A match made in the laboratory: Persuasion and matches to primed traits and stereotypes ☆

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ABSTRACT

This paper examines a novel means of increasing elaboration of persuasive messages. Whereas much previous research has focused on ways to promote actual self-relevance of the message (e.g., by changing the message to match the recipient), the present research uses priming manipulations to change the recipient to match the message. Across two studies, participants were primed with traits (e.g., extraversion) and stereotypes (e.g., African-American) before reading strong or weak advertisements that matched or mismatched the primed constructs. Participants were more influenced by the quality of arguments in messages that matched (rather than mismatched) the primed constructs. In Experiment 2, these results were observed only among individuals low in the other-directedness subscale of self-monitoring (i.e., people whose behavior is driven by their internal states). Results are interpreted within the Active-Self account, which suggests that primed constructs can become integrated into the working self-concept and influence behavior as though they were self-descriptive.

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Introduction

The relationship of the self to information processing has been of interest to social psychologists since research on social-cognition began (e.g., Bargh, 1982; Hull & Levy, 1979; Lewicki, 1984; Markus, 1977). People respond to self-relevant information quickly (Markus, 1977) and automatically (Bargh, 1982; Cherry, 1953; Gray, Ambady, Lowenthal, & Deldin, 2005). They seek out self-relevant information (Fong & Markus, 1982), recall it more accurately (e.g., Markus, Crane, Bernstein, & Siladi, 1982), and process it more thoroughly (Allison, Worth, & King, 1990; Erber & Fiske, 1984; Neuberg & Fiske, 1987; Petty & Cacioppo, 1979).

One of the research areas in which the effects of self-relevance on information processing have received considerable attention is with respect to persuasion (Johnson & Eagly, 1989; Petty & Cacioppo, 1990). In this literature, self-relevance has been induced in a wide variety of ways, including indicating relevance to one's personal outcomes (Petty, Cacioppo, & Schumann, 1983), or values (Blankenship & Wegener, 2008), or important group memberships (Fleming & Petty, 2000), or one's self-identity (Wheeler, Petty, & Bizer, 2005). When baseline elaboration is not constrained to be high or low, increasing self-relevance in any of these ways can heighten information processing activity, and thus, the extent to which individuals' attitudes following a persuasive message reflect the quality of the arguments in the message (Petty & Cacioppo, 1990, see Petty, Wheeler, & Bizer, 2000 for more discussion).

To date, all of the research on the effects of self-relevance on persuasion has examined the effects of *actual* self-relevance. That is, messages have appealed to individuals' chronic, self-reported characteristics (Deshpande & Stayman, 1994; Reed, 2004; Wheeler, Petty, et al., 2005) or experimental manipulations have made individuals believe that the message topic will affect their actual future outcomes (e.g., Petty, Cacioppo, & Goldman, 1981). The focus of this paper is on a novel, and perhaps surprising, way to induce self-relevance. Rather than targeting messages such that they match recipients' actual characteristics, such as their traits, values, or group memberships, it may also be possible to induce more careful information processing by temporarily changing the recipients' active self-concepts to match the message. One potential method of changing recipients' active self-concepts is through priming.

Effects of non-self primes on self-concept and behavior

Research has shown that non-self primes can affect individuals' behavior without their intention or awareness. In one well-known study, young college students primed with the elderly stereotype walked more slowly than participants not so primed (Bargh, Chen, & Burrows, 1996). According to the most widely forwarded account

for these types of results—ideomotor theory—primes can affect behavior by increasing the accessibility of behavioral representations that, once activated, lead directly to action (Dijksterhuis & Bargh, 2001). Hence, activation of the elderly stereotype could have activated associated traits (e.g., slow), which in turn activated associated behavioral representations (e.g., walking slowly) that caused the behavior.

A complement to this theory, the Active-Self account (Wheeler, DeMarree, & Petty, 2005; 2007), suggests that primes can affect the self-concept, which can in turn determine which behavioral representations will guide behavior. That is, according to the Active-Self account, primes can influence behavior by temporarily altering individuals' active self-concepts, and hence, the perceptual, behavioral, and motivational representations that guide subsequent action (e.g., Markus & Wurf, 1987). Thus, the Active-Self account is not a new account for behavior and is not a substitute for ideomotor theory. Rather, the Active-Self account is a complementary explanation that suggests that changes in the self-concept can determine which behavioral representations direct behavior. Hence, activation of a stereotype, such as the African-American stereotype, could lead not only to behaviors directly associated with the stereotype (e.g., being lazy), but also to behaviors that would follow having a stereotype-consistent self-concept, such as thinking of oneself as identified with African-Americans and thus processing more carefully an advertisement targeted to African-Americans.

The Active-Self model proposes that the self-concept includes an active self-concept and a chronic self-concept. The active self-concept is the portion of the self-concept that is currently active and accessible. Hence, content in the active self-concept is much like other information in working memory, except that it is associated with the self. The chronic self-concept, in contrast, refers to content associated with the self in long-term memory. The active self-concept is more likely to guide current behavior than the chronic self-concept because it is currently accessible, and hence can modify ongoing actions. However, the active self-concept is also highly susceptible to situational influences (Fleeson, 2001), such as false feedback (Fiske & von Hendy, 1992), perceiver expectations (Fazio, Effrein, & Falender, 1981), or social comparison (Mussweiler, 2003), sometimes without the deliberate intentions of the individual (Gilbert, Giesler, & Morris, 1995). Hence, situational features can vary the active self-concept, even when the chronic self-concept exhibits temporal stability (Markus & Kunda, 1986).

Because of this flexibility, the active self-concept could be altered by subtle environmental influences such as primes. Research in fact supports these assertions. For example, primes of intelligence-related social constructs such as the professor stereotype have affected self-perceived intelligence (Dijksterhuis et al., 1998; LeBouef & Estes, 2004; Schubert & Häfner, 2003). African-American stereotype primes have led to confusion of activated African-American stereotype traits with one's own traits (Wheeler, DeMarree, et al., 2005; Galinsky, Wang, & Ku, cited in Galinsky, Ku, & Wang, 2005). Primes of overweight people have affected perceptions of one's own body type (Kawakami et al., unpublished), and primes of the male stereotype have affected perceptions of one's emotional sensitivity (Marx & Stapel, 2006). Prime-induced changes to the self-concept have been observed even when the primed constructs were subliminally presented (DeMarree, Wheeler, & Petty, 2005; Mussweiler, Ruter, & Epstude, 2004; Stapel & Blanton, 2004).

Effects of self-concept on persuasion

Because the active self-concept directs attention, perception, motivation, and information processing (Higgins, 1987; 1997;

Kihlstrom & Cantor, 1984; Markus & Nurius, 1986; Ruvolo & Markus, 1992), changes to the self could affect a variety of processes related to information processing. Of most relevance to the current research, we argue that if primes alter the active self-concept, they could affect the types of persuasive messages individuals are motivated to process carefully. This is because the primes would change what participants perceived to be self-relevant, at least momentarily (i.e., long enough to affect message processing). For example, previous research has shown that individuals are more affected by the quality of arguments in persuasive messages that are matched to aspects of their actual self-concept (see Petty et al., 2000, for a review). This is because messages matched to recipients are perceived to be more self-relevant and are therefore elaborated more carefully. This careful elaboration leads individuals to be more influenced by the quality of the arguments in the message. A large body of studies has shown that variables that affect motivation or ability to think also affect sensitivity to argument quality manipulations. For example, when people are distracted from thinking carefully, argument quality effects are reduced (Petty, Wells, & Brock, 1976), but when people are made individually accountable for message evaluation, argument quality effects are magnified (Petty, Harkins, & Williams, 1980).

