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Retrieving Autobiographical Memories Influences Judgments About Others: The Role of Metacognitive Experiences

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Abstract

This research investigates whether metacognitive experiences accompanying the retrieval of autobiographical memories influence judgments about others. Based on social projection research, we tested the hypothesis that ease-of-retrieval, affecting how the self is perceived, affects first impressions. In line with this prediction, Experiment 1 showed that participants asked to recall a few personal instances of assertive behavior (easy retrieval) judged an unknown person to be more assertive than participants recalling many instances (difficult retrieval). Experiment 2, targeting creativity, provided evidence for the retrieval-ease mechanism: The effect disappeared when ease-of-retrieval was discredited as informational source in a misattribution paradigm. Finally, Experiments 3 and 4 replicated this pattern for the same personality traits and demonstrated two boundary conditions: Participants' ease of autobiographical recalls affected judgments of in- but not outgroup members (Experiment 3), and judgments of unknown others were affected after autobiographical recall but not after recalling behaviors of someone else (Experiment 4).

Keywords

ease-of-retrieval, availability heuristic, self- and other-judgments, social projection

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The idea of an influence between how people see themselves and how they perceive others has a longstanding history in psychology (Hall, 1898; James, 1915). How people perceive themselves has over and again been found to provide a frame to understand the feelings, thoughts, and behaviors of others, with some researchers arguing that "the self is the most important structure in the psychological field" (Krech & Crutchfield, 1948, p. 69). However, past research has primarily focused on how the self-concept affects perceptions of other people (Dunning & Hayes, 1996; Katz & Allport, 1931) or how the same categories used to describe the self are also used to describe others (Higgins, King, & Mavin, 1982; Lemon & Warren, 1974). We would like to complement this work by proposing that not only declarative content but also metacognitive experiences influence impressions people form about others. More specifically, we develop the argument that metacognitive experiences associated with the retrieval of autobiographical memories shape people's first impressions about others.

Even though people often form judgments based on declarative information, and thus the content of thoughts that comes to mind and that is applied when making a judgment (cf. Förster & Liberman, 2007; Higgins, 1996), there is more to thinking than just thought content. People's reasoning is accompanied by metacognitive experiences, which can be affective (e.g., sadness), bodily (e.g., fatigue), or cognitive (e.g., familiarity) in nature, and which often serve as a source of information in their own right in guiding judgments and behaviors (Schwarz, 2004; Schwarz & Clore, 2007). Metacognition, which is thoughts about one's thoughts, thought processes, or thought-accompanying feelings (Dunlosky & Metcalfe, 2009), has received much attention because such secondary thoughts/experiences may qualify or even reverse the impact of first-order thoughts (Petty, Briñol, Tormala, & Wegener, 2007; see Briñol & DeMarree, 2012).

A considerable amount of research has focused on how metacognition affects people's self-concepts. For example, when recalling childhood memories is experienced as difficult, people believing that unpleasant memories usually

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fade away judged their childhood as less happy than people believing that pleasant memories tend to fade away; this pattern reverses when recall is easy (Winkielman & Schwarz, 2001; see also Winkielman, Schwarz, & Belli, 1998). More generally, the certainty of people's beliefs, the importance they attach to a given self-view or attitude, and the clarity of their self-concept affect their view of themselves (DeMarree & Rios Morrison, 2012). A case in point for social consequences of metacognitive influences on memory can be found in research on eyewitness confidence, which despite affecting validity estimations (Wells & Loftus, 1984) is nonetheless often distorted (Leippe, Wells, & Ostrom, 1978).

Whereas a vast majority of studies examined how metacognition influences judgments about the self or objects, this research largely neglected the role of metacognition in social judgments (but see Claypool, Housley, Hugenberg, Bernstein, & Mackie, 2012; Yzerbyt & Demoulin, 2012). And, to the best of our knowledge, no past research investigated how metacognitive feelings associated with the retrieval of autobiographical memories may influence people's impressions about *others*. In the current work, we propose that metacognitive experiences not only color self-judgments but, interestingly, may in some circumstances contaminate people's perception of others. This proposition rests on research demonstrating that subjective experiences have an important role in cognition (Schwarz & Clore, 2007; Strack, 1992; Whittlesea & Williams, 1998) and that people have a strong tendency to assume that others are similar to themselves (i.e., to egocentrically project; Krueger, 2000, 2007). To investigate this question, we draw on the ease-of-retrieval paradigm (Schwarz et al., 1991). We describe the role of experiential information resulting from ease-of-retrieval in shaping judgments before discussing when people may rely on this information in forming impressions of others.

Experiential Information in the Ease-of-Retrieval Paradigm

When evaluating the frequency or likelihood of an event, people often base their estimations on the ease with which they can recall event-specific examples, thus relying on the availability heuristic (Tversky & Kahneman, 1973). Memory inferences make available the subjective ease with which relevant information comes to mind (i.e., feelings and experiences) and the numerical amount of relevant information that is accessible for the judgment at hand (i.e., declarative information). Judgments may thus be based on either of these two sources, and human judgment is not fully understood without taking both into account (Bless & Forgas, 2000; Schwarz, 1998). To disentangle the two mechanisms, Schwarz et al. (1991) developed the ease-of-retrieval paradigm: Participants were asked to recall either 6 (easy retrieval-task) or 12 (difficult retrieval-task) examples of assertive behavior before rating their own assertiveness. Consistent with the availability heuristic account, participants judged themselves more assertive after recalling 6 rather than 12 behaviors: Their judgment was influenced by the subjective ease with which behaviors came to mind; if only thought content was important, recalling more examples should have led to higher assertiveness judgments.

Ease-of-retrieval experiences have since been found to influence many critical judgments in various domains (Schwarz, 1998, 2004; Wänke, 2013) such as frequency estimates (Wänke, Schwarz, & Bless, 1995), attitudes (Wänke, Bless, & Biller, 1996), stereotyping (Dijksterhuis, Macrae, & Haddock, 1999), advertising (Raghubir & Menon, 1998), memories (Winkielman & Schwarz, 2001; Winkielman et al., 1998), group perceptions (Gawronski, Bodenhausen, & Banse, 2005; Rothman & Hardin, 1997), as well as important behaviors such as cooperation (Müller, Greifeneder, Stahlberg, Van den Bos, & Bless, 2010) and test-taking performance (Keller & Bless, 2005).

