



## Report

## On the determinants of implicit evaluations: When the present weighs more than the past

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## ABSTRACT

It is often assumed that implicit evaluations are influenced by early childhood experiences, whereas explicit evaluations reflect recent experiences. However, previous findings supporting this assumption remain ambiguous as to whether the differential effects of early versus recent experiences are driven by their temporal distance or their affective versus cognitive nature. Controlling for affectivity by using a predominantly affective attitude object (i.e., religion), the present study found that both implicit and explicit evaluations were related to recent, but not early, experiences. This pattern consistently emerged for self-reported experiences as well as independent reports from parents. Moreover, the relation of recent experiences to one type of evaluation remained significant after controlling for the respective other type of evaluation, suggesting that recent experiences influenced implicit and explicit evaluations independently. Implications for attitudinal dissociations and processes of attitude change are discussed.

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## Introduction

In the last decades there has been an increasing interest in implicit evaluations. Going beyond verbally reported, explicit evaluations, it is often assumed that implicit evaluations have their roots in associative networks that link attitude objects to evaluative and semantic contents. Explicit evaluations, in contrast, are assumed to reflect those associations that have passed a deliberate assessment of their subjective validity (e.g., Gawronski & Bodenhausen, 2006; Olson & Fazio, 2009; Petty, Briñol, & DeMarree, 2007). Whereas explicit evaluations are typically assessed with standard self-report measures, implicit evaluations are inferred from people's performance on experimental paradigms, such as the implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998) or evaluative priming (Fazio, Jackson, Dunton, & Williams, 1995). The distinction between implicit and explicit evaluations has proven its usefulness in numerous studies showing that the two kinds of evaluations predict different behaviors. In addition, implicit and explicit evaluations have been found to be differentially effective in predicting the same behavior for different individuals and under different circumstances (for reviews, see Friese, Hofmann, & Schmitt, 2008; Perugini, Richetin, & Zogmaister, in press). However, there is still some debate about how implicit and explicit evaluations develop over time.

Since the seminal work by Devine (1989), it has been assumed that the associations underlying implicit evaluations have their roots in childhood as part of children's primary socialization processes (for a review, see Olson & Dunham, in press). Through direct or indirect experiences (Castelli, De Dea, & Nesdale, 2008; Castelli, Zogmaister, & Tomelleri, 2009), children start to associate particular objects or social groups with either positive or negative evaluations, and these associations are assumed to represent the key elements of implicit evaluations. Later in the developmental process, these associations may be qualified by new experiences that may be incongruent with the evaluative implications of early experiences. As recent experiences are not as deeply rooted as the highly overlearned early experiences, recent experiences may not be activated automatically. The presumed result is an attitudinal dissociation (Greenwald & Nosek, 2009), such that implicit evaluations are influenced by early experiences whereas explicit evaluations reflect recent experiences (Dunham, Baron, & Banaji, 2008; Rudman, 2004; Wilson, Lindsey, & Schooler, 2000; see also Banse, Gawronski, Rebetez, Gutt, & Morton, in press). The relevance of early experiences for implicit evaluations is also echoed by Greenwald and Banaji (1995) who conceptualized implicit attitudes as "introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action toward social objects" (p. 8). However, an important question is how far away in the past these experiences have to be. One possibility is that implicit evaluations are primarily shaped by experiences that occurred in the distant past, namely during childhood. On the other hand, there are reasons to believe that

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implicit evaluations are in fact sensitive to recent experiences and continuously attune to the evaluative tone of these experiences.