The effect of self-message matching on responsiveness to messages that vary in their quality has been shown across a number of domains. For example, in one experiment (Evans & Petty, 2003), participants were exposed to strong or weak advertisements for a breakfast bar. The frame of the advertisements was manipulated to either match or mismatch the participants' self-guides (Shah & Higgins, 1997). When the advertisement matched recipients' self-guides (i.e., an ought-framed message for an ought self-guide individual or an ideal-framed message for an ideal self-guide individual), the messages were elaborated more carefully, as evidenced by the larger argument quality effects on attitudes and cognitive responses in the matched than mismatched conditions.

Similarly, in other research (Updegraff, Sherman, Luyster, & Mann, 2007), participants were exposed to strong or weak messages that matched or mismatched their motivational orientation (approach vs. avoidance), as assessed by the BIS/BAS scale (Carver & White, 1994). When the message frame matched recipients' motivational orientation, recipients were more persuaded by the strong arguments than by the weak arguments. However, when the message mismatched their motivational orientation, no argument quality effects were found. The authors argued that the matched messages were perceived to be more self-relevant and were therefore processed more carefully.

Most relevant to the present research, these types of matching effects have also been demonstrated for specific personality traits such as extraversion/introversion. In one study (Wheeler, Petty, et al., 2005), individuals completed an extraversion scale (Eysenck, Eysenck, & Barrett, 1985) and read an advertisement for a VCR that was framed either for extraverts ("you'll be the life of the party") or introverts ("you won't have to deal with the crowds"). Greater message processing was observed when the message matched rather than mismatched the participants' personalities (e.g., when introverts received the message framed for introverts than when they received the message framed for extraverts, see also Petty & Wegener, 1998b).

In the above experiments, the match between the message frame and the recipients' self-concepts made them more carefully process the message, as evidenced by the larger argument quality effects in the matched message conditions. If primes modify the active self-concept (DeMarree et al., 2005), they should affect information processing much like actual self-constructs do. That is, individuals should attend more carefully to messages matching *primed* traits or stereotypes, just as they do messages matching their actual traits and group memberships. Because of effects of

primed traits on the active self-concept, individuals should be more responsive to differences in argument quality for persuasive messages matching primed personality traits than messages mismatching primed traits.

We test the idea that people can be changed by primes to match a message and therefore process it more in two experiments. The first experiment tests the basic idea that trait primes can affect the extent of information processing of messages matching or mismatching the primed trait. We prime people with introversion or extraversion and then examine whether they are more likely to process a message framed for introverts or extraverts. This study would show that not only can you enhance message processing by presenting a message that matches an existing trait (e.g., whether a person really is an introvert or extravert), but one can also produce enhanced processing by presenting a message that matches a primed trait. In our second experiment, we extend our Active-Self logic even further to see if White college students, when primed with the African-American stereotype, will process a message geared for African-Americans more than one aimed at their own group. As described further shortly, our second study also examines whether this effect is moderated by individual differences in the likelihood of modifying and acting on the self-concept. We focus on message processing effects in this research because this processing influences the extent of persuasion. In particular, when arguments are strong, increasing processing tends to increase persuasion, but when arguments are weak, increasing processing tends to decrease persuasion (Petty & Cacioppo, 1986). Thus, the enhanced impact of argument quality on attitudes when processing is increased typically reflects some combination of both effects.

Experiment 1

In the first experiment, we sought to show that primed personality characteristics can influence attitudes just as do individuals' chronically held personality characteristics, by influencing the extent to which individuals carefully attend to the quality of arguments in advertisements. As noted earlier, prior research has shown that appealing to an individual's *actual* self-schema in a persuasive message can increase the extent to which it is carefully evaluated, leading to larger argument quality effects in the matched than mismatched message conditions (Wheeler, Petty, et al., 2005). In our first experiment, we sought to replicate these effects, but with a *primed* personality schema rather than a chronic one. If individuals engaged in greater elaboration of messages matching primed personality schemata, this would be consistent with the notion that the primed material was perceived to be more self-descriptive, at least implicitly. That is, if people come to view themselves as more like a primed construct (introverted or extraverted), they should be more attentive to information that is framed to match the primed construct.

Methods

Participants

Participants were 81 students in introductory psychology courses who received partial course credit in compensation for their participation in the experiment.

Procedure

The experimenter told participants that they would be completing a number of unrelated studies. The first task contained the priming manipulation, which was designed to activate the trait of extraversion or introversion. Immediately after the priming manipulation, ostensibly as part of a separate experiment, participants read a persuasive message that matched or mismatched the personality characteristic activated by the priming manipulation

(rather than the person's actual personality trait). The priming task and persuasion portions of the experiment had different visual formats to minimize any perceived connections between the tasks. Participants then reported their attitudes towards the object in the message. At the conclusion of the experiment, participants were thanked, debriefed, and dismissed.

Independent variables

Priming task. The priming task was modeled after similar tasks that have been utilized in the literature to selectively activate mental constructs (e.g., Bargh et al., 1996; Srull & Wyer, 1979). In the priming task, participants were instructed to make sentences using four out of the five words presented on the screen. The words were presented in an order that required reorganization to make a proper sentence. It was possible to construct only one four-word sentence from each group of five words.

The cover story indicated that the purpose of the task was to investigate how people spontaneously perceive word relationships and use words in flexible ways. Each scrambled sentence was presented individually on a computer screen. Participants randomly assigned to the extravert prime condition unscrambled 20 extravert sentences (e.g., "stories calendar she shared witty") and five neutral sentences (e.g., "a ate she night sandwich"). Participants assigned to the introvert prime condition unscrambled 20 introvert sentences (e.g., "much quarter he didn't say") and the same five neutral sentences. This ratio of prime to neutral sentences has been used in previous research and has resulted in significant levels of construct activation without high levels of conscious awareness of the primed construct (e.g., Srull & Wyer, 1979). The computer randomized the order of the sentence presentation for each participant. At the completion of the task, participants saw a screen indicating that the word task had ended and thanking them for participating in that "experiment."

Ad framing. After completing the sentence-unscrambling task, participants began a new study with a different visual format to reduce suspicions concerning a connection between the tasks. The instructions indicated to participants that they would be engaging in a mass marketing survey in which they would rate products selected at random from a database. The persuasive message participants actually saw was always for a fictional brand of VCR. The title and introductory paragraph of the advertisement constituted the extraversion/introversion message frame manipulation. An example of a sentence within the extravert frame is, "With the Mannux VCR, you'll be the life of the party, whether the party's in your home or out of it." An example of a sentence within the introvert frame is, "With the Mannux VCR, you can have all of the luxuries of a movie theater without having to deal with the crowds." The message frames were pretested to ensure that they had their intended effect on targeting. The argument quality manipulation followed the framing manipulation and was independent of it.

Argument quality. The message arguments were manipulated to either strongly support or weakly support the VCR (see Wheeler, Petty, et al., 2005). An example of a strong argument is, "The VCR includes a deluxe digital, on-screen timing program that determines how much tape is left, how much time is left in the current program, and how long the current program has been playing." An example of a weak argument is, "The VCR includes an eject button on its front face that permits you to remove the video and get a rough idea of how much tape is left." These arguments were pretested according to the procedures outlined by Petty and Cacioppo (1986)—the strong arguments elicited primarily positive thoughts whereas the weak arguments elicited primarily negative thoughts when individuals were instructed to think about them.

Dependent measures

After reading the message, participants indicated their attitudes on a number of attitude measures. There were three attitude dependent variables in this study.

Semantic differential items. Participants indicated their positivity towards the Mannux VCR along three seven-point semantic differential scales anchored by good/bad, positive/negative, and favorable/unfavorable.

Liking of the advertisement. Participants rated how much they liked the advertisement on a seven-point scale on which 1 = not at all and 7 = very much.