For self-judgments, retrieval-ease serves as a metacognitive cue indicating the strength of one's personal disposition (Schwarz et al., 1991). It is less clear, however, how ease-of-retrieval plays out in judgments about other people, for example, when forming first impressions. What may be the impact of our cognitive feelings stemming from how easy or difficult we recall memories of behaviors shown in the past? In light of first impressions' later impact, investigating the influence of ease-of-retrieval is important: Implicit impressions tend to remain unchanged even after corrective information (Wyer, 2010), and inaccurate first impressions have potentially damaging consequences (Harris & Garris, 2008), influencing employment outcomes (Barrick, Swider, & Stewart, 2010) and confirmatory behaviors (Dougherty, Turban, & Callender, 1994).

To address the question of whether ease-of-retrieval experiences from recalling autobiographical memories affect one's first impressions about others, we draw on social projection research (Krueger, 2000, 2007) demonstrating that perceptions of others are often contingent on impressions of the self (Alicke, Dunning, & Krueger, 2005; Dunning & Hayes, 1996; Katz & Allport, 1931). More specifically, we not only suggest that ease-of-retrieval concerning the self may affect first impressions of others, but we also delineate when this should be more likely to occur than not.

Social Projection and Ease-of-Retrieval

Social projection refers to "a set of processes by which people expect others to be similar to themselves" (Robbins & Krueger, 2005, p. 32). However, social projection pertains to more than mere trait resemblance, as people "attribute personality traits, characteristics, or motivations to other persons as a function of their own personality traits, characteristics, or motivations" (Holmes, 1978, p. 677). In line with these notions, the self has been found to be a pervasive and distorting source in social judgments (Krueger, 2000, 2007). For example, people use information that they have about

themselves when making judgments about others' behavior and personality (Marks & Miller, 1987), leading them to perceive high consensus for their behavior (Ross, Greene, & House, 1977) and to believe that others resemble them (Katz & Allport, 1931). To mention some further examples illustrative of people basing other-judgments on self-judgment in a pervasive manner: They project personal attributes and traits (Newman, Duff, & Baumeister, 1997) and trait patterns reflected in implicit personality theories (Critcher & Dunning, 2009), as well as emotions (Feshbach, 1963). Furthermore, people project their informational (Epley, Keysar, Van Boven, & Gilovich, 2004) and visual perspectives (Keysar, Barr, Balin, & Brauner, 2000) as well as their goals (Kawada, Oettingen, Gollwitzer, & Bargh, 2004). People show increased projection when judging others to the extent that they perceive self–other similarity (Ames, 2004a, 2004b).

In line with the abundant social projection research, we hypothesized that to the extent that people's self-views are affected by ease-of-retrieval, retrieving a few (versus many) autobiographical examples of specific trait-indicative behaviors may, in turn, influence people's first impressions of others concerning the trait in question, with people judging others to possess the trait more strongly after recalling a few (vs. many) own behavioral instances. To our knowledge, this proposition has not been tested so far. Note, however, that despite the literature on social projection reviewed above, our hypothesis may not be as straightforward. First, to the extent that recalling many examples of a specific trait renders it more salient, it may serve as a strong prime in ambiguous social judgments (Higgins, Rholes, & Jones, 1977). According to this salience account, recalling many (rather than few) examples of a trait-specific behavior will result in more (rather than less) perception of that trait in social targets. Second, self–other contrast (rather than projection) is also conceivable under certain circumstances (Dunning & Cohen, 1992; Hinckley & Rethlingshafer, 1951), which would also imply the recall of many (rather than few) examples leading to more (rather than less) perceptions of the trait in social targets. Self–other comparisons are "a knife that cuts both ways" (Mussweiler, Epstude, & Rüter, 2005, p. 113) and can entail assimilation or contrast. However, when asked to form an impression of a briefly described target, people use the self as a comparison standard in an egocentric manner (Dunning & Hayes, 1996). What seems to be driving assimilation versus contrast is whether people engage in similarity or dissimilarity testing, with the former constituting "the default comparison mechanism" (Mussweiler et al., 2005, p. 114). Thus, contrast effects are not likely to be expected in the paradigm used here.

Seemingly related to our conjecture is research conducted by Caruso (2008) and Raghubir and Menon (1998). Caruso had participants recall behaviors either shown by themselves or others. Ease-of-retrieval had an impact when participants recalled instances of personal behaviors and judged themselves compared with recalling behaviors of others and judging these others. Whereas this work suggests that ease-of-retrieval may affect self-judgments more strongly than other-judgments, we are interested in whether the ease of recalling one's *own* behavior influences first impression judgments of *others*. As to Raghubir and Menon, these authors had participants recall AIDS-related behaviors and found ease-of-retrieval to affect own risk-judgments more strongly than risk-judgments of others. However, participants recalled potential routes of HIV transmission. It therefore is unclear whether they recalled experiences of actually having *engaged* in those behaviors.[1]

In line with the projection account, we sought to provide original evidence for the hypothesis that ease experiences from retrieval of autobiographical memories influence first impressions of others. Furthermore, we sought to provide indirect process evidence (Experiment 2) and to delineate boundary conditions (Experiments 3 and 4). First, for ease-of-retrieval effects to emerge, it is required that people do not attribute the experienced ease to other causes: Ease-of-retrieval must be considered diagnostic (Schwarz, 1998; Schwarz et al., 1991; Schwarz & Clore, 2007; Wänke & Bless, 2000). For instance, when people are explicitly told about an alternative cause for their ease experience, they no longer rely on their subjective feeling (Haddock, Rothman, Reber, & Schwarz, 1999; Ruder & Bless, 2003; Schwarz et al., 1991; Wänke et al., 1995; Winkielman et al., 1998). Second, previous research has demonstrated that people show much greater projection to ingroups than to outgroups (Clement & Krueger, 2002; for a review, see Robbins & Krueger, 2005) and accordingly they should more strongly rely on ease-of-retrieval experiences when judging ingroup members. Finally, earlier work showed that when people are asked to recall trait-indicative behaviors of another person rather than of themselves, they do not rely on retrieval-ease but instead tend to rely on the content of their retrievals in judging this person (Caruso, 2008). Going beyond this research and extending it to targets unrelated to the ease experience, we expected people to rely on their experienced retrieval-ease associated with the recall of own, personal behaviors, but to rely on retrieval content associated with the recall of behaviors shown by another person when making judgments about third, unknown others.

The Present Research

We predicted that ease-of-retrieval of autobiographical memories, which affects how the self is perceived, also influences judgments of other people. This hypothesis was tested in four studies using the ease-of-retrieval paradigm (Schwarz et al., 1991) concerning several trait dimensions used in previous research on self-perceptions. We also investigated the specificity of the effect by including traits not assumed to be affected by ease-of-retrieval. To be sure that ease-of-retrieval effects on judgments of unknown others cannot be attributed

to mood, we controlled for this. In addition, we aimed to provide process evidence by including a misattribution manipulation to show that effects are observed only when the subjective experience of ease is not attributed to an external source (Experiment 2). Two final studies further addressed the assumed projection process by addressing factors constituting boundary conditions. Specifically, they tested the hypotheses that ease-of-retrieval effects should only be observed when judging ingroup but not outgroup members (Experiment 3) and when recalling own behavioral instances but not behavioral instances of other people (Experiment 4).

