When are automatic social comparisons not automatic? The effect of cognitive systems on user imagery-based self-concept activation ☆

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Abstract

Following the tenets of the selective accessibility model of assimilation and contrast, three studies observed implicit consumer self-concept assimilation (contrast) to age-based imagery when the discrepancy between the self-concept and advertisement imagery was moderate (extreme). However, these responses were not fully automatic as only consumers who processed user imagery reflectively demonstrated increased accessibility of similarity/dissimilarity information. Impulsive processing of the user imagery instead increased the accessibility of consumer's pre-existing dominant self-age association. A final experiment revealed that these changes in the active-self mediated response to subsequently advertised products. Taken together, these results support a two-systems model of cognition and suggest that assimilation/contrast responses to advertising and subsequent behavior are influenced by the consumer's processing strategy.
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Keywords: Assimilation; Contrast; IAT; Self-concept; Self-identity; Implicit

Self-identification with a social group has been found to influence a wide variety of consumer behaviors including spokesperson, sponsorship and advertising response (Brasel & Gips, 2011; Deshpande & Stayman, 1994; Dimofte, Forehand, & Deshpande, 2004; Forehand & Deshpande, 2001; Grier & Deshpande, 2001), food consumption (O'Guinn & Meyer, 1984; Stayman & Deshpande, 1989; Wallendorf & Reilly, 1983; Wooten, 1995; Wooten & Reed II, 2000), media usage (Saegert, Hoover, & Hilger, 1985), information processing tendencies (Escalas & Bettman, 2003; Meyers-Levy & Sternthal, 1991; Wheeler, Petty, & Bizer, 2005), preferences for global versus local products (Zhang & Khare 2009) and charitable giving (Reed II, Aquino, & Levy, 2007; Shang, Reed II, & Croson, 2008). Unsurprisingly, marketers often try to get their products to

appeal to consumers by presenting an appealing identity in their advertising imagery and content. For example, the Axe brand consistently depicts its users as young, attractive men whom equally attractive women find irresistible. When a consumer views such an advertisement featuring young, virile actors, marketers hope that the consumer will identify with those actors, or at least aspire to be like them. Because youth is valued in society, it is thought that identification with youth should strengthen the consumer's *self-youth* social identity and lead to positive feelings toward the self and the brands or products that are associated with youth.

Social identities such as the youth-identity previously described develop over time when they are repeatedly activated and reinforced by cues in the external environment (Reed II & Forehand, 2010). Although the power of these cues to shape identification is generally accepted, the likely effect of any given cue is less straight-forward (Sela & Shiv, 2009). Previous research on *assimilation/contrast effects* in consumer behavior suggests that social identity dimensions that are highlighted in marketing stimuli may reinforce a consumer's social identity by either

strengthening (an assimilation effect) or weakening (a contrast effect) identity-relevant characteristics within the self-concept. In the current context, a consumer exposed to youthful imagery might attend to similarities between himself and the imagery and thereby increase his personal sense of youth. Alternatively, the consumer might classify these actors as clear "others" (Berger & Heath, 2007) and this categorization could weaken his self-association with youth.

A generally accepted model of these identification effects argues that primes activate a *relative* subset of multi-dimensional associations (see Wheeler & Sleeth-Kneppler, 2011) and self-related information. The resulting "active-self-concept" may then alter subsequent perceptions and behaviors (DeMarree, Wheeler, & Petty, 2005; Markus & Kunda, 1986; Wheeler, DeMarree, & Petty, 2007). This activation of sub-components of the self-concept can occur at both conscious (Ruvolo & Markus, 1992) and unconscious levels (Bargh, Chen, & Burrows, 1996; DeJong, 1979), and can affect behavior (Wheeler et al., 2007). Supporting this contention, Smeesters and Mandel (2006) observed that changes in consumer body-image self-esteem after exposure to models in the media are shaped by assimilation and contrast processes and that the underlying basis of this influence is self-knowledge activation. This conception of the active self also bears on models of assimilation and contrast that argue that assimilation (contrast) occurs when standard-consistent (inconsistent) information becomes more accessible (Mussweiler, 2003). In the current context, Mussweiler's selective accessibility model would predict that comparison to extremely discrepant user imagery should increase the accessibility of dissimilarity information while comparison to moderately discrepant user imagery is more likely to increase the accessibility of similarity information. Although shifts in accessibility can occur automatically (Mussweiler, Ruter, & Epstude, 2004; Stapel & Blanton, 2004), we propose that the likelihood of an assimilation/contrast response to user imagery will increase to the degree that the consumer reflectively processes the user imagery, a result that would support recently developed two-systems model of social cognition (Gawronski & Bodenhausen, 2006; Hafner & Trampe, 2009; Strack & Deutch, 2005).

This research makes several important contributions to our understanding of assimilation and contrast generally and to consumer response to user imagery specifically. First, by incorporating recent theorizing on two-systems models of social cognition, this project identifies an important moderator of traditional models of assimilation and contrast (Mussweiler, 2003). Previous research has observed that assimilation and contrast responses can occur automatically (Bargh, 1989; Dijksterhuis et al., 1998; Stapel & Blanton, 2004), even in response to subliminal presentation of social information (Mussweiler et al., 2004). Although such automatic effects are clearly possible, we argue that the degree to which social comparison elicits similarity/dissimilarity information depends on whether consumers engage in reflective or impulsive social comparison. Second, the present experiments demonstrate the proposed influence of social comparison on implicit self-activation through the use of Implicit Association Tests (Greenwald, McGhee, & Schwartz, 1998) that allow a more precise

assessment of self-activation than other direct or indirect measures. When prior research on assimilation and contrast has used indirect measures of accessibility, they have typically used lexical decision tasks (see Mussweiler & Strack, 1999 for a review). Although such tasks do measure accessibility indirectly, they have traditionally been used to measure general accessibility of a concept as opposed to the strength of association of that concept with the self. Given that implicit self-concept activation is generally presumed to underlie many assimilation and contrast responses, the IAT's attention to precise self-activation and association of the primed concept with the self is quite useful for assessing the underlying process. Finally, this project demonstrates that user-imagery-based shifts in implicit self-conception also influence subsequent judgments of identity-related products.