In a nice empirical attempt to distinguish between these two possibilities, Rudman and colleagues (2007) assessed participants' implicit and explicit evaluations of a variety of social objects (e.g., smoking, body weight, dreams). In addition, they measured the valence of early and recent experiences with the attitude objects. Results consistently showed that implicit evaluations were mainly predicted by the valence of early experiences, whereas explicit evaluations were related to recent experiences. These findings are in line with the idea that childhood experiences shape implicit evaluations which, in turn, remain quite stable across life and relatively resistant to subsequent life events. Further support for this assumption is provided by Baron and Banaji (2006) who found that the mean level of implicit prejudice was equally high for different age groups (i.e., 6 years, 10 years, adults), while explicit prejudice continuously decreased as a function of age (see also Banse et al., in press). This finding has been interpreted as evidence for the relatively stable nature of implicit evaluations, which are assumed to be formed during the first years of life (see also Dunham et al., 2008).

In discussing their findings, Rudman and colleagues (2007) proposed that one key difference between early and recent experiences can be found in their affective connotation. Specifically, they argued that early experiences tend to be more affective, whereas recent experiences often have a more cognitive nature. As such, the temporal distance of early versus recent experiences may not necessarily be a proximal determinant of explicit and implicit evaluations. Instead, temporal distance may function as a distal factor that gains its impact through the differential effectiveness of affective versus cognitive experiences in shaping implicit and explicit evaluations (Gawronski & Bodenhausen, 2007). For example, one could argue that childhood experiences with smoking are often more affective, whereas later acquired knowledge about smoking is usually more cognitive (Rudman, Phelan, & Heppen, 2007). Hence, when both early and recent experiences generally entail a strong affective component, the pattern of relations observed in earlier studies may differ, such that implicit evaluations may indeed reflect recent rather than early experiences.

To test this assumption, the present study adopted the basic procedure employed by Rudman and colleagues (2007) to investigate the determinants of implicit and explicit evaluations of religion. Religious attitudes seemed particularly suitable for this purpose, as they represent a key aspect of self-perception; they are linked to strong emotional reactions (Corrigan, 2008); and affective components of religious attitudes have been shown to be a more powerful predictor of behavior as compared to cognitive components (Bagozzi & Burnkrant, 1977). In addition, we tried to overcome a limitation of previous work which only relied on participants' self-reports about their past experiences. The exclusive reliance on participants' reports implies the possibility that respondents "construed" their past experiences on the basis of their spontaneous affective reactions (see Gawronski & Bodenhausen, 2006). It therefore seems crucial to also assess reports of external observers who have relevant knowledge about the respondents (see Dovidio, Kawakami, & Gaertner, 2002). For this reason, we additionally asked participants' parents to report their perceptions of the importance of religion for their sons/daughters both in the present and when they were children. To the degree that previous findings are due to the proposed overlap between early versus recent experiences with affective versus cognitive experiences (Rudman et al., 2007), controlling for affectivity may produce a different pattern of results, such that both implicit and explicit evaluations may show stronger relations to recent as compared early experiences.

## Methods

### Participants

Fifty-five first year psychology students (41 females, 12 males, and 2 missing data) participated in the laboratory study in return of course credit. All participants had a Christian background.

### Procedure

The procedure was very similar to the one employed by Rudman et al. (2007). Participants first filled in a questionnaire and then completed an IAT. Afterwards, they were assigned a code and they were given an envelope for each of their parents containing a questionnaire that the parents were asked to complete and send back to the experimenters. The parents' questionnaires included the code assigned to their son/daughter, which allowed us to match the responses from individuals belonging to the same family while achieving full anonymity. It was emphasized to students that their parents' participation was voluntary and that it would not affect the assignment of credits. Twenty-four mothers and 22 fathers returned the questionnaires.

