



Construction and retrieval of evaluative judgments: The attitude strength moderation model[☆]



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ABSTRACT

Disagreement exists as to the psychological processes underlying reports of evaluative judgments, with some theorists suggesting that attitudes can be retrieved and used to guide evaluative judgments, and others suggesting that such judgments are the result of construction, wherein evaluative judgments are constructed on the spot, and as needed. We propose the *attitude strength moderation model*, which predicts that evaluative judgments of an object associated with strong attitudes are often the result of retrieval processes, whereas the evaluative judgments associated with weak attitudes are often the result of construction processes. We examine these hypotheses in three experiments. The first and second experiments compare response latencies to sequential evaluative and attribute judgments. The third experiment uses eye-tracking. All three experiments provide support for the attitude strength moderation model.

“People do not ‘have’ attitudes: they form judgments.”

(Schwarz, 2007, p. 651)

“By viewing attitudes as associations in memory, the model obviously is positing that attitudes can ‘exist.’”

(Fazio, 2007, p. 609)

1. Introduction

When asked whether one likes or dislikes a person, place, or brand, does one *retrieve* a stored attitude to guide evaluative judgment, or instead *construct* the judgment from salient information available at the moment of judgment? Such a question would seem fundamental to understanding evaluative judgments. And yet, as the quotes above illustrate, there are two strikingly different answers. One perspective holds that individuals form (construct) judgments based upon information salient when such judgment is needed. The other perspective holds that individuals rely, at least in part, on attitudes stored in

memory. In essence, the question comes down to whether or not preformed attitudes are ever retrieved to guide evaluative judgments.

In this research, we provide evidence that preformed attitudes are retrieved and used to guide evaluative judgments, albeit under specific conditions. We advance, and find support for, the notion that evaluative judgments of an object associated with strong attitudes are often based upon retrieved attitudes, whereas evaluative judgments associated with weak attitudes are often based upon construction processes.

1.1. Construction perspective

The quote appearing to the left above portrays the position taken by advocates of the construction perspective: people's evaluative judgments are constructed based upon what feelings and/or thoughts are most salient at the time of questioning, absent any retrieval of a stored attitude. Upon consideration, the question naturally arises: Isn't such a position hyperbole – theoretically extreme, but not meant to be taken literally?

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Inspection of the literature would suggest otherwise. Ferguson and Bargh (2003) write that “an evaluation...represents a combination of numerous evaluations of various features of the object, rather than a solitary tag associated with the object representation” (p. 170). Wilson and Hodges (1992) conceptualize evaluative judgments as being the result of reaching into a file drawer: The judgment depends upon what files happen to be retrieved. In fact, the notion that evaluative judgments are invariably the result of construction processes is either explicitly or implicitly embedded in many contemporary conceptualizations of judgment and decision making (Bettman, Luce, & Payne, 1998; Lord & Lepper, 1999; Schwarz, 2004; Schwarz & Bless, 1992, 2007; Schwarz & Bohner, 2001; Slovic, 1995; Strack & Martin, 1987; Tesser, 1978; Tourangeau, 1992; Tversky, Sattath, & Slovic, 1988; Wilson & Hodges, 1992; Zaller & Feldman, 1992).

The construction perspective is especially attractive given the robust finding that evaluative judgments are sometimes highly sensitive to context (i.e., unstable). And the evidence that context can influence evaluative judgments is vast. Subtle variations in how questions are worded, as well as the order in which questions are posed, have been found to have strong influences on evaluative judgments (e.g., Hippler, Schwarz, & Sudman, 1987; Schuman & Presser, 1981; Schuman, Presser, & Ludwig, 1981; Schwarz, 1999; Schwarz & Sudman, 1996; Sudman, Bradburn, & Schwarz, 1996; Tourangeau & Rasinski, 1988). Similarly, a person's transient mood at the time of providing evaluative judgments has been found to influence such judgments (e.g., Isen, Shalke, Clark, & Karp, 1978; Schwarz & Clore, 1983; Schwarz, Strack, Kommer, & Wagner, 1987). Further, one's phenomenological experience can influence evaluative judgments, such that the experienced ease or difficulty in retrieval of information influences evaluative judgments (Schwarz, 1998, 2004, 2007; Schwarz et al., 1991; Strack, Martin, & Stepper, 1988; Tversky & Kahneman, 1973).

The construction perspective also provides an explanation for when evaluative judgments are not sensitive to context (i.e., stable). Such an explanation is based on the notion that information associated with an object can become chronically accessible. Specifically, it is argued that repeated encounters with an object create strong associations between the object and related information. Consequently, upon the mere mention or presentation of that object, the information that has become chronically associated with that object comes to mind. As such, stability in evaluative judgments merely reflects stability of construction based upon chronically accessible information, with no retrieval of stored attitudes being necessary (e.g., Schwarz, 1998, 2004, 2007; Schwarz & Bless, 1992; Schwarz & Bohner, 2001). To use the Ferguson and Bargh (2003) metaphor, such chronically accessible information is at the top of the file drawer, and as such is more readily used in judgments that are constructed on the spot. The construction perspective adopts the position that regardless of whether the evaluative judgment is influenced or not by context, such evaluative judgments are constructed *absent the retrieval of stored attitudes*.

One challenge for the constructivist view is that even if the presentation of an attitude object leads to the spontaneous retrieval of associated information, a mechanism for evaluating that information is needed. For example, if the presentation of “ice-cream” leads to the retrieval of the information that ice-cream is high in calories, one needs to assess if being high in calories is good or bad. If no attitude towards calories is stored, then information about calories would need to be retrieved. For example, the retrieval of “high calories” might lead to the thought of gaining weight. But then, one needs to assess if gaining weight is good or bad. If evaluation always requires retrieval of some new information to be evaluated, it is not clear when the process would end and we would appear to be on the edge of an infinite regress. Thus, we next consider the attitude retrieval perspective.

1.2. Attitude retrieval perspective

The quote appearing to the right above portrays the position taken

by advocates of the attitude retrieval perspective: People's evaluative judgments can be guided by the retrieval of stored attitudes. The notion that evaluative judgments are the result of retrieval and use of stored attitudes has a long tradition that is embraced by contemporary researchers (e.g., Allport, 1935; Campbell, 1963; Chein, 1948; Doob, 1947; Osgood, Suci, & Tannenbaum, 1957; Thurstone, 1928). For example, Eagly and Chaiken (2007) write that “Our definition, like most definitions of attitude, places attitudes inside the mind of the individual” (p. 584).

In essence, the attitude perspective argues that we can come to store an attitude in memory. These attitudes serve as a ready guide to action and expectations regarding the attitude object should that object be encountered (e.g., Eagly & Chaiken, 1993; Eagly & Chaiken, 2007; Fazio, 1995, 2007). Rather than having to construct an evaluative judgment each time anew, repeated encounters with an object or piece of information lead to a stored attitude towards the object (e.g., Eagly & Chaiken, 2007; Fazio, 1995). And this stored attitude can be retrieved to guide evaluative judgments and behavior. This perspective embraces the notion that attitudes are stored for the functional reasons of knowing what to expect from attitude objects (e.g., good people are expected to do good things), and guiding behavior (e.g., a positive attitude towards an object leads to positive behaviors). As such, fast, preferential access is the *raison d'être* for attitudes.

Proponents of the attitude perspective allow that evaluative judgments can be influenced by context. Specifically, such a position posits that after attitude retrieval, some modification can occur before the report of an evaluative judgment (e.g., Shavitt & Fazio, 1991). And several attitude proponents specifically hypothesize that there are instances in which attitudes do not exist (e.g., Converse, 1970, 1979) or are not retrieved to guide behavior (Fazio, 2007). What is integral to this perspective is that *internally stored attitudes sometimes can be retrieved*.

