

## INTERPERSONAL RELATIONS AND GROUP PROCESSES

### Creativity and Romantic Passion

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Romantic passion typically declines over time, but a downward trajectory is not inevitable. Across 3 studies (1 of which encompassed 2 substudies), we investigated whether creativity helps bolster romantic passion in established relationships. Studies 1A and 1B revealed that people with highly creative personalities report not only greater overall passion but also an attenuation in the tendency for passion to decline as relationship duration increases. Studies 2 and 3 explored positive illusions about the partner's physical attractiveness as a possible mediator of the effect of creativity on passion. Cross-lagged panel analyses in Study 2 indicated that being creative is linked to a tendency to view the partner as especially attractive, even relative to the partner's own self-assessment. Path analyses in Study 3 provided longitudinal evidence consistent with the hypothesis that positive illusions about the partner's attractiveness (participant's assessments, controlling for objective coding of the partner's attractiveness) mediate the link between creativity and changes in passion over time. Study 3 also provided longitudinal evidence of the buffering effect of creativity on passion trajectories over time, an effect that emerged not only for self-reported passion but also for objectively coded passion during a laboratory-based physical intimacy task 9 months later. A meta-analytic summary across studies revealed a significant overall main effect of creativity on passion, as well as a significant moderation effect of creativity on risks of passion decline (e.g., relationship length).

**Keywords:** passion, creativity, positive illusions, physical attractiveness, close relationships

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“Let us leave pretty women to men with no imagination.”  
—Marcel Proust (1993, p. 592)

In *The Captive and The Fugitive*, Proust expounds on the elaborate positive illusions some individuals' hold for the objects of their desire. As the narrator shows his friend Robert a picture of his beloved Albertine, for instance, he becomes immediately aware of the subjective nature of his infatuation:

What had struck Robert when his eyes fell upon Albertine's photograph was not the thrills of wonderment that overcame the Trojan

elders seeing Helen . . . but precisely the opposite impression which may be expressed by: “What, it's for this that he has worked himself into such a state” (Proust, 1993, p. 590).

Drawing parallels between his infatuation with Albertine and Robert's own infatuation with Rachel, a woman Proust deemed “not worth twenty francs,” Proust recognizes their mutual ability to distort the optics through which they see these women—a feat of mental elaboration that Proust suggests may be better achieved by imaginative, creative men. Building upon this suggestion, the

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present research investigates whether creativity is normatively linked with a greater tendency to exalt the physical beauty of one's romantic partner in the form of positive illusions, which in turn leads the creative individual to develop and sustain romantic passion for the partner. It also investigates whether any passion-promoting effects of creativity might be especially strong when passion is otherwise at risk for waning, including when novelty wears off as a result of relationship duration increasing.

### Romantic Passion

*Romantic passion* refers to "an intense longing for union with the other" (Hatfield & Walster, 1978, p. 9). Although scholars use various terms for this and related constructs—romantic yearning, romantic attraction, eros, desire, limerence, and so forth—there is wide agreement that romantic passion is a psychological state characterized by intense emotion and a strong (and frequently sexual) desire for union with the other person (Aron et al., 2005; Graham, 2011; Hatfield & Walster, 1978; Sternberg, 1986; Tennov, 1979).

In contemporary Western societies, romantic passion is strongly linked to both relationship and personal well-being. Relationship boredom, a proxy for low romantic passion, appears to reduce relationship satisfaction, whereas the reverse effect is much less robust (Acevedo & Aron, 2009; Acker & Davis, 1992; Hatfield & Sprecher, 1986; Traupmann & Hatfield, 1981). In one study, for example, higher levels of romantic boredom predicted lower relationship satisfaction 9 years later (controlling for baseline satisfaction), whereas the reverse association was negligible (Tsapelas, Aron, & Orbach, 2009).<sup>1</sup> Furthermore, marital boredom is one of the major reasons why people seek divorce (Aron & Henkemeyer, 1995; Gigy & Kelly, 1993), and feeling like the relationship is stalled predicts elevated rates of infidelity, even after accounting for intimacy, companionship, security, and emotional involvement in the relationship (Lewandowski & Ackerman, 2006). Romantic passion, in contrast, predicts greater positive emotional experience, general well-being, and happiness with life (Aron & Henkemeyer, 1995; Kim & Hatfield, 2004; O'Leary, Acevedo, Aron, Huddy, & Mashek, 2012; Traupmann & Hatfield, 1981); such effects remain robust beyond associations with companionate love, suggesting that romantic passion plays a unique role in improving subjective well-being beyond mere relationship satisfaction and closeness.

### The Fragile Love

Another reason why understanding romantic passion is so important—beyond simply that it is a strong predictor of relational and personal well-being—is that it is fragile. This fragility can cause major problems now that Western cultures have linked it so closely to the "until death do us part" credo of marriage (Coontz, 2005; Finkel, Hui, Carswell, & Larson, 2014). Passion is frequently insubordinate to our deliberate preferences (Baumeister & Bratslavsky, 1999; Perel, 2007; Sternberg, 1986; Tennov, 1979). It can consume us in situations when we do not want it, such as when a flirtatious coworker seeks to seduce us away from our marriage. In addition, and of particular relevance to the present investigation, it can also abandon us in situations when we want it most, such as when our spouse whisks us away on a romantic vacation, and, despite our abiding love for him or her, we fail to channel the

passionate spirit of the occasion (Birnbaum & Finkel, 2015; Perel, 2007).

Indeed, all major theories of romantic passion predict that—in contrast to other relationship quality components, including intimacy and commitment—passion peaks early in relationships and then steadily declines over time (Aron & Aron, 1986; Baumeister & Bratslavsky, 1999; Hatfield & Walster, 1978; Sternberg, 1986; Tennov, 1979). Abundant empirical evidence supports this prediction, at least as the normative trajectory (Acker & Davis, 1992; Hatfield, Pillemer, O'Brien, & Le, 2008; Hatfield, Traupmann, & Sprecher, 1984; Traupmann & Hatfield, 1981; Tucker & Aron, 1993). Today, even among happily married couples, there now exists a broad cultural anxiety about the challenges of sustaining a passionate marriage (Tunariu & Reavey, 2003).

Fortunately, the situation is far from hopeless. Although most people do experience declining passion over time in long-term relationships, some are able to sustain relatively high levels of passion over long periods (Acevedo & Aron, 2009; Acevedo, Aron, Fisher, & Brown, 2012; O'Leary et al., 2012; Sheets, 2014; Tennov, 1979; Traupmann & Hatfield, 1981). One recent study found that, among couples in relationships of at least 10 years in duration, 40% reported still being "very intensely in love" (O'Leary et al., 2012). These self-report findings are complemented by functional magnetic resonance imaging (fMRI) research demonstrating that individuals in long-term relationships who claim to still be passionately in love with their partner do in fact show heightened activation in similar brain regions as couples in the early throes of romantic passion (Acevedo et al., 2012). Indeed, scholars have identified several predictors of sustained romantic passion over time—or at least the related construct of sustained sexual desire—including engaging in exciting and novel activities with one's partner, having a responsive partner that makes one feel valued and more desirable, having goals focused on the pursuit of positive experiences in one's relationship, believing that sexual satisfaction is attained through hard work and effort, being motivated to meet one's romantic partner's sexual needs without an expectation for immediate return, increases in daily intimacy, and engaging in high self-disclosing, positive, and supportive interactions with other couples (Aron, Norman, Aron, McKenna, & Heyman, 2000; Birnbaum et al., 2016; Impett, Strachman, Finkel, & Gable, 2008; Maxwell et al., 2017; Muise et al., 2018; Muise, Impett, Kogan, & Desmarais, 2013; Rubin & Campbell, 2012; Welker et al., 2014).