### Measures for students

#### Religious behaviors

Participants were asked to report the frequency with which they currently engage in two religious behaviors (i.e., How often do you pray? How often do you go to church?). The frequency of religious behaviors was assessed with 7-point rating scales ranging from 1 (*not at all*) to 7 (*very often*). Responses on the two items were highly correlated,  $r(55) = .59, p < .001$ , and therefore they were averaged in a single score of present religious behavior,  $M = 3.04, SD = 2.01$ . The same questions were asked with regard to participants' behaviors when they were children (i.e., During childhood how often did you pray? During childhood how often did you attend to church?). To specify the relevant age range, participants were told that we were interested in the period in which they were attending elementary school. Again, responses were strongly correlated,  $r(55) = .74, p < .001$ , and therefore averaged in a single score of past religious behavior,  $M = 4.91, SD = 1.63$ . A *t*-test showed a marked decrease in religious behavior as a function of age,  $t(54) = -7.82, p < .001$ . Nevertheless, past and present behaviors showed a significant positive correlation of  $r(55) = .55, p < .001$ .

#### Self-concept relevance

In addition to the questions about religious behaviors, participants were asked three questions about (a) how much they self-define as believers in God, (b) how important religion is in their life, and (c) how important it is for them to be religious. Responses were assessed with 7-point rating scales ranging from 1 (*not at all*) to 7 (*very much*). Reliability was very high ( $\alpha = .95$ ) and therefore responses were averaged in a single score,  $M = 3.47, SD = 1.87$ . The same questions were asked in relation to participants' childhood when they attended elementary school. Again, reliability was high ( $\alpha = .92$ ) and responses were averaged in a single score,  $M = 4.25, SD = 1.56$ . A *t*-test showed that religion became less important for participants' self-definition as a function of age,  $t(54) = -3.13, p < .005$ , though responses regarding present and past self-concept relevance showed a significant positive correlation of  $r(55) = .43, p = .001$ .

#### Religious experiences

The two most relevant predictors were assessed via two separate thought-listing tasks which were administered in counterbal-

anced order. In one task, participants were instructed to think about their earliest experiences with religion and to report the first thoughts that came to their minds. It was emphasized that we were interested in the thoughts that came to mind quickly and easily. Participants were allowed to list up to 10 thoughts. Afterwards, participants were instructed to rate each of their thoughts according to whether it was positive or negative toward religion. Valence ratings were assessed with 7-point scales ranging from 1 (*extremely negative*) to 7 (*extremely positive*). All participants reported at least three thoughts. Participants' valence ratings were averaged to form a single index of early experiences ( $\alpha = .71$ ) indicating moderately positive experiences with religion during childhood ( $M = 5.06$ ;  $SD = 1.38$ ). The same procedure was adopted to assess thoughts about recent experiences with religion ( $\alpha = .73$ ;  $M = 4.38$ ;  $SD = 1.42$ ). Even though early and recent experiences showed a significant positive correlation,  $r(55) = .52$ ,  $p < .001$ , thoughts about early experiences were significantly more positive than thoughts about recent experiences,  $t(54) = 3.69$ ,  $p = .005$ .

#### Explicit evaluations

To assess explicit evaluations of religion, participants were asked to think about their religion and to complete 18 semantic differential scales (e.g., good–bad, pleasant–unpleasant, sociable–unsociable, ugly–beautiful). All items used 7-point scales. Responses were recoded such that higher scores reflected more positive evaluations ( $\alpha = .91$ ;  $M = 4.58$ ;  $SD = .99$ ).

#### Implicit evaluations

Implicit evaluations of religion were assessed with a standard evaluative IAT (Greenwald et al., 1998). The IAT included 10 positive and 10 negative words from Greenwald (1998) as well as 10 pictures related to religion (e.g., cross, church, priest) and 10 pictures unrelated to religion (e.g., pineapple, coffee maker, building). Following the basic IAT procedure (Greenwald et al., 1998), participants had to categorize the words as “positive” versus “negative” and the pictures as related to the categories “religion” versus “not-religion”. Based on participants' responses in the two combined blocks of the IAT, we calculated a *D* score, as recommended by Greenwald and colleagues (2003),  $\alpha = .76$ ;  $M = .65$ ;  $SD = .70$ . Implicit evaluations assessed with the IAT showed a moderate positive correlation with self-reported explicit evaluations,  $r(55) = .28$ ;  $p < .05$ .