1.3. Attitude strength resolution

We propose that evaluative judgments of an object are often based upon retrieval and use of attitudes when these objects are associated with strong attitudes, whereas evaluative judgments are often constructed when the objects are associated with weak attitudes. What is attitude strength? Strong attitudes resist, persist and predict (i.e., fight counter-persuasion, are stable over time and guide behavior) better than those that are considered weak (see Krosnick & Petty, 1995). The importance of attitude strength research is that it provides a conceptual framework by which to understand when and why some attitudes are more consequential than others. Of most importance to the current framework is that prior research has identified several antecedents of strong attitudes (Krosnick & Petty, 1995; Petty, Briñol, & DeMarree, 2007). Three of the most studied determinants of strength are the extent to which people have thought about the attitude (elaboration; e.g., Petty, Haugtvedt, & Smith, 1995), how quickly it comes to mind (accessibility; e.g., Fazio, 1995), and how sure people are of its validity (confidence; e.g., Petty, Briñol, & Tormala, 2002).

Strong attitudes have been shown to result from relatively effortful cognitive elaboration (Petty & Cacioppo, 1986a, 1986b; Petty & Wegener, 1999). Elaboration occurs when individuals possess the motivation and ability to scrutinize information and is the relatively effortful process whereby an attitude is formed as a result of the thoughts that an individual has in response to information about an attitude object. When individuals lack the ability or the motivation to elaborate, it is still possible for them to form attitudes in response to information. However, attitudes formed under these conditions tend to be the result of relatively non-thoughtful associative and inference processes and are weaker than attitudes formed with high thought (Petty & Cacioppo, 1986a, 1986b).

To be clear, attitudes and attitude strength can differ independently of each other. The extent to which one likes or dislikes an attitude

object (one's attitude) can be held strongly or weakly (attitude strength). As an example, imagine two individuals who possess equally positive attitudes towards health, and yet the attitude strength associated with their attitudes differ. The individual with the strong attitude will be more likely to have that positive attitude persist over time and guide behavior than the individual with the weak attitude (see Haugtvedt & Petty, 1992).

Attitudes based on extensive thought (i.e., strong attitudes) tend to come to mind faster than attitudes formed with little thought (i.e., weak attitudes, Bizer & Krosnick, 2001; Fazio, 1995; Priester & Petty, 2003) and are also held with greater confidence and certainty (Petty et al., 2007). We argue that these two characteristics render such attitudes more likely to be used in evaluative judgments. That is, greater accessibility increases the likelihood that an attitude will spring quickly to mind when an attitude object is encountered, and confidence in the attitude may also determine whether the retrieved attitude is used as a basis for the evaluative judgment once it is retrieved.

1.4. Difficulty in testing

Though the two perspectives differ radically in their hypothesized processes, testing between the two has been difficult. As an example, Fazio, Powell, and Williams (1989) provide evidence that when attitudes are relatively accessible, such attitudes are more likely to guide choice, whereas when attitudes are relatively inaccessible, choice is more likely to be influenced by contextual factors. Given that attitude accessibility is conceptualized as an indicator (Fazio, 1995; Priester, Nayakankuppam, Fleming, & Godek, 2004) and consequence (Petty et al., 1995; Priester & Petty, 2003) of attitude strength, one could conclude that this study demonstrates that attitude strength moderates the influence of evaluative judgment on choice, as hypothesized herein. And indeed, such a conclusion is consistent with Fazio's (1995) interpretation of his research program.

Such a finding, however, can be explained from the construction perspective. Schwarz and Bohner (2001) argue that attitude accessibility occurs not because of retrieval of an attitude, but instead because of chronic accessibility of the information upon which the judgment is formed. Specifically, they argue that repeated encounters with an object result in repeated constructions of evaluative judgments. These repeated constructions facilitate 1) the evaluative consistency of the information upon which such constructions are based and 2) the speed by which such constructions occur. Thus, from this perspective, moderation by accessibility can be explained by construction proponents as being the result of the information upon, and speed with which, such judgments are constructed, rather than whether an attitude is retrieved or not.¹

As such, the evaluative judgments per se, as well as many of the characteristics associated with evaluative judgments (e.g., Lynch, Marmorstein, & Weigold, 1988), are rendered uninformative as to what psychological processes underlie them: Each perspective offers different explanations of the processes, regardless of the stability or instability of evaluative judgments. Some have even gone so far as to conclude that these competing theoretical positions cannot be empirically differentiated, and thus meta-empirical desiderata such as parsimony should

¹ There are many examples of moderation that can be explained by both perspectives. For example, Bem's influential work on self-perception theory (1967; 1972) provided the insight that individuals often construct their evaluative judgments based upon observation of their own behavior. Bem argued, however, that this effect is moderated by "strong conditioned internal responses" (1967; p. 186), such that these internal responses attenuate the influence of construction. Another example is the finding that the influence of question order on survey responses is moderated by attitude strength: Stronger attitudes (as indexed by ratings of importance, certainty, intensity, frequency of thought, extremity, and ambivalence) are less likely to be influenced by question order than weaker ones (Lavine, Huff, Wagner, & Sweeney, 1998). Both "strong conditioned internal responses" and "strong attitudes" can be explained as either support for retrieval or construction.

be utilized to choose between theories. For example, Schwarz (2007), has surmised that "like many issues in science, this issue will not be settled on the basis of critical data but on the basis of the heuristic fruitfulness of the theoretical perspective and its compatibility with other bodies of knowledge" (pp. 651). We disagree with this conclusion, and offer two possible means by which to empirically compare the competing explanations; response latencies to sequential judgments and search for external information as measured by eye tracking.

1.5. Theoretical and empirical differentiation

A deeper consideration of the two proposed processes reveals one potentially distinguishing, and consequently, empirically informative, characteristic. This distinguishing characteristic is the nature of the relationship between contextual (and/or chronically accessible; henceforth referred to simply as attribute) information and evaluative judgments. From a construction perspective, evaluative judgments are constructed from attribute information. Thus, attribute information is always processed prior, and in order, to arrive at an evaluative judgment. In sharp contrast, from an attitude perspective, the very notion of attitude retrieval is that such retrieval and use of a stored attitude allows for evaluative judgment free of the need to process attribute information. Evaluative judgments can be independent of attribute information.² These two perspectives are depicted in Fig. 1.

These differences provide the basis for empirical comparison under the conditions that both judgments occur in sequence (i.e., an evaluative judgment is followed by an attribute judgment, or an attribute judgment is followed by an evaluative judgment). It is when the influence of providing one type of judgment followed by the other type is considered that it becomes clear that the two perspectives make different predictions as to what is brought to mind, and thus left active in memory, after the initial judgment.³

At the heart of the construction perspective is interdependence between evaluative and attribute judgments. To provide an evaluative judgment should facilitate subsequent attribute judgments, since in order to provide an evaluative judgment, attribute information has to have already been brought to mind, and thus primed.⁴ Such facilitation should emerge regardless of attitude strength, and would be evidenced by a main effect of response order in which the response latencies for the attribute judgment are similarly faster for the second than the first response.