### Creativity

Despite this growing list of predictors of long-term romantic passion, this research has largely focused on relational means of buffering romantic passion from decline. By looking to more nonrelational means of sustaining long-term romantic passion, we hoped to identify a novel predictor of individuals' ability to maintain romantic passion, one that might be less intertwined and

<sup>1</sup> Although establishing the robustness of this effect is not a primary goal of the present research, the longitudinal methods in Study 3 afforded a replication test of Tsapelas et al.'s (2009) findings, albeit with measures of passion rather than boredom. In our 9-month longitudinal study, higher levels of romantic passion predicted greater relationship satisfaction over time (controlling for baseline satisfaction), whereas the reverse association was negligible. We summarize the results of these analyses in Appendix S.A in the supplemental materials.

dependent on other aspects of the relationship or romantic partner. In the present research, we test the hypothesis that creativity predicts elevated romantic passion, both cross-sectionally and over time. *Creativity* refers to the tendency to imagine and produce something original and unexpected, yet still appropriate (i.e., effective, useful; Amabile, 1983; Runco & Jaeger, 2012; for reviews, see Kaufman & Sternberg, 2010; Sternberg, 1999). This quality of generating innovative ideas and perspectives within the confines of reality might be especially useful, we suggest, for helping to sustain romantic passion over time in long-term relationships.

Few empirical studies have examined a potential empirical link between creativity and romantic passion, and no research has pursued a systematic investigation of such a link. To date, investigations of creativity and feelings of passion have focused almost exclusively on early stage romantic attraction (Beaussart, Kaufman, & Kaufman, 2012; Clegg, Nettle, & Miell, 2011; Griskevicius, Cialdini, & Kenrick, 2006; Nettle & Clegg, 2006). Such studies suggest a positive association of creativity and romantic passion, but in the reverse causal direction, with creativity thought to have evolved to capture the attention of potential mates. In the context of forming new relationships, for example, mating goal primes increase displays of creativity (Griskevicius et al., 2006). In contrast, almost no research has examined links between creativity and romantic outcomes in established relationships (cf. Campbell & Kaufman, 2015).

There are several reasons why creativity may be associated with greater romantic passion in established relationships, a topic we revisit in the General Discussion section. In the present investigation, we focus on one that we believe holds particular promise—that, as with Proust's narrator, creativity may lead individuals to be especially likely to hold and maintain positive illusions about their partners' physical attractiveness.

### Positive Illusions as a Pathway Linking Creativity and Romantic Passion

Positive partner illusions refer to the tendency to view a romantic partner with a favorable bias (Murray & Holmes, 1997; Murray, Holmes, & Griffin, 1996, 2003)—more positively than a partner views him or herself or than suggested by objective standards. With a few exceptions and nuances (McNulty & Karney, 2004; McNulty, O'Mara, & Karney, 2008; Neff & Karney, 2002, 2005), positive partner illusions are generally associated with favorable relationship outcomes (Fletcher & Kerr, 2010; Le, Dove, Agnew, Korn, & Mutso, 2010; Miller, Niehuis, & Huston, 2006; Murray et al., 2011; Murray et al., 1996). We suggest that creativity may be associated with an increased ability to see partners through such rose-colored glasses. After all, creativity is the tendency to generate novel ideas within the confines of reality, and such a tendency might be particularly helpful in the creation of positive illusions regarding one's partner. Indeed, prior research suggests that the generative and flexible thinking associated with creativity aids in successfully crafting self-serving justifications that allow individuals to maintain positive self-views (Antinori, Carter, & Smillie, 2017; Carson, Peterson, & Higgins, 2003; Gino & Ariely, 2012). We suggest that creativity may similarly improve individuals' ability to engage in the motivated distortion of their partner's qualities in the form of positive illusions.

Although creativity may be helpful in producing positive illusions on any number of partner traits, we suggest that positive illusions surrounding partner physical attractiveness may be especially important in the maintenance of romantic passion. Physical attractiveness is a common trait on which individuals hold positive illusions of their partner (Barelds & Dijkstra, 2009; Barelds, Dijkstra, Koudenburg, & Swami, 2011; Barelds-Dijkstra & Barelds, 2008), and positive illusions of partner physical attractiveness are associated with positive relationship outcomes, especially among older couples who have likely been together longer (Barelds & Dijkstra, 2009; Neff & Karney, 2002). Although, to our knowledge, the link between positive illusions of partner physical attractiveness—relative to objective or partner-self-ratings—with romantic passion per se remains unexamined, recent research suggests that individuals who believe their partner is slightly more attractive than themselves experience greater romantic love (Swami et al., 2012; Swami, Stieger, Haubner, Voracek, & Furnham, 2009; Swami, Waters, & Furnham, 2010). Furthermore, abundant research suggests that perceptions of a partner's physical attractiveness is one of the strongest (if not the strongest) predictor of feelings of attraction and romantic passion toward him or her (Eastwick, Luchies, Finkel, & Hunt, 2014; Sangrador & Yela, 2000; Walster, Aronson, Abrahams, & Rottman, 1966; Yela & Sangrador, 2001), which suggests that biases on this trait may be particularly important in maintaining feelings of passion.

Simply engaging in creative behaviors and possessing a personality inclined toward regular creative engagement, we suggest, might also be especially important to romantic passion and relationship outcomes rather than objective skill. Engaging in everyday creativity or “little-*c*” creativity, for example, is linked to greater health and well-being (Richards, 2007, 2010). Art therapy, which typically emphasizes engaging in creative activities rather than producing exceptionally creative products, is linked to a variety of health and well-being outcomes (Slayton, D'Archer, & Kaplan, 2010). Maslow (1968, p. 153) also distinguished “special talent creativeness” from “self-actualizing (SA) creativeness which sprang much more directly from the personality, and which showed itself widely in the ordinary affairs of life”. In describing self-actualizing creativity, he emphasized the importance of “personality rather than its achievements,” with creative personality and more ordinary forms of creativity theorized to predict psychological health more strongly than the sorts of exceptional creativity exhibited by creative geniuses (Maslow, 1968, p. 160).

Just as this more everyday form of creative experience and personality appears to be beneficial to individual well-being, we suggest that it may similarly be beneficial for relationship well-being. In contrast, some forms of more objective or exceptional creativity—such as performance on the Remote Associates Test and professional artistic achievement in poetry and fine arts—are linked to more negative well-being outcomes (Fodor, 1999; Kaufman & Baer, 2002; Jamison, 1993; Kyaga et al., 2011; Silvia & Kaufman, 2010; Tremblay, Grosskopf, & Yang, 2010). For these reasons, the present focus is on the potential passion-promoting effects tendencies like creative behaviors and dispositions, rather than assessing whether individuals are exceptionally creative in their objective abilities.



## Hypotheses and Research Overview

We conducted three studies (one of which encompassed two substudies) to test our central hypothesis that creativity predicts greater romantic passion. We also tested the additional hypotheses (a) that the link between creativity and romantic passion becomes stronger when passion is at risk of fading (e.g., over time in a relationship), and (b) that greater positive illusions of partner physical attractiveness mediate this link. Studies 1A and 1B examined the association between having a creative personality and romantic passion among individuals of various relationship durations. Study 2 engaged both members of romantic couples in a longitudinal procedure that afforded the opportunity to examine cross-lagged associations between earlier creativity and positive illusions of partner attractiveness, and vice versa. In Study 3, we examined the longitudinal association of having a creative personality with romantic passion—using both self-reported passion and objectively coded passion in a dyadic physical intimacy task. This study also allowed a test of the hypothesized mediational pathway through positive illusions of partner attractiveness, controlling for both the partner's self-ratings and objective coding of the partner's attractiveness. Across studies, results did not show any consistent pattern of moderation by gender, so all analyses collapse across gender.