Likelihood × desirability. Participants rated the likelihood and desirability of the product having the features described in the advertisement. The likelihood rating was assessed by a question asking, "To what extent did you believe that the VCR possessed the features stated?" and the desirability rating was assessed by a question asking, "Assuming the VCR DID possess the features stated, how desirable were the features in general?" Each of these questions was accompanied by a seven-point scale anchored by 1 = not at all and 7 = very much. To form an attitude measure, the likelihood and desirability ratings were multiplied to form an expectancy-value variable. This variable is derived from attitude theory suggesting that positive attitudes are the result of perceiving an attitude object as highly likely to yield positive features or outcomes (e.g., Fishbein & Ajzen, 1975), and it effectively taps the belief component of attitudes (Ajzen & Fishbein, 1980), which corresponds closely to our argument quality manipulation. To the extent that the features of the VCR are perceived to be undesirable or to the extent that positive features are unlikely, attitudes, as reflected in this computation, should be less positive.

Suspicion check. Participants completed a funneled debriefing task in which they indicated their suspicion toward the experimental procedures. No participants believed that the sentences affected the amount of attention or effort they allocated to the advertisement.

Results

The analyses on the attitude measures were conducted using analysis of variance. We created a new variable, "matching," in which we dichotomously coded for matches (Extraversion Prime/ Extraversion Frame, Introversion Prime/Introversion Frame) vs. mismatches (Extraversion Prime/Introversion Frame, Introversion Prime/Extraversion Frame). Message matching, message frame, and argument quality were tested as a crossed 2 (Match vs. Mismatch) × 2 (Strong vs. Weak arguments) × 2 (Extraversion vs. Introversion Prime) factorial design. The elaboration-matching hypothesis was for a two-way interaction between message match and argument quality indicating greater argument quality effects when the message frame matched, rather than mismatched, the primed schema. This effect was expected to occur equally across the different priming conditions, and so no three-way interaction was predicted.

As expected, the three attitude measures (i.e., semantic differential, liking of the ad, and the expectancy × value measure) were highly correlated (all *r*'s > .60, all *p*'s < .001), and they loaded on a single factor that accounted for 71% of the variance. Thus, to simplify presentation and to provide a more reliable index of participants' attitudes, an attitude index was computed. This index is equal to the mean of the standardized values for each of the three attitude measures ($\alpha = .88$).
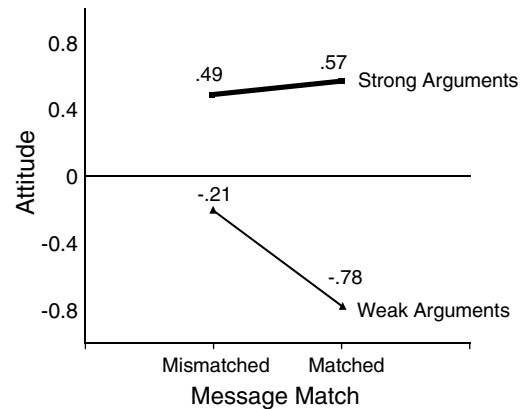

Fig. 1. Attitudes as a function of prime-message match and argument quality (Experiment 1).

The ANOVA on the attitude index yielded two significant effects: a significant main effect of argument quality, $F(1,73) = 39.30$, $p < .001$, and the predicted two-way matching by argument quality interaction, $F(1,73) = 4.06$, $p = .05$. As depicted in Fig. 1, the pattern of means was in the predicted direction. Although the argument quality effect was significant in both the matching, $F(1,73) = 35.73$, $p < .0001$, and mismatching, $F(1,73) = 8.70$, $p = .004$, frames, the significant interaction indicated that the argument quality effect was significantly larger when the prime and message frame matched. The large argument quality effects overall could have been due to the relatively powerful argument quality manipulation that made it easy for participants to distinguish between strong and weak arguments even under the lower levels of elaboration. For our present purposes, however, the indicator of interest is the relative differences between strong and weak arguments in inducing persuasion, rather than the absolute argument quality differences. In addition, the above interaction was not further moderated by prime, $F < 1$, *ns*, indicating that the matching pattern was the same regardless of the specific prime to which participants were exposed.[1]

Discussion

Experiment 1 provided evidence that the argument quality of messages matching *primed* (rather than actual) personality content has a greater effect on attitudes than the argument quality of prime-mismatched messages. Specifically, the primes appeared to direct information processing of targeted messages as though the primed traits were self-descriptive (Petty et al., 2000; see Wheeler, Petty, et al., 2005). These findings are consistent with the notion that primed material can be treated as though it is self-relevant.

The results of Experiment 1 are consistent with the notion that the primes temporarily altered the self-concepts of the prime recipients, thereby affecting the extent to which they elaborated the advertisements. However, it could also be possible that there are other reasons why individuals might attend more to information that matches what was primed. For example, participants

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[1] The match × argument quality interaction in this design is statistically equivalent to the prime × message frame × argument quality interaction. Our method of analysis has the benefit of simplifying presentation as well as testing the equivalence of matching effects across both levels of the priming manipulation. One could alternately test whether the match × argument quality effects were moderated by levels of the frame. These analyses indicated that frame did not moderate the match × argument quality interaction or any other factors in the design in this or any of the other analyses in this paper. The match × argument quality effects, however, were identical using this alternate analysis strategy.

might have potentially had their attention drawn to the prime-matched information on the basis of the schema accessibility alone. For example, in one study (Sherman, Mackie, & Driscoll, 1990), participants were primed with a dimension (e.g., foreign policy) before choosing between two political candidates who were either favorable on the primed dimension and unfavorable on an equally relevant dimension (e.g., the economy), or vice versa. Results indicated that individuals thought more carefully about and weighted more heavily information on the primed dimensions in their judgments. That is, they chose targets that were favorable on the primed dimension as opposed to targets favorable on the equally relevant, but unprimed, dimension. Thus, the attention to primed material was selective; participants attended more to the primed information, but did not exhibit any evidence of greater processing of the other, non-primed information. Hence, if these effects were operating in our study, one would expect that individuals would attend more to the ad frame when it matched the prime (and weight it more heavily in their attitude formation), but not attend more to the message arguments which were not at all relevant to (and were independent of) the message frame. If there was more attention to the message frame manipulation, this would presumably lead to a main effect of prime-message matching rather than the interaction with argument quality that we observed. Hence, the data from Experiment 1 appear to be more consistent with the Active-Self account than a basic accessibility account, though the data do not definitively rule this account out.

To argue more conclusively against an accessibility-based account, we expanded upon the results of Experiment 1 in several ways. First, we included a pretest for Experiment 2 that examined whether the primed material would produce a change in individuals' self-concepts. Second, as we elaborate in more detail following our report of the pilot study, we included an individual difference variable that should moderate the effect we observed if self-change is responsible for the information processing effect but should be irrelevant if mere accessibility of primed material were responsible. That is, a mere accessibility alternative would predict equivalent effect sizes across all individuals, given equivalent accessibility, whereas the Active-Self account argues that the effect should be larger for some individuals than others (i.e., those who rely on their self-concepts). Thus, showing moderation of the information processing effect we observed in Experiment 1 by an individual difference variable related to use of the self-concept would provide support for our Active-Self account and against the mere accessibility interpretation. As we explain shortly, moderation would also not be expected by the ideomotor account.

Experiment 2

In Experiment 2, we built upon Experiment 1 by using a different attitude object (i.e., a CD player), a different message framing manipulation (i.e., the ad background, rather than an introductory paragraph), and a different primed construct (i.e., the African-American stereotype). We used the African-American stereotype as our prime for a number of reasons. First, the content of the stereotype has been shown to be widely recognized and easily activated among all American individuals (e.g., Devine, 1989). Second, the stereotype is generally perceived as inapplicable to individuals who are not African-American, providing a stronger test of the notion that self-irrelevant primes could affect message processing.