Conceptual development

Assimilation and contrast

Advertising user imagery is capable of producing either an assimilation or a contrast response within a viewing consumer's self-concept, whether that information is the relatively subtle use of identity-possessing actors or the blatant and explicit targeting of specific identity groups (Aaker, Brumbaugh, & Grier, 2000). The direction and extent of this influence is determined by a wide range of variables including the momentary salience and activation of the self (Stapel & Koomen, 2001a; Stapel & Van der Zee, 2006), whether the context is presented as an abstract composite/stereotype or a specified and known exemplar (Bargh, 1989; Dijksterhuis et al. 1998; Stapel & Suls, 2004), the appropriateness of the context as a comparison standard (Forehand & Perkins, 2005; Lombardi, Higgins, & Bargh, 1987; Martin, Seta, & Crelia, 1990; Schwarz & Bless, 1992), and the distinctiveness or extremity of activated information (Stapel, Koomen, & Velthuijsen, 1998).

The selective accessibility model (Mussweiler, 2003; Mussweiler & Strack, 1999) attempts to parsimoniously explain these many moderators of assimilation and contrast by arguing that any factor that activates context-consistent information will produce assimilation while any factor that activates context-inconsistent information will produce contrast. Supporting this contention, the magnitude of comparison effects is often influenced by the amount of available target knowledge (Chapman & Johnson, 1999). For example, individuals who compare themselves to others outside their identity categories differentially activate dissimilarity information (compared to those who compare within an identity category), promoting a contrast response (Mussweiler & Bodenhausen, 2002). Similarly, individuals who engage in global (local) processing of a context demonstrate assimilation (contrast) and this processing effect is partially mediated by the accessibility of judgment-consistent knowledge (Forster, Liberman, & Kuschel, 2008). The selective accessibility model is also supported by evidence that assimilation is more common when evaluators possess an activated social self-construal ("we") as opposed to a personal self-construal ("I"), presumably because a social self-construal facilitates activation of context-consistent information (Stapel & Koomen, 2001a).

Although assimilation and contrast effects are well documented in the consumer behavior literature, direct evidence for the hypothesized self-activation process that underlies the selective accessibility model is quite limited. In a notable exception, Smeesters and Mandel (2006) observed that consumer self-esteem is shaped by assimilation and contrast responses to models in the media and that the underlying basis of this influence is self-knowledge activation. Beyond this one example, to our knowledge, no research to date has assessed the factors within advertising that are likely to elicit selective self-accessibility or the extent to which these factors elicit automatic activation of identity-related information.

The two-systems model of social cognition

Current two-system models of social cognition (Gawronski & Bodenhausen, 2006; Strack & Deutch, 2005) suggest that social behavior results from the interaction of two separate cognitive systems that follow distinct operating principles. Strack and Deutch (2005) posit that social behavior arises as a joint function of *reflective* and *impulsive* systems. The *reflective* system actively cogitates on retrieved information (relational schemas connecting retrieved information and perceptual input) to generate declarative knowledge that results in behavioral intentions and subsequent behavioral schemata activation. In contrast, the *impulsive* system is conceptualized as a simple associative network, acting as both a source of information for the reflective system, and directly influencing behavior when the reflective system is otherwise engaged. The reflective and impulsive systems are not mutually exclusive but rather work in parallel, frequently interacting while one solves problems or processes environmental information. Cues in the environment (e.g., self-identity-relevant information in an advertisement) are processed within the impulsive system, but due to a lack of attention, cognitive capacity, or distraction, that information may not enter into the reflective system. Should sufficient resources exist to attend to information activated within the impulsive system, that information may be incorporated into the reflective system, at which time a *truth value* is assigned. Defined as a conscious assessment of the accuracy or inaccuracy of activated information, this truth value serves to establish a relationship between the information retrieved from memory and the novel environmental cues of interest. The two-systems model posits that environmental information is always processed by the impulsive system, but not necessarily processed by the reflective system.

The two-system models previously described differ in important ways from previously described cognitive models that propose separable modes of processing. These earlier models and accompanying theories focused primarily on phenomena and results specific to a particular domain. For example, the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) and the Heuristic/Systematic Model (HSM; Chaiken, 1987) focus on attitude formation, while others such as the MODE model (Fazio, 1990) examined the relationship between previously formed attitudes and behavior. More current models (Gawronski & Bodenhausen, 2006; Strack & Deutch, 2005) expand beyond domain-specific phenomena, suggesting similarities in cognitive process regardless of the construct of interest. Relevant to the current research, these latter models accommodate the current theorizing regarding the activation of self-identity-relevant information and its influence on assimilation/contrast effects, something the former models are unable to do as a result of their domain specificity.

Connecting the two-systems model and assimilation/contrast

Prior research has demonstrated assimilation toward contexts that are moderately discrepant with a target and contrast toward contexts that are extremely discrepant (Herr, 1986; Lockwood & Kunda, 1997; Pelham & Wachsmuth, 1995; Smeesters & Mandel, 2006). Based on the previous discussion, whether an individual assimilates toward or contrasts away from an observed target depends on *how activated self-relevant information is processed*. Although the process of activating self-relevant information is often automatic (Bargh, 1989; Dijksterhuis et al., 1998; Gilbert, Giesler, & Morris, 1995; Stapel & Blanton, 2004; Mussweiler et al., 2004), reflectively cogitating on one's comparison to a standard should focus the individual on a subset of self-relevant attributes that are either similar (in the case of a moderately discrepant comparison object) or dissimilar (in the case of an extremely discrepant comparison object) to that standard (Mussweiler & Strack, 1999; Stapel & Koomen, 2001b). In both of these situations, the observer assigns a truth value to the relevant self-related information: when the advertising model is moderately (extremely) discrepant, the observer agrees (disagrees) with the activated self-related information that they are similar to the advertising model. These reflective evaluations should produce self-concept assimilation and contrast, respectively.

In contrast, impulsive processing of advertising user imagery will not necessarily increase the accessibility of similarity/ dissimilarity information. Although social comparison can clearly occur automatically (Mussweiler et al., 2004; Stapel & Blanton, 2004) and does not require reflective processing (Hafner & Trampe, 2009), impulsive processing may produce more limited shifts in accessibility shifts due to the complexity and diversity of advertising content. When viewing an advertisement without focal attention on user imagery, a consumer's attention may be directed at a variety of elements including product features, likely consumption situations, and so on. Although such divided attention does not preclude self-comparison accessibility changes, it may significantly reduce the influence of user-imagery on the accessibility of similarity/ dissimilarity information. Moreover, if impulsive processors evoke less comparison information in response to user imagery, the automatic effect of user imagery exposure may simply be to activate the dominant pre-existing associations the consumer possesses.