## Study 1A

To provide a first test of our prediction that creativity would be associated with greater romantic passion—and our prediction that creativity would buffer people against the normative tendency toward declining passion over time—Study 1A tested whether individuals with more creative personalities tend to experience greater passion in their relationships. To approximate the effect of time (a within-participants variable), we assessed relationship duration (a between-participants variable), predicting that the temporal decline of passion as relationship length increases would be weaker among people with more creative personalities.

## Method

**Participants.** We recruited 510 participants using Amazon's Mechanical Turk (MTurk) to participate in an online survey (338 women;  $M_{\text{age}} = 34.83$  years old;  $SD_{\text{age}} = 11.12$  years; 83.9% White; 5.5% African American; 4.5% Hispanic/Latino/a, 4.9% Asian American, 2.5% Multiracial, 0.8% Other). We selected this sample size based on an initial target of roughly 500 participants after exclusion criteria. Only participants who indicated in an initial prescreen survey that they were currently in a romantic relationship were able to access the study ( $M_{\text{relationshiplength}} = 7.79$  years,  $SD_{\text{relationshiplength}} = 8.70$  years).<sup>2</sup> We also restricted study access to individuals in the United States and those who had a "HIT Approval Rate" of at least 95%, indicating their historical percentage of approved work on MTurk was at least 95% (i.e., less than 5% of their historical work had been rejected).

To screen out participants who may have not paid attention, participants who may have repeated the study, and generally low-quality responses, we used several a priori data exclusion criteria. Specifically, we excluded participants who selected the response "I DID NOT complete the survey carefully or accurately.

Please exclude my responses from analysis" when given the opportunity at the end of the survey. We also excluded all participants who responded "yes" to the question "Have you done this exact study before?" and those who failed our attention check. That is, only participants who answered "Somewhat Disagree" to five questions related to social anxiety after receiving the instructions, "To show that you are paying attention, please select Somewhat Disagree for all of the following questions," were included in the analysis and our final participant numbers. These exclusions eliminated 197 participants, leaving us with our final sample of 510 participants.<sup>3</sup>

**Procedure and materials.** Study 1A took place entirely online. To assess creative personality, participants completed the Creative Personality Scale (Gough, 1979). Next, they reported on their romantic passion. Table S1 in the supplemental materials contains the correlations among measures.

**Creative Personality Scale.** As an assessment of creative personality, participants completed the previously validated and widely used Creative Personality Scale ( $M = 4.79$ ,  $SD = 4.08$ ; Gough, 1979). Specially, participants selected the adjectives that best described them from a checklist of 30 potential trait adjectives. In accord with the standard scoring protocol, Creative Personality Scale scores were calculated by taking the number of trait adjectives participants selected that are associated with being creative (e.g., inventive, original, insightful, and humorous) minus the number of trait adjectives participants selected associated with not being creative (e.g., cautious, conventional, sincere, and well-mannered). Thus, higher scores on this test represent higher levels of creative personality.

**Passion.** We used four measures to assess participants' feelings of romantic passion for their romantic partner. First, participants completed the well-validated and widely used Passionate Love Scale ( $M = 6.59$ ,  $SD = 1.62$ ,  $\alpha = .97$ ; Hatfield & Sprecher, 1986). In this measure, participants rated how true 30 statements were about their passion for their romantic partner (e.g., "Sometimes I feel I can't control my thoughts; they are obsessively on [my partner]" and "I want [my partner] physically, emotionally, mentally"; 1 = *not at all true*, 9 = *definitely true*); for all relevant scales, the software inserted the partner's name instead of generic language like "my partner." Second, participants completed the passion subscale of the Triangular Love Scale ( $M = 5.34$ ,  $SD = 1.40$ ,  $\alpha = .95$ ; Sternberg, 1986), in which they rated how true 12 statements were about their feelings of passion for their partner (e.g., "My relationship with [my partner] is very romantic" and "Just seeing [my partner] is exciting for me"; 1 = *not at all*, 7 = *extremely*). Third, participants additionally completed a 3-item, face-valid assessment of sexual desire for their romantic partner ( $M = 5.77$ ,  $SD = 1.45$ ,  $\alpha = .97$ ; Eastwick & Finkel, 2008). Specifically, participants rated their agreement with the statements "I feel a great deal of sexual desire for [my partner]," "I am intensely sexually attracted to [my partner]," and "I find [my

<sup>2</sup> We excluded from mean and  $SD$  estimates of relationship length, as well as all analyses involving relationship length, three participants who reported a relationship length longer than their age.

<sup>3</sup> Hypothesis tests yielded identical conclusions across the two MTurk studies (Studies 1A and 1B) in auxiliary analyses that additionally included participants who failed the more stringent exclusion criterion of the attention check.

partner] to be extremely sexually attractive" (1 = *strongly disagree*, 7 = *strongly agree*). Participants then completed a one-item, face-valid assessment of recent romantic passion ( $M = 5.08$ ,  $SD = 1.76$ ). Specifically, participants rated their agreement with the statement "In the past few weeks, I have felt a great deal of passion in my relationship" (1 = *strongly disagree*, 7 = *strongly agree*). For all scales, higher scores indicate greater passion. To create an overall, aggregate measure of romantic passion, we z-scored these four scales and then averaged those four standardized scores ( $M = .001$ ,  $SD = .88$ ,  $\alpha = .90$ ).

## Results

We first sought to test our hypothesis that more creative individuals—that is, those who have a more creative personality according to the Creative Personality Scale—would also report experiencing more passion for their romantic partners. We also hypothesized that this effect might be especially robust in longer-term relationships. To test these hypotheses, we conducted a two-step hierarchical regression analysis in which we regressed participants' reported passion on their level of creativity and relationship length in years in the first step of the regression, and then included their interaction in the second step (see Figure 1). All predictor variables were unstandardized and mean-centered in this and all subsequent analyses unless otherwise specified (although we also conducted auxiliary analyses in which all variables were standardized to glean standardized regression coefficients).

There was a significant main effect of creativity, such that more creative individuals reported significantly higher levels of romantic passion ( $b = .02$ ,  $\beta = .11$ ,  $t(493) = 2.56$ ,  $p = .011$ ). The main effect of relationship length (in years) was also significant and negative ( $b = -.01$ ,  $\beta = -.15$ ,  $t(493) = -3.30$ ,  $p = .001$ ), such that individuals in longer relationships reported significantly lower levels of passion. The interaction of creativity and relationship length followed our predicted pattern, but it did not reach significance ( $b = .002$ ,  $\beta = .07$ ,  $t(492) = 1.38$ ,  $p = .169$ ).<sup>4,5</sup> Among individuals low in creative personality ( $-1 SD$ ), romantic passion significantly decreased with relationship length ( $b = -.02$ ,  $\beta = -.21$ ,  $t(492) = -3.21$ ,  $p = .001$ ). However, among individuals high in creative personality ( $+1 SD$ ), romantic passion did not

significantly decrease with relationship length ( $b = -.008$ ,  $\beta = -.08$ ,  $t(492) = -1.21$ ,  $p = .228$ ). Examined from the other direction, among individuals in shorter relationships ( $-1 SD$ ), more creative individuals did not report significantly greater passion ( $b = -.002$ ,  $\beta = -.01$ ,  $t(492) = -.11$ ,  $p = .915$ ). However, among individuals in longer relationships ( $+1 SD$ ), more creative individuals did report greater romantic passion ( $b = .06$ ,  $\beta = .26$ ,  $t(492) = 2.27$ ,  $p = .023$ ).

## Discussion

In support of our first hypothesis, we observed a positive link between creativity and romantic passion. Also in line with our hypotheses, romantic passion significantly declined with relationship length, and creativity moderated this decline in the predicted pattern, although the interaction effect did not reach significance (two-tailed  $p = .169$ ). (As discussed in Footnote 5, this interaction effect became significant,  $p = .005$ , in an auxiliary analyses controlling for education level.) Whereas less creative individuals ( $-1 SD$ ) reported significantly lower levels of passion with longer relationship lengths, more creative individuals ( $+1 SD$ ) did not.