Experiment 1

To test our hypothesis in a straightforward manner, we manipulated the ease with which participants could recall their own behavior. We then asked them to judge an unknown person on several traits, including the trait that had been the focus of the ease-of-retrieval manipulation.

Method

Participants and design. Seventy-four students (67 females; age-range: 17 to 25; $M = 19.12$, $SD = 1.44$) participated for course credit or 5 € in a series of unrelated studies and were randomly assigned to either the easy or the difficult condition, in which they recalled instances of personal assertive behavior (two participants who compared their ratings and a couple of 45 and 46 years having difficulty with the questionnaire were not considered). Other-ratings of assertiveness served as the dependent variable.

Procedure and materials. On the basis of a pretest asking participants ($N = 20$) to generate as many behaviors as possible indicating their assertiveness ($M = 5.80$, $SD = 2.38$), we concluded that listing 4 behaviors would be perceived as relatively easy whereas having to list 10 behaviors would be perceived as relatively difficult.

Participants in the main study were asked to fill out a brief survey modeled after Schwarz et al. (1991). They were asked to recall and report either 4 (*easy condition*) or 10 (*difficult condition*) examples of when they had personally shown assertive behavior. Participants then saw a morphed picture of a same-sex person (see Figure 1), ensuring a certain degree of similarity, and were invited to form a first impression of this person. Participants were asked to turn the page and to continue with the questionnaire only when they had formed a first impression. On turning the page, they were asked to judge the depicted person on several traits using 9-point scales (1 = *not at all* to 9 = *very*). Assertiveness was assessed with two items: assertive, self-confident; $r(74) = .87$, $p < .001$. The list of traits further comprised filler items: assessing sociability (social, warm-hearted; $r(74) = .81$, $p < .001$) and competence (competent, intelligent; $r(74) = .72$, $p < .001$), to reduce the possibility that participants would focus on the fact that they had previously reported own assertiveness but also to demonstrate that ease-of-retrieval effects would be limited to the trait domain targeted by the manipulation. Finally, because people have been shown to rely more on ease-of-retrieval in a positive compared with a negative mood and that processing ease is associated with positive affect (Reber, Winkielman, & Schwarz, 1998; Ruder & Bless, 2003; Winkielman & Cacioppo, 2001), we measured mood with four items ($\alpha = .84$) using 7-point scales (1 = *sad, bad, discontent*, and *tense* to 7 = *happy, well, content*, and *relaxed*, respectively).

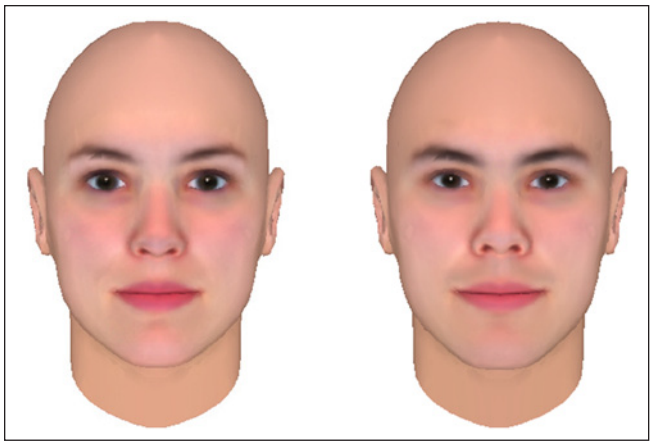

Figure 1. Female (left) and male (right) faces used in all experiments.

Results and Discussion

Manipulation check. Participants used a 9-point scale (1 = *not at all* to 9 = *very much*) to indicate how difficult it was to generate the requested number of behaviors. The same manipulation check was used in all following experiments. An independent-samples t test confirmed that, as expected, retrieval was experienced as less difficult in the easy (4-examples) than in the difficult (10-examples) condition ($M_4 = 7.11$, $SD_4 = 1.94$ and $M_{10} = 7.92$, $SD_{10} = 1.42$), $t(72) = -2.06$, $p = .043$, $d = .48$.

Mood. Participants recalling 4 examples reported being in a slightly more positive mood than participants in the 10-example condition ($M_4 = 4.85$ vs. $M_{10} = 4.44$), but an independent-samples t test indicated that this difference was not significant, $t(72) = 1.56$, $p = .124$. The impact of ease-of-retrieval on other-judgments therefore cannot be explained in terms of mediation by mood differences.

Filler items. To be sure that ease-of-retrieval did not affect the overall judgment of the unknown other, we examined the effect of ease-of-retrieval on the filler trait ratings. Independent-samples t tests on other-ratings of sociability and competence did not reveal differences as a function of

Table 1. Mean Ratings of the Filler Items in All Experiments by Amount of Target-Trait Examples Requested.

	Mean filler ratings	
	Few examples (easy)	Many examples (difficult)
Study 1—Competence	6.64 (0.95)	6.28 (1.06)
Study 1—Sociability	5.70 (1.66)	5.85 (1.57)
Study 2—Extraversion		
Fluency is diagnostic	5.23 (1.49)	4.59 (1.79)
Fluency is non-diagnostic	5.02 (1.86)	5.35 (1.47)
Study 2—Stinginess		
Fluency is diagnostic	4.93 (0.79)	5.00 (1.14)
Fluency is non-diagnostic	4.71 (0.98)	4.85 (0.65)
Study 3—Extraversion		
Ingroup target	4.68 (1.86)	4.70 (1.64)
Outgroup target	5.44 (1.76)	5.60 (1.49)
Study 3—Stinginess		
Ingroup target	5.52 (1.37)	5.78 (1.47)
Outgroup target	5.13 (1.47)	4.82 (1.55)
Study 4—Creativity		
Retrieval of self	5.56 (1.80)	5.54 (1.27)
Retrieval of assertive person	5.93 (1.40)	5.35 (1.47)
Study 4—Stinginess		
Retrieval of the self	4.19 (1.67)	4.09 (1.42)
Retrieval of assertive person	3.99 (1.62)	4.44 (1.87)

Note. There were no significant main or interaction effects except for in Experiment 3: ingroup targets were rated less extraverted, $F(1, 95) = 5.99$, $p = .016$, $\eta_p^2 = .06$, and more stingy than outgroup targets, $F(1, 95) = 5.22$, $p = .025$, $\eta_p^2 = .05$. Standard deviations are provided in parentheses.

ease-of-retrieval condition (for sociability, $t < 1$, $p > .69$; for competence $t < 1.54$, $p > .12$; see Table 1 for means), suggesting that effects of the current study are domain-specific.