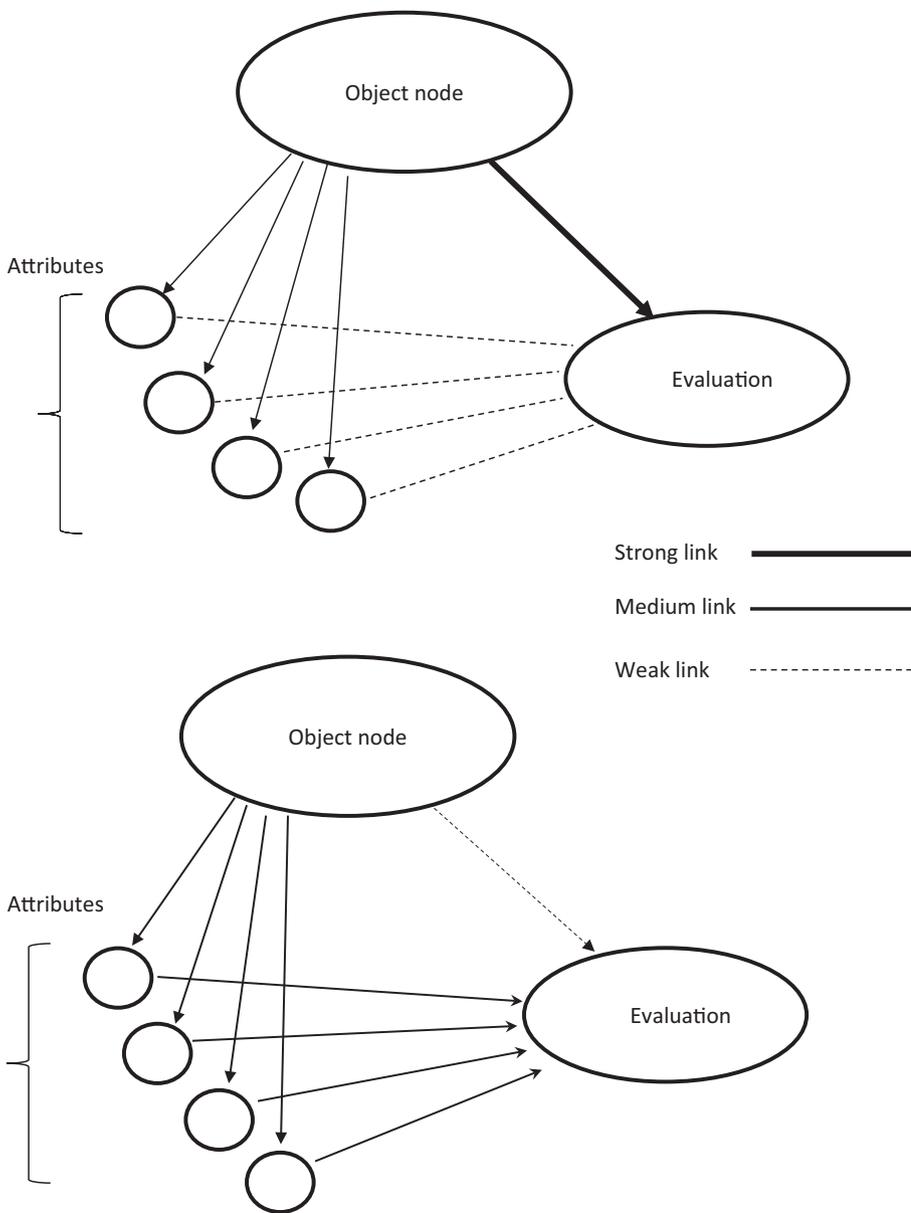
At the heart of the attitude strength moderation predictions is that the facilitation of one judgment on the other will differ as a function of attitude strength. Judgments associated with weak attitudes are predicted to be dependent upon one another, and thus exhibit the mutual facilitation hypothesized by the construction perspective. Evaluative and attribute judgments associated with strong attitudes, however, are predicted to be relatively independent of one other. Evaluative judgments are hypothesized to come to mind independently and free of attribute information. As a consequence, attribute judgments following evaluative judgments should be facilitated less when the evaluative judgments are associated with strong rather than weak attitudes. Such differential facilitation would be evidenced by an attitude strength by

² One way to think of this distinction is that construction involves retrieving one (or more) of many possible judgments (e.g., Ferguson & Bargh, 2003). In contrast, the concept of attitude retrieval is that it is a single, overall evaluation that is retrieved, and that attribute information may come to be forgotten or stored separately from the attitude (Eagly & Chaiken, 1993; pp. 270–271; e.g., Anderson, 1981; Lingle & Ostrom, 1981). To use Ferguson and Bargh's metaphor, an attitude would exist in a separate file drawer from which the judgment is drawn first.

³ The approach of manipulating the sequence in which different types of judgments are rendered in order to make inferences of underlying psychological processes is not new with this research, but rather has a long and important history, exploring processes related to attitude formation (Fazio, Lenn, and Effrein, 1984), predictive judgments (Hoch, 1984), and the false consensus effect (Lynch, 1981).

⁴ Facilitation is operationalized as faster response latencies.

Fig. 1. Associative networks of evaluations and attribute information for strong (top) and weak (bottom) attitudes.



judgment order interaction on attribute judgments.⁵ Importantly, it should be the response latencies to the second, rather than first, response that drive this interaction. That is, the response latencies to the second judgment should be faster for the judgments associated with weak than strong attitudes.⁶

⁵ Note that any question should prime the node associated with the target in memory, and could thus facilitate subsequent responses. In other words, answering an attribute question when one has a strong attitude towards a target would still prime the target node (and the retrieval perspective would argue that priming the target node would likely have triggered the attitude, even while answering an attribute question). However, given the already fast preferential access for strong attitudes, we should see relatively less facilitation of evaluative responses for targets associated with strong attitudes. In contrast, answering attribute information for targets associated with weak attitudes would serve to complete one of the components of the evaluative judgment process and should thus facilitate the subsequent evaluative judgment, which would require only the remaining computation be performed. In short, it is the relative amount of facilitation that is informative and anticipating facilitation vs. no facilitation may be unrealistic.

⁶ Another difference, consistent with the work of Fazio (1995) and others (Priester & Petty, 2003), is that the evaluative judgments provided first will be faster for judgments associated with strong than weak attitudes. This finding is replicated across both Experiments One and Two. However, as explicated above, such a difference can be explained by both perspectives, and is thus not reported further.

1.5.1. Search for external information

An additional manner by which to differentiate and test these theoretical perspectives emerges when one considers the extent to which external information is potentially needed in order to render a judgment. This approach is explicated in the introduction to, and used as the basis for, Experiment Three. The value of incorporating such an approach is that it affords the opportunity for convergent evidence using a dependent variable conceptually independent of response latencies.

2. Experiment One

Recall that elaboration is an antecedent of attitude strength. Individuals can form positive attitudes either through relatively thoughtful or relatively nonthoughtful processes (Petty & Cacioppo, 1986a, 1986b). In other words, individuals who have the motivation and ability to attend to message arguments can form relatively strong attitudes based on the thoughts they have to the persuasive message, whereas individuals lacking the motivation or ability to process the message are more likely to rely on non-thoughtful associative or inference processes (e.g., a numerosity heuristic such as ‘more arguments

are better than less'; Petty & Cacioppo, 1984) and form a relatively weak attitude. We leveraged this insight in order to manipulate attitude strength in a manner such that participants all would have similarly positive attitudes, and yet differ in terms of the strength with which the attitudes were held.

