

## IMPLICIT CONTRAST AND EXPLICIT ASSIMILATION EFFECTS FOLLOWING SUBTLE AND BLATANT ADVERTISING

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This study investigated the different effectiveness of subtle and blatant advertising on implicit and explicit attitudes. We hypothesized that the same commercial message could change both explicit and implicit attitudes toward the advertised brand, and that explicit changes would last longer than implicit ones. Sixty-two undergraduate psychology students were involved in the study for no reward. Participants were chosen according to their preference for one of two major competing brands of cola. We used a mixed factorial design, manipulating between subjects the type of advertisement that participants watched (subtle, blatant, control) and within subjects the time when measures of implicit and explicit attitudes were taken. The study followed a pre- post-test design with a follow-up (third session) after 48 hours. Results partially supported our hypotheses. At the explicit level, subtle advertising was assimilated, while blatant advertising had no effect. Explicit assimilation even increased after 48 hours. At the implicit level, blatant advertising produced a short-term contrast effect, while subtle advertising had no effect.

Key words: Contrast; Assimilation; Reverse priming; Implicit attitude change; Advertising.

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### INTRODUCTION<sup>1</sup>

Consumer research is once again beginning to address subliminal processes, after a period in which automaticity seemed no longer to interest. Approximately 20 years ago Pratkanis and Greenwald (1988) observed a cyclic development of research on subliminal processes, as if researchers were attracted by this subject, but difficulties in replicating results made them shy away from less visible phenomena, such as unconscious behavior. Since then, research on automatic processes has made great strides in both theory and methodology, and consumer research has begun to benefit from these progresses.

One area in which this is especially true is persuasion. In this paper, we drew on recent theories and models of implicit and explicit contrast and assimilation effects and showed that they both occur after a real commercial message. Further, we provided evidence that one single persuasive message can produce long-term effects only at the explicit level.

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## ASSIMILATION AND CONTRAST EFFECTS

Assimilation and contrast effects have been observed in a variety of studies (cf. Lombardi, Higgins, & Bargh, 1987; Martin, 1986; Strack, 1992). Generally speaking, a persuasive message is assimilated when it is followed by a congruent change of attitude, whereas contrast occurs when the same persuasive message is followed by a change in the opposite direction. When these effects are related to controlled judgment and traditional persuasive messages, they can be interpreted according to the Flexible Correction Theory (FCT; Wegener & Petty, 1995, 1997). People tend to correct an external influence to the extent that they: 1) are capable and motivated to identify the change stimulus; 2) have a naïf theory that identifies the direction and the intensity of the change; 3) are motivated and capable to apply the correction. According to this theory, contrast effects are due to an over-correction. When we *over-estimate* the intensity and the efficacy of the persuasive message, a contrast effect occurs because we *over-correct* the persuasive attempt. Correction effects have also been observed with priming stimuli (Lombardi et al., 1987; Martin, 1986). Subtle priming produces assimilation while blatant priming activates contrast effects, because the latter is likely to increase people's awareness of persuasion. Recently, Forehand and Perkins (2005) observed contrast effects in *explicit* attitudes, and assimilation effects in *implicit* attitudes following the same persuasive message. The authors demonstrated that the relationship between a celebrity voice-over and the explicit attitude toward the advertised brand was moderated by the identification of the celebrity. This moderation did not appear for implicit attitudes. Interestingly, the relationship between celebrity identification and explicit attitude change was negative (contrast effect). In other words, the more participants recognized celebrities, the more their explicit attitude changed against the brand. Assimilation was instead observed when the attitude toward the brand was measured with the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), that is, implicit attitude changed in favor of the brand independently from celebrity identification. The authors interpreted the contrast effect they observed according to Martin's (1986) set-reset model, and suggested a two-step cognitive process, where knowledge structures were implicitly activated and then modified (re-set) following an explicit evaluation.

All these studies suggesting that assimilation effects interest both implicit and explicit attitudes led us to hypothesize that:

**H1**, the same "subtle" persuasive message would produce assimilation in both explicit (H1a) and implicit (H1b) attitudes.