In the context at hand, exposure to age-related user imagery should thus shift the accessibility of self-youth similarity/ dissimilarity more dramatically for reflective processors than for impulsive processors. Moreover, given that most individuals possess a significant self-association with *young* rather than *old* (Greenwald et al., 2002; Hummert, Garstka, O'Brien, Greenwald,

& Mellott, 2002), it is expected that impulsive processing of age-based advertising imagery should produce a general *self + youth* association regardless of one's objective youth. In summary, these propositions suggest that consumers should assimilate toward moderately discrepant user imagery and contrast with extremely discrepant user imagery, and the magnitude of these effects should increase when the self-relevant information is processed via the reflective processing path.

Experiment 1

Experiment 1 was designed to assess whether traditional assimilation and contrast responses are moderated by reflective versus impulsive processing and whether these effects are observable at the level of basic cognitive activation. To this end, subjects were exposed to advertising that included age-differentiated user imagery and were instructed to either explicitly evaluate whether the advertising targeted them personally (reflective processing) or were given no such comparison instructions (impulsive processing). After viewing this focal age-targeted advertisement, consumers evaluated the advertising and completed an Implicit Association Test that measured how strongly they self-identified with youth as part of their self-concept. To the extent that the consumer assimilates toward the depicted "older" user imagery, his or her self-youth associations should weaken (the consumer should perceive him or herself as "older"). To the extent that the consumer contrasts with the depicted user imagery, his or her self-youth associations should strengthen (the consumer should perceive him or herself as "younger"). Each participant was randomly assigned to one of six conditions in the 3 (user imagery: control/college age, moderately discrepant/late 20s, extremely discrepant/senior citizen) × 2 (instructed to compare versus no instruction) between-subjects design.

The incorporation of a control condition (college age user imagery) was critical to allow assessment of the component assimilation and contrast effects. In most assimilation/contrast research, subjects are exposed to contextual stimuli that differ on a dimension of interest and these dimensions are normally presented at two levels (e.g., high and low). When subsequent target evaluation is higher in the "high" condition, assimilation is demonstrated. When subsequent target evaluation is lower in the "high" condition, contrast is demonstrated. Although this paradigm is robust for testing many moderators of assimilation and contrast, it is potentially deceptive in the current domain as an overall contrast between old and young imagery exposure could mask the component effects of each type of imagery relative to the consumer's baseline self-youth association. This allows tests of the differential effect of context exposure on the self-concept without assuming symmetric assimilation and contrast responses.

Method

Participants

One hundred twenty-seven undergraduate students participated as part of a class requirement. Of these, 72 were female (57%)

and 55 were male (43%). The average age of the participants was 21.

Advertisement stimuli

Three advertisements were constructed that differed only in the featured user imagery. All three ads featured the same ad layout, the same product benefits, and the same brand name ("Basic Nutrition"). In the middle of each advertisement, two photographs were presented: a photograph of the product and a photograph of a pair of typical users of the product. The only difference between the ads was the depicted user imagery. Each ad featured a male/female couple with their arms around each other. In the control condition, the individuals were college aged, in the moderately discrepant condition they were individuals in their late 20s, and in the extremely discrepant condition they were senior citizens. At the bottom of the page, the benefits of the product were briefly described.

Procedure and measures

Upon arrival, participants were randomly assigned to a research condition and were given a copy of the advertisement to evaluate. To manipulate reflective versus impulsive processing, participants were instructed to either explicitly evaluate their target market status (reflective processing condition) or not (impulsive processing condition). Participants who explicitly evaluated their target market status completed the following three questions: "Do you think that you are the target for the advertisement?" (1 "Not At All" to 7 "Very Much"), "How similar are you to the group to which this product is marketed?" (1 "Not Similar At All" to 7 "Very Similar"), and "What percentage of people to which this product is marketed are similar to you?" These evaluations of target market status were also used as a manipulation check to verify that the moderately and extremely discrepant user imagery conditions were perceived as such by the participants.

The IAT is a computer-based method for indirectly measuring the strength of associations amongst concepts or objects in memory (Greenwald et al., 1998; Brunel, Tietje, & Greenwald, 2004). In general, the theory underlying the IAT assumes it should be easier to make the same behavioral response (e.g., a key press) to paired concepts when they are associated in memory compared to when they are not paired in memory. The relative ease or difficulty of association is measured by response latencies, such that faster responses are interpreted as stronger association between objects. The self-youth IAT used in the current experiment measured the ease with which a participant associates their own self-concept (the target-concept) with the concept of "young" versus "old" concepts (the attribute dimension). Specifically, participants categorized adjective concepts as either "Self" or "Other" (the target-concept discrimination task) and a number of age-related attributes as "Young" or "Old" (the attribute dimension discrimination task) as quickly as possible. The key dependent measure in the IAT is the speed with which the participant can categorize the "self" target-concept when it shares a response key with "young" attributes compared to when it shares a response key with "old" attributes. To the extent that a consumer's self-concept is associated with youthful attributes, the

mean response latency should be faster (slower) when the self concepts share a response key with young (old) attributes. As the strength of association between the self and young increases, the latency difference between the two paired categorization tasks (or IAT effect) should also increase (Greenwald et al., 1998; Stapel & Blanton, 2004). To allow a comparison of the resulting IAT self-youth associations across conditions, each participant's IAT responses were translated into the *D* measure (Greenwald, Nosek, & Banaji, 2003). The *D* measure was computed such that larger scores indicate a stronger self-youth association. A full description of the IAT methodology and scoring is provided in the appendix.

Results

Manipulation check

To verify that the manipulation of user imagery discrepancy was effective, the degree to which participants believed they were part of the advertisement's target market was compared across the three age conditions. To create a single measure of similarity, the three targeting measures were averaged into a single score (Cronbach $\alpha = 0.92$). This required converting the third target market measure ("What percentage of people to which this product is marketed are similar to you?") into $1-7$ point scale to provide compatibility with the other two target market items. Supporting the proposed manipulations, significant differences existed between participants' evaluation of the degree to which each advertisement targeted them (control=4.44, moderately discrepant=2.88, extremely discrepant=1.93; $F(1,72)=20.61$, $p < 0.01$). Most importantly, a planned contrast revealed that there was a significant difference between the moderately and extremely discrepant conditions (moderately discrepant=2.88, extremely discrepant=1.93, $F(1,72)=5.73$, $p < 0.05$).