Target assertiveness. As predicted, participants judged the target person more assertive in the easy (4-examples; $M = 6.33$, $SD = 1.31$) compared with the difficult condition (10-examples; $M = 5.56$, $SD = 1.66$), $t(72) = 2.19$, $p = .016$ (one-tailed), $d = .51$.[2] Thus, manipulating participants' ease-of-recalling instances of assertive behavior influenced how they judged an unknown person's assertiveness.

The results of this first experiment are consistent with our hypothesis: To the extent that the ease versus difficulty of recalling memories of behavioral instances indicative of a specific trait changes people's view of themselves concerning this trait, ease-of-retrieval should also affect people's first impressions of unknown others to whom they are likely to socially project. The next experiment was designed to generalize this finding to a different trait and, more importantly, to investigate the proposed ease-of-retrieval process by implementing a misattribution paradigm.

Experiment 2

This experiment aimed to demonstrate that weight of subjective ease on other-judgments depends on the perceived diagnosticity of the recall experience (see Schwarz et al., 1991; Schwarz & Clore, 2007). As pointed out elsewhere (Wänke, 2013), experiencing ease is a necessary but not sufficient condition for effects to occur—its impact on judgments depends on how it is attributed and which implications this attribution has. A misattribution paradigm changing the meaning of ease should also change its interpretation and use in subsequent judgments. Telling participants explicitly about an alternative cause for the ease-of-retrieval experience decreases or eliminates ease-effects (Haddock et al., 1999; Ruder & Bless, 2003; Schwarz et al., 1991; Wänke et al., 1995; Winkielman et al., 1998). To provide process evidence, Experiment 2 therefore additionally manipulated the diagnosticity of the recall experience by explicitly directing participants' attribution to the design of the questionnaire (Greifeneder & Bless, 2007; Ruder & Bless, 2003; Wänke et al., 1995). If the questionnaire design was believed to facilitate (hinder) recall, participants should see the experienced ease-of-retrieving few (many) examples as non-diagnostic.

Method

Participants and design. Eighty-five participants (63 females; age-range: 18 to 36; $M = 22.22$, $SD = 2.98$) were recruited in the university libraries and took part in several unrelated studies on a voluntary basis. They were randomly assigned to a 2 (ease: easy vs. difficult) × 2 (diagnosticity: diagnostic

vs. non-diagnostic) between-subjects factorial design and recalled instances of personal creative behavior. Creativity ratings of an unknown other served as our dependent variable. One participant was excluded from the sample (an outlier, as was evident from an uncommon studentized residual/Cook's D value; Cohen, Cohen, West, & Aiken, 2003); participants who accidently received the wrong questionnaire (i.e., an opposite-sex face) or talked to other people while filling in the questionnaire were not considered.

Procedure and materials. Procedures followed those of Experiment 1, but we targeted a different trait: Participants were asked to recall either two (*easy condition*) or six (*difficult condition*) examples of when they had personally shown creative behavior (Caruso, 2008). In line with previous research (Ruder & Bless, 2003), the design of the questionnaire was changed to manipulate perceived diagnosticity of retrieval-ease: Participants wrote their examples into two or six "curved boxes" on a specially designed answer sheet. Participants in the *diagnostic* condition received no further information and were told to provide their answers in the boxes. Participants in the *non-diagnostic* condition were told that previous research had ostensibly demonstrated that the questionnaire design affected memory recall and specifically that it *facilitates* (in the two-examples condition, supposed to feel easy) or *hinders* (in the six-examples condition, supposed to feel difficult) recalling autobiographical memories. Thus, the experienced ease or difficulty in the non-diagnostic condition was no longer diagnostic for participants, as it could be attributed to the questionnaire design.

After having formed a first impression of the social target (see Figure 1), participants judged the person on creativity (creative, innovative; $r(85) = .77$, $p < .001$) and on filler items (extraversion: extraverted, shy-reversed; $r(85) = .48$, $p < .001$; stinginess: stingy, lavish-reversed; $r(84) = .49$, $p < .001$); they also provided mood ratings as in Experiment 1 ($\alpha = .82$).

Results and Discussion

Manipulation check. As expected, an ANOVA including Ease and Diagnosticity revealed that perceived difficulty was affected only by ease, $F(1, 81) = 5.63$, $p = .020$, $\eta_p^2 = .07$; all other Fs < 1. Participants reported that recalling two examples of personal creative behavior was easier than recalling six examples ($M_2 = 5.05$, $SD_2 = 2.34$ and $M_6 = 6.24$, $SD_6 = 2.24$), thus confirming the success of the manipulation.

Mood. We subjected participants' mood ratings to an ANOVA including Ease and Diagnosticity. This analysis indicated no effects, all Fs < 1, suggesting that mood does not underlie the effects of the current experiment.

Filler items. To be sure that ease-of-retrieval did not affect the overall target judgment, we conducted the same ANOVA as before on extraversion and stinginess. There were no main or interaction effects (for extraversion: all Fs < 1.77, all ps > .18; for stinginess: all Fs < 1; see Table 1). Thus, effects of the current study are domain-specific.

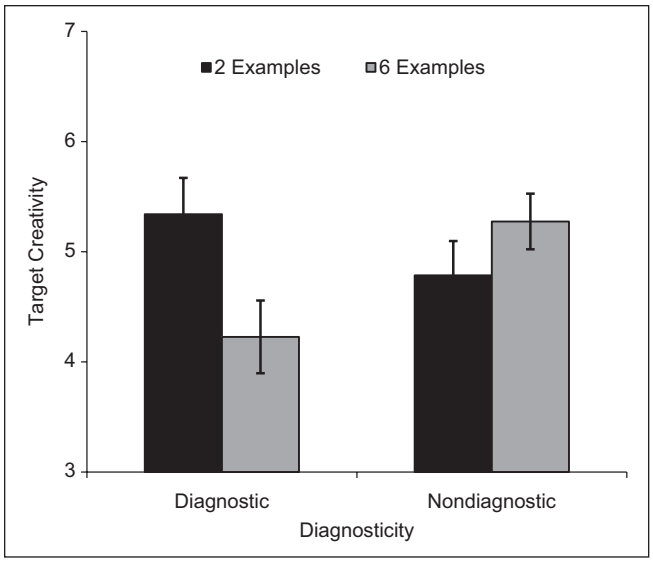

Figure 2. Target ratings of creativity as a function of number of recalled own creative behaviors and diagnosticity in Experiment 2.
Note. Error bars depict standard errors.