2.1. Methods

2.1.1. A note on sample sizes

Experiments Two and Three were collected prior to the current emphasis on power and sample size. That is, we selected our sample sizes based on related research, notably, research in which the primary dependent variables were attitudinal response latencies. We relied especially upon the work of Fazio and colleagues. In this research, sample sizes typically ranged from approximately 10 (e.g., Fazio, Chen, McDonel, & Sherman, 1982) to twenty (e.g., Fazio, Herr, & Olney, 1984; Fazio, Powell, & Herr, 1983; Shavitt & Fazio, 1991) participants per between-participant condition. An initial experiment, identical to that of Experiment One (save for a lack of manipulation checks) was conducted using a total of forty-seven participants (slightly > 11 per cell). Given the change in concern with sample size, we reran this experiment using 166 participants (slightly > 40 per cell). The patterns of the results and statistical tests of the two experiments were analogous. As such, we report the experiment conducted with the larger sample size.⁷

It is important to note that for both Experiments Two and Three, sample sizes were determined prior to the data collection and no additional data were collected following initial analyses of the data. Also important to note is that no experiments were run in this line of research that are not reported in this paper (other than the initial version of Experiment One, just noted).

2.1.2. Participants and design

One hundred sixty six undergraduates participated for partial course credit. Participants were randomly assigned to the cells of a 2 (elaboration: high versus low) \times 2 (judgment order: attribute versus evaluative judgment first) \times 2 (judgment type: evaluative versus attribute) mixed factorial design experiment with the first two factors between- and the third factor within-participant. All measures, manipulations, and exclusions in this experiment are disclosed. Stimuli and response latency prompts are available in online supplemental materials.

2.1.3. Procedure

Participants were seated at a computer terminal. Instructions on the first screen randomly assigned them to either a high or a low elaboration condition. Participants were then shown (in text) the name of a fictitious brand of toothpaste (Dentol) followed by three attributes about the toothpaste. Immediately thereafter, in what they were told was a second study, they answered a series of questions in which they provided evaluative and attribute judgments for various brands. This served to familiarize them to responding to the questions and lent credibility to the cover story. Finally, they were presented with questions to assess their evaluative (attribute) judgments, followed by questions to assess their attribute (evaluative) judgments towards Dentol toothpaste. The response latencies for these judgments were recorded and serve as the primary dependent variable. Following these response latencies, participants completed questions designed to serve as manipulation checks for both attitudes and attitude strength.

2.2. Independent variables

2.2.1. Elaboration

Participants were randomly assigned to either a high or a low

elaboration condition. In the high elaboration condition, participants were instructed to read the statements that would appear on the following screen paying close attention to the thoughts and responses they had in response to the information presented on the screen. They were also told that they could take as long as they needed to look at the screen. Participants in the low elaboration condition were instructed to read the statements on the following screen and count the number of vowels that appeared in each line and multiply the number of vowels by the line number, and finally, to add all the numbers up. They were instructed to do the calculations in their head and not write down anything. This manipulation was designed to reduce the resources they could allocate to elaboration. Similar manipulations of elaboration have been shown to produce attitudes of comparable valence (i.e., extent of liking) that vary in terms of strength (e.g., Priester et al., 2004).

2.2.2. Judgment type

Participants provided two types of responses – evaluative and attribute judgments. Evaluative judgments were measured by showing participants the words 'Dentol toothpaste' on the screen coupled with a pair of adjectives, one on the left and one on the right. Three sets of adjectives were used to obtain three measures of attitude accessibility - 'like-dislike', 'positive-negative' and 'good-bad'. Participants responded by choosing the word that corresponded to how they felt and pressing a key associated with the word. Attribute judgments were measured by showing participants each of the three sentences about Dentol toothpaste that they had been presented with initially and asking them to respond by choosing between two words - 'true-false'.

2.2.3. Judgment order

The order of responses was manipulated such that half of the participants completed the attribute judgments first and the others completed the evaluative judgments first.

2.2.4. Manipulation checks

Attitudes were assessed utilizing three bipolar scales anchored at -4 with "unfavorable", "negative" and "dislike", and at $+4$ with "favorable", "positive" and "like." As in other research, analyses revealed the three scales to be highly inter-related ($\alpha = 0.89$), and they were averaged for further analyses. Attitude strength was assessed with three scales anchored at 0 with 'not certain', 'have not thought about it at all' and 'easy to change my opinion' and at 10 with 'extremely certain', 'have thought about it a great deal' and 'difficult to change my opinion.' As in other research, analyses revealed the four scales to be moderately inter-related ($\alpha = 0.74$), and they were averaged for further analyses.

2.3. Dependent variables

The response latencies to the evaluative and attribute judgments served as the critical dependent variables. All participants were instructed that they should answer all questions as quickly and accurately as possible (see Fazio, 1990).

We made the decision to have participants provide three sequential judgments of one type, followed by three judgments of the other type. We did so in order to provide the strongest possible test of the attitude strength moderation model, in that it provides what we believe to be the strongest possible conditions under which to find evidence of construction. Specifically, the process of providing three evaluative judgments should bring an abundance of attribute information to mind (if indeed evaluative judgments are based upon attribute information), and this abundance of salient attribute information should provide the highest probability of facilitating a subsequent attribute judgment.

Only the latency for the first evaluative and attribute judgments were used for the analyses, however. We based this decision on the reasoning that the first response latency for both the evaluative and attribute judgments provides the clearest process measure. That is, if

⁷ The means of this unreported Experiment are provided in the online supplement.

rendering three evaluative judgments brings attribute information to mind, the impact of this activation should be greatest for the first attribute judgment, whereas the second and third responses will likely be the result of processes in addition to the influence of activation, as past research has consistently demonstrated that providing a first response facilitates subsequent responses. For example, as people repeatedly express their attitudes, attitude accessibility increases (e.g., Fazio, Sanbonmatsu, Powell, & Kardes, 1986). Note that we are interested in the influence of one type of judgment on the other. As such, the first response best captures this influence, as responses following the first are contaminated by the prior responses.

Consistent with past research, prior to analyses we reciprocally transformed the responses latencies (Fazio, 1990). For clarity, we transformed the results back to milliseconds in order to report the condition means.⁸

2.4. Results

2.4.1. Manipulation checks

The attitudes towards Dentol and the strength with which these attitudes were held were regressed on elaboration. For attitudes, there was no effect of elaboration, with high elaboration ($M = 1.20$) and low elaboration ($M = 0.95$) not differing statistically, $F(1, 164) = 1.55$, $p = .215$, $\eta^2 < 0.01$. Strength, however, did differ across the elaboration conditions such that participants in the high elaboration condition reported stronger attitudes ($M = 4.59$) than participants in the low elaboration condition ($M = 3.72$), $F(1, 164) = 22.75$, $p < .001$, $\eta^2 = 0.12$. As such, the elaboration manipulation worked as intended. Equally positive attitudes were created for high and low elaboration conditions. These attitudes differed, however, in terms of the strength with which they were held: the attitudes in the high elaboration conditions were stronger than those in the low elaboration conditions.

2.4.2. Response latencies

The response latencies for the first evaluative judgment and the first attribute were subjected to a 2 (elaboration) \times 2 (judgment order) \times 2 (judgment type) mixed analysis of variance. A significant three-way interaction emerged, $F(1, 162) = 21.96$, $p < .001$, $\eta^2 = 0.11$. The eight experimental conditions are presented in Table 1. The two key hypotheses are examined below.

2.4.2.1. Interaction of attitude strength and judgment order on attribute judgments. The attribute judgment response latencies were analyzed by a 2 (elaboration) \times 2 (judgment order) analysis of variance. As predicted by the attitude strength moderation model, an interaction emerged, $F(1, 162) = 8.41$, $p = .004$, $\eta^2 = 0.004$. Decomposition of this interaction shows that the response latency difference between the first ($M_{\text{strong}} = 2778$ ms, $M_{\text{weak}} = 2857$ ms) and second ($M_{\text{strong}} = 2381$ ms, $M_{\text{weak}} = 1818$ ms) responses were greater for judgments associated with weak, $F(1, 77) = 35.72$, $p < .001$, $\eta^2 = 0.32$, than with strong attitudes, $F(1, 85) = 3.11$, $p = .082$, $\eta^2 = 0.04$.