### Study 1B

Next, we sought to replicate and extend Study 1A by including a second measure of creative personality. Specifically, in addition to the Creative Personality Scale (Gough, 1979), we also included the Creative Behavior Inventory (Hocevar, 1979). In contrast to the Creative Personality Scale, the Creative Behavior Inventory asks individuals to list the extent of their previous involvement in 90 creative activities and organizations; thus, providing a measure of creative personality that hews closely to specific behavioral tendencies.

## Method

**Participants.** We recruited 169 participants using MTurk to participate in an online survey (113 female;  $M_{\text{age}} = 34.79$  years old;  $SD_{\text{age}} = 11.63$  years; 83.4% White; 5.9% African American; 5.9% Hispanic/Latino/a, 5.9% Asian American, 4.1% Multiracial,

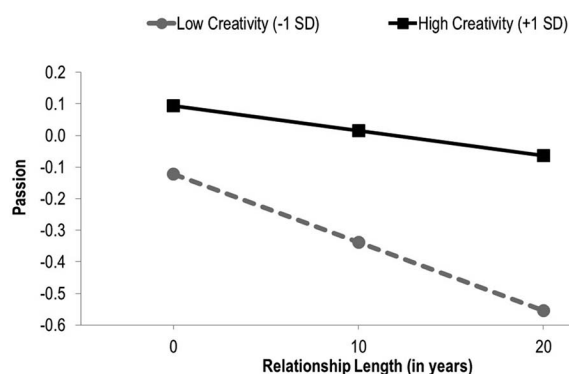


Figure 1. Study 1A: The association of relationship duration with romantic passion among those high versus low in creativity as assessed by the Creative Personality Scale. Relationship Length uses model-implied values.

<sup>4</sup> Hypothesis tests yielded identical conclusions in auxiliary analyses that log-transformed relationship length.

<sup>5</sup> To help rule out the possibility (raised by an anonymous reviewer of a draft of this article) that effects of creativity on romantic passion might be explained by greater education, we conducted a second set of analyses controlling for educational attainment. Specifically, participants were asked "What is the highest degree or level of education you have completed?" on an 8-point scale (1 = *less than high school*, 2 = *high school/GED*, 3 = *some college*, 4 = *2-year college degree* [e.g., AA, AS], 5 = *4-year college degree* [e.g., BA, BS], 6 = *Master's degree* [e.g., MA, MS, MEng, and MBA], 7 = *professional degree* [e.g., MD, DDS, DVM, LLB, and JD], 8 = *Doctorate degree* [e.g., PhD, EdD]). The main effect of creativity on romantic passion remained significant when controlling for education level ( $b = .03$ ,  $\beta = .12$ ,  $t(495) = 2.78$ ,  $p = .006$ ), and the interaction effect of creativity and relationship effect increased in magnitude and became significant ( $b = .003$ ,  $\beta = .32$ ,  $t(493) = 2.85$ ,  $p = .005$ ) when controlling for education and its interaction with relationship length. In fact, the main effect of educational attainment was negative and significant ( $b = -.10$ ,  $\beta = -.14$ ,  $t(495) = -3.24$ ,  $p = .001$ ). That is, greater educational attainment was associated with *lower* feelings of romantic passion for their romantic partner.

.6% Other). We selected this sample size based on an initial target of roughly 150 participants after exclusion criteria; this target sample size was smaller than that for Study 1A because of a restricted 2-day time frame for data collection to ensure the data could be included in a summer undergraduate project. As before, only participants who indicated that they were currently in a romantic relationship in an initial prescreen survey were able to access the study ( $M_{\text{relationship length}} = 6.73$  years,  $SD_{\text{relationship length}} = 8.80$  years). We used the same a priori selection criteria and data screening processes as in Study 1A to select our final participants for analyses and reach our final participant numbers. These exclusions eliminated 83 participants, leaving us with our final sample of 169 participants.

**Procedure and materials.** As in the previous study, Study 1B occurred entirely online as part of an online survey. To assess participants' dispositional creativity, participants again first completed the Creative Personality Scale ( $M = 5.03$ ,  $SD = 3.76$ ; Gough, 1979). However, in addition to this personality measure of creativity, they also completed the Creative Behavior Inventory.<sup>6</sup> They then reported on their feelings of romantic passion for their romantic partner using the same passion measures as Study 1A. Participants again completed the 30-item Passionate Love Scale ( $M = 6.76$ ,  $SD = 1.48$ ,  $\alpha = .96$ ; Hatfield & Sprecher, 1986), the passion subscale of the Triangular Love Scale ( $M = 5.50$ ,  $SD = 1.22$ ,  $\alpha = .94$ ; Sternberg, 1986), the 3-item, face-valid sexual desire scale ( $M = 6.00$ ,  $SD = 1.26$ ,  $\alpha = .97$ ; Eastwick & Finkel, 2008), and the 1-item measure of recent passion ( $M = 5.37$ ,  $SD = 1.61$ ). As before, to create an overall, aggregate measure of romantic passion, we z-scored these four scales and then averaged those four standardized scores ( $\alpha = .90$ ,  $M = .002$ ,  $SD = .88$ ). Table S2 in the supplemental materials contains the correlations among measures.

**Creative Behavior Inventory.** As a second assessment of creative personality, participants completed the 90-item Creative Behavior Inventory ( $M = .52$ ,  $SD = .37$ ,  $\alpha = .93$ ; Hogevar, 1979). This measure has the benefit of being somewhat more objective than the Creative Personality Scale in that it requires individuals to quantify their engagement in specific activities and their achievement of specific accomplishments in their lives. In this measure, participants rated how many times they had engaged in 82 creative activities (e.g., "cooked an original dish," "kept a sketch book," and "developed a design for a scientific experiment"; 0 = *never*, 1 = *once or twice*, 2 = *3–5 times*, 3 = *more than 5 times*). These activities ranged widely in discipline, including literature, art, music, crafts, math and science, and the performing arts. In an additional four scale items, participants rated whether they had played four types of musical instruments (e.g., "Played an instrument [percussion, including piano] with a reasonable degree of proficiency"; 0 = *never*, 1 = *1 or 2 years*, 2 = *3–5 years*, 3 = *over 5 years*). In the last four scale items, they rated whether they had participated in four different types of creative organizations (e.g., "Participated in a drama workshop, club, or similar organization (excluding school or university course work)"; 0 = *never*, 1 = *1 or 2*, 2 = *3–5*, 3 = *more than 5*).