According to the literature above, correction seems to be a controlled process that doesn't affect automatic reactions to persuasion. Yet, Glaser and Banaji (1999) demonstrated that *attempts to correct for priming can occur automatically* — what they called "reverse priming effect" (slower responses to evaluatively matched rather than mismatched items). The authors used a sequential priming paradigm and found that a reverse priming effect occurred when prime words were evaluatively extreme. When primes were extreme in valence (extremely positive or extremely negative), they reduced the accessibility of a subsequent congruent target. This effect has been demonstrated to be highly reliable, even when varying the time period between prime and target (Stimulus Onset Asynchrony, SOA), the category to which stimuli belong (e.g., food or race related stimuli), the Intertrial Interval (ITI), or the presence (vs. absence) of a fixation point (Glaser & Banaji, 1999). The reverse priming effect is apparently incompatible with results obtained by Forehand and Perkins (2005), which seemed to suggest that correction appears only

in a second step, after the message has been assimilated. Although there is a methodological difference that might account for the mixed results of these studies (Glaser and Banaji, 1999, used a pronunciation task while Forehand and Perkins, 2005, used a classic IAT), we think the authors just observed different effects based on different levels of awareness. The contrast effect showed by Forehand and Perkins (2005) is due to a conscious corrective process that might affect explicit, but not implicit, attitudes. On the contrary, reverse priming is a contrast effect based on an automatic affective reaction that might influence behavior accordingly even if individuals are not aware of their reactions. A demonstration that automatic affective reactions can effectively and unconsciously guide behavior was given by Bechara, Damasio, Tranel, and Damasio (1997). Hence, it is possible to hypothesize that assimilation and contrast effects interest both automatic and controlled processes, and that antecedents and consequences of these changes are a function of the level of awareness the individual can achieve at a given time.

Taken together, Wegener and Petty's (1995, 1997) FCT and Glaser and Banaji's (1999) reverse priming effect suggest that if a controlled correction process occurs, an explicit contrast effect might take place, but if an automatic correction process occurs, an implicit contrast effect might occur. In daily life, it is quite common to be exposed to a complex set of persuasive stimuli, such as a commercial advertisement, which can activate both controlled and automatic correction processes. For instance, an individual may watch an advertisement in which quick images of the brand (primes that act implicitly) are provided as a frame for a discussion of the brand's positive aspects (elicitors of explicit changes). We therefore hypothesized that contrast effects would interest both implicit and explicit attitudes.

**H2**, the same "blatant" persuasive message would produce contrast in both explicit (H2a) and implicit (H2b) attitudes.

Given that the flexible correction theory and, in general, contrast effects in controlled judgment have been widely replicated, the main goal of this hypothesis was to test for the first time if a contrast effect could be observed in implicit attitudes after the presentation of a real commercial advertisement.

Further, according to the literature on classic moderators of the relationship between argument quality and attitude change (see, e.g., Petty & Wegener, 1999), we know that Need for Cognition (NFC; Cacioppo & Petty, 1982) moderates the relationship between argument quality (high vs. low) and attitude change. NFC differentiates people on the basis of their tendency to engage in cognitively expensive processes of message elaboration. High NFC people tend to spend more energy in processing persuasive messages than low NFC people. We believe that implicit changes are not affected by the time spent elaborating the persuasive message and hypothesized that:

**H3**, NFC would moderate only the explicit attitude change, and not the implicit attitude change.

Our last two hypotheses are related to the stability of implicit and explicit changes. According to connectionist theories of learning, there are two separate systems of cognitive functioning, one responsible for controlled (rule-based) cognitive processes and the other for automatic (associative) processes (Smith & DeCoster, 1999). McClelland, McNaughton, and O'Reilly (1995), drawing on observations of brain-damaged patients, argued that human memory must meet two conflicting demands. One demand is to record information slowly and incrementally, so that the final configuration in memory reflects a large sample of experiences. This slow-learning memory system matches the typical properties of schemas in social and cognitive theories (see

Fiske & Taylor, 1991). A second demand is for rapid learning of new information, so that a novel experience can be remembered after a single occurrence (Smith & DeCoster, 1999). This explains why people can learn something after hearing it just once. McClelland et al. (1995) argued that these two demands are handled by two independent learning systems: the slow-learning system is automatic and less sensitive to the level of attention directed to the information; the fast-binding system is responsible for the learning of single, complex, experiences. We argued that implicit attitude followed the rules of the slow-learning system, while explicit attitude followed the fast-binding system. This is also consistent with most literature on attitude change (see Gawronski & Bodenhausen, 2006, for a review). Implicit attitude change has been described as an *incremental change in the associative structure* resulting from repeated pairings of the attitude objects with positive or negative stimuli (De Houwer, Baeyens, & Field, 2005; De Houwer, Thomas, & Baeyens, 2001), while explicit attitude typically changes through processes of propositional reasoning that can be stimulated even by a single exposure to a persuasive stimulus (see Chen & Chaiken, 1999; Petty & Wegener, 1999, for reviews on persuasion). As Wilson, Lindsey, and Schooler's (2000, p. 104) argued, "explicit attitude changes relatively easily, whereas implicit attitude changes more slowly."