2.4.2.2. Influence of attitude strength on attribute judgments provided second. A tailored contrast revealed that there emerged a significant influence of strength on the attribute judgment provided second, $F(1, 79) = 10.34$, $p = .002$, $\eta^2 = 0.12$, such that the response latency for attribute judgments provided second were faster for judgments associated with weak ($M = 1818$ ms) than strong ($M = 2381$ ms) attitudes.

Table 1

Means (transformed from reciprocal to milliseconds), standard deviations, and n for response latencies as a function of judgment order, elaboration and judgment type, Experiment One.

	Strong	Weak
Evaluative judgments		
Second	1544.08 ms (5233.84) n = 43	1583.37 ms (4541.49) n = 42
First	1749.76 ms (4137.87) n = 44	2540.13 ms (5844.48) n = 37
Attributes judgments		
Second	2374 ms (5726.03) n = 44	1824.89 ms (5579.24) n = 37
First	2774.03 ms (6893.98) n = 43	2880.94 ms (8600.97) n = 42

2.5. Discussion

Recall the basic question motivating this research: are attitudes ever retrieved and used in order to make evaluative judgments? The results of Experiment One are consistent with the attitude strength moderation model. Attitude strength influenced the extent to which the first judgment facilitated the second. This differential facilitation is evident in the interactions between attitude strength and judgment order for both types of judgments, as well as the difference in response latencies for the attribute judgments provided second.

One might question whether these results can be explained by a construction perspective as well. For example, might it be possible that individuals with strong attitudes are constructing evaluative judgments, but doing so extremely quickly (e.g., Schwarz & Bohner, 2001)? The response to such a question would most likely have to be no. Recall that the attribute judgment is conceptualized as a subcomponent of the evaluative judgment process. In other words, the construction perspective predicts that evaluative judgments should always be slower than attribute judgments. This pattern is consistent with the judgments associated with weak attitudes. However, for the judgments associated with the strong attitudes, the attribute subcomponent takes more time ($M = 2778$ ms) than the entire process associated with the evaluative judgments ($M = 1754$ ms). It seems difficult to generate a parsimonious explanation for how an entire process (evaluative judgment) could take place more quickly than one of its components (attribute judgment). That is, the results associated with the strong attitudes are inconsistent with the construction model, and instead support the attitude strength moderation model.

The more cautious reader might object to this characterization and argue that response latencies require inferences about underlying mental processes and are too coarse to reach this conclusion. For instance, maybe the retrieval of the attribute information by those with strong attitudes was actually quicker than the attitude report but for some reason or the other, constructing the answer and mapping it onto the response format takes longer for these individuals. While it seems difficult to generate a plausible and parsimonious account, the fact remains that response times are an aggregate measure of not only the process we are interested in but other processes as well. For this reason, we rely upon a completely different operationalization and utilize eye tracking in Study 3 – if theoretically and substantively similar results were to be reached, it would afford us some measure of triangulation for our claims. However, we first need to address a more immediately present and subtle concern with Experiment One, which we address in Experiment Two.

⁸ Analyses using the untransformed responses provide statistically equivalent results.

3. Experiment Two

Although the results of Experiment One provide evidence consistent with the attitude strength moderation model over the construction perspective, a subtle, yet potentially important concern emerges. Given that participants did not report their attitude until after providing their response latencies, the question arises. Did the low elaboration condition cause participants to form a weak attitude, or simply not to form an attitude at all until prompted to when asked to report a judgment?

This question invokes the classic paper by [Hastie and Park \(1986\)](#), which advanced a model by which to understand the relationship between memory for attributes and evaluation based upon those attributes. Their approach emphasized the difference between on-line and memory-based tasks. Specifically, individuals who were unable to form evaluations on-line (akin to the low elaboration conditions in Experiment One), when asked to provide an evaluation, did so by constructing their evaluations based upon their memory of the trait information. In contrast, individuals who were able to form evaluations on-line (akin to the high elaboration conditions in Experiment One), when asked to provide an evaluation, did so by accessing and reporting their already constructed and readily available evaluation.

The on-line versus memory based alternative is a possibility for Experiment One because we cannot be sure that participants formed an attitude at the time of initial information exposure. If low elaboration participants did not form an attitude and high elaboration participants did, then the results of Experiments One could be due to the presence versus absence of forming an attitude rather than the presence of a strong versus a weak attitude. To address this alternative, in Experiment Two we had all participants complete an attitude measure at the time of the initial exposure so that all participants would have formed and expressed an attitude before the critical second task. However, low elaboration participants would presumably have formed a weak attitude requiring some reconstruction at time two whereas high elaboration participants would have formed a strong attitude that could be directly retrieved at time two.

In addition, recall that Experiment One used a stimulus that provided minimal information to the participants: Four lines of text; the name of the brand along with three attributes. A question arises as to whether the findings of Experiment One would replicate under conditions more typical of persuasion studies in which more extensive information is provided. To explore this question, the advertisement used for Experiment Two was informationally richer than that used in Experiment One.

3.1. Methods

3.1.1. Participants and design

Sixty five undergraduate students participated in exchange for \$20. At the beginning of the experimental session, participants were presented with an advertisement for a fictitious charity called World Aid (provided in the online supplemental materials). Participants were randomly assigned to examine the advertisement either under conditions of high or low elaboration so they would form relatively strong or weak attitudes. Immediately following exposure to the ad, participants completed measures to assess their attitudes towards the charity and the strength of those attitudes.

After viewing the ad and providing measures of their attitudes and attitude strength, participants completed a series of unrelated booklets for approximately 20 min in order to provide a temporal delay and clear contents of working memory, after which, they completed the focal computer task during which they answered both evaluative and attribute judgments. Participants first responded to questions about a variety of unrelated brands in order to familiarize themselves with the response latency task. Then, participants were asked the key evaluative and attribute judgments about the charity.⁹ The order in which participants completed the two types of responses was manipulated such

that half completed the evaluative judgment first and the others completed the attribute judgment first.

The design of the experiment was thus a 2 (elaboration: high versus low) \times 2 (judgment order: attribute versus evaluative judgment first) \times 2 (judgment type: evaluative versus attribute) mixed factorial design experiment with the first two factors between- and the third factor within-participant. All manipulations and exclusions in this experiment are disclosed.

3.2. Independent variables

3.2.1. Elaboration

Elaboration was manipulated in a manner similar to Experiment One. Participants were randomly assigned to either high or low elaboration prior to reading the advertisement. Participants in the high elaboration conditions were instructed to pay attention to their thoughts and feelings while reading information. Participants in the low elaboration conditions were given a secondary task (to count the number of polysyllabic words in the advertisement) designed to reduce their resources available for elaboration while reading the information. As such, any attitude formed towards the charity would be based upon non-thoughtful inferences and associations, thus producing a weakly held, but positive attitude towards the charity.

3.2.2. Judgment type

Participants provided two types of judgments – evaluative and attribute.

3.2.3. Judgment order

Judgment order was manipulated such that half of the participants first completed the evaluative judgments followed by the attribute judgments, and the other half first completed the attribute judgments followed by the evaluative judgments.