In contrast to a trait concept like extraversion, race reflects a group identity. Research has shown that self-group association can be increased upon simple exposure to members of the group. For example, in research on implicit partisanship (Greenwald, Pickrell, & Farnham, 2002; Pinter & Greenwald, 2004), participants were exposed to the names (e.g., Glenda, Laurel) of members of one of two fictional groups (e.g., Purple and Gold) and asked simply to study their names in order to remember their group affiliation. They then completed an implicit identification task in which they were instructed to associate the various names of group members with either self-related words (e.g., me, myself) or other-related words (e.g., other, them). Across several studies, participants identified more strongly with the group whose members' names they had studied, as evidenced by their ability to more quickly associate the names of the members of the studied group with self-words and the names of members of the not studied group with other-words. This occurred even when the studied group was less desirable (e.g., was experimentally associated with losing vs. winning). The implicit partisanship studies are similar to minimal group research except in this case, mere exposure to the group (rather than membership in the group) was itself sufficient to increase identification with the group.

One can question whether primes could affect group identities that are more meaningful than those in the Greenwald et al. experiments. Research suggests in fact that they can. For example, in one study (Kawakami et al., unpublished), White participants were exposed to pictures of African-Americans or Whites in addition to pictures of furniture and were instructed to make simple judgments about the stimuli (i.e., whether or not the object was animate). They then completed an Implicit Association Task assessing their automatic identification with the group (see Greenwald & Farnham, 2000), as evidenced by the level of association between "self" and "African-American" vs. "self" and "White." Results indicated that merely looking at the pictures of African-Americans was sufficient to increase their automatic identification with African-Americans, as evidenced by the increased ease of associating "African-American" with "self." In another study (DeMarree et al., 2005), White participants were subtly primed with the African-American stereotype (or not) before completing an implicit measure of felt aggression (a salient component of the African-American stereotype). Those primed with the African-American stereotype reported feeling more aggressive than those not so primed. Hence, these studies indicate that participants can be led to shift their self-concept to be similar to primed outgroups as evidenced both by measures of automatic identification (i.e., IAT; Kawakami et al., unpublished) and experienced traits (DeMarree et al., 2005). Nevertheless, to further establish that outgroup primes can affect identification with those outgroups, we conducted a pretest for Experiment 2 in order to examine the effectiveness of the outgroup prime to be used. Specifically, we aimed to discover whether an African-American outgroup prime would affect an explicit measure of closeness to this group.

Pretest

Participants

One hundred twenty-two undergraduates who participated in partial fulfillment of a course requirement were randomly assigned to the experimental conditions. Twelve non-white participants and three participants who did not indicate their race were dropped from the analyses as were 10 participants who failed to complete at least two-thirds of the priming manipulation in the time allotted, leaving 98 White participants in the final sample.

Procedure

Participants were informed that they would engage in several short studies, including a study on language. All participants completed a scrambled sentence task on the computer, ostensibly as a test of language ability. Half of the participants were primed with the African-American stereotype using a scrambled sentence task containing stereotype-relevant words. The other half of the participants completed a neutral scrambled sentence task. Following the

priming manipulation, participants were asked to report how close they felt to a number of different social groups, including the target group of African-Americans as part of a study examining their "feelings and experiences with social groups."

Priming task

The priming manipulation was similar to the sentence-unscrambling task used in previous research (e.g., Bargh et al., 1996). In the African-American prime condition, sentences contained words related to the African-American stereotype, based on previous research (e.g., Devine, 1989; Wittenbrink, Judd, & Park, 1997) and pretesting (e.g., they is *lazy* he very; *athlete* an she are is; orange unsafe the is *ghetto*). The control condition, however, differed in that it used neutral words in place of the stereotype-relevant words so we could compare participants' actual identity (whatever is active in the absence of a prime) with their primed identity (they is *courteous* he very; *architect* an she are is; orange unsafe the is *bridge*). All participants were given 7 min to complete the task.

Closeness measure

As the primary dependent measure, we asked participants to indicate how close they felt toward six different social and cultural groups (e.g., the French, Latinos), including the target group (African-Americans). Participants made these ratings using a nine-point scale ranging from very distant to very close. This dependent measure is based on the idea that if a prime makes a person see themselves as more like the primed group, they should feel closer to the primed group than if this stereotype-consistent self-content were not activated.

Results

Ratings of closeness toward African-Americans were submitted to a t-test. This analysis revealed an effect of prime, $t(96) = 2.11$, $p = .04$, such that participants in the African-American prime condition reported feeling closer to African-Americans than participants in the control condition ($Ms = 6.23$ & 5.42, respectively). Closeness to the other groups was not affected ($ts = .37$ to 1.68, $ps = .10$ to $.71$).

The results of this pretest suggest that being primed with a stereotype by means of a sentence-unscrambling task is sufficient to increase feelings of closeness with the stereotyped group. Replicating previous research (Kawakami et al., unpublished) with a sentence-unscrambling task and an explicit measure of felt closeness, these results were found even with established and meaningful groups to which primed recipients did not belong. Hence, not only can one's perceived traits be affected by primed outgroup stereotypes, but so too can one's feelings of closeness and affiliation.

Main study

Our pilot study demonstrated that an African-American prime can lead White college students to feel closer to African-Americans than in the prime absent condition. According to our Active-Self account, this could lead them to engage in more processing of a persuasive message aimed at African-Americans than in the absence of the prime. It is important to note that because the African-American stereotype is associated with specific traits that might indicate low information processing (e.g., "lazy"), support for our prediction that this prime can *increase* information processing of African-American-framed messages would indicate that people are not just acting like the direct implications of the primed traits, but are acting like the group that has been primed. That is, African-Americans, like other groups, would be expected to process messages that were framed for them.

Moderation by self-monitoring

In addition to extending the matching self to messages effect to an outgroup prime, another goal of Experiment 2 was to provide additional evidence for the role of the active self-concept in these effects. In this study, we adopted a moderation approach to testing the Active-Self account. In a moderation approach to theory testing, hypotheses about how one variable would interact with some phenomenon of interest are developed. To the extent that one's favored theory predicts a particular interaction that is obtained whereas others do not, support for one's favored theory over the others is provided (Petty, 2006; Sigall & Mills, 1998; Spencer, Zanna, & Fong, 2005). A classic example of this approach occurred when dissonance theorists showed that when a plausible misattribution cue for aversive arousal was provided in a standard dissonance setting, dissonance effects disappeared—a prediction that was not made by a rival theory to dissonance (i.e., self-perception theory; see Zanna & Cooper, 1974).

In Experiment 2, we tested a variable (i.e., self-monitoring; Snyder, 1974) that if it moderated our key information processing effect would support the Active-Self account, but would be inconsistent with or irrelevant to accessibility and pure ideomotor accounts. These latter accounts rely on accessibility as the determinant of the magnitude of effects. If we were to show moderation by a variable that was not related to accessibility (or related in the opposite direction), this would render the Active-Self account a more plausible interpretation than the alternatives, although such evidence would not preclude the possibility of still other mechanisms operating. A mediational approach to theory testing (i.e., assessing self-change as a mediator of information processing) could also be used to provide support for the Active-Self account. Because of possible difficulties in assessing the proposed mediator without either making the stereotype accessible for the control group as well as the experimental group, producing a demand to behave in accord with the stereotype, or possibly leading to a correction for perceived bias (Wegener & Petty, 1997), we focused on the moderation approach. We return to these issues following the study report.

Our proposed individual differences moderator, self-monitoring (Snyder, 1974), concerns the extent to which people habitually adjust their behavior to meet situational demands vs. perceived internal states. Individuals high in self-monitoring ask the question, "What does the situation want me to be, and how can I be that person?" whereas individuals low in self-monitoring ask the question, "Who am I, and how can I be me in this situation?" (Graziano & Waschull, 1995, p. 238). If prime-message matching effects are driven by changes in the self, low self-monitors should show larger effects of the prime than those high in this trait. This is for two reasons.