#### Measures for parents

Using scales similar to the ones for students, parents were asked to report the frequency with which their sons/daughters prayed and attended church in their childhood when they attended elementary school, and how frequently they currently engage in the same behaviors. In addition, parents were asked eight questions assessing the importance of religion and religious beliefs for their children both in the presence and the past (e.g., How important is/was religion for your son/daughter?). Responses were assessed with 7-point rating scales ranging from 1 (*not at all*) to 7 (*very much*). The reliability of the aggregate scores was high in all four cases (mothers:  $\alpha_{\text{present}} = .94$ ,  $\alpha_{\text{past}} = .91$ ; fathers:  $\alpha_{\text{present}} = .96$ ,  $\alpha_{\text{past}} = .93$ ).

## Results

### Students

#### Implicit evaluations

To test the relation between early and recent experiences to implicit evaluations, a series of regression analyses was conducted. First,

**Table 1**

Results of multiple regression analyses in which students' reports of early and recent experiences, past and present behaviors, as well as past and present self-concept relevance of religion were entered as predictors of implicit and explicit evaluations, respectively. Standardized Betas are reported.

Predictors	Implicit evaluations	Explicit evaluations
<i>Experiences</i>		
Recent	.38*	.46**
Early	-.09	.23†
<i>Behaviors</i>		
Present	.41***	.59***
Past	.08	-.07
<i>Self-concept relevance</i>		
Present	.41**	.73***
Past	.01	-.16

†  $p < .10$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

we simultaneously regressed implicit evaluations to early and recent experiences reported by the students. Results showed that only recent experiences significantly predicted implicit evaluations; early experiences were unrelated to implicit evaluations (see Table 1). In a second step, we regressed implicit evaluations to past and present religious behaviors. Replicating the pattern obtained for early and recent experiences, only present behaviors were significantly related to implicit evaluations; past behaviors were unrelated to implicit evaluations (see Table 1). In a third step, we regressed implicit evaluations to present and past self-concept relevance of religion. Again, only responses referring to the present were significantly related to implicit evaluations, whereas past self-concept relevance was unrelated to implicit evaluations (see Table 1).

#### Explicit evaluations

To test the relation between early and recent experiences to explicit evaluations, the same regression analyses were performed on explicit evaluations (see Table 1). Recent experiences showed a significant positive relation to explicit evaluations. In addition, early experiences showed a positive relation to explicit evaluations; however, the relation between early experiences and explicit evaluations failed to reach the conventional level of significance. Present behaviors were associated with more positive explicit evaluations, while past behaviors were not (see Table 1). Finally, current self-concept relevance of religion was associated with more positive explicit evaluations, while past self-concept relevance was unrelated to explicit evaluations (see Table 1).<sup>1</sup>

### Parents

To further investigate the relation of early and recent experiences to explicit and implicit evaluations, we examined the relation between parents' reports and their sons'/daughters' implicit and explicit evaluations. For this purpose, implicit and explicit evaluations were separately regressed on each parent's reports of (a) present and past behaviors of their sons/daughters and (b) present and past attitudes of their sons/daughters (see Table 2). Replicating the pattern obtained for students' reports, mothers' reports of present behaviors significantly predicted implicit evaluations; reports of past behaviors were unrelated to implicit evaluations.

<sup>1</sup> To test whether early experiences, behaviors, and self-concept relevance moderate the impact of recent experiences, behaviors, and self-concept relevance, further regression analyses were performed including the respective interaction terms as predictors. The interaction terms failed to reach statistical significance in all cases for both implicit and explicit evaluations.

**Table 2**

Results of multiple regression analyses in which parents' reports of their sons'/daughters' past and present behaviors and past and present attitudes were entered as predictors of implicit and explicit evaluations, respectively. Standardized Betas are reported.