Target creativity. An ANOVA including Ease and Diagnosticity on participants' ratings of the target's creativity revealed the predicted Ease × Diagnosticity interaction, $F(1, 81) = 6.67$, $p = .012$, $\eta_p^2 = .08$ (see Figure 2); all Fs < 1.01, all ps > .31. In line with expectations, under diagnostic conditions—where ease-of-retrieval was informative—participants judged the target to be more creative in the easy (two-examples; $M = 5.34$, $SD = 1.54$) than in the difficult condition (six-examples; $M = 4.23$, $SD = 1.55$), $t(42) = 2.39$, $p = .011$ (one-tailed), $d = .72$. As in the previous experiment, participants were influenced by the ease rather than the content of retrieval in their first impressions. Under non-diagnostic conditions—where the alleged design of the questionnaire rendered experienced ease or difficulty of retrieval uninformative—the pattern suggested a reversal of the effect ($M_2 = 4.79$, $SD_2 = 1.43$ vs. $M_6 = 5.28$, $SD_6 = 1.13$), although this was not reliable, $t < -1.21$, $p > .23$.

This experiment replicated the ease-of-retrieval effect from Experiment 1 for a different trait. More importantly, it provides evidence for the assumed process, namely, that these metacognitive feelings are used as information in the formation of judgments made about other people: The influence of metacognitive feelings stemming from ease-of-retrieval of autobiographical memories on judgments of others depended on people's attribution about the source of their feelings. When ease-of-retrieval was diagnostic, the pattern of Experiment 1 was replicated, with participants recalling a few rather than many examples of own creative

behavior judging the target to be more creative. Conversely, when ease-of-retrieval was non-diagnostic, participants tended to rely on content rather than ease-of-retrieval. The latter effect was not significant, which is not unusual in research using misattribution paradigms in the context of autobiographical recall (Caruso, 2008; Schwarz et al., 1991; Winkielman et al., 1998) compared with research focusing on people's attitudes (Haddock et al., 1999; Ruder & Bless, 2003). Moreover, if experienced ease is considered non-diagnostic, there should be no effect of ease, but also not necessarily a reversal taking place, as it is not clear whether the effect caused by the difference in *experience* has the same impact as the effect caused by the difference of the corresponding *amounts* (e.g., it may take 10 versus 2 behavior retrievals to produce the same effect of *amount* as the *experience* of retrieving 6 versus 2 behaviors).[3] Speaking to the robustness of the effect, we replicated the same pattern (i.e., an ease effect under diagnostic conditions and a non-significant reversal under non-diagnostic conditions) in a different experiment using a misattribution of ease/difficulty experiences to background music (Schwarz et al., 1991). The next two experiments examine further moderators of this effect. Specifically, Experiment 3 varies the group membership of the social target.

Experiment 3

Previous research has demonstrated that people strongly use self-evaluations as the basis for judgments of ingroup but not outgroup members (for a review, see Robbins & Krueger, 2005) and for targets sharing a certain degree of similarity but not for dissimilar targets (Ames, 2004a, 2004b). In addition, people anchor even their evaluations of minimal ingroups on self-evaluations (Otten & Wentura, 2001). Consequently, we expected that when judging ingroup members, people would use their experienced ease of recalling autobiographical memories. We did not expect them to do so when judging outgroup members.

Method

Participants and design. One hundred-three undergraduate students participated in a 30-min battery of unrelated studies for course credit and recalled instances of personal creative behavior. Four participants were excluded from the sample (three did not follow instructions and one was an outlier, as was evident from an uncommon studentized residual/Cook's D value; Cohen et al., 2003). The total sample thus included 99 participants (92 females; age-range: 18 to 26; $M = 19.57$, $SD = 1.43$) who were randomly assigned to a 2 (ease: easy vs. difficult) × 2 (target group membership: ingroup vs. outgroup) between-subjects design. Other-ratings of creativity again served as the dependent variable.

Procedure and materials. Procedures closely followed those of Experiment 2, with participants recalling either two or six behavioral instances demonstrating personal creativity (Caruso, 2008). Participants were again presented the faces used in the previous experiments and asked to form an impression. However, for half of the participants, these faces were presented as an *ingroup* member, whereas for the other half they were presented as *outgroup* members (i.e., an opposite-sex picture of a student from a different university). Participants judged this person on several traits on the 9-point scales used before: creativity (creative, innovative, ingenious; $\alpha = .80$) and filler items (extraversion: $r(99) = .57$, $p < .001$; stinginess: $r(99) = .46$, $p < .001$). Mood ($\alpha = .83$) was assessed as before.

Results and Discussion

Manipulation check. Our manipulation was successful, as evidenced by an ANOVA including Ease and Target Group Membership revealing that perceived difficulty was affected only by ease, $F(1, 95) = 22.24$, $p < .001$, $\eta_p^2 = .19$; all other Fs < 1. Recalling two examples of personal creative behavior was perceived easier than recalling six examples ($M_2 = 4.29$, $SD_2 = 2.28$ and $M_6 = 6.37$, $SD_6 = 2.09$).

Mood. An ANOVA including Ease and Target Group Membership indicated no effects, all Fs < 1. As before, mood does not account for the effects reported in the current study.

Filler items. ANOVAs including Ease and Target Group Membership on the filler items yielded a main effect of group membership: Participants judged outgroup targets to be more extraverted than ingroup targets, $F(1, 95) = 5.99$, $p = .016$, $\eta_p^2 = .06$ ($M_{outgroup} = 5.52$, $SD_{outgroup} = 1.61$ and $M_{ingroup} = 4.69$, $SD_{ingroup} = 1.74$), but less stingy, $F(1, 95) = 5.22$, $p = .025$, $\eta_p^2 = .05$ ($M_{outgroup} = 4.98$, $SD_{outgroup} = 1.50$ and $M_{ingroup} = 5.65$, $SD_{ingroup} = 1.41$). However, and central to our hypothesis, extraversion and stinginess ratings did not differ as a joint function of ease and group membership, both interactions Fs < 1, nor as a function of ease, both main effects Fs < 1 (see Table 1). Thus, results again suggest that the effects reported in the current experiment are domain-specific.

