

Mate Searching and Evaluative Conditioning 1

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“Although quite nice, I was somehow not attracted by that person”: Attitudes towards romantically committed opposite-sex others are immune to positive evaluative conditioning

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Abstract

Individuals who are motivated to find a romantic partner do not only have to detect desirable mating options, but also have to prevent becoming committed to attractive but unpromising contacts. We thus propose that an acquisition of highly positive evaluations of already romantically committed opposite-sex others is prevented by self-regulatory processes. In two experiments, positive evaluative conditioning (EC) effects were obtained for facial photos (CSs) of other opposite-sex singles when these pictures were paired with positive trait adjectives or odors (USs). In line with our hypothesis, however, this positive EC effect did not obtain for faces of other persons who were presented as being already involved in a romantic relationship. The results demonstrate that the acquisition of positive attitudes during mate searching is modulated by self-regulatory processes that inhibit the emergence of futile commitments.

Key words: self-regulation; mate searching; interpersonal relationships; evaluative conditioning

In order to initiate a romantic relationship, individuals have to find a suitable partner, which is often referred to as the *mate-search* goal (e.g., Maner, Gailliot, Rouby, & Miller, 2007). Recent research has increasingly examined self-regulatory mechanisms that underlie successful mate-searching behavior, especially mechanisms involved in the rapid detection of desirable mates.¹ These processes include spontaneous attention allocation and approach tendencies towards opposite-sex others (in case of a heterosexual orientation) who are both perceived as attractive (Hofmann, Friese, & Gschwendner, 2009; Koranyi & Rothermund, 2012a; Maner et al., 2003; Maner, Gailliot, & Miller, 2009) and display reciprocal romantic interests (Koranyi & Rothermund, 2012b).

Relatively little is known about whether self-regulation during mate searching involves anything more than a rapid detection of desirable and promising mating options. Nevertheless, it is clear that simply spotting attractive mates is by far not the end of the story. Whenever individuals detect potential partners, they need to form a first attitude towards that person, which determines whether or not further courting efforts are carried out (Bredow, Cate, & Huston, 2008). Sometimes, however, developing a positive first attitude towards a potential partner can be maladaptive and actually undermine successful mate searching. In many cases, individuals encounter attractive potential relationship partners that are unavailable. For example, the person of interest might already be romantically committed and not interested in an affair or a romantic re-orientation. Unavailability can also result from an extreme discrepancy between one's own and the other's attractiveness or mutually exclusive sexual preferences. If individuals, however, form positive attitudes towards someone who is (currently) unavailable, they run the risk of perseverating in courting efforts that are doomed to fail and are likely to suffer from distressing and aversive rumination about the blocked and frustrated goal. Thus, successful self-regulation during mate searching might comprise preventing the development of positive attitudes towards mating options that are currently unavailable. Inhibiting the emergence of such conflicting attitudes would allow individuals to

selectively invest their resources into mating options with high chances of dating success and to reduce the risk of experiencing rejection.

Previous research on self-regulation processes during goal pursuit has shown that self-regulatory mechanisms typically operate fast, efficiently, and independent of conscious deliberation (Fishbach, Zang, & Trope, 2010; Koranyi & Rothermund, 2012a, b, c; Rothermund, 2011a, b; Shah, Friedman, & Kruglanski, 2002). Whereas previous studies investigating self-regulatory mechanisms during mate-searching have mostly focused on processes regulating attention allocation and accessibility of information, the focus of the present study is on basic processes of evaluative learning. An effective regulation of attitudes towards potential partners should comprise processes that improve evaluative learning that is in accordance with the demands of the superordinate goal or that suppress evaluative learning that is detrimental to the superordinate goal.