On the other hand, implicit attitude has been found to change rather quickly in response to single contextual cues (see, e.g., Dasgupta & Greenwald, 2001). This is the case of a *change in pattern activation*, which doesn't imply any changes in the associative structure (Gawronski & Bodenhausen, 2006). Yet, if not repeatedly stimulated, the pattern of association tends to return to its original state. As a consequence, we suggested that a single exposure to the same persuasive message could produce a change in both explicit and implicit attitude, to the extent that such message gave rise to a process of propositional reasoning *and* influences the activation of a specific pattern of associations. What differentiates implicit and explicit attitude changes deriving from the exposure to the same persuasive message is their stability over time. We argued that implicit attitude change caused by a change in pattern activation was relatively short-term in nature, whereas explicit attitude change was more stable over time. The implicit attitude is more "elastic," because after a change it tends to reassume its original level. Indeed, research on temporal stability of implicit attitude change suggests that changes in pattern activation may show a relatively high level of temporal consistency only if future contextual cues consistently continue to activate the same pattern of associations in memory (Gawronski & Bodenhausen, 2006). According to this, and given that, in our study, implicit attitude change was hypothesized as a change in pattern activation following a single persuasive message — and not an incremental change in the structure of associations — we predicted that:

**H4**, implicit attitude change would disappear after 48 hours;

**H5**, explicit attitude change would remain stable even after 48 hours.

## METHOD

### Participants and Design

Sixty-two Italian undergraduate psychology students were involved in the study for no reward. Participants were chosen according to their preference for a main brand of cola over a

competing brand. We used a mixed factorial design, manipulating *between* subjects the type of advertisement that participants watched and *within* subjects the time when measures were taken. The study was thus run in three waves, following a pre- post-test design with a follow-up (third session) after 48 hours. During the debriefing, participants were asked if they had already seen the advertisement on TV or other media. Two of them were excluded from the analysis for this reason, leaving a total of 60 participants.

Participants were divided in three groups, according to the type of advertisement they were shown. The first group ("Blatant Ad," 19 participants) watched the original version of a 2-minute commercial advertisement (that had not been distributed in the Italian market) in which players from Real Madrid and Manchester United soccer teams challenged each other at an "Ok-corral" for a bottle of Competing Cola. There were numerous images and cues recalling the Competing Cola, and the challenge was over a bottle, thus assuming a central and causal role in the sequence of the events. A second group ("Subtle Ad," 24 participants) watched a version of the same advertisement in which only two peripheral images of a bottle of the Competing Cola were present and 40 seconds were cut from the original version. At the end of the second session (T2), participants belonging to this group were asked about what they had just seen. None of them referred being aware that the Competing Cola was advertised in the video.

A third group ("Control," 17 participants) was provided with a third version of the same advertisement in which *all* images about the Competing Cola were cut out.

### Procedure and Materials

During the first session, the individual level of NFC was measured (Cacioppo, Petty, & Kao, 1984;  $\alpha = .90$ ), and then considered in the analysis as a moderating covariate of the relationship between treatment (ad exposure) and attitude change.

A semantic differential was provided to participants in order to measure their *explicit attitude* toward the Competing Cola ( $\alpha = .85$ ). A list of the 11 bipolar adjectives we used is presented in the Appendix.

A GNAT (Nosek & Banaji, 2001) was presented to participants in order to evaluate their *implicit attitude* toward the Competing Cola. The GNAT is a single-category association task, in which participants are asked to "catch" words or images belonging to two categories (attribute and target) by pressing the space bar (Go) and to ignore (No Go) all other stimuli (distractors). In this study participants had therefore to press the Go button when the Competing Cola images (target) and good or bad words (attribute) appeared, and do nothing (No Go) when the Main Cola images (distractors) appeared. The GNAT effect, which is a measure of the implicit attitude toward the target category, was computed comparing the block in which participants had to identify the *target* (i.e., the Competing Cola) *and bad words* and the block in which participants had to identify the *target and good words*. We used the latency version of the GNAT, as it probably has higher internal consistency (due to the use of continuous variables instead of dichotomous ones; Nosek & Banaji, 2001, p. 661). Response windows varied between 550 and 850 ms. Stimuli were five words with positive meaning, five words with negative meaning, five images representing the Competing Cola and five images representing the Main Cola. A list of all words used in the experimental procedure is presented in the Appendix.