Target creativity. A main effect of Ease revealed that, overall, participants judged targets to be more creative after recalling two compared with six examples of own personal creative behavior ($M_2 = 5.84$, $SD_2 = 1.20$ and $M_6 = 5.28$, $SD_6 = 1.27$), $F(1, 95) = 5.57$, $p = .020$, $\eta_p^2 = .06$. This main effect was qualified by the predicted Ease × Target Group Membership interaction, $F(1, 95) = 3.82$, $p = .053$, $\eta_p^2 = .04$ (see Figure 3), although this interaction was only marginal. Simple effects showed that participants indeed judged ingroup targets to be more creative in the easy (two-examples; $M = 6.17$, $SD = 1.06$) than in the difficult condition (six-examples; $M = 5.12$,

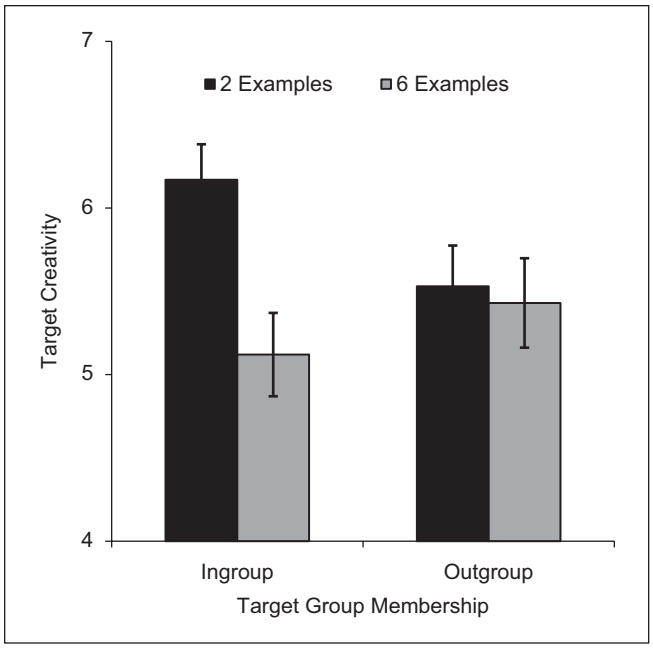

Figure 3. Target ratings of creativity as a function of number of recalled own creative behaviors and target group membership in Experiment 3.
Note. Error bars depict standard errors.

SD = 1.20), $t(46) = 3.24$, $p = .001$ (one-tailed), $d = .93$, suggesting that they were influenced by the ease-of-recalling instances of own creative behavior. On the contrary, ease-of-retrieval did not influence creativity judgments of outgroup targets, $t < 1$.

This experiment replicated the findings from the previous experiments and pointed to an important qualification of the effect. In line with research indicating that people strongly project to ingroups and similar others but much less (if at all) to outgroups and dissimilar others (Ames, 2004a, 2004b; Robbins & Krueger, 2005), ease-of-retrieval of autobiographical memories only affected ingroup but not outgroup member judgments in first impression formation. Thus, the current experiment suggests that target ingroup membership is a boundary condition. Of note, this finding is also consistent with the observation that people consider their feelings more informative for similar than dissimilar others (O'Brien & Ellsworth, 2012; see also Rothman & Hardin, 1997). Future research should explore whether feeling-based projections are more sensitive to manipulations of target similarity than content-based projections.

Experiment 4

The previous experiment provided indirect evidence for the assumed self-projection mechanism because projection is more likely for ingroup relative to outgroup members (Robbins & Krueger, 2005). To secure additional evidence for the mediation of self-projection, the current experiment sought to rule out another possible alternative explanation[4]: If effects are caused by changes in self-judgments that are then projected on others, no effects should occur when people are asked to retrieve behaviors performed by other people. Indeed, previous research by Caruso (2008; see above) found that when people are asked to recall behaviors of others (e.g., of the average undergraduate student or of acquaintances), they tend not to rely on ease-of-retrieval but rather on the amount of information retrieved and thus on the content of their retrieval concerning the person they are asked to make judgments about. We thus hypothesized that ease-of retrieval would more likely affect target judgments after reporting behaviors performed by the self compared with another person, resulting in a retrieval-ease by retrieval-target interaction.

Method

Participants and design. Participants were recruited via Amazon's Mechanical Turk (www.mturk.com; see Buhrmester, Kwang, & Gosling, 2011) and paid 0.50$. Requirements for participations were that participants be located in the United States and have an approval rate of at least 99% in previous assignments.

We only considered native speakers who provided instances of assertive *behavior* performed by themselves or another person (see below; for example, we did not include participants who provided traits such as "dominant, tactful" or who provided jobs such as "coach, salesperson, police, preacher, teacher, doctor, lawyer, judge"). We excluded two outliers (as evidenced by their studentized residual/Cook's D value; Cohen et al., 2003) as well as participants who responded in an incorrect manner to a probe-question testing whether they paid attention when reading the instructions[5] ($n = 5$). Furthermore, to ensure that our manipulation of ease was not contaminated, we did not consider participants who left the computer during the experimental session ($n = 3$). The final sample included 121 participants (52 females; age-range: 18 to 62; $M = 29.29$, $SD = 8.86$), who were randomly assigned to a 2 (ease: easy vs. difficult) × 2 (target: self vs. assertive person) between-subjects design. Other-ratings of assertiveness served as the dependent variable.

Procedure and materials. The procedures followed those of the previous experiments unless otherwise specified. Half the participants listed either two (*easy condition*) or eight (*difficult condition*) examples of when they had personally shown assertive behavior in the past (*self condition*; see Caruso, 2008). The other half listed two or eight "examples of behaviors that an assertive person would be likely to show" (*assertive person condition*). After completing this task, participants formed an impression of a different, unknown person (see Figure 1) and judged this person on 10-point scales (1 = *not at all* to 10 = *very much)* concerning assertiveness (assertive, insecure-reversed, $r(121) = .21$, $p =$

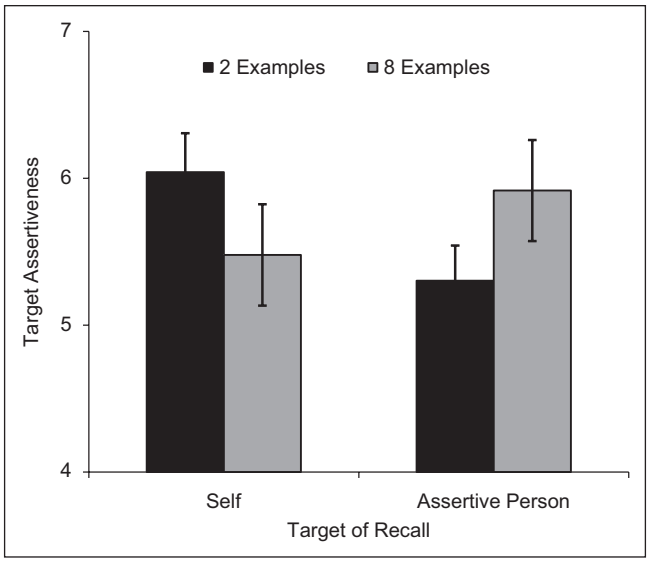

Figure 4. Target ratings of assertiveness as a function of number of recalled assertive behaviors of oneself or of an assertive person in Experiment 4.
Note. Error bars depict standard errors.