A well-researched attitudinal learning effect is evaluative conditioning (EC). De Houwer (2007, p. 230) defined EC as “a change in the valence of a stimulus [conditioned stimulus or CS] that results from pairing the stimulus with another stimulus [unconditioned stimulus or US]” (for a review, see, De Houwer, Thomas, & Baeyens, 2001). Recent research on EC has shown that this learning effect can be moderated by the presence of goals (Corneille, Yzerbyt, Pleyers, & Mussweiler, 2009; Gast & Rothermund, 2011; Verwijmeren, Karremans, Stroebe, & Wigboldus, 2012). Relating the EC terminology to attitude acquisition during mate searching, one can conceptualize opposite-sex others as CSs, and positive or negative information that is simultaneously present with the CS as a US. Changes in the attitude towards a potential partner (CS) are thus expected if a person is exposed to positive or negative information that is presented together with the potential partner.

According to our hypothesis, self-regulation should prevent the emergence of conflicting attitudes during mate searching. We thus predicted an interaction of CS relationship status and US valence with regard to EC effects. Specifically, EC effects should

be blocked if a potential partner (CS) who has been introduced as being already romantically committed is paired with positive information, which prevents individuals from developing positive attitudes towards opposite others who are unavailable. No such blocking is expected to occur if the potential partner (CS) is introduced as being romantically uncommitted, in which case it is good to develop positive attitudes in order to motivate further approach behaviour. Nor do we expect any modulations of EC effects in case of negative USs, because (a) shielding the mate-search goal against unavailable options does not require an inhibition of negative evaluations and (b) people should form negative attitudes to protect themselves against unpleasant interpersonal interactions, irrespective of another person's relationship status. Thus, in all cases involving an uncommitted CS or a negative US (or both), standard EC effects should obtain.

In the following, we present two experiments that directly tested whether for individuals who pursue a mate-search goal (i.e., they are currently not involved in a romantic relationship and the mate-search goal is activated) the acquisition of positive attitudes towards potential mating partners who are already involved in a committed relationship is blocked. To uncover these self-regulation processes, we applied an evaluative conditioning procedure with facial photos of opposite-sex mates as CSs that were described as being either romantically uncommitted or already committed. Positive and negative trait adjectives (Experiment 1) or odors (Experiment 2) were presented as USs. We predicted an interaction of US valence (positive vs. negative) and relationship status of the CS (romantically uninvolved vs. involved). Specifically, we expected typical EC effects to occur for CSs that were presented as being uncommitted and that were paired with positive USs, whereas no such positive conditioning should be obtained for committed CSs because they should be perceived as being unavailable. For negative USs, evaluative conditioning was assumed to occur for both committed and uncommitted CSs. In both studies, we used an explicit pre-rating to select equally likable CSs. In Experiment 1, attitude changes were assessed by comparing likability

ratings before and after the conditioning phase (pre-post design). In Experiments 2, we used an implicit measure as post-rating (Affective Priming procedure) to assess attitudes towards the CSs (post design only).

Experiment 1

Method

Participants and design.

Forty-nine students of the University of Jena agreed to participate in our study for a payment of €1 (approximately \$1.25) and a chocolate bar. We excluded the data of one participant from the analyses who indicated a strictly homosexual orientation, which left us with a sample of 48 participants (24 female) with an average age of $M = 23.7$ years ($SD = 5.5$). Only participants who declared that they were not involved in a romantic relationship at the time of the study were eligible to participate.

We used a 2 (US valence: positive vs. negative) x 2 (CS relationship status: romantically committed vs. uncommitted) x 2 (measurement point: prior to vs. after the evaluative conditioning phase) design with repeated measures on all factors.

Procedure and materials.

On arrival at the laboratory, participants were seated individually at separate computer workplaces. Subsequently, a mate-search goal was activated by instructing all participants to imagine a situation in which they were going out in the evening to look for a romantic partner. They were told that the facial photos of opposite-sex others, which they were going to see during the following part of the experiment, are people they would meet while going out. Participants were also informed that they would receive information about the relationship status of the presented opposite-sex others. The label “searching” (in German: “Auf der Suche”) indicated that the depicted person is currently romantically uninvolved and is looking for a partner. In contrast, the label “involved” (in German: “Vergeben”) was used for those persons who are already committed in a serious romantic relationship.