First, research has shown that self-monitoring moderates the amount of consistency there is between individuals' internal states, such as their own professed beliefs, attitudes, and characteristics, and their behavior (e.g., Kraus, 1995). Low self-monitors tend to act consistently with their self-professed beliefs and have been shown to demonstrate greater consistency between their attitudes, values, traits, emotions and behavior (e.g., Graziano & Bryant, 1998; Lippa & Mash, 1981; Mellema & Bassili, 1995; Zanna, Olson, & Fazio, 1980). High self-monitors, on the other hand, exhibit little consistency between their attitudes or traits and their behavior (e.g., Kraus, 1995; Lippa, 1978). If primes can affect behavior by altering the self-concept, it should be low self-monitors who act consistently with the prime, because they are more likely to act consistently with their (changed) self-concepts.

Second, low self-monitors are more likely to change their behavior and self-perceptions in response to information perceived to be dispositionally diagnostic. For example, low self-monitors exhibit more attitude change after a freely chosen counterattitudinal

behavior than do high self-monitors (Snyder & Tanke, 1976), and they evince greater behavioral change in response to credible false feedback regarding their dispositional characteristics (Fiske & von Hendy, 1992). Accessible mental contents without an obvious source could provide an additional piece of information that could be perceived as relevant and diagnostic with respect to the self, and therefore lead to change in the active self-concept among low self-monitors (see Higgins, 1998).

In fact, research has shown that primed constructs do lead to greater change in the active self-concept among low than high self-monitors (DeMarree et al., 2005). For example, as noted earlier, participants primed with the African-American stereotype reported feeling more aggressive on an implicit aggression task. Importantly, however, these effects were moderated by self-monitoring, such that the change in self-concept was larger for those low rather than high in self-monitoring. Similarly, a second study showed that low self-monitors showed greater change in self-perceptions of feeling lucky than did high self-monitors after subliminal exposure to the number 7 (vs. the number 13). Hence, low self-monitors have been shown to exhibit greater active self-change in response to primes than have high self-monitors. Parallel results have been obtained on measures assessing self-group overlap.

In one study (Wheeler, DeMarree, et al., 2005), participants were primed with the African-American stereotype before completing a trait ascription task, in which they made "me" or "not me" judgments to stereotype-relevant and irrelevant words. Among low self-monitors, responses were facilitated when participants made stereotype-consistent responses (i.e., responding "me" to stereotypic traits and "not me" to counterstereotypic traits), and inhibited when participants made stereotype-inconsistent responses (i.e., responding "not me" to stereotypic traits and "me" to counterstereotypic traits). Previous research using this paradigm has argued that this pattern is indicative of confusion or inclusion of other (significant other or social group) in the self (Aron, Aron, Tudor, & Nelson, 1991; Aron et al., 2004; Coats, Smith, Claypool, & Banner, 2000; Smith & Henry, 1996).

Hence, in the Wheeler, DeMarree, et al. (2005) research, the outgroup stereotype prime was more successful in altering the self-concepts of low than high self-monitors on this broader measure of self and stereotype overlap. Notably, these results are inconsistent with the accessibility and ideomotor accounts. Accessibility-based alternatives that rely on an ease-of-processing mechanism would predict that primed participants would respond more quickly to *all* stereotype-consistent words, regardless of their self-descriptiveness. The Active-Self model, on the other hand, predicts an interaction between prime and response such that stereotype-primed participants would be *faster* than control primed participants when responding that the self is *consistent* with the stereotype, but *slower* when responding that the self is *inconsistent* with the stereotype. This was the pattern obtained.

Finally, we note that the findings that low self-monitors exhibit greater change in the self-concept and behavior following primed constructs than high self-monitors may seem counterintuitive, because one might speculate that low self-monitors, by virtue of their self-behavior consistency, would have greater knowledge of their self-concepts. However, this is not the case. Instead, the literature shows that, rather than being more accurate about their own self-characteristics, low self-monitors are just more likely to act consistently with what they believe to be true of themselves at the time. As a result, they are more susceptible to false feedback when they believe it reflects their dispositions than are high self-monitors (Fiske & von Hendy, 1992). Their rigorous adherence to being "principled individuals, who value congruence between 'who they think they are' and 'what they try to do'" (Snyder & Campbell, 1982, p. 188) can, under some circumstances, render them (ironi-

cally) more susceptible to self- and behavioral change, because subtly activated constructs can be misattributed to their genuine subjective experiences (see also DeMarree et al., 2005).

Before turning to the experiment, there is one additional issue regarding self-monitoring that is relevant. That is, there has been some debate within the literature on self-monitoring regarding whether the scale represents a unitary construct or multiple interrelated constructs. For example, Briggs, Cheek, and Buss (1980) have argued that self-monitoring is best thought of as being comprised of three subscales: acting, extraversion, and other-directedness. Acting refers to the ability of high self-monitors to successfully engage in self-presentation, and this subscale contains items such as, "I would probably make a good actor," and "I have considered being an entertainer." Extraversion refers to the tendency for high self-monitors to be more outgoing and socially oriented than low self-monitors, and this subscale contains items such as, "At a party I let others keep the jokes and stories going" (reversed), and "I am not particularly good at making other people like me." Other-directedness refers to the degree to which individuals look to others for behavioral guidance, conform to social situations, mask their true feelings, and seek to please others. People low in this dimension rely less on the social environment and more on their inner states for behavioral guidance. This subscale contains items such as, "My behavior is usually an expression of my true inner feelings, attitudes, and beliefs" (reversed) and "I'm not always the person I appear to be." Of the three subscales, the other-directedness subscale contains the items most relevant to the aspects of self-monitoring that form the basis of our predictions, and Briggs and Cheek argue that the other-directedness subscale is the most similar to the theoretical construct of self-monitoring (Briggs & Cheek, 1988).

Hypotheses

Based upon all of the considerations above, in Experiment 2, we tested the effects of an African-American prime on White individuals' responses to a persuasive message. If prime recipients incorporated the prime into their self-concepts, one would expect greater processing of the prime-matched message than the prime-mismatched message. In the control prime condition, the White ad should serve as the matching ad, because it matches our White participants' default White identity.[2] These effects should reverse in the African-American prime condition. If the prime affects what is perceived to be self-relevant, the African-American prime should lead to lower processing of the White than the Black-framed ad. We predicted that these effects would occur to a greater extent among low than high self-monitors. Our procedure and materials followed closely from the first experiment.

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[2] Although Whites are often reluctant to report having an identity associated with their race, research suggests that Whites do in fact identify with their racial group (e.g., Knowles & Peng, 2005). White identity is demonstrated in phenomena such as "White guilt," whereby Whites feel guilty for transgressions of their racial group against African-Americans, even when they were not personally responsible for such transgressions (e.g., Iyer, Leach, & Crosby, 2003; Swim & Miller, 1999), and the extent of such guilty feelings coincide with the strength of White identity (Knowles & Peng, 2005). At the same time, strongly identified Whites are more likely to join exclusionary groups such as fraternities (Sidanius, Van Laar, Levin, & Sinclair, 2004). More germane to the present research, Whites have been shown to respond differently to ads targeted to Whites than ads targeted to African-Americans (Aaker, Brumbaugh, & Grier, 2000; Grier & Deshpande, 2001). These effects are larger among individuals for whom their identity is made salient (Deshpande & Stayman, 1994). Although there is obviously heterogeneity in the salience of White identity both across individuals and contexts, research supports that on average White identities are sufficiently salient to affect processing of advertisements (Aaker et al., 2000; Grier & Deshpande, 2001) much like other personality characteristics can (Wheeler, Petty, et al., 2005).

Methods

Participants

Three hundred sixty-seven undergraduates who participated in partial fulfillment of a course requirement were randomly assigned to the experimental conditions. Fifty-three non-White participants and 12 participants who did not complete all the materials were dropped from the analyses, leaving 302 White participants in the final sample.

Procedure

Participants were informed that they would be engaged in two studies, the first on writing medium and compositional ability and the second on consumer psychology. Participants were led to believe that, for the first study, the computer would assign them to do a scrambled sentence task either on the computer or using pen and paper. All participants were assigned to do the scrambled sentence task on the computer. Half of the participants were primed with the African-American stereotype using a scrambled sentence task containing stereotype-relevant words. The other half of the participants completed a neutral scrambled sentence task.