3.3. Dependent variables

3.3.1. Manipulation checks

After reading the advertisement, participants completed measures to assess their attitude towards the charity and the strength with which these attitudes were held. These questions were answered immediately following exposure to the advertisement. Attitudes towards the charity were assessed utilizing four bipolar scales anchored at -4 with “bad”, “unfavorable”, “negative” and “dislike”, and at $+4$ with “good”, “favorable”, “positive” and “like.” As in other research, analyses revealed the four scales to be highly inter-related ($\alpha = 0.92$), and they were averaged for further analyses.

Attitude strength was assessed with four scales anchored at 0 with ‘not certain’, ‘not at all self-relevant’, ‘have not thought about it at all’ and ‘easy to change my opinion’ and at 10 with ‘extremely certain’, ‘extremely self-relevant’, ‘have thought about it a great deal’ and ‘difficult to change my opinion.’ As in other research, analyses revealed the four scales to be moderately inter-related ($\alpha = 0.77$), and they were averaged for further analyses.

3.3.2. Response latencies

Approximately 20–25 min after providing reports of their attitudes and the strength with which those attitudes were held, the key dependent measures were assessed. The primary dependent variable of interest was the response latencies for the evaluative and the attribute judgments. Evaluative judgments were measured by showing participants the words ‘World Aid’ on the screen coupled with a pair of

⁹ To be clear, participants read the advertisement and completed the initial attitude and attitude strength measures at the beginning of the experiment. Approximately 20 min later they completed the response latency task.

adjectives, one on the left (the 'q' key) and one on the right (the 'p' key). Three sets of adjectives generally used to assess global attitudes were used - 'like-dislike', 'positive-negative' and 'good-bad'. Participants responded by choosing the word that indicated how they felt.

The attribute judgments were measured by presenting participants with three sentences about World Aid that they had been presented with initially in the advertisement. Each sentence was paired with two words, 'false' on the left (the 'q' key) and 'true' on the right (the 'p' key). Participants were instructed to indicate whether they had seen the sentence in the ad by choosing the appropriate key. All participants were instructed prior to the computer task that they should answer all questions as quickly and accurately as possible. As in Experiment One, only the latency for the first evaluative and attribute judgments were used for the analyses.

3.4. Results

3.4.1. Manipulation checks

The attitudes towards the charity and the attitude strength with which these attitudes were held were regressed on elaboration. For attitudes, there was no effect of elaboration, with high elaboration ($M = 1.90$) and low elaboration ($M = 1.70$) not differing statistically, $F(1, 61) = 0.62, p = .434, \eta^2 < 0.01$. Strength, however, did differ across the elaboration conditions such that participants in the high elaboration condition reported stronger attitudes ($M = 4.78$) than participants in the low elaboration condition ($M = 3.77$), $F(1, 61) = 4.12, p = .047, \eta^2 = 0.06$. As such, the elaboration manipulation worked as intended. Equally positive attitudes were created for high and low elaboration conditions. These attitudes differed, however, in terms of the strength with which they were held: the attitudes in the high elaboration conditions were stronger than those in the low elaboration conditions.

3.4.2. Response latencies

The reciprocally transformed response latencies for the first evaluative judgment and the first attribute were subjected to a 2 (elaboration) \times 2 (judgment order) \times 2 (judgment type) mixed analysis of variance.¹⁰ A significant three-way interaction emerged, $F(1, 59) = 10.68, p < .001, \eta^2 = 0.11$. The eight experimental conditions are presented in Table 2.

3.4.2.1. Interaction of attitude strength and judgment order on attribute judgments. The attribute judgment response latencies were analyzed by a 2 (elaboration) \times 2 (judgment order) analysis of variance. As predicted by the attitude strength moderation model, an interaction emerged, $F(1, 59) = 9.66, p = .003, \eta^2 = 0.14$. Decomposition of this interaction shows that the response latency difference between the first ($M_{\text{strong}} = 3333$ ms, $M_{\text{weak}} = 4000$ ms) and second ($M_{\text{strong}} = 2941$ ms, $M_{\text{weak}} = 2128$ ms) responses were greater for judgments associated with weak, $F(1, 30) = 30.55, p < .001, \eta^2 = 0.51$, than with strong attitudes, $F(1, 29) = 0.81, p = .376, \eta^2 = 0.03$.

3.4.2.2. Influence of attitude strength on attribute judgments provided second. A tailored contrast revealed that there emerged a significant influence of strength on the attribute judgment provided second, $F(1, 34) = 9.90, p = .003, \eta^2 = 0.23$, such that the response latency for attribute judgments provided second were faster for judgments associated with weak ($M = 2128$ ms) than strong ($M = 2941$ ms) attitudes.

¹⁰ As in Experiment One, we provide the analytic results for the reciprocally transformed latencies. And as in Experiment One, the results for the untransformed latencies provided statistically equivalent results.

Table 2

Means (transformed from reciprocal to milliseconds), standard deviations, and n for response latencies as a function of judgment order, elaboration and judgment type, Experiment Two.

	Strong	Weak
Evaluative judgments		
Second	1585.22 ms (5585.72) n = 11	1478.06 ms (4006.67) n = 16
First	2237.17 ms (7964.00) n = 20	2637.05 ms (7859.66) n = 16
Attributes judgments		
Second	2982.77 ms (8559.23) n = 20	2136.75 ms (7338.86) n = 16
First	3366.29 ms (9458.41) n = 11	4006.38 ms (12, 484.71) n = 16

3.5. Discussion

Recall that Experiment Two was conducted in order to address a specific question: Are the results of Experiment One the result of differences in attitude strength, or instead differences in attitude formation? Experiment Two replicated the results of Experiment One, even with all participants having provided (and as such having had an opportunity to form) an attitude prior to the response latency task. As such, Experiment Two bolsters support for the conceptualization that attitude strength and not attitude formation underlies the attitude strength moderation results.

In addition, Experiment Two was designed to address the question of whether the results of Experiment One would generalize to a design more typical of persuasion experiments. Specifically, Experiment One provided an informationally sparse stimulus, containing only the attitude objects' name and three traits. In contrast, Experiment Two was informationally richer, and presented in the form of an advertisement. Even given these difference, the results replicated, thus providing consistent support for the attitude strength moderation model over the construction perspective.

Of note is that a strength of Experiments One and Two in combination is that the possible concerns of one experiment are offset by the others. The lack of measurement of attitudes and attitude strength prior to the assessment of response latencies in Experiment One could raise the concern of whether the processes we found emerge with the inclusion of such measurement. And the presence of such measures in Experiment Two could raise the concern that individuals may not respond similarly had not the attitudes been assessed. Similar concerns and responses could be raised concerning amount and type of information as well as temporal distance between attitude formation and response time task. The two experiments in tandem assuage the concerns associated with either one alone.

Although the results of Experiments One and Two are consistent with the predictions of attitude strength moderation, it is important to note that they draw inferences from response latencies to verbal reports of attitudes and attributes. These response latencies, while providing inferences regarding attitude retrieval/construction, do suffer from a drawback. This drawback is related to the fact that verbal reports incorporate a number of processes including, but not limited to, reading the question, understanding the question, retrieving information from memory, formulating a response and aligning the response to the response scale, et cetera. A non-verbal measure would bolster support for the results uncovered in Experiments One and Two. This concern provides the foundation for Experiment Three.