Pre-conditioning rating and CS selection. The experiment proceeded with the presentation of 30 facial photos. We presented 30 male faces to female participants and 30 female faces to male participants. The photos were obtained from different face databases and the internet. Facial photos were presented individually at the middle of the computer screen together with their relationship status. Half of the faces were labeled as *searching*, the other half as *committed*. The assignment of facial photos to relationship status was counterbalanced across participants. We used a likability assessment as pre-rating. Specifically, participants were asked to indicate how likable (in German “sympathisch”) each face was on a scale ranging from 1 (“not at all likable”) to 9 (“extremely likable”). Participants’ pre-ratings were used to select eight faces as CSs, four romantically uncommitted and four committed. We selected those opposite-sex others as CSs that had been rated one point above the midpoint of the likability scale (i.e., a 6 on the 9-point scale), to ensure that participants were at least somewhat motivated to think about the CSs in terms of romantically relevant options.²

Evaluative conditioning phase. Prior to the conditioning phase, participants were instructed to imagine that they get involved in more intense contact with some of the opposite-sex others they had met during their evening out. These specific others (the CSs) would be once more presented, again together with their relationship status. Furthermore, it was announced that a trait adjective (US) would be shown together with each photo. We did not introduce the trait adjectives as characteristics of the presented opposite-sex others. Thus the relational meaning of the CS-US pairs was not specified. Participants’ task was to simply look at all the information presented on the computer screen. In each conditioning trial, first the CS appeared (facial photo together with the relationship status). After 2000 ms the US (trait adjective) was shown below the relationship status information. All stimuli then stayed on the screen for 3250 ms. After an inter-trial interval of 2500 ms, the next trial was initiated. For all participants, each CS was assigned to one specific US. Four of the CSs, two of each type of relationship status, were each combined with a positive adjective (“humorous” [in

German: humorvoll], “attractive” [attraktiv], “likable” [sympathisch], or “helpful” [hilfsbereit]), whereas the other four CSs, also two of each type of relationship status, were combined with one of the negative trait adjectives each (“boring” [in German: langweilig], “egoistic” [egoistisch], “grumpy” [mürrisch], or “dismissive” [abweisend]). We counterbalanced the assignment of trait adjective to romantically committed and uncommitted CSs across participants. Each of the eight CS-US pairs was presented six times, resulting in a total of 48 conditioning trials. The order of trial presentation was randomized, however, all eight CS-US pairs had to be presented before a CS-US pair was presented for the next time. The conditioning phase lasted approximately 6 minutes.

Post-conditioning rating. The post-rating was an exact repetition of the pre-conditioning likability rating. All of the 30 opposite-sex faces (including the eight CSs) were presented in random order together with their relationship status and participants had to indicate on a 9-point scale how likable each face was. We again presented all 30 photos to prevent a re-anchoring of the slightly above average pre-rated CSs to the scale’s mid-point.

At the end of the experiment, participants were asked to indicate their sexual orientation.³

Results

EC effects were calculated by subtracting the pre-conditioning from the post-conditioning likability ratings. Thus, positive (vs. negative) values on the effect variable indicate an increase (vs. decrease) in liking. The effect variable was submitted to a 2 (US valence: positive vs. negative) x 2 (CS relationship status: romantically committed vs. uncommitted) ANOVA with repeated measures on both factors (see Table 1 for means).⁴ Results revealed no main effect of relationship status ($F < 1$, $\eta_p^2 = .009$), but a main effect of US valence, $F(1, 47) = 28.49$, $p < .001$, $\eta_p^2 = .236$, which indicated that CSs paired with a positive US were rated more positively ($M = 0.13$; $SD = 0.91$) than CSs paired with a negative US ($M = -1.04$; $SD = 1.05$). Most importantly, however, we found the predicted interaction of

US valence and CS relationship status, $F(1, 47) = 9.19, p = .004, \eta_p^2 = .163$: For positive USs the relationship status of the paired CSs influenced EC effects, $F(1, 47) = 6.36, p = .015, \eta_p^2 = .119$. As expected, the uncommitted CSs became more positive after being paired with a positive US, $t(47) = 2.30, p = .026$ (t-test of the EC-effect variable against zero), but this was not the case for the committed CSs, $t(47) = -1.05, p = .30$. For negative USs, relationship status had no influence on the evaluative change ($F < 2.5, \eta_p^2 = .049$), which was similar for both uncommitted, $t(47) = -7.16, p < .001$, and committed CSs, $t(47) = -4.00, p < .001$.