Predictors	Implicit evaluations	Explicit evaluations
<i>Mothers' reports</i>		
Behaviors		
Present	.24*	.33**
Past	-.01	.12
Attitudes		
Present	.24*	.38**
Past	-.03	.01
<i>Fathers' reports</i>		
Behaviors		
Present	.16	.22
Past	-.04	.11
Attitudes		
Present	.26*	.33**
Past	-.16	.03

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*  $p < .01$ .

In the same manner, mothers' reports of present attitudes were related to implicit evaluations, whereas mothers' reports of past attitudes were not. A similar pattern emerged for explicit evaluations. Mothers' reports of present behaviors and attitudes of their children were significantly related to explicit evaluations, whereas reports about past behaviors and attitudes were unrelated to explicit evaluations. The pattern of results for fathers' reports was consistent with the one obtained for mothers' reports, even though the obtained relations tended to be weaker. Indeed, father's reports of present and past behaviors were not significantly related to either implicit or explicit evaluations. Father's reports of present, but not past, attitudes were significantly related to explicit evaluations and marginally related to implicit evaluations.

#### *Mutual relations between explicit evaluations, implicit evaluations, and recent experiences*

The finding that both implicit and explicit evaluations were related to recent, but not early, experiences raise the question of how the three variables are mutually related to each other. Drawing on Gawronski and Bodenhausen's (2006) associative–propositional evaluation (APE) model, there are at least three possible patterns. First, similar to the notion of associative learning in evaluative conditioning (see De Houwer, Thomas, & Baeyens, 2001), recent experiences may directly create new associations in memory through the mere co-occurrence of the attitude object and evaluative experiences. To the degree that the resulting implicit evaluations pass a deliberate validity assessment, they may provide the basis for verbal reports of explicit evaluations, thereby producing corresponding effects on the two kinds of evaluations (Case 1 in Gawronski and Bodenhausen's APE model). In this case, controlling for implicit evaluations in the prediction of explicit evaluations should reduce the relation between recent experiences and explicit evaluations, as this relation is due to the direct effect of recent experiences on implicit evaluations (e.g., Whitfield & Jordan, 2009). Second, recent experiences may influence propositional inferences about the subjective validity of evaluative descriptions of religion. To the degree that these inferences create new associations in memory, recent experiences may again show corresponding effects on both explicit and implicit evaluations (Case 4 in Gawronski and Bodenhausen's APE model). However, as the impact of recent experiences on implicit evaluations is only indirect rather than direct, controlling for explicit evaluations in the prediction of implicit evalua-

tions should reduce the relation between recent experiences and implicit evaluations (e.g., Whitfield & Jordan, 2009). Finally, it seems possible that recent experiences directly create new associations in memory and, at the same time, directly influence propositional inferences about the subjective validity of evaluative descriptions of religion. In this case, the relations of recent experiences to implicit and explicit evaluations may in fact be independent (Case 5 in Gawronski and Bodenhausen's APE model). As such, controlling for one type of evaluation in the prediction of the other type of evaluation should leave the relation to recent experiences unaffected. Moreover, the obtained correlation between implicit and explicit evaluations may be reduced to non-significance, given that it is due to their joint relation to recent experiences as a common third variable.

To test these assumptions, we conducted two additional regression analyses. First, we regressed explicit evaluations onto the valence of recent and past experiences simultaneously controlling for implicit evaluations. In a second step, we regressed implicit evaluations onto the valence of recent and past experiences simultaneously controlling for explicit evaluations. Results of the first regression analysis showed that recent experiences remained a significant predictor of explicit evaluations,  $\beta = .41$ ,  $t(53) = 3.01$ ,  $p = .004$ , and past experiences continued to be only weakly related to explicit evaluations  $\beta = .24$ ,  $t(53) = 1.86$ ,  $p = .07$ ; the formerly significant relation between implicit and explicit evaluations was reduced to non-significance,  $\beta = .12$ ,  $t(53) = 1.04$ ,  $p = .30$ . A similar pattern was obtained in the second regression analysis showing that recent experiences were a marginally significant predictor of implicit evaluations,  $\beta = .30$ ,  $t(53) = 1.76$ ,  $p = .08$ , whereas past experiences were not predictive of implicit attitudes  $\beta = -.13$ ,  $t(53) = -.84$ ,  $p = .40$ ; the formerly significant relation between implicit and explicit evaluations was again reduced to non-significance,  $\beta = .17$ ,  $t(53) = 1.04$ ,  $p = .30$ . These results suggest that recent experiences influence implicit and explicit evaluations independently, and that the obtained correlation between the two kinds of evaluations may be due to their joint relation to recent experiences as common third variable.