## Results

Since the Creative Personality Scale and the Creative Behavior Inventory were significantly correlated,  $r = .20$ ,  $p = .009$  and designed to measure the same underlying construct of creative person-

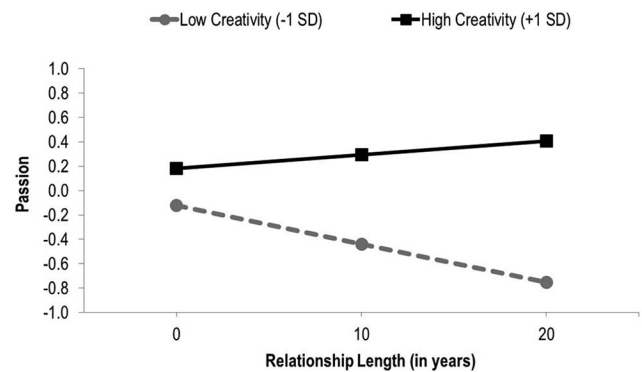


Figure 2. Study 1B: The association of relationship duration with romantic passion among those high versus low in creativity as assessed by the aggregate of the Creative Personality Scale and Creative Behavior Inventory. Relationship Length uses model-implied values.

ality, we z-scored and aggregated these scales to represent one measure of creative personality, and conducted the same two-step hierarchical regression as in Study 1A (see Figure 2). As hypothesized, this analysis yielded a significant positive main effect of creativity in the first step ( $b = .20$ ,  $\beta = .18$ ,  $t(166) = 2.30$ ,  $p = .023$ ), with more creative individuals reporting greater passion. The main effect of relationship length was also again negative, and marginally significant ( $b = -.01$ ,  $\beta = -.13$ ,  $t(166) = -1.66$ ,  $p = .100$ ).<sup>7</sup> In the second step, again as hypothesized, creativity significantly moderated the negative effect of relationship length on passion ( $b = .03$ ,  $\beta = .21$ ,  $t(165) = 2.68$ ,  $p = .008$ ).<sup>8</sup> Among less creative individuals ( $-1$  SD), romantic passion significantly decreased with relationship length ( $b = -.03$ ,  $\beta = -.32$ ,  $t(165) = -3.07$ ,  $p = .003$ ). However, among more creative individuals ( $+1$  SD), romantic passion did not signif-

<sup>6</sup> We had also included the Duncker candle problem (Duncker, 1945) and the Remote Associates Test (Mednick, 1962) as creative insight tasks. However, these tasks are more closely related to intelligence and ability than some other measures of creativity because they require an individual to find one correct solution—a form of convergent, rather than divergent, thinking (Taft & Rossiter, 1966). For instance, Worthen and Clark (1971) have argued that the Remote Associates Test is more closely tied to language ability than to creativity per se. In the present research we, therefore, focus more on tests of creative personality and behavior rather than these more cognitive tests. Furthermore, we also included an adapted version of the Creative Cognitive Style Scale (Kirton, 1976), but, on closer examination, we decided that this scale—which did not significantly correlate with the Creative Behavior Inventory and was significantly and negatively correlated with the Creative Personality Scale—did not adequately assess creative personality. In general, the present research examines the effects of feeling creative and engagement in everyday forms of creativity rather than objectively exceptional forms of creativity.

<sup>7</sup> Although the main effect of relationship length did not reach significance in this multiple regression analysis, the bivariate correlation between the passion aggregate and relationship length was negative and significant ( $r = -.15$ ,  $p = .049$ ).

<sup>8</sup> As in Study 1A, to help rule out the possibility that effects of creativity on romantic passion might be explained by greater education, we again conducted a second set of analyses controlling for educational attainment. The main effect of creativity on romantic passion remained significant when controlling for education level ( $b = .22$ ,  $\beta = .19$ ,  $t(165) = 2.53$ ,  $p = .013$ ), as did the interaction effect of creativity and relationship ( $b = .03$ ,  $\beta = .23$ ,  $t(163) = 3.02$ ,  $p = .003$ ). The main effect of educational attainment was again negatively associated with passion ( $b = -.09$ ,  $\beta = -.14$ ,  $t(165) = -1.85$ ,  $p = .066$ ), although this time only marginally so.



icantly decrease with relationship length ( $b = .01$ ,  $\beta = .11$ ,  $t(165) = .96$ ,  $p = .337$ ). Examined from the other direction, among individuals in shorter relationships ( $-1$   $SD$ ), more creative individuals did not report significantly greater passion ( $b = -.05$ ,  $\beta = -.04$ ,  $t(165) = -.37$ ,  $p = .715$ ). However, among individuals in longer relationships ( $+1$   $SD$ ), more creative individuals did report greater romantic passion ( $b = .44$ ,  $\beta = .39$ ,  $t(165) = 3.55$ ,  $p < .001$ ).<sup>9</sup>

## Discussion

Replicating Study 1A, individuals with more creative personalities, as assessed by the aggregate of the Creative Personality Scale and Creative Behavior Inventory, reported significantly higher levels of romantic passion and had significantly less steep declines in passion with greater relationship length. That is, although individuals who had less creative personalities and engaged in fewer creative activities exhibited the typical, depressed levels of passion in longer relationships, individuals who had more creative personalities maintained relatively high levels of passion even in longer-term relationships. Thus, Study 1B replicated the effects of Study 1A, this time while also incorporating a somewhat more objective dispositional measure of creative personality in the form of the Creative Behavior Inventory.<sup>10</sup>

## Study 2

In Study 2, we sought to investigate the Proust-inspired mechanism we speculated might link creativity to romantic passion: positive illusions of partner physical attractiveness. By leveraging a preexisting dataset (e.g., Rusbult, Kumashiro, Kubacka, & Finkel, 2009, Study 1) that afforded the opportunity to conduct cross-lagged panel analyses with a sample of newly committed couples, we were able to conduct an initial test of whether creativity is associated with greater positive illusions of partner physical attractiveness, as well as the predictive direction of this association. Specifically, we hypothesized that being higher in creativity would predict positive illusions of partner attractiveness one year later, but that the reverse would not be true (i.e., that having positive illusions of partner attractiveness would not predict greater creativity one year later). By establishing this predictive direction of effects over time, this analysis would also help to rule out alternative explanations of the relationship between creativity and our proposed mediator, such as the possibility that more creative individuals obtain more physically attractive long-term partners compared with less creative individuals, or that having especially strong positive illusions of partner attractiveness causes individuals to become more creative.

In addition to cross-lagged analyses, given the longitudinal nature of this dataset, we were also able to examine trajectories of the influence of creativity on positive illusions of partner attractiveness over time. Such longitudinal procedures avoided some of the pitfalls of using relationship length as a proxy for time, as we did in Studies 1A and 1B. Specifically, these procedures avoid the confound that, given that romantic passion is likely to be linked to relationship longevity, attrition dynamics mean that the longer relationships in those studies were likely to be higher-quality, on average, than the shorter relationships. This study also preselected relationships to be at more or less the same relationship stage—the “newly committed” stage, which likely approximates the predicted

peak of romantic passion. Given that these individuals would be at the theoretical precipice of passion decline, this sample also afforded an especially scientifically useful test of the moderating influence of creativity on the effects of time in relationships. We suggest that the association of creativity with greater positive illusions of partner attractiveness might get stronger over time (a Creativity  $\times$  Time interaction effect on positive illusions of partner attractiveness). Creativity may buffer against the relationship disillusionment process that often occurs over time in relationships. As their partner perhaps begins to put less effort into their appearance around them over time, creative individuals might be more easily able to overlook less flattering aspects of their partner.

## Method

**Participants.** As a requirement for participating in this preexisting 2-year study of newly committed relationships, couples must have either moved in together, gotten engaged, or gotten married within the year before study entry—or planned to do so within the subsequent year. Of relevance to the present report, participants completed two lab sessions during the second year of the study (measures of creativity and positive illusions of partner attractiveness did not exist in the earlier surveys of the study). In the first of the two lab sessions, 139 couples (278 individuals) took part ( $M_{\text{age}} = 26.45$  years;  $SD_{\text{age}} = 4.56$  years;  $M_{\text{RelationshipLength}} = 5.45$  years;  $SD_{\text{RelationshipLength}} = 4.24$ ; 87.0% White; 6.5% African American; 3.2% Latino, .4% Asian American, 2.2% other). These two lab sessions took place one year apart. In the second lab session, 98 couples (196 individuals) took part, with 93 of them

<sup>9</sup> Similar results were obtained when the effects of the Creative Personality Scale and the Creative Behavior Inventory were analyzed separately. Specifically, creativity as assessed by the Creative Personality Scale was associated with significantly greater romantic passion ( $b = .04$ ,  $\beta = .18$ ,  $t(166) = 2.41$ ,  $p = .017$ ), and marginally significantly moderated the effect of relationship length on romantic passion ( $b = .003$ ,  $\beta = .12$ ,  $t(165) = 1.70$ ,  $p = .091$ ). Creativity as assessed by the Creative Behavior Inventory was not significantly associated with greater romantic passion overall ( $b = .23$ ,  $\beta = .09$ ,  $t(166) = 1.13$ ,  $p = .260$ ), although the trend was in the predicted direction. Creativity significantly moderated the effect of relationship length on romantic passion ( $b = .08$ ,  $\beta = .19$ ,  $t(165) = 2.40$ ,  $p = .018$ ).