Assimilation/contrast results

It was hypothesized that participant self-concept association with youth will assimilate toward moderately discrepant user imagery and contrast away from extremely discrepant user imagery. In addition, it was hypothesized that these effects will be moderated by explicit evaluation of target market status prior to self-concept evaluation as this would encourage reflective processing. Supporting this predicted pattern of results, an interaction of ad type and target market evaluation was observed on subsequent self-youth association ($F(2,124)=3.17$, $p < 0.05$). Fig. 1 depicts the cell means.

To better understand this main finding, we further analyzed the results by comparing the difference in self-youth association between the control and each of the other two advertising conditions crossed with whether or not the participant engaged in impulsive or reflective processing. When comparing the control to the moderately discrepant user imagery, assimilation would be indicated by a stronger self-youth association among participants exposed to the college age (control) user imagery than among participants exposed to the late 20s (moderately discrepant) user imagery. In addition, this hypothesized assimilation effect should be stronger when participants evaluated their target market status at the outset. Planned
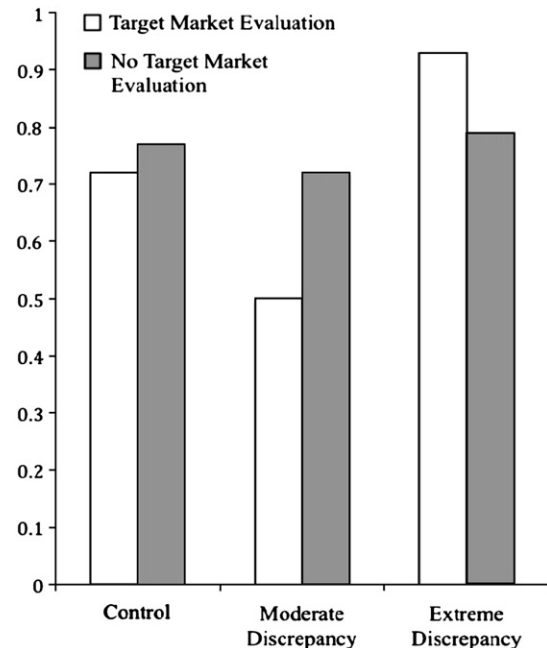

Fig. 1. Cell means for experiment 1.

contrasts revealed the predicted assimilation response when participants explicitly evaluated their target market status (control $D=0.72$; moderate discrepancy $D=0.50$; $F(1,124)=4.52$, $p < 0.05$), but not when participants did not evaluate target market status (control $D=0.77$; moderate discrepancy $D=0.72$; $F(1,124)=0.19$, n.s.). A larger D score represents a stronger self-youth association on the IAT.

When comparing the control to the extremely discrepant user imagery, the predicted contrast response would be indicated by a stronger self-youth association (represented by a larger D score) among participants exposed to the senior citizen user imagery (extreme discrepancy) than among participants exposed to the college age user (no discrepancy) imagery. In addition, this hypothesized contrast response should be stronger when participants explicitly evaluated their target market status at the outset. Planned contrasts revealed the predicted contrast response when participants explicitly evaluated their target market status at the outset (control $D=0.72$; extreme discrepancy $D=0.93$; $F(1,124)=4.15$, $p < 0.05$), but not when participants did not explicitly evaluate target market status (control $D=0.77$; extreme discrepancy $D=0.79$; $F(1,124)=0.08$, n.s.).

Discussion

Experiment 1 provides preliminary support for interpreting assimilation/contrast effects within the two-systems models previously described. Consider the three conditions where subjects viewed the control, moderately discrepant and extremely discrepant user imagery but did not answer the target market questions. In these cases, we observe the expected self-youth association found in previous research (Greenwald et al., 2002; Hummert et al., 2002) (all *D's* are around .70, interpreted as a relatively large IAT effect), indicating that while viewing the advertisements did evoke the appropriate self-identity

attribute (self-youth), there was no direct comparison to the models in the advertisement. Further, the significant self-youth association revealed in the IATs is consistent with previous research that has observed that individuals tend to associate themselves with youthfulness and the young, regardless of their age. It should be noted, however, that this predilection toward a self-youth association does not preclude "older" information from being associated with the self; it merely suggests that the self-youth associations are stronger all else equal.

On the other hand, consider the three conditions where the subjects were asked to judge whether they were a part of the target market for the advertisement. In these cases, the activated self-identity information (self-youth) is assigned a truth value consistent with the impulsive path of the two-system social information processing framework. For subjects judging the moderately discrepant advertisement ("I am similar to these models, though they are slightly older") the self-youth information activated in memory is assigned a truth value of "false", focusing the subject on the attributes of the model that are older, de-emphasizing attributes of the models that are younger, thus leading the subjects to perceive themselves as relatively older than the control group. This shows up on the IAT as a weaker self-youth association (or, said another way, a stronger self-older association). On the other hand, subjects who view the extremely discrepant advertisement assign a truth value of "true" to the activated self-youth information which shows up on the IAT as an increased self-youth association compared to the control group. These truth value responses during reflective processing are consistent with the selective accessibility model proposed by Mussweiler (2003), but the current two-systems model further identifies when hypothesis testing is likely to prompt accessibility.

Motivating experiment 1 was the notion that reflective processing (assigning of truth values) of age-relevant information would produce greater assimilation and contrast responses to user imagery than would impulsive processing of the same stimuli. Although the results are consistent with the model's predictions, it is possible that reflective processing of target market status may have simply increased processing depth as opposed to directed attention to the truth value of the comparison. To more directly focus on the power of reflective truth value assessment, a second experiment was conducted that directly manipulated which subset of information was to be the focus. Specifically, participant attention was directed specifically to either one's similarities or dissimilarities with the depicted user imagery similar to past research on direction of comparison (Hafner, 2004). In contrast to experiment 1, where the subject was allowed to freely ascertain whether the advertising models were similar or different from themselves, in experiment 2 subjects were instructed to focus on either the similarities or the dissimilarities with the advertising models. In experiment 1, the assimilation response to moderately discrepant imagery was thought to be driven by the assigning of a "false" truth value to the naturally arising "self-youth" association. On the other hand, if the individual's attention is directed to relevant dissimilarities to the advertisement model, the individual should reflectively assign the activated self-youth information a truth value of "true", eliminating assimilation. Using the same

logic, if the contrast response to extremely discrepant imagery is driven by the assignment of a "true" truth value to the naturally arising "self-youth" association, directed attention to similarities should lead to the assignment of a "false" truth value, thus eliminating the contrast effects observed in experiment 1. Beyond the addition of this manipulation, experiment 2 was otherwise identical to experiment 1.