Following the priming manipulation, participants were told they would be viewing ads for products that were to be test marketed in their area in the coming year. Participants viewed an ad for a portable CD player and reported their attitudes toward the product. Ads matched or mismatched the prime and contained either strong or weak arguments. Finally, participants completed the self-monitoring scale (Snyder, 1974), were probed for suspicion, and debriefed.

Independent variables

Priming task. Participants completed the same priming task (scrambled sentence task) described in the pretest. The only variation was that participants did not have a time limit for completion of the task.

Ad frame. The ad framing (African-American vs. White) was accomplished by including the names of either stereotypically Black (e.g., Snoop Dogg) or White (e.g., Blink 182) musical groups in the background of the advertisements. The "Black" and "White" musical groups chosen were taken from Billboard Music charts and playlists of Hip Hop/R&B and Rock radio stations, respectively. Each ad contained the names of 14 music artists, 11 of which came from the framed category and three came from the other category (see Appendix for examples).

Argument quality. Argument quality was manipulated orthogonally to ad frame. An example of a strong argument is, "New shockwave technology guarantees that the Discman PX will never skip." An example of a weak argument is, "New shockwave technology helps the Discman reduce skipping, except when used in a car or other unstable environment." As for Experiment 1, these arguments were pretested according to the procedures outlined by Petty and Cacioppo (1986).

Self-monitoring. All participants completed the self-monitoring scale (Snyder, 1974). Participants are asked to indicate whether each statement is or is not characteristic of them. Items are coded so that one point is allotted for each answer consistent with high self-monitoring. The score was computed by adding the number of such responses. The mean for this sample was 12.80 with a range of 4–23.

Dependent measures

Attitudes. Participants rated the CD player on three seven-point semantic differential scales anchored by good/bad, positive/negative, and favorable/unfavorable.

Suspicion check. Participants completed a funneled debriefing task in which they indicated their suspicion toward the experimental procedures. No participants believed that the sentences affected the amount of attention or effort they allocated to the advertisement.

Results

Attitude scores were computed by averaging the three semantic differential scales ($\alpha = .96$). As in Experiment 1, prior to analysis we created a new variable, "matching," in which we dichotomously coded for matches (AA prime/AA Frame, control/White) vs. mismatches (AA/White, Control/AA). Using this variable, we submitted the attitude scores to a Message Match (Match vs. Mismatch) × Argument Quality (Strong vs. Weak arguments) × Self-monitoring (continuous) × Prime (African-American vs. Control) hierarchical regression analysis, with all main effects in the first step, all two-way interactions in the second, and so on.[3]

We used regression analysis to maximize the power of the test and to avoid problems associated with dichotomizing continuous variables (see MacCallum, Zhang, Preacher, & Rucker, 2002). We followed procedures advocated by Aiken and West (1991) for decomposing theory-relevant significant interactions into relevant lower-order interactions and contrasts for those high and low in self-monitoring.

Analysis of the attitude items revealed a main effect of argument quality ($B = 1.38$, $t = 7.36$, $p < .001$). The analysis also revealed a marginally significant message match x argument quality interaction ($B = .65$, $t = 1.71$, $p = .09$), paralleling that found in Experiment 1. That is, attitudes tended to be more reflective of argument quality when the messages matched the prime than when they did not. We expected this two way interaction to be further moderated by self-monitoring. The predicted self-monitoring × message match × argument quality interaction, although in the predicted pattern, was suggestive but not statistically significant ($B = -.15$, $t = -1.48$, $p = .14$). Nevertheless, analyses for high and low self-monitors using the Aiken and West (1991) procedures revealed that there was a highly significant match × argument quality interaction among low self-monitors ($B = 1.89$, $t = 2.82$, $p = .005$), but not among high self-monitors ($B = .76$, $t = 1.11$, $p > .25$). In addition, the prime × argument quality × Self-Monitoring interaction was not significant ($B = .01$, $t < .1$, ns), suggesting that the prime did not have general effects on the information processing of low self-monitors.[4]

Because the other-directedness subscale of self-monitoring captured the aspect of this individual difference that was most relevant for our hypotheses, we also conducted additional analyses in which the other-directedness subscale was tested as the moderating factor. This analysis again revealed a main effect of argument quality ($B = 1.37$, $t = 7.30$, $p < .001$). Most importantly, the predicted self-monitoring other-directedness × message match × argument quality interaction was also significant ($B = -.43$, $t = -2.52$, $p = .01$; see Fig. 2).[5] As depicted in Fig. 2, there was a significant matching × argu-

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[3] We used prime as a factor instead of frame because this allows us to test the competing hypothesis that the African-American stereotype prime could lead to a reduction in information processing. Analyses using frame as a factor are equivalent to those we report.

[4] In addition to these more germane effects, there was a significant Prime × Match × Self-monitoring interaction ($B = .32$, $t = 3.08$, $p = .002$), which was largely driven by high self-monitors who, in the control condition, tended to like the mismatched (African-American frame) advertisement more than in other conditions (prime × match among high SMs, $B = 2.42$, $t = 3.55$, $p < .001$; among low SMs, $B = .06$, $t < .1$, ns). The meaning of this effect is unclear.

[5] In addition, the Prime × Match × Self-Monitoring Other-Directedness interaction was present, and was in the same pattern as the interaction described using the full self-monitoring scale (see Footnote 4, $B = .346$, $t = 2.03$, $p = .044$; Prime × match among high SMODs, $B = 1.89$, $t = 2.82$, $p = .005$; among low SMODs, $B = .38$, $t = .59$, ns).
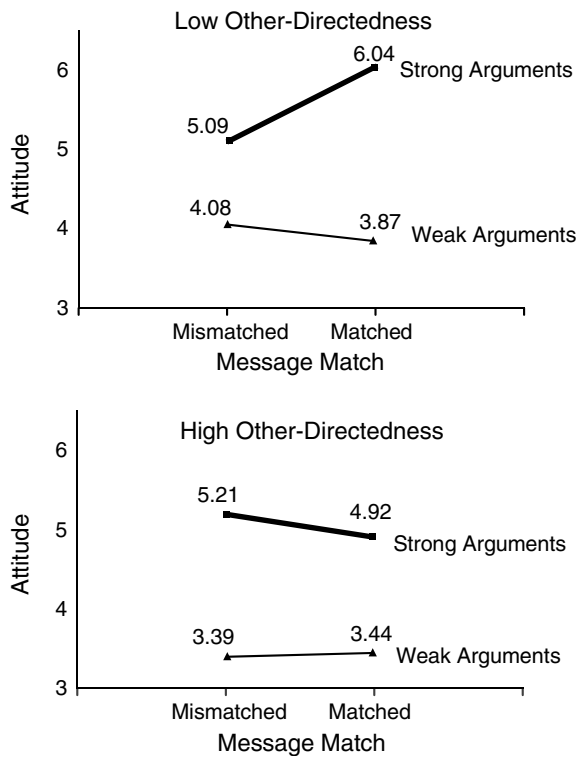
Fig. 2. Attitudes as a function of prime-message match, argument quality, and self-monitoring other-directedness (Experiment 2).

ment quality interaction among participants low in other-directedness ($B = 1.96$, $t = 3.03$. $p = .003$), but not among those high in other-directedness ($B = .07$, $t = .10$, ns). As expected, among those low in other-directedness, prime-message matching led to greater attitudinal differentiation between strong and weak arguments ($B = 2.23$, $t = 4.36$, $p < .0001$) than prime-message mismatching ($B = 1.37$, $t = 2.47$, $p = .014$). Importantly, this three-way interaction was not qualified by prime ($B = .10$, $t = .30$, ns), indicating that the effect of matching was the same, across priming conditions. Parallel analyses conducted with the Acting and Extraversion subscales of the self-monitoring scale did not produce significant results (for Match × AQ × subscale interactions, all ts < .35, ns).