<sup>10</sup> Given that some of the effects for creativity and relationship length were marginal in Studies 1A and 1B, we conducted a meta-analysis of the studies most easily comparable (Studies 1A, 1B, and 3)—those that use correlational analyses of the association of creative personality and romantic passion in established relationships and include measures of relationship length. Meta-analytic effects did support our hypotheses. That is, the meta-analytic main effect of creative personality on passion was positive and significant,  $\beta = .11$ ,  $z = 3.16$ ,  $p = .002$ , such that greater creativity was associated with greater passion. The meta-analytic main effect of relationship length was also significant,  $\beta = -.15$ ,  $z = -4.43$ ,  $p < .001$ , such that greater relationship durations were associated with lower passion. The meta-analytic interaction of creative personality and passion in this analysis was significant and in the predicted pattern,  $\beta = .08$ ,  $z = 2.18$ ,  $p = .030$ . According to meta-analyzed simple slopes, for those low in creativity ( $-1$   $SD$ ), passion significantly declined with greater relationship durations,  $\beta = -.23$ ,  $z = -4.43$ ,  $p < .001$ . In contrast, for those high in creativity ( $+1$   $SD$ ), passion was not significantly associated with relationship duration,  $\beta = -.07$ ,  $z = -1.39$ ,  $p = .164$ .

(186 individuals) having also participated in the first session.<sup>11</sup> For the purposes of the present analyses, we refer to the first relevant lab session as baseline and refer to the second lab session as having occurred one year after baseline.

**Procedure and materials.** In both lab sessions, participants rated their partner on 26 traits, including a face-valid trait rating of their partner's attractiveness. Participants' then rated themselves on those same 26 traits, including a face-valid trait rating of their own creativity. Appendix S.C of the supplemental materials presents the complete instructions and the full list of traits, and Table S3 in the supplemental materials contains the correlations among measures.

**Creativity.** For the one-item, face-valid assessment of creativity, participants rated the degree to which they possessed the trait of being "Imaginative (creative, original, inventive, and artistic)" (0 = *I do not possess at all*, 8 = *I possess completely*;  $M = 5.22$ ,  $SD = 1.82$  at the first lab session;  $M = 4.91$ ,  $SD = 2.16$  at the second lab session).

**Positive illusions of partner attractiveness.** For the one-item, face-valid assessment of partner physical attractiveness, participants rated the degree to which their partner possessed the trait of being "Attractive (good-looking, well-groomed, and well-dressed)" (0 = *partner does not possess at all*, 8 = *partner possesses completely*;  $M = 6.71$ ;  $SD = 1.12$  at the first lab session;  $M = 6.19$ ;  $SD = 1.14$  at the second lab session). Furthermore, participants also rated themselves on this same list of traits they had rated their partner, including the degree to which they possessed the trait of being "Attractive (good-looking, well-groomed, and well-dressed)" (0 = *I do not possess at all*, 8 = *I possess completely*;  $M = 5.23$ ,  $SD = 1.40$  at the first lab session;  $M = 4.72$ ;  $SD = 1.49$  at the second lab session). By controlling for partner's self-rating on this trait, we could acquire an assessment of positive illusions relative to partner self-ratings.

## Results

**Cross-lagged analyses.** To test our prediction that baseline creativity would predict greater positive illusions of partner attractiveness one year later, but that the reverse would not be true, we used a classic two-wave cross-lagged panel data-analytic procedure (Kenney, 1973). Because participants' responses were nested within the dyad, conducted the analyses within a multilevel modeling framework (with individuals nested within couples). Specifically, we conducted this analysis using the SPSS MIXED procedure with dyads treated as indistinguishable and the covariance structure set to unstructured. Estimation was conducted using maximum likelihood. We specified all predictor variables as fixed; however, we used the repeated statement to account for the non-independence between partners' responses.

As depicted in Figure 3, the cross-lagged effect of baseline creativity positively and significantly predicted elevated ratings of partner attractiveness a year later ( $b = .10$ ,  $\beta = .16$ ,  $t(165.61) = 3.13$ ,  $p = .002$ ), even after controlling for baseline partner attractiveness ratings ( $b = .57$ ,  $\beta = .56$ ,  $t(182.29) = 10.56$ ,  $p < .001$ ), baseline partner self-ratings of physical attractiveness ( $b = .07$ ,  $\beta = .09$ ,  $t(161.78) = 1.13$ ,  $p = .256$ ), and partner self-ratings of physical attractiveness a year later ( $b = .06$ ,  $\beta = .08$ ,  $t(177.87) = .96$ ,  $p = .336$ ). Conversely, baseline partner attractiveness ratings did not significantly predict participants' rating of their own cre-

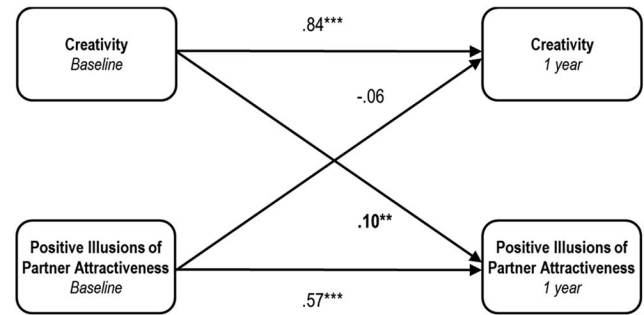


Figure 3. Study 2: Cross-lagged effects of participants' trait ratings of their creativity and participants' positive illusions of their partner's attractiveness (ratings of their partner's physical attractiveness controlling for the partner's ratings of his or her own attractiveness at baseline and a year later). Unstandardized multilevel model coefficients are shown. Asterisks indicate statistical significance, \*\*  $p < .01$ , \*\*\*  $p < .001$ .

ativity a year later ( $b = -.06$ ,  $\beta = -.03$ ,  $t(178.75) = -.56$ ,  $p = .578$ ), after controlling for baseline creativity ( $b = .84$ ,  $\beta = .71$ ,  $t(153.87) = 14.57$ ,  $p < .001$ ), baseline partner self-ratings of physical attractiveness ( $b = -.06$ ,  $\beta = -.04$ ,  $t(156.76) = -.51$ ,  $p = .608$ ), and partner self-ratings of physical attractiveness a year later ( $b = .06$ ,  $\beta = .04$ ,  $t(170.00) = .56$ ,  $p = .577$ ). Collectively, these results are consistent with our hypothesis that creativity promotes greater positive illusions of partner attractiveness, but not vice versa. Auxiliary analyses (summarized in Appendix S.C of the supplemental materials) revealed no evidence that creativity predicts positive illusions systematically across the range of partner traits.