4. Experiment Three

In Experiments One and Two we relied upon response latencies to infer that which is retrieved. That which comes to mind should have consequences for the extent upon which external information is relied in order to arrive at a judgment. To wit, something coming to mind should reduce the need for external search. Though the results of Experiments One and Two support the attitude strength moderation model over the construction perspective, it would be desirable to find convergent evidence using a measure strikingly different from response latencies. That is, to find additional measures that are conceptually independent from response latencies that are able to replicate the response latency results would provide triangulation of the processes underlying evaluative judgments, and thus bolster the support for the attitude strength moderation model. The motivation of Experiment Three is to provide such convergent evidence. To do so, we use eye tracking to examine external search for information prior to judgment, thus providing the opportunity to extend the results of Experiments One and Two beyond the measure of response latencies.¹¹

4.1.1. Search for external information

To empirically explore whether attitudes or chronically accessible information possesses preferential access (i.e., comes to mind first), it is helpful to consider whether and when external contextual information is employed in order to provide judgments. That is, in providing a judgment, does one rely on information external to oneself, or instead retrieve stored, internal information?

4.1.1.1. Evaluative judgments. Both perspectives suggest that attitude strength should influence evaluative judgments, such that evaluative judgments associated with strong attitudes require less external search than those associated with weak attitudes. Both perspectives agree that evaluative judgments associated with weak attitudes require more external search, as neither chronically accessible attribute information nor accessible attitudes are likely to be available.

And both perspectives agree that evaluative judgments associated with strong attitudes should require less external search. From a construction perspective, evaluative judgments associated with strong attitudes are the result of chronic accessibility, and as such do not require external search. From the attitude strength moderation model, evaluative judgments associated with strong attitudes are the result of attitude retrieval, and as such do not require external search.

4.1.1.2. Attribute judgments. The two perspectives diverge in their predictions for the influence of attitude strength on attribute judgments. Both perspectives agree that attribute judgments associated with weak attitudes require more external search, as neither chronically accessible attribute information nor accessible attitudes are likely to be available. The distinguishing hypothesis concerns whether attribute judgments associated with strong attitudes require external search.

The construction perspective would predict that there is no need to search for external information in order to provide an attribute judgment. Rather, chronically accessible information should quickly come to mind and guide judgment. And since an evaluative judgment is based upon this attribute information, there is no need for external search to provide this judgment either. In contrast, the attitude strength moderation model would predict that it is the strong attitude that quickly comes to mind, and attribute information is unlinked to such retrieval, and even possibly absent from memory. As such, attribute judgments

¹¹ Response latencies to the evaluative or attribute judgments were measured. As the results of single judgments are interpretable by both perspectives, they are not detailed.

would require external search.

The attitude strength moderation model would therefore predict an attitude strength by judgment type interaction, such that for evaluative judgments strength influences search, whereas for attribute judgments it does not. The construction perspective would, in contrast, predict a main effect, such that strength influences search for both evaluative and attribute judgments.

4.2. Methods

4.2.1. Participants and design

86 participants took part in the experiment.¹² Participants were randomly assigned to one of four cells of a 2 (elaboration: high versus low) × 2 (judgment type: attribute versus evaluative) × 3 (brand) mixed factorial experiment, in which the first two factors are between- and the last factor is within-participant. All manipulations and exclusions in this experiment are disclosed.

4.2.2. Procedure

Participants were seated at a computer and exposed to one page of information about three cameras (Modernei, Classico, and Blanc) under either high or low elaboration instructions.¹³ After a temporal delay of approximately 30 min, during which time participants worked on unrelated experimental materials, they were asked a series of either evaluative or attribute judgments about a number of non-focal brands (e.g., iPhone, Macbook, Samsung Galaxy etc.), among which were interspersed questions about the three focal brands. Examples are provided in the online Supplementary materials.

Of key diagnostic relevance, attribute information was available at the bottom of the screen during the time that participants provided their judgments. As such, participants could search for external information by looking at the bottom of the screen to help guide judgment. We refer to this attribute information as the area of external search. The ratio of the time spent looking at the area of external search to the overall time spent looking at the screen was recorded utilizing a Miramatrix S2 eyetracker with a 60 Hz refresh rate. This allows us to assess the predilection to engage in external search across the various conditions of the experiment. In addition, the response latencies to provide the judgments were assessed. As either perspective can provide an explanation for such single judgment type responses, the results of the response latency measure are not detailed herein.

4.3. Independent variables

4.3.1. Elaboration

Elaboration was manipulated in a manner similar to Experiments One and Two. Participants were randomly assigned to either high or low elaboration prior to reading the information about the three cameras. Participants in the high elaboration conditions were instructed to pay attention to their thoughts and feelings while reading the information. Participants in the low elaboration conditions were given a secondary task (to identify and add numbers present in the camera information) designed to reduce their resources available for elaboration while reading the information.

4.3.2. Judgment type

Participants were randomly assigned to either make attribute or

¹² 16 participants had to be deleted from the experiment because the eye tracking failed (e.g., some of them wore light reflective glasses which made the collection of eye tracking data unreliable, some of them looked back at some point in the experiment and the eye tracker thus lost track of their eyes etc.). Participant loss occurred randomly across all conditions (4, 5, 5, and 2 participants respectively from the four conditions).

¹³ Participants were told that all three cameras were in development, and that only one of the three would be launched. After viewing the information, participants were asked to select their preferred brand to launch.

evaluative judgments. To do so, participants were provided with a series of questions, in which they either judged whether the attribute was associated with the brand (by clicking on either ‘false’ or ‘true’ buttons) or whether they liked or disliked the brand (by clicking either ‘dislike’ or ‘like’ buttons). Participants provided one judgment per screen. After participants provided their judgment, a next screen appeared asking for another judgment.

4.3.3. Brand

Participants provided judgments to three focal brands. This within-participant variable did not interact with either of the two between-participant factors for either of the dependent measures (response latencies and eye-fixation). As such, we averaged the responses across the three brands for all analyses.¹⁴

4.4. Dependent variables

4.4.1. Ratio of eye fixations

The ratio of eye fixations on the area of external search to total eye fixations was assessed. The measure serves as a percentage of time spent looking at the area of external search prior to providing a judgment. Higher ratios reflect greater amount of time looking at the external area of search (Raschke, Blaschek, & Burch, 2014).

4.5. Results

The ratio of eye fixations on the area of external search was subjected to a 2 (elaboration) \times 2 (judgment type) analysis of variance. The elaboration \times judgment type interaction emerged as significant, $F(1, 66) = 14.59, p < .001, \eta^2 = 0.18$. The interaction was decomposed by examining the influence of judgment type for high and low elaboration conditions separately. As predicted by both perspectives, elaboration mattered for evaluative judgments, such that low elaboration participants spent more time looking at the area of external search (30.40%) than high elaboration participants (5.40%), $F(1, 34) = 20.70, p < .001, \eta^2 = 0.38$. In contrast, and as predicted by the attitude strength moderation model, elaboration did not matter for attribute judgments, as low ($M = 31.70\%$) and high ($X = 29.60\%$) elaboration participants spent the same amount of time looking at the area of external search, $F(1, 34) = 1.10, p = .295, \eta^2 = 0.03$. The eight experimental conditions are presented in Table 3. To summarize, participants with strong attitudes did not require refreshing their knowledge of attribute information to provide an evaluative response but did require it for providing an attribute judgment. In other words, they were unlikely to have been using ‘chronically accessible’ attribute information to ‘construct’ their evaluative judgments. An illustrative heat-map is presented in Fig. 2. Heat maps provide a figural representation of the amount of time spent looking at different parts of a page.