Discussion

The results provide first evidence that relationship status information of potential mates modulates basic processes of attitude acquisition. While typical EC effects were obtained for opposite-sex facial photos of romantically uncommitted persons (“singles”) when these pictures were paired with positive trait adjectives, this effect was absent for faces of opposite-sex others who were presented as being already romantically committed. Thus, the EC effect is blocked when it would lead an individual to desire mates that are unavailable.

In Experiment 1 positive and negative trait adjectives were used as USs. In a second Experiment, we tested whether our findings generalize to other US-types, namely to odors. Odors play a crucial role in romantic attraction (e.g., Baron, 1981; Demattè, Österbauer, & Spence, 2007) and have been shown to produce reliable EC effects with visually presented CSs (Hermans, Baeyens, Lamote, Spruyt, & Eelen, 2005). We also employed an implicit measure to assess evaluations, which is less likely to be susceptible to demand effects. Specifically, we used an Affective Priming procedure (e.g., Fazio, Sanbonmatsu, Powell, & Kardes, 1986), because this paradigm has been used repeatedly as an implicit measure to uncover EC effects (e.g., Hermans et al., 2005; Hermans, Vansteenwegen, Crombez, Baeyens, & Eelen, 2002).

Experiment 2

Method

Participants and design.

Forty-eight uncommitted female students with an average age of $M = 21.6$ ($SD = 2.9$) agreed to participate in our study for a payment of €1 (approximately \$1.25) and a chocolate bar or for course credit. Only females were recruited because there is evidence suggesting that females are more sensitive to odors (Fusari & Ballesteros, 2008; Jacob, Fraser, Wang, Walker, & O'Connor, 2003). The study used a 2 (US valence: positive vs. negative) x 2 (CS relationship status: romantically uninvolved vs. involved) design with repeated measures on both factors.

Procedure and materials.

Pre-conditioning rating and CS selection. The pre-conditioning rating resembled the pre-rating in Experiment 1 with one minor change: Participants had to indicate how appealing (in German: “ansprechend”), rather than likable, each of the 30 opposite-sex faces was to them on a scale ranging from 1 (“not at all appealing”) to 9 (“extremely appealing”). Again, we selected those opposite-sex faces as CSs that were rated one point above the midpoint of the rating scale. In contrast to Experiment 1, only four (two romantically uncommitted and two committed) rather than eight faces were selected as CSs to ensure that the more time consuming conditioning phase with odors did not become too long.

Evaluative conditioning phase. Prior to the conditioning phase, participants were instructed that in the following some of the previously presented faces would be presented again, but this time together with an odor. As in Experiment 1, we did not provide any instruction indicating that the US (odor) was supposed to reflect an attribute of the CS (the person), leaving the relational meaning of the CS-US pairs unspecified. Each trial of the conditioning phase began with the appearance of a CS (facial photo together with the relationship status). After 3000 ms an instruction was displayed directly under the CS that requested participants to open and to smell on one particular of four bags that were placed beside the computer monitor, to once more look at the face, and then to press the space bar.

After pressing the space bar, the CS remained on the computer screen for another 2000 ms. After an inter-trial interval of 1600 ms, the next conditioning trial was initiated. Each of the bags, which were numbered from 1 to 4, contained cotton pads with either a positive (bag 1: deodorant [Rexona Men Cobalt]; bag 2: after shave [Cerrus Black Energy]) or a negative (bag 3: used cigarette; bag 4: garlic oil [Mecitefendi, Sarmısak Yağı]) odor (the USs). For all participants, each CS was assigned to one specific US. Two of the CSs, one of each type of relationship status, were combined with one of the positive odors, whereas each of the remaining two CSs were paired with one of the negative odors. The assignment of odors to romantically uncommitted and committed CSs was counterbalanced across participants. Each of the four CS-US pairs was presented 5 times, resulting in a total trial number of 20 and a conditioning phase of approximately 6 minutes length.