**Positive illusions of partner attractiveness trajectories.** We additionally hypothesized that individuals who were more creative would exhibit greater positive illusions of their partner's attractiveness, and that this association would become stronger over time. To test these hypotheses, we conducted a two-step hierarchical regression using multilevel level modeling (with nesting accounted for by crossing time period and couple) in which passion was predicted from time period (effects coded as  $-.5$  for the first lab session and  $.5$  as for the second lab session) and baseline trait creativity while controlling for the partner's ratings of his or her own physical attractiveness in the first step, and the interaction of passion and time period in the second step (see Figure 4). We conducted this analysis using the SPSS MIXED procedure with dyads treated as indistinguishable and the covariance structure set to compound symmetry. We treated dyads as indistinguishable because (a) there was no evidence of consistent gender moderation across studies and (b) the test of distinguishability was nonsignificant,  $\chi^2(5) = 7.22$ ,  $p = .205$ . Estimation was conducted using restricted maximum likelihood. Time, creativity, and their interaction were treated as fixed variables with no random component. We also included two dummy codes specifying each couple member according to gender (this was randomly specified in the instance of same-sex couples) as two random factors with no fixed

<sup>11</sup> Of the participants who attended the first relevant lab session, those who did not attend the second ( $M = 5.46$ ,  $SD = 1.63$ ) did not differ significantly in their creativity from those participants who did attend the second ( $M = 5.22$ ,  $SD = 1.82$ ;  $b = -.31$ ,  $t(156.59) = 1.37$ ,  $p = .171$ ).



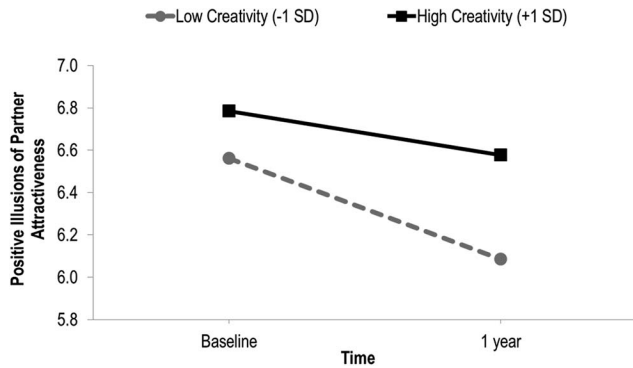


Figure 4. Study 2: The longitudinal effect of time (from baseline to 1 year later) on participant's positive illusions of their partner's attractiveness (ratings of their partner's physical attractiveness controlling for partner's ratings of their own attractiveness) among participants high versus low in creativity.

component. Gender within couple was treated as repeated within time point by dyad.

As hypothesized, this analysis yielded a significant main effect of baseline creativity ( $b = .09$ ,  $\beta = .14$ ,  $t(261.02) = 2.77$ ,  $p = .006$ ), with more creative individuals reporting greater partner attractiveness ratings overall while controlling for the partner's ratings of his or her own physical attractiveness at each wave ( $b = .19$ ,  $\beta = .23$ ,  $t(409.98) = 5.08$ ,  $p < .001$ ). Thus, more creative individuals exhibited greater positive illusions of their partner's physical attractiveness. The main effect of time on positive illusions of partner attractiveness was also negative and significant ( $b = -.35$ ,  $\beta = -.15$ ,  $t(113.35) = -5.21$ ,  $p < .001$ ). As hypothesized, creativity at baseline moderated the negative effect of time on partner attractiveness ratings ( $b = .07$ ,  $\beta = .06$ ,  $t(170.48) = 2.09$ ,  $p = .038$ ). Among less creative individuals ( $-1$  SD), partner attractiveness ratings significantly decreased over time ( $b = -.48$ ,  $\beta = -.21$ ,  $t(140.97) = -5.30$ ,  $p < .001$ ). However, among more creative individuals ( $+1$  SD), declines in partner attractiveness ratings were significantly less steep ( $b = -.21$ ,  $\beta = -.09$ ,  $t(139.62) = -2.40$ ,  $p = .027$ ). Examined from the other direction, the effect of creativity on partner attractiveness ratings was positive, and marginally significant, at baseline ( $b = .06$ ,  $\beta = .10$ ,  $t(348.07) = 1.77$ ,  $p = .077$ ), but it was significantly stronger one year later ( $b = .14$ ,  $\beta = .21$ ,  $t(399.13) = 3.47$ ,  $p < .001$ ).<sup>12</sup>

## Discussion

Study 2 provided the first evidence in support of our proposed mechanism—that creativity increases positive illusions about partner physical attractiveness. Participants who were higher in creativity exhibited greater positive illusions for their partner's attractiveness than did those who were lower in creativity. Cross-lagged analysis further revealed that baseline creativity predicted greater positive illusions of partner attractiveness a year later, controlling for baseline positive illusions. The reverse, however, was not true: Baseline positive illusions of partner attractiveness did not predict creativity a year later. By controlling for baseline partner attractiveness ratings, as well as the partner's own ratings of his or her attractiveness,

this analysis also helped to rule out the alternative explanation that effects of creativity are because of more creative individuals having objectively more attractive partners.

However, although Study 2 provided support for a link between creativity and positive illusions of partner attractiveness, this pre-existing dataset did not include previously validated measures of creativity. It also did not include a measure of romantic passion, so the full mediational model could not be tested. In our final study, we sought to replicate these effects using more established measures of creativity, and to conduct a longitudinal test of our proposed mediational model.

## Study 3

Studies 1A and 1B revealed that creative individuals experience greater passion, and that this effect is particularly strong in long-term relationships. Because this evidence was cross-sectional, however, we were unable to test for temporal effects within a given sample of participants. The cross-sectional methods also leave open the reverse-causality explanation that feeling passion might, over time, increase creativity or encourage engagement in creative activities. Thus, it is unclear from these studies whether creativity has a sustained positive influence on passion over time. Study 3, therefore, sought to build on these previous findings by examining the effect of creativity on passion over time.

To address these issues of causal direction and long-term consequence of creativity, we tested our hypotheses in a 9-month longitudinal study of individuals in romantic relationships, which was part of a larger investigation of romantic relationships over time (see Carswell & Finkel, in press).<sup>13</sup> Using the same established measures of creative personality as Studies 1A and 1B, we examined the effect of creative personality on passion over time. In addition to testing the effects of time directly by assessing measures longitudinally, Study 3 also built on the previous studies by including a more objective measure of romantic passion than classic self-report scales. Specifically, at the end of the 9-month study, participants completed a brief physical intimacy task with their partner in the lab, which was recorded and evaluated for objective displays of passion. By including a behavioral measure of romantic passion, we hoped to help rule out the possibility that results

<sup>12</sup> In addition to the effect of creativity on positive illusions of partner attractiveness, the dyadic design of the current study also allowed us to examine the effects of having an especially creative partner. Results from actor-partner interdependence modeling (APIM analyses) revealed no significant evidence that having an especially creative partner was associated with one's own experience of positive illusions of the partner's attractiveness ( $b = -.01$ ,  $t(263.66) = -.44$ ,  $p = .658$ ), nor was this null main effect moderated by time ( $b = .01$ ,  $t(184.48) = .37$ ,  $p = .714$ ). These findings suggest that, as Proust implied, the effect of creativity on greater positive illusions is largely an internal perceptual experience. Furthermore, this dyadic design also allowed us to examine whether ratings of an individual's creativity by their partner might predict that individual's experience of positive illusions. However, the main effect of partner ratings of creativity on positive illusions of partner attractiveness ( $b = -.02$ ,  $t(253.77) = -.86$ ,  $p = .388$ ) and its interaction with time ( $b = .05$ ,  $t(213.19) = 1.47$ ,  $p = .144$ ) were both not significant.

<sup>13</sup> As part of this larger study, Study 3 contained an experimental manipulation of relationship lay beliefs. Hypothesis tests, however, yielded identical conclusions when experimental condition was controlled for.

were because of bias in self-report. Using behavioral measures in addition to self-report also lends greater external validity to potential effects, and might have an increased likelihood of mapping onto actual behavior outside of the lab.