Experiment 2

Experiment 2 incorporated instructions to evaluate one's similarity or dissimilarity to the user imagery prior to advertising evaluation and self-concept measurement. The resulting design was a 3 (user imagery: control/college age, moderately discrepant/30-something, extremely discrepant/senior citizen) X 2 (reflective versus impulsive processing) X 2 (initial assessment of similarity/dissimilarity) between-subjects design. Although the similarity/dissimilarity manipulation effectively places all subjects in a reflective processing mode, the target status evaluation manipulation was carried over from experiment 1 to keep the two experiments as equivalent in procedure as possible.

Method

Participants

Four hundred forty-one members of a research panel participated in the experiment for compensation. Of these participants, 218 were female (50%) and 223 were male (50%). The average age of the participants was 20.

Advertisement stimuli

The basic advertisement design from experiment 1 was used in experiment 2.

Procedure and measures

The same procedure was used in experiment 2 as in experiment 1 with one exception. After evaluating the advertisement, participants then completed an open ended task that asked them to either "list three ways in which you are similar to the individuals pictured in the ad" or "list three ways in which you are dissimilar to the individuals pictured in the ad." After completing this similarity/dissimilarity assessment, half the subjects explicitly evaluated their target market status and half proceeded directly to the IAT.

Results

Assimilation/contrast results

It was hypothesized that participant self-concept association with youth will assimilate toward moderately discrepant user imagery and contrast away from extremely discrepant user imagery. In addition, it was hypothesized that these effects will be moderated by evaluation of self-user imagery similarities or dissimilarities prior to self-concept evaluation. Supporting this predicted pattern of results, an interaction of ad type and similarity/dissimilarity processing was observed on subsequent

self-youth association (F (2,438)=3.39, $p<0.05$). Fig. 2 shows the cell means.

We further analyzed the interaction by breaking down the results into a comparison of the difference in self-youth association between the control and each of the other two advertising conditions crossed with whether or not the participant engaged in initial similarity or dissimilarity assessment. First, it was predicted that attention to consumer-user imagery dissimilarity would eliminate assimilation toward moderately discrepant user-imagery. Planned contrasts revealed support for this prediction as participants assimilated toward moderate user imagery (a stronger self-old association on the IAT) when instructed to identify similarities (replicating E1, control $D=0.61$; moderate discrepancy $D=0.49$; $F(1,439)=5.06$, $p<0.05$), but not when the participant initially identified dissimilarities (control $D=0.61$; moderate discrepancy $D=0.63$; $F(1,439)=0.32$, n.s.). In short, subjects assigned a truth value of "false" to the self-youth information activated in memory when asked to focus on the slightly older models (producing an assimilation effect), but assigned a truth value of "true" when asked to focus on dissimilarities with those same models (e.g., the attributes of the model that were different). In each case, the focusing on a subset of age-related attributes ("older" attributes in the similarity condition, but "younger" attributes in the dissimilarity condition) both strengthens the attribute appropriate associations and deemphasizes associations that are the opposite, thus driving the responses on the IAT.

The second component of this prediction was that attention to similarities with the advertising model would eliminate contrast with extremely discrepant models. Planned contrasts revealed support for this prediction as participants contrasted with extreme user imagery when instructed to identify dissimilarities (similar to experiment 1, control $D=0.61$; extreme discrepancy $D=0.83$; $F(1,439)=21.04$, $p<0.0001$), but not when the participant initially identified similarities

(control $D=0.61$; extreme discrepancy $D=0.67$; $F(1,439)=1.18$, n.s.).

Discussion

Experiment 2 replicated the self-concept assimilation and contrast effects observed in experiment 1 and provided additional evidence that a) the assignment of truth values depends on whether subjects focus on similarities or dissimilarities with the moderately or extremely discrepant targets, and b) these truth values differentially direct the occurrence of assimilation or contrast effects toward these targets. Specifically, assimilation toward moderately discrepant user imagery was eliminated if participants first noted their dissimilarities with the advertising models, resulting in the assignment of a "true" truth value to the impulsively/associatively activated "self-youth" information, while contrast with extremely discrepant user imagery was eliminated if participants first noted their similarities with the depicted users, resulting in a "false" truth value to that same impulsively/associatively activated "self-youth" information.

Although experiments 1 and 2 provide substantial evidence for a two-systems model of assimilation/contrast effects, the effect of this activation on subsequent consumer behavior has not yet been addressed. Experiment 3 addresses this issue by assessing what effect differential self-youth activation has on subsequent response to youth-targeted stimuli.

Experiment 3

To assess what effect advertising induced trait activation in the self-concept has on subsequent consumer behavior, experiment 3 followed the same basic procedure of experiments 1 and 2, but directed participants to evaluate an additional age-targeted ad after completion of the self-youth IAT. Given this focus on the longer-term effects of trait activation, only two versions of the initial self-activating ad were used. Participants either viewed an initial ad featuring moderately older user imagery (which was shown to produce the weakest self-youth association in experiments 1 and 2) or an initial ad featuring extremely older user imagery (which was shown to produce the strongest self-youth association in experiments 1 and 2). All participants then explicitly evaluated their target market status for the initial ad (using the explicit evaluation measures from experiment 1). No instructions to evaluate similarity or dissimilarity with the depicted user imagery were provided. After completing all ad evaluation measures and a self-youth IAT, participants viewed an advertisement for a vacation resort that either featured young or old user imagery. Of critical interest in this experiment is whether initial exposure to moderate versus extreme user imagery would influence subsequent advertising response and whether the activation of youthful (or old) content in the self-concept would mediate any observed effects. Following past research on identity salience, it was hypothesized that activating a consumer's youth identity would favorably dispose the consumer to subsequent stimuli featuring youthful imagery (Forehand & Deshpande, 2001; Forehand, Deshpande, & Reed II, 2002; Reed II, 2004).
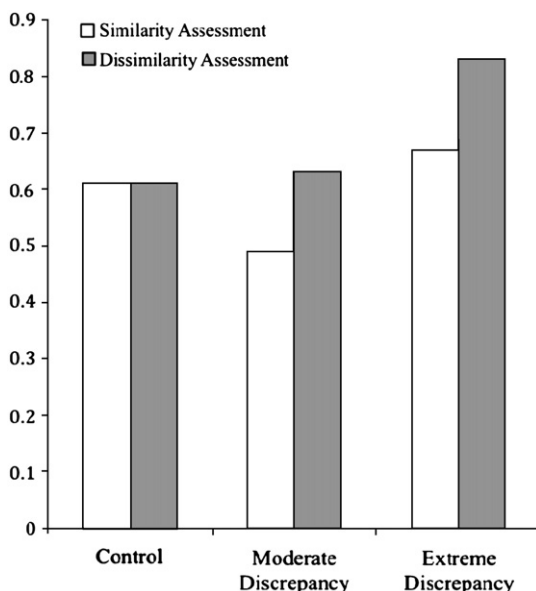
Fig. 2. Cell means for experiment 2.