Affective Priming. An Affective Priming procedure (e.g., Fazio et al., 1986) was used to assess implicit evaluations of the four CSs. The four CSs were used as primes and eight positive (e.g., baby) and eight negative (e.g., car crash) pictures of the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 2001) served as targets which had to be categorized on the basis of their valence. Each trial of the procedure started with the presentation of a fixation cross (500 ms), after which the prime (one of the four CSs) was presented for 200 ms. After an inter-stimulus interval of 100 ms, the target picture appeared and remained on the screen until the participant's response. The next trial was initiated after an inter-trial interval of 1000 ms. The Affective Priming procedure comprised three blocks with 64 trials each. In each block, all of the four CSs were presented 16 times, one time with each of the eight positive and eight negative target pictures. The order of the trials was randomized with the restriction that each face had to be presented before a face was presented for the next time.⁵

Results

Trials with erroneous responses (6,1%) and reaction times that were more than 3

interquartile ranges above the third quartile of an individual's reaction time distribution ("far out values", Tukey, 1977; 3.4%) were excluded from the analyses. Separately for all four CSs, we calculated an Affective Priming effect variable by subtracting mean latencies on trials with positive targets from mean latencies on trials with negative targets. Thus, higher values on the effect variable indicate a more positive implicit evaluation. The Affective Priming effect scores were submitted to a 2 (US valence: positive vs. negative) x 2 (CS relationship status: romantically committed vs. uncommitted) ANOVA with repeated measures for both factors (see Table 2 for means). Results revealed neither a main effect of US valence ($F < 1.5$, $\eta_p^2 = .031$) nor a main effect of CS relationship status ($F < 1$, $\eta_p^2 = .015$), but, as predicted, an interaction of both factors, $F(1, 44) = 7.51$; $p = .009$, $\eta_p^2 = .146$. Simple effects analyses revealed that for positively conditioned CSs, uncommitted CSs were preferred over committed CSs, $F(1, 44) = 4.28$; $p = .045$, $\eta_p^2 = .089$, whereas no significant preference difference occurred for negatively conditioned CSs, $F(1, 44) = 2.75$; $p = .104$, $\eta_p^2 = .059$.

Discussion

The findings of Experiment 2 once more revealed the predicted pattern of an interaction of US valence and CS relationship status: Specifically, implicit evaluations were significantly more positive for uncommitted than committed CSs when the CSs had been previously combined with a positive odor, whereas no such difference was found in case of negative odors, which caused similar evaluations of the CSs irrespective of their relationship status.

Experiment 2 speaks in favor of the robustness of our general finding. The finding is neither confined to a specific US type (but occurs after pairings with trait adjectives as well as odors) nor to a specific measure that is used to assess EC effects (but occurs on explicit ratings and Affective Priming effects).

General Discussion

Two experiments in which we used either trait adjectives (Experiment 1) or odors

(Experiment 2) as USs, and either explicit (Experiment 1) or implicit (Experiment 2) dependent measures revealed that mate searching is accompanied by self-regulatory processes that inhibit the acquisition of positive attitudes towards unavailable mating options. Specifically, we found that EC effects were neutralized when already committed opposite-sex others were paired with positive trait adjectives or odors. On the contrary, for uncommitted mates we found consistently positive EC effects. Note that relationship status did not modulate evaluative condition effects in case of negative US. This result is important because it rules out general attentional avoidance of committed opposite-sex others as an explanation of our findings. Apparently, EC effects were selectively modulated by relationship status only if a resulting change in liking would have caused a conflict by tempting an individual to desire a currently unavailable mate.