Discussion

Experiment 2 provided a conceptual replication of Experiment 1 with different primes, different frames, and a different attitude object, and further isolated the effects of the prime to those who were low in other-directedness. More specifically, participants processed matched ads more carefully than mismatched ads, regardless of whether the ad was matched to their actual identities (in the control condition) or to situationally primed identities (in the experimental condition). Importantly, these effects were strongest among those individuals who were low in the other-directedness aspect of self-monitoring. This finding is consistent with the Active-Self view, which holds that primed stereotypes can affect behavior because people incorporate the stereotype into their own self-concept.

These findings, including the moderation by other-directedness, are not as compatible with a simple accessibility account. As noted earlier, self-monitoring has been shown to affect likelihood of self-change, but it should not affect the accessibility of the African-American stereotype following the prime. In fact, research suggests that if anything, high self-monitors should have had the stereotype more accessible following the prime than low self-monitors. For

example, high self-monitors have more accessible and elaborate information regarding social groups (Schwalbe, 1991; Snyder, 1979; Snyder & Cantor, 1980) and are more likely to engage in stereotyping than are low self-monitors (Christopher & Schlenker, 2000; Larkin & Pines, 1994). Hence, if anything, high self-monitors should have had more accessible stereotypes following the prime, which would have led to the opposite pattern of results if mere accessibility were driving the effect. Thus, the simple accessibility alternatives do not appear to provide as compelling an account for our results as does the Active-Self framework.

Although we did not directly measure active self-concept change in Experiments 1 and 2, it is important to note that, in addition to our pretest, the previously published research reviewed earlier has provided support for the notion that primes can alter the active self-concept (e.g., DeMarree et al., 2005; Dijksterhuis et al., 1998; Hinkley & Andersen, 1996; Marx & Stapel, 2006; Mussweiler et al., 2004; Schubert & Häfner, 2003) and that self-concept change following primes is greater for low self-monitors than it is for high self-monitors (DeMarree et al., 2005; Wheeler, DeMarree, et al., 2005; Wheeler et al., 2007). Mediation designs are used infrequently in priming studies, because measurement of the primed construct can affect its accessibility, thereby interfering with the manipulation. That is, in some cases, questions might themselves increase the accessibility of the constructs to which they refer. In other cases, expressing information related to previously primed constructs can decrease their accessibility (Sparrow & Wegner, 2006). Additionally, measurement of the construct immediately preceding measurement of the dependent variable can either create experimental demand effects or make its biasing potential salient. Thus, in order to examine our Active-Self account, we used a moderation approach to generate a prediction that was compatible with this explanation but not other accounts such as those based on mere accessibility of primed constructs (see Spencer et al., 2005, for further discussion of moderation vs. mediation tests of theories). In particular, the fact that the matching effect we observed was evident primarily for individuals low in other-directedness was more compatible with the Active-Self account than the salient alternatives. We therefore believe that the Active-Self account provides the most plausible explanation for the matching effects obtained in these experiments.

Nevertheless, we acknowledge that, mediational data would allow more confident mediational claims to be made. Although previous research shows that low self-monitors have less accessible stereotypes, because most of this research has not examined whether this lowered accessibility is also observed following *stereotype* primes (but see Wheeler, DeMarree, et al., 2005), it is possible that the increased information processing of low self-monitors could have been caused by accessibility alone (i.e., if contrary to the suggestion of prior literature, the stereotype was more accessible for low than high self-monitors). Alternatively, it is also possible that both self-concept change and accessibility independently contributed to increased information processing.

General discussion

The experiments in this paper showed that primed traits and stereotypes can affect the types of persuasive information that receive careful elaboration. These studies are consistent with the notion that primed traits and stereotypes can alter information processing by modifying what is perceived to be self-relevant. Experiment 1 showed that individuals' attitudes are more affected by the quality of arguments when they are targeted to a primed trait (introversion or extraversion), just as research showed the same pattern with individuals' chronic self-reported traits (Wheeler, Petty, et al., 2005). Hence, the effects of primed traits on

responses to targeted advertisements paralleled those shown for individuals' actual traits.

Experiment 2 replicated Experiment 1 by showing that participants who read an advertisement that matched their active identity (either primed or actual chronic identity), engaged in greater elaboration than participants who read an advertisement that mismatched their active identity (e.g., AA primed participants reading the White-framed ad, control (White) participants reading the AA framed ad). Additionally, Experiment 2 demonstrated that these patterns were moderated by self-monitoring. White low self-monitors (especially, those low in the other-directedness subscale) processed the African-American ad more when primed with the African-American stereotype, but processed the White ad more when not primed with the African-American stereotype. White high self-monitors did not differentially elaborate the advertisements in either condition. Hence, the current results are consistent with the idea that individuals will closely attend to targeted persuasive messages, even when they are not part of the target audience, so long as the relevant traits or identities of the target audience are made accessible prior to reception of the message.

Multiple mechanisms for matching effects

The focus on this paper has been on how matching aspects of persuasive messages to primed identities can increase cognitive elaboration. These differences in elaboration were reflected by greater differentiation between strong and weak arguments in the matched (vs. mismatched) conditions. Because matching affected information processing, matched messages were not always more persuasive than mismatched messages. Rather, participants' attitudes better reflected the quality of the arguments in matched messages than those in mismatched messages.

That matching does not necessarily increase persuasion may seem surprising to some, and indeed, several prior studies seemed to suggest that people invariably prefer products and persuasive appeals that correspond to various aspects of their identities or characteristics (e.g., see Snyder & DeBono, 1985). Subsequent research qualified this assumption, however, by showing that matching could affect the extent of information processing (e.g., Petty & Wegener, 1998b). Based upon this and subsequent research on trait-matching effects (Wheeler, Petty, et al., 2005) as well as the voluminous literature on self-relevance and information processing described earlier, we predicted that matched messages would be processed more carefully, not necessarily more favorably. This outcome is most likely when the baseline level of elaboration is moderate rather than constrained to be high or low. However, other effects are possible. According to the Elaboration Likelihood Model, variables like message matching can play multiple roles in persuasion (Petty & Wegener, 1998a). When baseline elaboration is low, matching could serve as a peripheral cue or heuristic (If it's for me, I like it!). When baseline elaboration is high, matching could bias ongoing thoughts, such that recipients receiving matched messages generate favorably biased cognitive responses. In each of these cases, the data would reveal a matching main effect that was mediated differently. This main effect was not observed in our experiments (suggesting that baseline elaboration was indeed moderate), but future research could explore these effects under high and low baseline elaboration conditions to test for these and other persuasion roles as outlined by the ELM (see Petty, Barden, & Wheeler, in press; Petty et al., 2000, for further discussion).

Mechanisms of active self-concept change

The Active-Self account draws a distinction between components that are part of the *chronic* self-concept and those components that are in the *active* self-concept. A rapidly growing body of research suggests that primes can affect the active self-concept (e.g., Dijksterhuis et al., 1998; Galinsky et al., 2005; Hinkley & Andersen, 1996; Kawakami et al., unpublished; LeBouef & Estes, 2004; Marx & Stapel, 2006; Schubert & Häfner, 2003) and group identification (Greenwald et al., 2002; Kawakami et al., unpublished; Pinter & Greenwald, 2004).