The resulting design was a 2 (user imagery: moderately discrepant/30-something, extremely discrepant/senior citizen) X 2 (levels of user imagery in second ad: young or old) between-subjects design.

Method

Participants

One hundred and four members of a research panel participated in the experiment for compensation. Of these, 68 were female (65%) and 36 were male (35%). The average age of the participants was 20.

Procedure and measures

As discussed in the experimental overview, the experimental procedure was identical to that used in experiment 1 with three exceptions. First, only two initial ads were used (moderately discrepant user imagery and extremely discrepant user imagery) since these two conditions demonstrated the largest shifts in self-youth identity. Second, all participants explicitly evaluated their target market status after initial ad exposure. Third, after completion of the self-youth IAT, participants evaluated an advertisement for a vacation resort that was either targeted toward a relatively young or relatively old target market.

The vacation advertisement was presented as part of an ostensibly separate experiment on travel habits and preferences. The vacation advertisement was presented on a computer for 30 s. After viewing the advertisement for 30 s, participants evaluated their purchase intentions for a trip to the resort and their attitude toward the resort. Purchase intention was measured with a single item: "What is the likelihood that you would purchase this vacation package for yourself?" Response was measured on a single 7-point item anchored with "Unlikely" and "Highly Likely." Attitude was measured using a 5-item scale that included the following: "Estimate how happy you would be with the vacation," "How "attached" do you think you might become to this vacation destination?" "Estimate how satisfied you would be with the vacation," "How "loyal" do you think you might become to this vacation destination?" and "How much effort would be required to make you "give up" this vacation for something else?" All five items feature a 10 point scale anchored with "Not at all" and "Extremely." An average score across these five measures was calculated to provide an overall rating of attitude toward the vacation (Cronbach $\alpha = 0.87$).

Advertisement stimuli

The same initial vitamin advertisements from experiments 1 and 2 were used in experiment 3. The final age-targeted advertisements were for a vacation package at "The Punta Cana Resort: A Slice of Paradise in the Dominican Republic." The young and old versions of this ad differed in the depicted user imagery and the highlighted activities included in the resort stay. The youth-targeted version of the ad featured a 20-something couple walking on the beach while the older-targeted version featured a 50-something couple walking on the beach. The two ads also featured a list of all-inclusive activities and entertainment. Many age-unrelated activities were listed on both versions (e.g.,

use of swimming pool/beach and fitness center/sauna). However, there were also several listed activities that were more strongly associated with younger or older consumers. In the young version of the ad, these activities included: tours of the hottest bars and nightclubs, windsurfing/jet skis, and in-line skating. In the old version of the ad, these activities included: tours of historical spots, pool aerobics, and low-impact yoga.

Results

Effects of initial ad exposure

Consistent with experiments 1 and 2, stronger self-youth associations were observed after exposure to user imagery that was extremely older than to user imagery that was moderately older (moderate discrepancy $D = 0.44$; extreme discrepancy $D = 0.74$; $F(1,103) = 25.19$, $p < 0.0001$). Since user imagery exposure influences self-youth association, it was also hypothesized that initial user imagery exposure would influence evaluation of subsequent stimuli that feature age-related content. Following past research on identity salience (Forehand & Deshpande, 2001; Forehand et al., 2002; Reed II, 2004), advertising that increases trait activation should favorably dispose consumers to subsequent products targeted to consumers sharing that trait. Consistent with these predictions, participants evaluated the youth-targeted resort more favorably when previously exposed to the senior-focused vitamin ads that increased self-youth association. This effect was observed on attitude toward the youth-targeted resort (moderate discrepancy = 4.37; extreme discrepancy = 5.19; $F(1,47) = 5.16$, $p < 0.05$), but not on purchase intentions for the youth-targeted resort (moderate discrepancy = 4.32; extreme discrepancy = 5.06; $F(1,49) = 2.45$, n.s.). In summary, exposure to user imagery that activated ones sense of youth improved evaluations of subsequent youth-oriented products. However, initial user imagery exposure did not influence evaluation of the older-targeted resort. This null effect is not surprising as non-target market effects have been consistently more elusive than target market effects (Forehand, 2000; Forehand et al., 2002).

Mediation results

To test for self-youth activation-based mediation of initial ad exposure on subsequent evaluation of youth-oriented products, a series of three regressions were conducted following the procedure of Baron and Kenny (Baron & Kenny, 1986). Mediation is indicated if 1) initial ad exposure significantly predicts self-youth activation; 2) initial ad exposure significantly predicts resort attitude; and 3) the self-youth activation significantly predicts resort attitude while controlling for the effect of the initial ad exposure. Using a series of regressions, self-youth activation did mediate the effect of initial ad exposure on resort attitude (Sobel Test Statistic = 2.10, $p < 0.05$). Initial ad exposure significantly influenced self-youth activation (coefficient = 0.28, t = 3.39, $p < 0.01$); Initial ad exposure significantly influenced resort attitude (coefficient = 0.81, t = 2.27, $p < 0.05$); and self-youth activation influenced resort attitude when controlling for initial ad exposure (coefficient = 1.62, t = 2.68, $p < 0.01$). When controlling for self-

youth activation, the coefficient for the effect of initial ad exposure on resort attitude dropped and was no longer significant (coefficient = 0.36, t = 0.96, n.s.).

Discussion

Experiment 3 demonstrates that the basic self-activation effects observed in experiments 1 and 2 carry over into the evaluation of other stimuli related to the social identity dimension that was activated within the self-concept. More importantly, analyses also indicated that self-youth activation mediated these carry-over effects of initial user imagery exposure on subsequent evaluation of an identity-related product. Interestingly, the observed mediation results for subsequent product attitude were not observed for subsequent purchase intention. This is likely attributable to the fact that purchase intentions are more distal variable than attitude toward the resort and that purchase intentions may be driven by other factors that have little to do with the social identity processes. Nonetheless, the mediation of ad-induced attitudes by identity activation clearly shows that self-identity shifts drive subsequent evaluation and that ad exposure contributes to the reinforcement (or abatement) of social identity dimensions. This is consistent with previous research that shows that consumers are more attracted to identity-relevant products that represent their identity. However, this is the first empirical test to demonstrate that that connection may be forged through shifts in the content of consumers' social identity.