Our findings add a new mechanism to the growing body of self-regulatory processes that support an individual in his/her striving for romantic goals. Previous research has shown that it is an important characteristic of these processes that they operate fast, efficient, and independent of conscious reflections (e.g., Hofmann et al., 2009; Koranyi & Rothermund, 2012a, b, c; Maner et al., 2009; Rothermund, 2011b). For instance, during mate searching individuals show automatic attention orienting to attractive (Maner et al., 2003) and promising (Koranyi & Rothermund, 2012b) potential partners. Contrarily, when individuals strive for maintaining their already existing relationships, they automatically inhibit attention allocation to attractive opposite-sex others (e.g., Maner et al., 2009, see also Koranyi & Rothermund, 2012c). The present research goes beyond automatic attention orienting as the mediating self-regulatory process and shows that basic attitudinal learning effects are also adjusted in accordance with demands arising during romantic goal striving. Results of Experiment 2 revealed that a blocking of positive CS-US associations was also obtained for implicit evaluations that were assessed with an Affective Priming task, which is unlikely to be affected by consciously controlled processes. An open question, however, is whether the

learning process itself (and its self-regulatory modulation) occurs unconsciously as well. Based on the current data, we cannot make strong claims regarding this question. However, recent evidence suggests that, in principle, evaluative conditioning can occur without awareness of CS-US contingencies (e.g., Hütter, Sweldens, Stahl, Unkelbach, & Klauer, 2012; Walther & Nagengast, 2006), which speaks in favor of the possibility of unconsciously formed CS-US associations. Therefore, it seems possible that consciousness is also not a prerequisite for the selective inhibition of dysfunctional EC effects. This question is surely a valuable avenue for future research which could make use of recent improvements in the assessment (Hütter et al., 2012) and manipulation (Gawronski & Walther, 2012) of CS-US awareness.

Besides being of interest for romantic relationship research, our findings confirm and extend existing knowledge about motivational influences on evaluative conditioning. Previous research has shown that processing goals (e.g., the goal to focus on similarities [Corneille et al., 2009], the goal to evaluate the stimuli during the learning phase [Gast & Rothermund, 2011], or the goal to reduce or enhance EC effects [Balas & Gawronski, 2012]) can influence evaluative conditioning. Recent research has shown that also more concrete goals, such as the goal to drink (Verwijmeren et al., 2012), can influence EC effects on stimuli that are relevant for this specific goal (cf. Gast, Gawronski, & De Houwer, 2012). The current research not only shows that also mating goals can influence evaluative conditioning. It also offers new theoretical insights on evaluative conditioning by showing that conditioning effects for positively valent USs can selectively be blocked if it would result in a highly positive evaluation of attitude objects that are unavailable.

From a specific perspective of evolutionary psychology, our findings may seem unexpected. Specifically, the mate-copying effect describes that individuals tend to prefer mates that have previously been chosen by others to reduce the risk of ending up with a bad partner (e.g., Place, Todd, Penke, & Asendorpf, 2010; Waynforth, 2007). And indeed,

previous research has shown that sometimes people do feel attracted towards already involved others and even actively try to attract them away from their current partner (Schmitt & Buss, 2001; but see O'Hagen, Johnson, Lardi, & Keenan, 2003). Apparently, people do not always inhibit the acquisition of positive attitudes towards others who are already romantically committed. According to the dual-process model of assimilative and accommodative self-regulation and coping (Brandtstädter & Rothermund, 2002), individuals focus on attractive "hard-to-get" options as long as they believe that the option can be reached by sufficient personal effort. In this *assimilative mode* of action regulation, individuals display even reactant increases in the options' value and its perceived feasibility in order to promote persistence in goal pursuit (e.g., Fishbach, Zhang, & Trope, 2010; Haselton & Buss, 2000). However, the dual-process model of self-regulation also predicts that the attractiveness and importance of goal objects and incentives is downgraded whenever personal control over these outcomes is low (Brandtstädter, Rothermund, Kranz, & Kühn, 2010; Rothermund & Brandtstädter, 2003; Rothermund, Brandtstädter, Meiniger, & Anton, 2002). These findings are explained by an *accommodative mode* of functioning in which self-regulatory processes are activated that help an individual to disengage from unavailable options and to accept a given situation as it is. In this sense, the selective blocking of positive CS-US associations in order to shield against futile commitments reflects an accommodative self-regulatory mechanism. In our studies, it seems likely that the activation of this accommodative mode of self-regulation was induced by the fact that the unavailability information was unambiguous and no hint was given that this status might change or could be changed by own effort (i.e., a low control situation). To differentiate more clearly between assimilative and accommodative processes it would be interesting to compare our findings to a condition in which the committed opposite-sex others are described as "being open to persuasion". In this case, we would expect that due to increased controllability, assimilative processes would lead to a pattern of results that is more in line with the mate copying approach (i.e., an increase in