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## DATA ANALYSIS

The NFC and the explicit attitude measures represent the mean score each participant obtained at the NFC scale and the semantic differential respectively. The GNAT was scored emulating the procedure developed for computing the IAT D score (Greenwald, Nosek, & Banaji, 2003). No subject was deleted for excess of errors (i.e., higher than 50%). All responses to distractors were discarded. The implicit attitude scores were computed by subtracting the mean of the response times for the block that asked to identify the Competing Cola images and good words from the mean of the response times for the block that asked to identify the Competing Cola images and bad words. This difference was then divided by the standard deviations of all trials across the two blocks. Higher scores thus reflected a more positive implicit attitude toward the Competing Cola.

We hypothesized that the same blatant and subtle advertising would produce, respectively, contrast and assimilation effects on both implicit and explicit attitudes (H1 and H2). We also hypothesized that the explicit attitude change would remain constant even 48 hours after the exposure to the commercial message, while the implicit attitude would return to its original level (H4, H5). Operatively, we thus expected the explicit attitude of “Subtle Ad” and “Blatant Ad” groups to significantly differ from each other at time 2 (10 minutes after viewing the advertisement) and at time 3 (48 hours after viewing the advertisement), but not at time 1 (before viewing the advertisement). This tested H5, H1a and H2a. Then, we expected the implicit attitude mean of “Subtle Ad” and “Blatant Ad” groups to significantly differ from each other only at time 2, but not at time 1 and at time 3. This tested H4, H1b and H2b. Therefore, measures of implicit and explicit attitudes toward the Competing Cola at times 1, 2, and 3 were analyzed by means of a General Linear Model for repeated measures, in a classic doubly multivariate design with two dependent measures (explicit and implicit attitudes toward the Competing Cola), a three-level between-subject factor (type of ad: Subtle Ad group, Blatant Ad group, and Control group), a three-level within-subject factor (session: before the ad, 10 minutes after the ad, and 48 hours after the ad), and a between-subject covariate (to test H3, the hypothesized moderation effect of NFC). We expected the interaction between the Time within-subject factor and the NFC covariate to be significant at the multivariate and univariate test, but only for the Explicit Attitude dependent variable.<sup>2</sup>

## RESULTS

The main between-subjects effect of the “Type of Ad” factor is significant (Pillai’s Trace = .17,  $p < .05$ ). The “Blatant Ad” and the “Subtle Ad” groups have different attitude means (see Figure 1). A multivariate significant effect was also found for the interaction between “Time” and “Type of Ad” factors (Pillai’s Trace = .14,  $p < .05$ ), meaning that the combined DVs are influenced by the interaction between the type of advertisement subjects were presented with and the time (before the ad, after 10 minutes, after 48 hours) when measures were taken. No other effect was significant. Provided that the omnibus MANCOVA showed significant effects, we decided to investigate further the relationships between the IVs and the DVs (see Tables 1 and 2). Because the DVs are not correlated, we tested the interaction between “Type of Ad” and “Time”

factors at the univariate level, which is significant only for the explicit attitude measure,  $F(4, 112) = 2.65, p < .05, \eta^2 = .087$  (the Greenhouse-Geisser correction was applied), and not for the implicit attitude. To test H1a and H5, we conducted a linear trend analysis, expecting the explicit attitude of the “Subtle Ad” group to increase linearly and the implicit one not to do so. An a-priori contrast for testing the hypothesis of a linear trend was indeed significant only for the explicit attitude,  $F(2, 56) = 4.10, p < .05, \eta^2 = .12$ , meaning that the assimilation effect, observed for the explicit attitude just after exposure to the advertisement, increased in the following 48 hours (see Figure 1). Thus, we accepted H1a and H5, but we had to reject H2a.

TABLE 1  
 Univariate analysis of variance of explicit attitude scores for the Competing Cola

Source	Measure	SS	df	MS	F
Time	Implicit	184.89	2	92.45	0.27
	Explicit	0.08	2	0.04	1.80
Time × NFC	Implicit	169.53	2	84.77	0.25
	Explicit	0.07	2	0.04	1.60
Time × Type of Ad	Implicit	2366.92	4	591.73	1.74
	Explicit	0.24	4	0.06	2.65*
Error	Implicit	38074.60	112	339.95	
	Explicit	2.55	112	0.02	

Note. Values presented in the *F* column are corrected against Type I error inflation by dividing the uncorrected *F* by the *df* of the test. *SS* values are adjusted for unequal sample sizes.