## Discussion

The present results consistently demonstrated the significance of recent experiences in shaping not only explicit evaluations, but also implicit evaluations. Counter to earlier findings showing stronger relations between implicit evaluations and early experiences (e.g., Rudman et al., 2007), participants' reports of recent experiences, present behaviors, and current self-concept relevance predicted both implicit and explicit evaluations even after controlling for early experiences, past behaviors, and past self-concept relevance.<sup>2</sup> The validity of this finding was further corroborated by parents' reports of their sons'/daughters' attitudes and behaviors. Even though the pattern of results turned out to be stronger for mothers' as compared to fathers' reports, implicit and explicit evaluations were predicted by parents' reports of present, but not past, behaviors and attitudes of their sons/daughters.<sup>3</sup> Taken together,

<sup>2</sup> One might object that the causal direction implied by the prediction of evaluations by past and present behavior seems counterintuitive, as attitudes are typically assumed to predict behavior rather than behavior predicting attitudes. However, it is worth noting that the latter pattern is well-established in the literature

<sup>3</sup> The weaker relations obtained for fathers' reports might be due to the fact that mothers often spend more time with their children. As such, mothers may have more fine-grained knowledge about the behaviors and feelings of their sons/daughters. In general, however, it is worth noting that the overall pattern of results for mothers and fathers was very similar, such that parents' reports of present attitudes and behaviors showed stronger relations to implicit and explicit evaluations than reports of past attitudes and behaviors.

these results rehabilitate the potential role of recent experiences in the determination of implicit evaluations.

Another important finding is that the relation of recent experiences to implicit and explicit evaluations remained significant after controlling for the respective other kind of evaluation. In both cases, the obtained relation between implicit and explicit evaluations was reduced to non-significance, with the relation to recent experiences being unaffected. This result suggests that recent experiences influence implicit and explicit evaluations directly and independently. Drawing on Gawronski and Bodenhausen's (2006) APE model, one could argue that recent experiences might influence only one type of evaluation directly, and that the obtained relation to the other type of evaluation reflects an indirect effect that is mediated by the direct effect on the first type of evaluation. The present results stand in contrast to this assumption, showing that the relations of recent experiences to implicit and explicit evaluations were fully independent. This independence suggests a new form of attitudinal dissociation that goes beyond previously discussed dissociations in terms of mean values, implicit-explicit correlations, and relations to external variables (Greenwald & Nosek, 2009). In the present study, implicit and explicit evaluations showed correspondence with regard to all three traditional indicators of attitudinal dissociation. At the same time, the two kinds of evaluations were dissociated in the sense that their correlation was driven by their joint relation to a common third variable (i.e., recent experiences). As a result, their apparent relation disappeared once their common relation to recent experiences was taken into account. In terms of Gawronski and Bodenhausen's (2006) APE model, this result suggests that recent experiences may directly create new associations in memory through the mere co-occurrence of the attitude object and evaluative experiences (associative learning). At the same time, recent experiences may influence propositional inferences about the subjective validity of evaluative descriptions of religion (propositional learning). Interestingly, the evaluations resulting from the two learning mechanisms did not spill over to the respective other evaluation, suggesting an attitudinal dissociation between implicit and explicit evaluations (Greenwald & Nosek, 2009). These results suggest that, even when a correlation between implicit and explicit evaluations is observed, the two might still be dissociated in the sense that their correlation is driven by a common antecedent but via different learning mechanisms. Future research controlling for common determinants of implicit and explicit evaluations may help to provide deeper insights into the dependence versus independence of the two kinds of evaluations.