liking for committed CSs in case of positive US that is similar or even larger than the increase in liking for uncommitted CSs).

Another interesting line for future research would be to examine influences of different motivational orientations on EC effects. In line with the assumption that modulations of EC effects reflect an adaptive response with regard to a mating-search goal, we would predict, for instance, that different effects should obtain for participants who are already involved in a committed relationship. In this case, it should be more important and adaptive to shield oneself against positive evaluations of available options, because these are most threatening to the already established relationship.

To conclude, the present research presents a new self-regulatory process involved in mate-searching and relationship initiation. Whereas previous findings suggest that individuals possess cognitive-affective processes that aim at *detecting* attractive and reciprocating potential mates (Koranyi & Rothermund, 2012b, c; Maner et al., 2009), the present research goes one step further and shows that the *acquisition of attitudes* is also subjected to self-regulatory operations that aim at inhibiting the formation of futile romantic commitments.

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Footnotes

¹We use the term self-regulation to refer to (typically) automatic cognitive and affective processes that are elicited or modulated *in accordance* with demands that arise during goal pursuit and goal adjustment (Förster & Denzler, 2009; Rothermund, 2011b). According to this view, self-regulation is distinct from self-control. The latter refers to controlled and strategic processes to overcome impulses that conflict with higher-order goals (e.g., Muraven & Baumeister, 2000).

²If a participant rated not enough facial photos one point above the scale's midpoint, the program selected the remaining CSs from those rated at the midpoint of the scale (i.e. a 5 on the 9-point scale), and, if there were still not enough CSs, from photos that had been rated two points above the scale's midpoint (i.e. a 7 on the 9-point scale), and so forth.

³For exploratory reasons, we also assessed awareness of CS-US co-occurrence at the end of Experiment 1 and 2 with a one-item question (Experiment 1: "Which of the following adjectives was presented several times together with this person?"; Experiment 2: "Was this person presented together for several times with a positive or a negative odor?"). It was, however, not possible to incorporate CS-US awareness as a within-subjects factor into the analyses: In Experiment 1, data for all factor combinations was only available for three participants. In Experiment 2, we had only 4 CS-US pairs, which prevents inclusion of an additional within-factor from the outset. Thus, the only way to look at the CS-US awareness data was a between-subject analysis. Descriptively, these analyses revealed that in Experiment 1 and 2 the predicted CS Relationship Status x US Valence interactions are more pronounced among participants low (vs. high; based on a median split) in CS-US awareness (see online supplement for a detailed description of the results). These effects, however, were not significant. Note also that due to the high average awareness in both experiments (Exp. 1: 67% correct answers; Exp. 2: 86% correct answers), interpretations of these results are limited.

⁴Initial analyses also included gender as a factor, but as we did not find any gender effects, this factor was dropped from the analyses.

⁵After the Affective Priming procedure, we also assessed explicit post-conditioning ratings of the CSs. The results replicated the findings of Experiment 1 (see online supplement for a detailed description).

Table 1

*Evaluative Conditioning Effects as a Function of US Valence and CS Relationship Status
(Experiment 1)*

CS Relationship Status	US Valence	
	Positive	Negative
Uncommitted	0.43 _a (1.29)	-1.23 _c (1.19)
Committed	-0.18 _b (1.17)	-0.85 _c (1.48)

Note. Standard deviations appear in parentheses below means. Within columns and rows, means that do not share a common subscript differ at $p < .05$.