\* $p < .05$ .

With regard to the implicit attitude, a significant main effect,  $F(2, 56) = 3.3, p < .05, \eta^2 = .10$ , of the “Type of ad” factor was observed (see Table 2).

TABLE 2  
 Between-subjects univariate analysis of variance of implicit attitude scores for the Competing Cola

Source	Measure	SS	df	MS	F
NFC	Implicit	28.53	1	28.53	0.14
	Explicit	0.08	1	0.08	0.39
Type of Ad	Implicit	1352.90	2	676.45	3.35*
	Explicit	0.59	2	0.29	1.43
Error	Implicit	11299.35	56	201.77	
	Explicit	11.59	56	0.21	

Note. Values presented in the *F* column are corrected against Type I error inflation by dividing the uncorrected *F* by the *df* of the test. *SS* values are adjusted for unequal sample sizes.

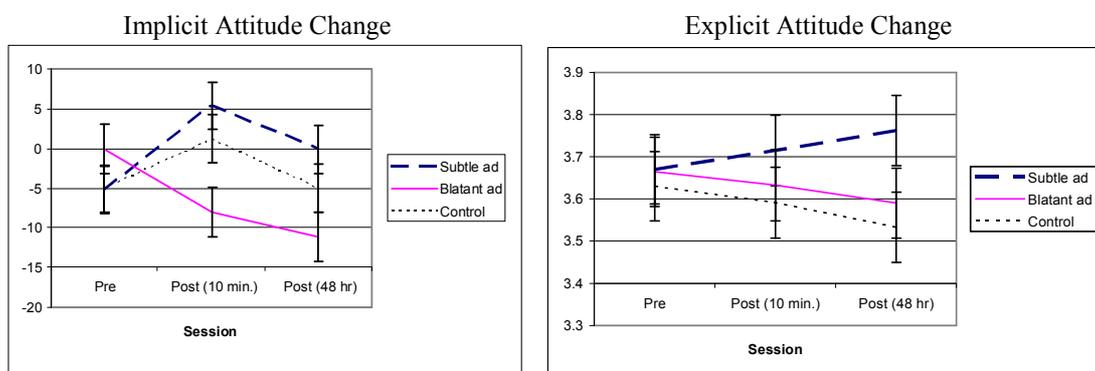
\* $p < .05$ .

The “Blatant Ad” group mean was significantly lower than that of the other groups. In order to test if this difference was due to the commercial message, a post-hoc (Bonferroni) test was con-

ducted, revealing that the difference between “Control” and “Blatant Ad” groups’ means was significant ( $p < .05$ ) in session 2, but not in sessions 1 and 3, hence we could accept H4 and H2b. The “Control” group and the “Subtle Ad” group did not differ significantly, therefore we rejected H1b.

No significant effects were observed in relation to the interaction between the “Type of Ad” factor and the “NFC” covariate. Thus we partially accepted H3, because we failed to observe a moderation effect on the relation between the persuasive message and the explicit attitude change.

In summary, as depicted in Figure 1, we observed a short-term contrast effect in the implicit attitude and a long-term assimilation effect for the explicit attitude.



Note. Error bars represent 2 SE of the mean (estimated value). Significant post-hoc tests (Bonferroni) were observed between control and blatant groups in session 2 (post -10 min.) for implicit attitude ( $p < .05$ ), and between control and subtle groups in session 3 (post -48 hours) for explicit attitude ( $p < .05$ ).

FIGURE 1

Profile plots of implicit (on the left) and explicit (on the right) attitudes by session (X axis) and type of treatment (different lines).