.018) and filler items (creativity: creative, inventive, $r(121) = .49$, $p < .001$; stinginess: stingy, penny-pinching; $r(121) = .52$, $p < .001$). We again assessed difficulty of recall (1 = *very easy* to 10 = *very difficult*) and mood (1 = *very bad* to 7 = *very good*).

Results and Discussion

Manipulation check. An ANOVA including Ease and Target revealed a main effect of Ease, $F(1, 117) = 36.61$, $p < .001$, $\eta_p^2 = .24$. Confirming the manipulation's effectiveness, the task was rated less difficult in the two- compared with the eight-example condition ($M_2 = 4.54$, $SD_2 = 2.58$ and $M_8 = 7.26$, $SD_8 = 2.08$). No other effects were significant, Fs < 2.6, ps > .11.

Mood. An ANOVA including Ease and Target revealed no significant effects, all Fs < 2.3 and all ps > .13. This suggests that effects in this experiment cannot be explained by systematic differences in mood.

Filler items. Participants' judgments of the unknown person's creativity and stinginess were submitted to ANOVAs including Ease and Target, which revealed no effects (for creativity, all Fs < 1.1, all ps > .29; for stinginess all Fs < 1, all ps > .36; see Table 1).

Target assertiveness. An ANOVA including Ease and Target on participants' ratings of the unknown person's assertiveness revealed no main effects, Fs < 1. Of critical importance to our hypothesis, we obtained the predicted Ease × Target interaction, $F(1, 117) = 3.95$, $p = .049$, $\eta_p^2 = .03$ (see Figure 4). Complimentary analyses confirmed the predicted reversal of effects, such that participants in the self condition tended to rely on their retrieval experience, judging the target to be *more* assertive in the easy (two-examples; $M = 6.04$, $SD = 1.59$) than in the difficult condition (eight-examples; $M = 5.48$, $SD = 1.65$), $t(57) = 1.31$, $p < .10$ (one-tailed), whereas participants in the assertive person condition tended to rely on retrieval content, judging the target to be *less* assertive in the easy (two-examples; $M = 5.30$, $SD = 1.48$) than in the difficult condition (eight-examples; $M = 5.92$, $SD = 1.69$), $t(60) = -1.51$, $p < .10$ (one-tailed).[6]

Paralleling our previous findings, participants retrieving examples of assertive behavior they had shown in the past tended to rely on the ease-of-retrieval; paralleling other previous findings (Caruso, 2008), when people recalled behaviors that an assertive person would likely show, they tended to favor the content of retrieval.

Despite the predicted ease by retrieval-target interaction, the simple effects were only marginal. Although this is somewhat unfortunate, our hypothesis concerned the expected and found interaction. Moreover, our results parallel previous findings in that, despite the presence of a significant interaction, simple effects for self- and other-judgments seem to emerge only marginally or even not at all (cf. Caruso, 2008, Studies 1a, 1b, and 2).

Of note, our experimental paradigm slightly differs from the one used by Caruso (2008) in that Caruso had participants recall behaviors that they had shown or that another person had shown and then judge themselves or the person whose behaviors they had recalled. Contrary, in the present experiment, participants rated an unknown, third person who had no direct relation to the retrieval-task. As such, our results go beyond the focus of the current work and suggest that reliance on retrieval content (rather than ease) may indeed spill over to unrelated, third persons.

General Discussion

In full support of our hypothesis, the present data establish that the ease-of-retrieval of autobiographical memories contaminates perceptions of other people. In Experiment 1, participants asked to recall a few instances of personal assertive behavior (easy retrieval) judged an unknown person to be more assertive than participants recalling many such behaviors (difficult retrieval). Experiment 2, focusing on another trait (i.e., creativity), provided evidence for the ease-of-retrieval process: A misattribution manipulation suggesting the questionnaire design was causing participants' experienced ease or difficulty, thus rendering ease or difficulty of recall non-diagnostic (Greifeneder & Bless, 2007; Haddock et al., 1999; Ruder & Bless, 2003; Wänke & Bless, 2000; Wänke et al., 1995), led participants to no longer rely on their subjective feeling. Furthermore, Experiments 3 and 4 replicated the findings for assertiveness and creativity, and demonstrated boundary conditions.

Participants' ease-of-retrieval experiences affected judgments of ingroup but not of outgroup targets (Experiment 3). Presumably, outgroup targets constitute a boundary condition because people project more strongly to ingroups than to outgroups (Clement & Krueger, 2002; Otten & Wentura, 2001; Robbins & Krueger, 2005). In addition, whereas participants' ease-of-retrieval experiences stemming from autobiographical recall (i.e., recalling own behavioral examples of assertiveness) affected ratings of unknown targets, experiences stemming from the recall of another person (i.e., recalling examples of behavior an assertive person may demonstrate) did not (Experiment 4). This is in line with previous research demonstrating that in the context of retrieving behaviors of others rather than of the self, people tend to rely on content rather than ease (Caruso, 2008). Because we never found effects for mood, we feel comfortable eliminating the alternative explanation that the observed pattern emerged because participants in the easy compared with the difficult condition were in a more positive mood, thereby facilitating heuristic processing (Greifeneder & Bless, 2008; Ruder & Bless, 2003). Taken together, our findings are in line with a projection account, suggesting that people's egocentric tendency to "expect others to be similar to themselves" (Robbins & Krueger, 2005, p. 32) is a pervasive phenomenon that also extends to using metacognitive ease-of-retrieval feelings when judging the personality of others during impression formation. Importantly, an alternative account stating that the targeted traits were simply more available and therefore used in the judgment at hand (cf. Higgins et al., 1977) cannot easily explain the current findings: The traits in questions should have been *more* salient and *more* available when participants retrieved *many* rather than few trait-indicative behaviors. Conversely, but in line with the retrieval-ease and social projection accounts, participants judged the social targets *more* in line with the targeted traits when they retrieved *few* trait-indicative behaviors. Overall, by investigating their interface, the current work advanced the understanding of social projection, person perception, and metacognitive experiences.