General discussion

One interesting implication of the current results is that automatic social comparisons do not necessarily activate similarity and dissimilarity information. The IAT results in the present experiments demonstrate that individuals who processed the social context more reflectively are more likely to activate the similarity/dissimilarity information that drives assimilation and contrast (Mussweiler, 2003). One should be careful to note that this in no way suggests that assimilation and contrast is impossible under purely impulsive processing, especially since such effects have been observed in the literature (Mussweiler et al., 2004; Stapel & Blanton, 2004). Rather, these results suggest that significant shifts in self-conception become more likely when consumers process social information reflectively and thereby increase the accessibility of social comparison information. The results also suggest that automatic social comparison is most likely to occur in contexts where there are relatively few distractions and the social information is presented in a more austere context.

The current research also has implications for the long-term effects of media exposure on identity development and evolution. Although it is well established that the self-concept is a multi-dimensional concept containing many latent social identities (Deaux, Reid, Mizrahi, & Ethier, 1995; Reid & Deaux, 1996) and that the activation of these identities can systematically influence judgment and behavior (Forehand et al., 2002; Reed II, 2004), significantly less research has assessed how malleable the content of these latent social identities is. The results of three experiments

demonstrate the intriguing possibility that advertising that invokes a social identity can indeed shape the consumer's social identity via assimilation or contrast responses. This research uses novel methods to provide the first experimental glimpse in consumer behavior into the dynamic nature of identity development and the roles of marketing stimuli and consumer processing goals on this development. In our three experiments, consumers' social identity assimilated toward the identity dimension when the discrepancy between the self and the depicted user imagery was moderate and contrasted with the identity dimension when the discrepancy was extreme. These effects only occurred when consumers processed their similarity to user imagery reflectively and process evidence suggests that these effects are driven by the directed categorization of the user imagery as self-related or unrelated.

The experiments also demonstrated that these assimilation and contrast effects could be moderated or even reversed if consumer attention was expressly directed to the consumer's similarities or dissimilarities with the context, supporting the notion that the assignment of truth values to activated information during reflective processing is an important determinant of whether assimilation or contrast obtain. In addition, this underlying activation was shown to mediate subsequent response to identity-related stimuli in experiment 3. Taken together, these findings are also consistent with recent work demonstrating that self-concept activation is key driver of prime-behavior response (Wheeler et al., 2007). We now describe these insights and point to avenues for future research based on them.

Conceptually, this research confirms the dynamic nature of consumer social identity, and is a first step to answering past calls for research on identity formation and maintenance. For example, Reid and Deaux (1996; p. 1090) suggest that "just how attributes and social identities come to be linked together is an important issue for research." Indeed, the observed influence of advertising exposure on social identity dovetails nicely with classic studies of social identity that highlight product choice as a means of reinforcing consumer social identity (Kleine, Kleine, & Kernan, 1993; Solomon, 1983). The effects of media on the shaping of social identity also inform our understanding of how consumers maintain their identities. Past research has alluded to the possibility that consumers may adopt certain social identities, and these social identities can either strengthen or weaken over time. The present research suggests that media exposure is at least one external factor that can set the stage for both identity-based consumption and identity maintenance by shaping the very social identities upon which these effects are based.

Two important variables were examined that may be critical antecedents to these processes that shape a person's social identity. The first, the extent to which the consumer is reminded of their status within the social identity group, is a mechanism that activates that social identity, and may trigger self-categorization along that dimension (Forehand & Deshpande, 2001). These studies also point to the theoretical importance of how psychologically discrepant that dimension is with the evaluator's pre-existing self-conception (see Roedder John & Park, 2011 for an analysis exploring this discrepancy issue in the context of self-esteem and materialism). This is an important

theoretical insight as it builds upon models of self-regulation that discuss dynamic feedback loops from the person to the environment (Carver & Scheier, 1998). Such feedback back loops have always implied a "monitoring" process that allows consumers to assess their link to a social identity and the current results provide an empirical demonstration of this phenomenon and perhaps the first demonstration of the non-conscious nature of this feedback loop.

Methodologically, these studies also attempt to provide evidence for processes of how social identities are shaped by relying on a very subtle, but important approach to tapping into the strength of association amongst concepts. This approach is widely used in psychology, but nearly no research in consumer behavior has adopted such an empirical approach (for exceptions, see Brunel, Tietje, & Greenwald, 2004; Forehand & Perkins, 2005). However, as far as we know, this is the first time in the consumer behavior domain that indirect measures (i.e., the IAT) have been used to ascertain automatic *fluctuations* in social identity dimensions via advertisement exposure. We suggest that, while traditional measures are capable of capturing the results of these assimilation/contrast effects (e.g., as reported in experiment 3), it would be nearly impossible to observe these automatic social identity shifts without the use of indirect measures. To the extent that we have observed these changes directly, we believe that the evidence supporting the assumptions underlying the current model is greatly strengthened.

The use of this approach in the current studies is a contribution in terms of teasing apart strategic versus internalized self-concept aspects. For example, one key limitation of past work in the social identity and the self-concept area more generally has been the issue of whether or not asking a participant to dimensionalize themselves relative to some social identity is in fact, "creating" that aspect by fact of mere measurement (Feldman & Lynch, 1988). Moreover, many self-conceptual aspects may come along with the baggage of social desirability and impression manage-ment concerns. Hence, measures that allow for participants to manage these impressions are less than desirable for testing theories of the self. In contrast, the method we use here—although not without its critics (e.g., Blanton & Jaccard, 2006), is largely insensitive to socially desirable responding because of the computed difference between measures derived from between-subjects, randomized experimental conditions. Secondly, this approach—and its norms of standardization—are also able to take advantage of the comprehensive interpretation of its numerical values that should to some extent protect it from being criticized as an arbitrary metric (Greenwald, Nosek, & Sriram, 2006).