4.6. Discussion

Fundamental to the construction perspective is that attributes salient at the time of evaluative judgment are the bases of such judgments: This information can be either external or internal, depending (in part) on the elaboration associated with the object of judgment. Such an axiom entails that: 1) attribute judgments should be based on internal information under conditions of high elaboration, and on external information under conditions of low elaboration and 2) evaluative judgments, dependent upon attribute information, are also likely to

¹⁴ The inclusion of brand as a third factor did not influence the interpretation of the results. The elaboration \times judgment type interaction was moderated by brand. This three-way interaction was the result of the two-way interaction being stronger for one of the brands than the other two. However, the key elaboration \times judgment type interaction was significant for all three brands. As such, we do not present the results including brand as a third factor.

Table 3

Means, standard deviations, and n for ratio of eye fixation on area of external search as a function of elaboration and judgment, Experiment Three.

	Evaluative judgment	Attribute recognition
Strong	5.4% (0.09) n = 18	29.5% (0.05) n = 17
Weak	30.4% (0.21) n = 18	31.7% (0.06) n = 17

be based on internal information under conditions of high elaboration, and on external information under conditions of low elaboration.

Fundamental to the attitude strength moderation model is that attitudes can be retrieved and used as the basis for evaluative judgments independently of attribute information. Such retrieval is most likely to occur when the evaluative judgment is associated with strong attitudes, whereas attribute judgments associated with strong attitudes, as well as those evaluative judgments associated with weak attitudes are most likely to be the result of construction processes. Such an axiom entails that evaluative judgments associated with strong attitudes are most likely to be based on internal information, whereas the other judgments are likely to be based on external information.

The results of Experiment Three are consistent with the predictions of the attitude strength moderation model. In addition, the results of Experiment Three provide convergent support for the attitude strength moderation model. The pattern of results predicted by the attitude strength moderation model are uncovered using not only response latencies, but also eye tracking. Of note is that eye tracking is conceptually distinct from response latencies, and as such, provide strong convergent support for the proposed model.

5. General discussion

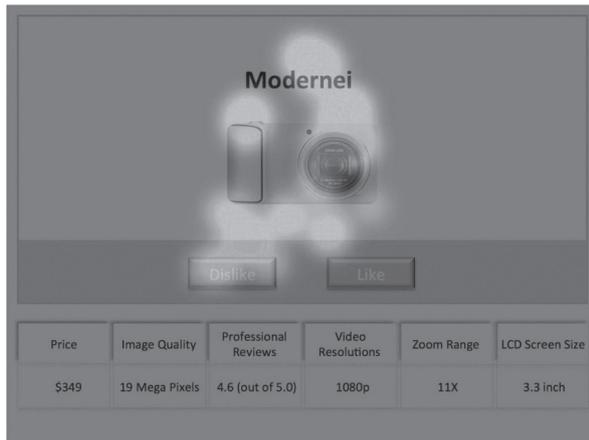
Recall the primary motivation for this article: Are attitudes ever retrieved in service of providing evaluative judgments? Although this may seem obvious to some, contemporary attitude construction theorists have argued that they are not. And this perspective has advanced explanations to account for past empirical results consistent with attitude retrieval. In contrast, we advance the attitude strength moderation model, which posits that attitudes can be retrieved, and are most likely to be retrieved when evaluative judgments are associated with strong attitudes.

A consideration of both perspectives yielded different predictions concerning sequential response latencies to evaluative and attribute judgments, as well as the extent to which external information is recruited in order to make a judgment. All three experiments provided support for the attitude strength moderation model over the construction perspective. Sequential response latencies revealed that evaluative judgments associated with strong attitudes were independent of attribute judgments. And eye-tracking data showed that evaluative judgments associated with strong attitudes relied less upon external information than attribute judgments associated with strong attitudes, as well as both judgments associated with weak attitudes.

One might concede that attitudes can be retrieved, but assert, “So what? Isn’t a preformed attitude just another among many possible items retrieved in order to make a judgment... just another item pulled from a file drawer chock full of possible influences?” We suggest that this is not the case. Rather, this research provides evidence for the *preferential access of attitudes*. Strong attitudes come to mind independently, and instead, of attribute information. Indeed, it is more accurate to consider that, rather than being one item among many for possible use, retrieval of an attitude results in shutting the file drawer quickly after such an attitude has been retrieved. Evidence already exists consistent with such a role for attitudes. As but one example, one

High elaboration

Evaluative judgment



Attribute



Low elaboration

Evaluative judgment



Attribute



Fig. 2. Typical visual fixations ratio heat maps of high and low elaboration participants responding to attribute and evaluative judgment, Experiment Three.

is less likely to notice subtle changes in faces of people towards whom one has a strong attitude (Fazio, Ledbetter, & Towles-Schwen, 2000). We would argue that such changes are missed because one is relying upon a preformed attitude, rather than scrutinizing closely the face of a well-liked friend. And the current research provides empirical support for an informally held belief about attitudes and attribute information: Once a strong attitude has been formed, it is retrieved independently and instead of attribute information (Anderson, 1981; Eagly & Chaiken, 1993; Lingle & Ostrom, 1981).

The current findings provide insight into not only past studies consistent with attitude strength moderation of evaluative judgments (e.g., Bem, 1967, 1972; Lavine et al., 1998; Wilson, Kraft, & Dunn, 1989), but also raise questions about the research consistent with construction (e.g., Novemsky, Dhar, Schwarz, & Simonson, 2007; Schwarz et al., 1991; Schwarz, 2004; Schwarz & Bless, 1992; Schwarz & Bohner, 2001). Typically, these studies demonstrate that the ease or difficulty associated with the retrieval of information influences a judgment. The present research suggests that there is likely to exist

unexplained heterogeneity of variance in these results. Specifically it is likely that those individuals with strongly held attitudes are less likely to be influenced by such manipulations than individuals with weakly held attitudes. That is, attitude strength plausibly moderates the past construction findings.

This influence of attitude strength is potentially operating beyond the scope of the current research. For example, individuals have been found to differ in the extent to which they form and hold strong attitudes (need for cognition; Cacioppo, Petty, & Kao, 1984). It is possible that those individuals who chronically hold strong attitudes are less likely to construct evaluative judgments across many different attitude objects. It is also possible that differences in attitude strength are reflected in different topics (Petty & Cacioppo, 1986a, 1986b) and categories (e.g., Posavac, Sanbonmatsu, Cronley, & Kardes, 2001). As such, there may be specific topics for individuals for which they are more likely to retrieve attitudes rather than construct evaluative judgments. And specific categories, such as grocery stores and fast food restaurants, may be more likely to elicit attitude retrieval than categories such as

charities.

In this paper we have focused on the nature of evaluative judgments. Are these findings limited to evaluative judgments? Stereotypes, often conceptualized as an automatically retrieved response to a person or group of people based upon their identity, seem a construct particularly relevant to the question of attitude retrieval versus construction. Though these immediate reactions can be overridden (e.g., Devine, 1989), the power of stereotypes and our fascination with them, would appear to lie in the immediate reaction. Indeed, these retrieved stereotypes can be conscious or unconscious (Greenwald & Banaji, 1995), and not susceptible to contextual information. To what extent is the judgment a retrieved attitude or a constructed reaction? The present research suggests that the nature of a stereotype can differ as a function of the strength with which it is held. Research demonstrates that stereotypes can be formed through high or low elaboration (Wegener, Clark, & Petty, 2006). Presumably, the stereotypes created as a result of high elaboration are likely to result in attitude retrieval, whereas the stereotypes created as a result of low elaboration are likely to rely on construction. As a consequence, it is weak stereotypes that are more likely malleable and easily changed. In contrast, changing strong stereotypes may be more difficult as a result of the retrieval of a stored response. At the very least, they would require substantially different persuasion techniques. Exploring which constructs are the result of construction versus attitude retrieval provides a possible perspective for future research.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jesp.2017.12.005>.

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