Table 2

Affective Priming Effect Scores (in ms) as a Function of US Valence and CS Relationship Status (Experiment 2)

CS Relationship Status	US Valence	
	Positive	Negative
Uncommitted	15 _a (62)	-10 _b (43)
Committed	-8 _b (42)	1 _b (44)

Note. Standard deviations appear in parentheses below means. Within columns and rows, means that do not share a common subscript differ at $p < .05$.

ONLINE SUPPLEMENT TO:

**“Although quite nice, I was somehow not attracted by that person”: Attitudes towards
romantically committed opposite-sex others are immune to positive evaluative
conditioning**

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This online supplement provides the following:

1. Detailed description of the results for the moderating influence of CS-US awareness in Experiment 1 and 2.
2. Detailed description of the method and the results for the explicit post-conditioning rating of the CSs in Experiment 2.

1. Results for the moderating influences of CS-US awareness in Experiment 1 and 2

To look for moderating influences of CS-US awareness we categorized participants as high vs. low aware based on a median-split. When entering CS-US awareness as an additional factor into the analyses, the 3-way interactions between US valence, CS relationship status, and CS-US awareness did not reach significance ($F[1, 46] = 1.21$; $p = .277$, $\eta_p^2 = .026$, for Exp. 1; $F[1, 43] = 2.66$; $p = .11$, $\eta_p^2 = .058$, for Exp. 2).

Descriptively, however, the results suggested that the predicted interactions of CS relationship status and US valence were somewhat more pronounced in the low CS-US awareness group (see Table below):

Evaluative Conditioning Effects (Exp. 1) and Affective Priming Effect Scores (in ms; Exp. 2) as a Function of US Valence, CS Relationship Status, and CS-US Awareness

		US Valence		
		Positive	Negative	
Experiment 1	Low CS-US Awareness	Uncommitted	0.21 (1.17)	-0.93 (0.88)
		Committed	-0.64 (1.26)	-0.40 (1.29)
	High CS-US Awareness	Uncommitted	0.59 (1.37)	-1.46 (1.35)
		Committed	0.19 (0.97)	-1.20 (1.54)
Experiment 2	Low CS-US Awareness	Uncommitted	25 (69)	-27 (52)
		Committed	-12 (43)	-4 (44)
	High CS-US Awareness	Uncommitted	9 (58)	0 (31)
		Committed	-5 (42)	5 (45)

Note. Standard deviations appear in parentheses.

2. Method and Results for the explicit post-conditioning ratings of the CSs in Experiment 2

Method. The explicit post-conditioning rating of the CSs in Experiment 2 was an exact repetition of the pre-conditioning rating. All of the 30 opposite-sex faces (including the four CSs) were presented in random order together with their relationship status and participants had to indicate on a 9-point scale how appealing each face was to them.

Results. First, we calculated evaluative change scores for all four CSs by subtracting the pre-conditioning from the post-conditioning ratings. We then subjected the evaluative change scores to a 2 (CS relationship status) x 2 (US valence) ANOVA with repeated measures on both factors. As in Experiment 1, results revealed the predicted interaction between CS relationship status and US valence, $F(1, 44) = 2.81$; $p = .050$ (one-tailed), $\eta_p^2 = .060$. For positive USs, the relationship status of the CSs modulated EC effects, $F(1, 44) = 3.83$, $p = .029$ (one-tailed), $\eta_p^2 = .080$. As expected by our theorizing, the uncommitted CSs tended to be more positive after being paired with a positive US ($M = 0.38$; $SD = 1.57$), $t(45) = 1.61$, $p = .055$ (one-tailed; t-test of the evaluative change score against zero), but this was not the case for the committed CSs ($M = -0.31$; $SD = 1.81$), $t(44) = -1.15$, $p = .25$. In contrast, for negative USs, relationship status had no influence on the evaluative change scores ($F < 1$, $\eta_p^2 = .001$), which were similarly negative for both uncommitted ($M = -0.82$; $SD = 2.17$), $t(44) = -2.55$, $p = .014$, and committed CSs ($M = -0.73$; $SD = 1.79$), $t(44) = -2.75$, $p = .009$.