## DISCUSSION

Recent findings by Forehand and Perkins (2005) suggested that a voice-over provided by a celebrity (if the celebrity is identified) produces an assimilation effect in the implicit attitude toward a brand associated with the celebrity and a contrast effect in the explicit attitude toward the brand. Such findings supported the claim that contrast effects are due to a controlled (explicit) process of correction, which intervenes at a later stage and therefore does not affect automatic preferences. As for the explicit attitude, this finding is in line with Wegener and Petty's (1995) Flexible Correction Theory. Yet, in relation to implicit attitude, Glaser and Banaji (1999) suggested that correction processes could also occur automatically. We therefore argued that the same “subtle” persuasive message could produce assimilation in both explicit and implicit attitudes (H1) and that the same “blatant” persuasive message could produce contrast in both explicit and implicit attitudes (H2). Further, we claimed that changes in implicit and explicit attitudes were due to different processes (controlled correction for explicit attitude and reverse priming for implicit attitude) but led to the same effects. Results partially support these two hypotheses, as we observed an implicit contrast effect in people exposed to the blatant advertisement and an ex-

PLICIT ASSIMILATION effect in people exposed to the subtle advertisement. The implicit contrast effect we observed is perhaps the most important result of this study, because it supports findings by Glaser and Banaji (1999), and extends them to 1) a response-competition task such as the GNAT (Nosek & Banaji, 2001) and 2) a single everyday commercial advertisement. This result calls for further examination aimed to confirm (or disconfirm) that this effect can be detected also with other response competition tasks, such as the IAT (Greenwald et al., 1998).

We failed to detect implicit assimilation and explicit contrast, even though they were repeatedly observed in previous studies. While the lack of explicit attitude change in participants that watched the blatant advertisement is probably due to conscious correction processes, the lack of implicit attitude change in participants that watched the subtle advertisement can be interpreted in many different ways. In our opinion, the two primes included in the subtle advertisement (i.e., the two peripheral images of a bottle of the Competing Cola) did have an effect but we would have been able to see it only if participants had been presented with an implicit measure right after the exposure. On the contrary, we provided the second set of measures approximately 10 minutes after the advertisement, when the effect was likely to have already disappeared.

As regards NFC, the lack of a moderation effect on explicit attitude change might be due to the type of commercial advertisement used in our study. More specifically, the content, the scenes and images, and the actors all contributed to achieving a high level of appeal and agreeableness, but the quality of the arguments provided to participants was low. No logical or rational reference to why the product should be chosen was present. Rather, the product was just effectively associated to top-level soccer players and to an amazing and funny scenario (the Ok-coral challenge). The perceived pleasantness of the advertisement we employed in this study might have moderated the explicit attitude change had we measured it. As it is, this hypothesis is speculative pending further investigation.

Our last notable result is related to the stability of implicit and explicit changes. According to the distinction between slow-learning and fast-binding memory systems (McClelland et al., 1995) and to the literature on attitude change (see Gawronski & Bodenhausen, 2006), we predicted that implicit attitude change would have disappeared after 48 hours (H4), whereas explicit attitude change would last even longer than 48 hours (H5). Results support both hypotheses. Assimilation effects on explicit attitude increased 48 hours from exposure to the advertisement, and the implicit contrast effect disappeared. The tendency of the implicit attitude to restore its previous state suggests that the automatic attempt to correct for priming, which is responsible of the reverse priming effect, behaves in a different manner from the classical correction we are used to observe in the explicit attitude. Further research is needed in this direction, aiming to identify the differences between implicit and explicit correction effects (see Glaser, 2007). This result also supports the recent Associative-Propositional Evaluation (APE) model (Gawronski & Bodenhausen, 2006), by providing evidence that a single exposure to a persuasive message temporarily changes the activation of the pattern of associations constituting an implicit attitude.

#### NOTES

1. This study was also presented at the IAREP-SABE Conference — September 2008, Rome, Italy.
2. For the interpretation of a MANOVA analysis it is important that the DVs are not correlated, in order to assign variance to them unambiguously. The Implicit-Explicit correlation at times 1, 2, and 3 is always lower than .14 ( $p = .83$ ).

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APPENDIX

List of Words Used in the Semantic Differential

utile/inutile [useful/useless]  
bello/brutto [nice/ugly]  
inaffidabile/affidabile [reliable/unreliable]  
piacevole/spiacevole [pleasant/unpleasant]  
vantaggioso/svantaggioso [profitable/unprofitable]  
migliore/peggiore [best/worst]  
caldo/freddo [hot/cold]  
gradevole/sgradevole [enjoyable/disagreeable]  
triste/allegro [sad/happy]  
moderno/vecchio [modern/old]  
cattivo/buono [bad/good]

List of Stimuli Used in the GNAT

repellente [repellent]  
piacevole [pleasant]  
efficace [effective]  
peggiore [worst]  
buono [good]  
dannoso [harmful]  
migliore [best]  
prezioso [precious]  
brutto [ugly]  
cattivo [bad]