The Active-Self account provides two potential models for prime-induced shifts in the active self-concept (see also Wheeler, DeMarree, et al., 2005; Wheeler et al., 2007). According to the Biased Activation model, primes shift the self-concept by activating a biased subset of the chronic self-representation. Hence, primes could make accessible a subset of chronic self-concept content that makes the active self-concept differ from what it would be in the absence of the prime. For example, because the self-concept can contain diverse and contradictory content (e.g., Markus & Wurf, 1987), both introverts and extraverts could have extraversion-consistent content in memory that could become activated upon exposure to an extraversion prime and temporarily become the dominant component of the active self-concept. According to the Expansion model, the boundary between self and non-self is permeable, and individuals can sometimes misattribute the source of accessibility to their own perceptions of the self. Much as primes have been shown to bias perceptions of others because the activated content is perceived to pertain to a perception target (e.g., Higgins, Rholes, & Jones, 1977), so too could primes bias the self-concept because the activated content is perceived to pertain to the self. The Biased Activation model may at first appear to provide an implausible account for some results, such as those in Experiment 2, because the prime pertained to an outgroup identity (i.e., the African-American stereotype) that did not and could not characterize the (White) participants. However, despite the inapplicability of the racial group identity itself, there may have been substantial overlap between the *components* of the stereotype and participants' self-concepts. This may include not only traits—many Whites may believe themselves to be characterized by African-American-stereotype traits such as musical, athletic, or lazy—but also more general feelings of affiliation with the group. History has documented many examples of Whites affiliating with the African-American identity, from the "White Negroes" noted by Norman Mailer (1957), who adopted the clothing styles, jazz music, and language of African-Americans in the 1920s, 1930s, and 1940s, to the more recently labeled White "Wiggers" who have done so with the components of Black hip hop culture (Leland, 2004). Clearly, identification with a racial group is not determined solely by membership in that group—both members and non-members of a racial group can differ widely in their perceived overlap with the group's dominant characteristics and tastes. We argue that this identification can differ not only chronically across individuals, but can also differ within individuals across situations, and our Experiment 2 pretest is supportive of this idea. Hence, both the Biased Activation and Expansion models could account for the present results. An interesting issue for future research is to determine the extent and domain of operation of these two models, and to provide additional comparisons of the Active-Self approach with alternatives.

Moderation vs. mediation tests of theory

As explained earlier, moderation tests can be useful for testing between theoretical accounts that predict different patterns of moderation. However, because individual difference variables such as self-monitoring can potentially be associated with multiple processes, we cannot conclusively determine that self-change, and not some other mechanism associated with self-monitoring, led to the observed results. Because the ideomotor and simple accessibility accounts propose no mediating mechanism at all, they are more parsimonious alternatives and should be preferred if they provide

equally compelling accounts for the data. If prior research had suggested that low self-monitors would have more accessible stereotypes following the prime than high self-monitors, the ideomotor and accessibility alternatives would be favored over the Active-Self account on the basis of parsimony. However, as noted earlier, prior research appears to be inconsistent with this possibility in that it leads to the expectation that, if anything, high self-monitors should have more accessible stereotypes.

Of course, even a successful mediation test is unable to provide conclusive evidence for one mechanism over another because showing successful mediation by one variable does not rule out the possibility that mediation could also be found for unmeasured third variables (Spencer et al., 2005). Also, for many successful mediation tests, reverse mediation is also possible. Hence, testing a moderator that favors one account over another can sometimes provide more compelling evidence for mechanism than a mediation test. Although a large number of moderators suggest the important role of the self-concept in determining the magnitude and direction of prime-to-behavior effects (Wheeler, DeMarree, et al., 2005; Wheeler et al., 2007), the possibility remains that other processes may have been responsible for the effects in the present experiments. As such, these studies provide evidence consistent with the idea that the Active-Self concept is responsible for our findings, but future research on this topic could provide more definitive evidence.

Implications

These findings contribute to understanding of how behavior and judgment can be automatically altered by primed traits and stereotypes. As noted above, we found that prime-message matching did not invariably increase persuasion, but rather increased recipients' elaboration of the persuasive appeal. Practitioners could be curious about the practical importance of these effects. Can prime-message matching increase the effectiveness of persuasion if it increases thinking about the attitude object but does not increase the positivity of the attitude? We suggest that changes in attitude valence or extremity are only one facet of persuasion outcomes, but that other outcomes can be equally, if not more, important (see also Priester & Petty, 2003). The effects demonstrated in the present paper are of critical importance, because they lend insight into methods for inducing long-term, influential attitude change. A key challenge in persuasion is inducing message recipients to attend carefully to the contents of persuasive messages. Inducing such careful attention to messages is critical, because individuals who engage in careful scrutiny are more likely to comprehend and remember the communication (e.g., Anderson & Reder, 1979; Craik & Lockhart, 1972), and the attitudes that they form from the communication are more enduring and influential (Greenwald & Leavitt, 1984; Haugtvedt & Petty, 1992). Attitude change, however large, is of little consequence unless it persists and affects the targeted behavior. Because of this, marketers and other compliance professionals continually seek strategies to increase attention to and elaboration of persuasive appeals.

One traditional means of inducing information processing is through targeting messages to match participants' chronic identities. This can be difficult, however, as one must isolate groups of individuals with different identities and have some means of correctly delivering each different identity-tailored message to the appropriate group. It would therefore be exciting to find some means of delivering a single message, but temporarily modifying the identities of recipients to match that message. This research extends previous work on targeting to show that both individuals targeted and not targeted by a persuasive message can engage in careful and equivalent message elaboration, at least when the targeted identities have been activated and presumably integrated into the self-concept of the non-targeted individuals. Hence, successful targeting may depend not only on accurate assessment of individuals' chronic self-identities, but also on understanding which identity components are likely to be activated in the message context. To the extent that our Active-Self account is correct, the current research potentially broadens the range of recipients for whom targeted messages will be successful, but also points to potential reasons for the failure of appropriately targeted messages, such as when conflicting identities in the target audience have become activated.

These experiments also provide a demonstration of how priming effects can potentially extend temporally far beyond the initial priming episode (see also Lowery, Eisenberger, Hardin, & Sinclair, 2007). Many priming effects are likely to be short-lived. For example, people primed with the elderly stereotype are probably unlikely to walk more slowly months, weeks, or even hours after the prime. Although the propensity to engage in greater processing of prime-matched messages in the current studies is also presumably short-lived, the prime's effects on attitude change may be more enduring. The larger argument quality effects in the prime-matched conditions are consistent with greater elaboration of the content, a variable that has been shown to result in persistent, resistant, and influential attitudes (Petty, Haugtvedt, & Smith, 1995). Hence, the types of effects demonstrated here could have potentially long-term consequences despite short-lived prime accessibility. Because the goal of any attitude change attempt is to create attitudes that will endure over time and strongly affect behavior, the present studies suggest a novel and important tool for attitude change.

In summary, the studies in this paper highlight some of the unique persuasion implications derived from the Active-Self account and emphasize the importance of considering the accessibility of different constructs in persuasion settings. Activation of social constructs can increase elaboration of information related to those constructs, but primarily among those whose self-concepts are responsive and influential in directing behavior. These findings are consistent with the Active-Self account of prime-to-behavior effects and suggest novel ways of thinking about the role of the self in information processing.
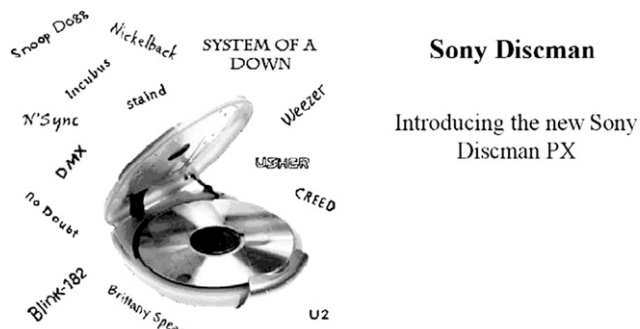
Appendix A

Figs. A1 and A2

Fig. A1. Strong, African-American-framed ad (Experiment 2).

Sony Discman

Introducing the new Sony
Discman PX

★ The Discman stores preferences for up to 3 CD's, so your favorite disks usually sound close to the way you like.

★ New shockwave technology helps the Discman reduce skipping, except when used in a car, or other unstable environment.

★ In addition, you can purchase a car adapter or headphones for your Discman so you can listen to music on the go.

Fig. A2. Weak, White-framed ad (Experiment 2).

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