Given that people's tendency to form first impressions of others is omnipresent (Rule & Ambady, 2010), consequential (e.g., for employment interviews; Harris & Garris, 2008) and that even well-adjusted individuals show a marked tendency to view others as similar to the self when forming first impressions in face-to-face encounters (Human & Biesanz, 2011), a better understanding of factors influencing first impressions is important. Our findings suggest that ease-of-retrieval is a so-far neglected factor that may distort initial impression formation. Importantly, although accuracy and assumed similarity are generally inversely related (Beer & Watson, 2008), assumed similarity fosters attraction (Byrne, Griffitt, & Stefaniak, 1967) and friendship intensity (Selfhout, Denissen, Branje, & Meeus, 2009). As such, projecting personal characteristics might ironically lead to positive interpersonal consequences, despite accuracy distortions.

Future research would be advised to take the representativeness of cognitive feelings from recall into account (Greifeneder, Bless, & Pham, 2011). Our finding for unknown ingroup but not outgroup members suggest that group membership may determine whether feelings stemming from personal recall are considered representative. This is where our findings dovetail with research on prevalence estimates and inferences of others' mental states, indicating that with increased similarity, people show increased levels of projection and decreased levels of stereotyping (Ames, 2004a, 2004b).

Overall, to our knowledge, the current experiments are the first to demonstrate ease-of-retrieval effects in judgments of others. Importantly, our findings complement research by Caruso (2008) and Raghubir and Menon (1998) discussed above in that ease-of-retrieval effects might more strongly affect self- than other-judgments (for mood effects, see Raghunathan & Pham, 1999). Furthermore, even though people often use the self as a guide in social judgments, under certain circumstances (e.g., accuracy motivation) they may actively adjust away from their egocentric default (Epley et al., 2004).

Limitations and Future Research

Our procedures differed from earlier work in that we presented a picture of the to-be-judged person and invited participants to form a first impression, which may have increased the relevance of ease-of-retrieval feelings for the judgment to be made, thus creating favorable conditions for ease-of-retrieval effects to emerge (Greifeneder et al., 2011). In addition, one may wonder why we did not assess self-ratings. We opted not to do so in light of abundant research already having established ease-of-retrieval effects on self-ratings and showing that once feelings of ease have been interpreted and expressed in a first judgment, they are unlikely to spill over to other judgments (Schwarz, 2012; cf. Qui & Yeung, 2008).

We acknowledge that the interpersonal context of the current studies was quite minimal. Consequently, in richer contexts or with further target cues, metacognitive experiences may play a smaller or negligible role. For example, people may rely on stereotypic information when this is available: If only limited information about a target is provided that nonetheless evokes a certain stereotype, people underuse population base rates in their predictions about the target category membership and rely more strongly on stereotypic information (Kahneman & Tversky, 1973). People may also rely on non-verbal cues: Target impressions based on "thin slices" of a few seconds-long silent video clips sometimes suffice to predict target ratings provided by others with substantive interaction occasions (Ambady & Rosenthal, 1993). In addition, when minimal categorical information conveying dissimilarity or outgroup status is provided, people often generate expectations by using social stereotypes but restrain from generating expectations based on the self (Ames, 2004a, 2004b; Robbins & Krueger, 2005). However, in the

absence of such information, relying on the self has been shown to be a judgmental heuristic that allows making quick and often reasonable predictions about others (Krueger, 2007; Krueger, DiDonato, & Freestone, 2012). Overall, however, one should not underestimate that in many situations people form first impressions based on a very limited amount of information and are generally unable to pin down the source of their intuition.

Feelings from ease-of-retrieval may or may not be used in judgment formation depending on whether they are perceived to be relevant (Greifeneder et al., 2011). For example, Weick and Guinote (2008) reported judgments of powerful compared with powerless individuals to more strongly rely on ease-of-retrieval experiences, as the powerful are free to form judgments based on subjective feelings (which they consider relevant), whereas the powerless need to pay attention to multiple cues to increase control. Keller and Bless (2009) demonstrated the impact of disposition-related relevance, with high levels of faith in intuition being associated with stronger ease-of-retrieval effect. Finally, ease-of-retrieval effects disappear when concerns about other people's involvement are triggered (e.g., Yahalom & Schul, 2013).

Do powerful people project their malleable self-perceptions based on retrieval-ease more strongly to others than the powerless? In light of recent findings indicating that the powerful tend to engage in projection more strongly than the powerless (Overbeck & Droutman, 2013), this should indeed be the case. What roles might self-other similarity perceptions and the malleability or stereotypicality of the targeted traits play? We hope the current research inspires such and other research endeavors, which may ultimately spell out the specific conditions of how and when ease-of-retrieval experiences from autobiographical memories influence social judgments. Hopefully, this should open research avenues for possible interventions aimed at impeding unwarranted impression formations. This is important, as not only can first impressions never be made twice—they can never be formed for a second time, either. Whereas the focus of the current work was not on whether such first impressions are warranted, its contribution is to have demonstrated for the first time that, given an initial degree of self-other similarity, people draw on their metacognitive retrieval experiences when forming impressions of others. Taken together, this work advanced the understanding of social projection, person perception, and metacognitive experiences.

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Notes

1. Raghubir and Menon (1998, p. 60) acknowledge this, stating that "listing the potential routes through which the HIV virus could be transmitted, subjects *should* have recalled personal experiences where they had engaged in those specific behaviors, which led them to a higher estimate of self-risk" (emphasis added). Participants recalled three or five behaviors (Study 2). Therefore, if participants listed unprotected sex as a first example, it is unlikely that they indeed had engaged in all of the two or four additional behaviors themselves.
2. Although retrieval condition did not significantly affect mood, there was a trend of an effect. To assure that the retrieval condition's impact on others' assertiveness was not driven by this, we conducted the same analysis again, controlling for mood. The effect of retrieval condition on others' assertiveness remained, $F(1, 71) = 4.82$, $p = .031$, $\eta_p^2 = .06$.
3. We thank an anonymous reviewer for setting forth this argument.
4. We thank an anonymous reviewer for this suggestion.
5. This probe-question read: "(. . .) To show that you have read the instructions, please ignore the following question and instead check the 'other' option and type 'swimming' into the box." Participants were asked to indicate their favorite daily activity among nine options, plus an option labeled "other" with a response-box for alternative answers. We only considered participants who checked "other" and typed "swimming" into the response-box.
6. Although the Ease and Target conditions did not significantly affect mood, there was a trend. To assure that the conditions' impact on others' assertiveness was not driven by this, we repeated the same analysis, controlling for mood. The interaction remained, albeit somewhat weaker, $F(1, 116) = 3.35$, $p = .07$, $\eta_p^2 = .03$.

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