables (see Wyer, Hung & Jiang, 2008) addresses the need to match consumer product category frequency of experience with the specific type of self-referencing employed. Firms should work to gain an intimate knowledge of their customer profile, as these prototypes are extremely useful in their promotional targeting efforts. Alternatively, priming consumers with specific construal levels may be an option (e.g., media placement within a philosophical/car repair talk show is likely to produce high/low construal levels, respectively). Future research efforts should inspect more closely other personality variables associated with variations in self-schemata and self-concept knowledge. Moreover, correlational analyses could be tentatively pursued in search of predictor variables likely to suggest the presence of imagery and enable the appropriate match in terms of ad delivery theme.

The conclusions of the present work are thus twofold: first, consumers who differ in their frequency of experience with products also differ in the manner in which they self-reference product information. Second, because memory is indeed constructive, advertising often benefits from the imperfections inherent in this process along the temporal dimension. Both a self-referent ad inviting consumers to reminisce and one suggesting an imagination exercise can be effective under specific circumstances, and we propose that aspects related to memory organization will enable advertisers to predict their respective success. The essence of our results points to the fact that the role of brand marketers as shapers of our personal memories and social selves is perhaps more consequential than we realize.

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