An open question is why the current results deviate from earlier findings, in which implicit evaluations typically showed stronger relations to early rather than recent experiences (e.g., Rudman et al., 2007). From a critical point of view, one could argue that religion represents an exceptional case, given that religious behaviors during childhood are often determined by external pressures from parents rather than personal attitudes. This rather unique situation may explain why early experiences did not show any significant relation to participants' current evaluations of religion. In fact, it seems possible that early experiences are more strongly related to current implicit evaluations when the child is less constrained and has more control over his/her behavior (e.g., hobbies). Although this hypothesis requires further empirical attention, it cannot fully account for the obtained findings. Indeed, past behaviors were highly correlated with self-concept relevance of religion during childhood,  $r(55) = .83, p < .001$ , suggesting that participants were not just following external pressures in their past religious behavior.

Based on these findings, we believe that the difference between the current and previous findings is driven by the affective versus cognitive nature of the studied attitude objects. Rudman et al.

(2007) argued that the stronger relation of implicit evaluations to early experiences may be due to the fact that early experiences tend to be more affective. Thus, more recently acquired, cognitive information may be unable to override the affective associations created by early experiences, thereby leading to a dissociation between implicit and explicit evaluations. From this perspective, temporal distance represents a distal rather than proximal determinant, such that the relative impact of a given experience primarily depends on its affective versus cognitive connotation (see also Gawronski & Bodenhausen, 2007). To test the role of temporal distance more directly, the present study employed religion as an attitude object that is predominantly affective in nature, implying that both early and recent experiences involve a strong affective component (Corrigan, 2008). This predominantly affective connotation differs from the attitude objects employed in previous studies, for which early and recent experiences may also differ in terms of their affective versus cognitive connotation (e.g., early affective experiences versus recently acquired cognitive knowledge in the context of attitudes toward smoking; see Rudman et al., 2007).

Based on these considerations, it seems premature to conclude that early childhood experiences indelibly set the roots of implicit evaluations (see Dunham et al., 2008). In contrast, significant life events may continue to shape implicit evaluations and even override the influence of earlier experiences. This assumption is consistent with recent evidence on racial attitudes, showing that White college students' experiences with Black peers during high school were predictive of White students' implicit evaluations of Blacks (Shook & Fazio, 2008; Towles-Schwen & Fazio, 2001; for related findings, see Rudman, Ashmore, & Gary, 2001). In line with the current findings, some of these studies found that implicit prejudice of Whites against Blacks was reduced by positive interaction experiences only when these experiences were recent (e.g., Towles-Schwen & Fazio, 2001). Thus, when individuals are faced with affectively involving experiences, implicit as well as explicit evaluations can be progressively updated in order to account for such experiences. In fact, it would seem rather dysfunctional to maintain rigid associative structures that are inconsistent with the affective tone of our common everyday experiences. In contrast, relatively flexible knowledge structures that keep track of changes in the environment may represent the best tool for context-appropriate action (Schwarz, 2007; Smith & Semin, 2004). This idea implies that implicit evaluations may be malleable not only as a result of temporary contextual factors (e.g., Blair, 2002; Castelli & Tomelleri, 2008; Dasgupta & Greenwald, 2001; Rydell & Gawronski, 2009), but that they can also undergo more substantial changes (for a review, see Gawronski & Sritharan, in press). Even though such updating processes may occur at different rates for implicit and explicit evaluations (Rydell & McConnell, 2006), the current results demonstrate that people are not necessarily trapped by their childhood experiences, and that the present can sometimes weigh more than the past.

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