However, the extensive use of this method in this work here leaves several important questions open for future research. Future investigations should comprehensively assess the stability of the changes in strength of association that result from assimilation and contrast processes and how the network of associations that define self-relevant concepts change over time (see Dimofte & Yalch, 2011). For example, at what threshold level will consistent assimilation or contrast result in a permanent change in the social identity structure, and hence lead to some of the salience and chronic activation effects that have been demonstrated in consumer research? Such an issue appears ripe for future efforts that employ the conceptual framework and method used in this paper and could lead to specific strategies about how to best leverage the social identity that may become linked to a product category or specific brand (Reed II & Forehand, 2010). These results could also be extended to bi-cultural or cross-cultural research questions as well. For example, bi-cultural consumers (e.g., Asian Americans) shift the relevant self-identity activated in memory depending on meaningful cultural environmental cues (LaFromboise, Coleman, & Gerton, 1993; Lau-Gesk, 2003), potentially leading to instances where the same compared individual might be perceived as moderately discrepant in one environment and extremely discrepant in another. In these cases, advertising elements (e.g., spokesperson) or products that vary in terms of home country might be affected by potential assimilation/contrast effects. Finally, established differences in cognitive styles (e.g., holistic versus analytic/piecemeal processing styles) could lead to differing perceptions of what might be a moderately discrepant versus extremely discrepant compared other, again resulting in inconsistent assimilation/contrast effects.

Finally, this research also points out several substantive issues that appear important. One of the most poorly understood aspects of marketing is the development of brand communities that emerge that reinforce large groups of consumers. For example, the emergence of groups of consumers who come to find a particular brand as symbolic of the self was thought of as serendipitous in nature. Brands like Harley Davidson, Nike, iPod, etc., have created almost 'cult like' followings in terms of the extent to which these brands have become part of the fabric of popular culture. Such identity-based loyalty can potentially be managed by creating identity cues and other symbolic forms of consumption that help to foster the kinds of assimilation effects we have demonstrated in this paper. Moreover, our research suggests that certain traits and attributes that can become linked to the brand per se (Aaker, 1997) can also become reinforced through specific strategic leveraging of identity-based marketing (Bolton & Reed II, 2004; Reed II & Forehand, 2010). If such associations are strengthened enough, then it is likely that the consumer will become that much more committed to the brand that embodies those social identity dimensions (see Fishbach, Ratner & Zhang, 2011 on self-consistency effects across sequential choices). Our research suggests that identity cues indeed exist and that certain kinds of imagery used at least in advertising will be likely to lead to processes that increase the chronic importance of those social identities. Future research needs to closely examine how these effects can be a priori affected by the careful assessment and use of marketing stimuli and the extent to which these effects occur for brand personalities per se. For example, when companies develop identity-based advertising campaigns, our research points to the possibility of testing what long-term social identity effects these communications may have on target market and non-target market consumers (Aaker et al., 2000). Knowledge of such effects are likely to be important in developing marketing collateral materials that can maximize assimilation of the target market, and minimize contrast effects for those not in the target market.

Appendix

The typical IAT procedure has five steps. First, a respondent sorts items, usually words or images defined as *attribute* categories. Categorization is accomplished using a computer keyboard, such that respondents press the 'd' key when an item representing *young* is displayed, or press the 'k' key when an item representing *old* is displayed. The young attributes were *new*, *youth*, *young*, and *youthful* and the old attributes were *older*, *aged*, *old*, and *grown*. This initial categorization task comprises 20 separate trials, with measured response latency for each trial. The second step is similar to the first, but requires the categorization of images of the target-concepts of interest, in this case words that represent *self* or *other*. The self concepts included *me*, *mine*, *self*, and *my* and the other concepts were *they*, *them*, *other*, and *theirs*. In the third step, these categorization tasks are combined such that a respondent is required to press the same response key (e.g., the 'd' key) when an a word representing *self* or *young* is displayed, or press a competing response key (e.g., the 'k' key) when a word representing *other* or *old* is displayed. This third block comprises 60 trials total, 20 practice trials and 40 test trials. The fourth step requires sorting the target concepts again, but with a twist: the response key assignment is reversed, so that respondents who initially categorized *self* words using the 'd' key now respond to that category using the 'k' key. There are 40 trials included in step four. Finally, the fifth step is identical to the third step, with the exception that the target category assignments mirror the fourth step: a respondent is required to press the same response key (e.g., the 'd' key) when a word representing *other* or *young* is displayed, or press the competing response key (e.g., the 'k' key) when a word representing *self* or *old* is displayed. All key assignments and orders of presentation are counterbalanced across subjects.

The key dependent measure in the IAT is the speed with which the participant can categorize the "self" target concept when it shares a response key with "young" attributes (block 3) compared to when it shares a response key with "old" attributes (block 5). To the extent that a consumer's self-concept is associated with youthful attributes, the mean response latency should be faster (slower) when the self concepts share a response key with young (old) attributes. As the strength of association between the self and young increases, the latency difference between the two paired categorization tasks (or IAT effect) should also increase (Greenwald et al., 1998; Stapel & Blanton, 2004).

To allow a comparison of the resulting IAT self-youth associations across conditions, each participant's IAT responses were translated into a *D* measure (Greenwald et al., 2003). The calculation of the *D* measure allows its use as an effects size, similar to Cohen's d (Cohen, 1977). Specifically, data from the combined practice and combined test blocks was included in the analysis. All trials with greater than 10,000 ms latencies were deleted, and subjects with more than 10% of their response latencies below 300 ms were removed from the dataset. Standard deviations were calculated for the practice and test trials separately, and means were calculated for the combined practice and test trials in blocks 3 and 5. Two difference scores were then calculated (one between the practice trials, and one between the test trials). These difference scores were divided by their associated standard deviation, and then these quotients were averaged. The resulting *D* measure provides a general measure of the strength of association between youth and the participant's self-concept.

The IAT is particularly well suited to the study of social identity shaping since it allows direct measurement of the centrality of a social identity within an individual's overall self-concept. Moreover, the IAT is sensitive to changes in self-identity association regardless of whether those changes were prompted by explicit, deliberative cognition or by implicit, automatic cognition (Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Greenwald & Banaji, 1995; Greenwald & Farnham, 2000; Perkins, Forehand, & Greenwald, 2006; Rudman, Greenwald, & McGhee, 2001). In contrast, explicit self-report measures require cogitation before completion, limiting their usefulness in assessing associations in memory that are inaccessible to self-inspection. A final benefit of using the IAT to assess self-identity association is the methodology's resistance to effects of impression management and self-enhancement (Greenwald, 1980). Self-identity self-reports are particularly vulnerable to these biases due to critical importance of self-expression in maintaining esteem.

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