In this study, we recruited participants who had been in a relationship for at least one year, but who, like the newly committed couples in Study 2, were still in the sorts of relatively new relationships that are at the precipice of the normative decline in romantic passion. Finally, building on Study 2, we wished to explore positive illusions on partner physical attractiveness as a potential mechanism for the influence of creativity on passion. Therefore, as in Study 2, we measured ratings of partner attractiveness over time to examine not only their links with creativity, but also their associations with passion longitudinally. Study 3 further improved on Study 2 by including an objective measure of the partners' attractiveness. Specifically, we took photos of the partners and objectively coded them, which allowed us to assess participants' positive illusions with a more objective benchmark of their partner's physical attractiveness.

In the previous studies, we also focused mainly on the effects of creativity on feelings of passion toward a romantic partner, a likely positive influence on relationship quality. As an auxiliary research question, however—one suggested by an anonymous reviewer—we also wished to explore a potential peril of creativity for relationships, notably the possibility that it might also increase passion for romantic alternatives in the form of increased emotional and physical intimacy with alternative partners.

## Method

**Participants.** We recruited 120 participants currently involved in a romantic relationship from a private, Midwestern university to participate in a 9-month study in exchange for up to \$60 (90 female;  $M_{\text{age}} = 21.94$  years old;  $SD_{\text{age}} = 4.05$  years; 67.5% White; 4.2% African American; 16.7% Hispanic/Latino/a, 21.7% Asian American, 7.5% Multiracial, 1.7% Other). Only participants who had been in a relationship for at least one year were selected to participate ( $M_{\text{relationshiplength}} = 2.45$  years,  $SD_{\text{relationshiplength}} = 1.60$  years at intake). Participants were recruited via flyers posted around campus; paid subject pool listservs; classroom-wide and dormitory-wide emails; classroom announcements; fraternity and sorority announcements; student newspaper and newsletter advertisements; online, university-affiliated Facebook groups; and university-targeted Facebook advertisements. After passing an online screening questionnaire, participants completed an online intake survey and two online follow-up surveys, spaced approximately 3 months apart. These online surveys were then followed by a final in-person session in the lab occurring approximately 9 months after the beginning of the study. All 120 participants completed the initial intake, 114 completed the first follow-up survey fully (95.00%) with 4 partial responses, 111 completed the second follow-up survey fully (92.50%) with 2 partial responses, and 110 attended the final lab session (91.67%).

We also requested that participants' partners attend the final lab session (if the relationship was still intact); partners received \$20 for attending. Of the 110 participants who attended the final follow-up session, 90 (81.81%) were able to bring their romantic partner to the final lab session (bringing the total number of

participants in this study to 210). Of the 20 participants who did not bring their partner to the final session, 15 did not do so because their relationship had broken up; the other 5 did not do so because of scheduling complications. Although all participants had been dating for at least a year at the beginning of the study, 17 reported having broken up by the end of the study (14.17%). Participants who broke up ( $M = -.12$ ,  $SD = .61$ ) did not differ significantly from those participants who did not break-up ( $M = .02$ ,  $SD = .82$ ) in their creativity according to the creativity aggregate,  $t(118) = .69$ ,  $p = .493$ .

**Procedure and materials.** In the intake questionnaire, participants first completed the Creative Personality Scale ( $M = 5.23$ ,  $SD = 3.79$ ; Gough, 1979) and the Creative Behavior Inventory ( $M = .50$ ,  $SD = .25$ ,  $\alpha = .89$ ; Hocesvar, 1979), as had participants in Study 1B. Also as in Study 1B, to create an aggregate measure of creativity, we z-scored these two creativity scales and then averaged these two standardized scores ( $r = .27$ ,  $M = .001$ ,  $SD = .80$ ). Participants then also completed the same four passion assessments as Studies 1A and 1B. Specifically, participants completed the 30-item Passionate Love Scale ( $M = 6.76$ ,  $SD = 1.48$ ,  $\alpha = .96$ ; Hatfield & Sprecher, 1986), the passion subscale of the Triangular Love Scale ( $M = 5.50$ ,  $SD = 1.22$ ,  $\alpha = .94$ ; Sternberg, 1986), the 3-item, face-valid sexual desire scale ( $M = 6.00$ ,  $SD = 1.26$ ,  $\alpha = .97$ ; Eastwick & Finkel, 2008), and the 1-item measure of recent passion ( $M = 5.37$ ,  $SD = 1.61$ ). As in Studies 1A and 1B, to create an overall, aggregate measure of romantic passion, we z-scored these four scales and then averaged those four standardized scores ( $\alpha = .90$ ,  $M = .001$ ,  $SD = .80$ ). Participants then rated their partner's attractiveness by answering the 1-item question "How physically attractive is [your partner] these days?" (1 = *not at all*, 10 = *extremely*;  $M = 8.38$ ,  $SD = 1.50$ ). We also assessed romantic engagement with alternatives with a brief two-item scale. In addition to completing these passion, partner physical attractiveness, and engagement with alternatives measures at intake, participants also completed them again at each of the follow-up assessments. (For efficiency of presentation, the descriptive statistics reported in this paragraph collapse across waves of data collection.)

In the end-of-study lab session, participants engaged in a brief physical intimacy task with their partner (if they were still together and their partner was able to attend the session). Immediately thereafter, they reported on their passion and behavior during this task. To provide a more objective measure of passion, the physical intimacy task was surreptitiously recorded via a hidden camera for later behavioral coding. Before leaving the lab, participants' partners had their photos taken individually for later physical attractiveness coding by 10 independent coders (1 = *extremely unattractive*, 10 = *extremely attractive*;  $M = 5.32$ ,  $SD = 1.12$ , intraclass correlation coefficient, ICC = .89). Participants' partners also self-reported their own attractiveness in this lab session to afford a direct replication of the Study 2 positive illusions findings by answering the 1-item question "How physically attractive are you these days?" (1 = *not at all*, 10 = *extremely*;  $M = 7.10$ ,  $SD = 1.86$ ). Table S4 in the supplemental materials contains the correlations among measures.

**Engagement with romantic alternatives.** Participants completed an abbreviated 2-item version of the "Infidelity Scale" (Drigotas, Safstrom, & Gentilia, 1999;  $r = .49$ ,  $M = 2.57$ ,  $SD =$

1.82), adapted to refer to emotional and physical intimacy that occurred in the previous 3 months with a romantic alternative. Specifically, participants received the following prompt:

There are times within romantic relationships when we are attracted to other people. Part of being human is being aware of and attracted to people. Sometimes that attraction is mutual and sometimes it is not. When it is mutual it often leads to certain flirting behaviors. We want you to think of a person in the last 3 months that you were the MOST attracted to besides your partner. We DO NOT want you to name the other person, but please respond to the following general questions about this other person you were attracted to. It is crucial that you bring to mind a SPECIFIC individual for these questions.

Participants then answered the questions "How emotionally intimate were you with this person?" on a 9-point scale (1 = *not at all emotionally intimate*, 9 = *extremely emotionally intimate*), and "How physically intimate were you with this person?" also on a 9-point scale (1 = *not at all physically intimate*, 9 = *extremely physically intimate*).<sup>14</sup>

**Physical intimacy task.** Participants whose partner attended the final lab session with them were instructed to engage in a brief physical intimacy task together (adapted from Birnbaum et al., 2016). In a separate room, furnished with an L-shaped sofa and living room furniture, the experimenter read aloud to participants and their partner the following instructions:

In this next task we would like the two of you to engage in a brief interaction together in private. In this study, we are especially interested in relationship dynamics and the expression of affection. For the next seven minutes, we will leave the two of you alone in this room and would like you to engage in some form of physical intimacy. You can engage in as little or as much physical intimacy as you'd like (within reason), and it can be as simple as hand holding, or can involve kissing and making out. It's whatever you'd like to do. When the seven minutes are up we'll knock and give you a moment before entering the room.

Couples were then left alone for 7 min, at which point the experimenter knocked and waited for the couples' consent to enter. This task was surreptitiously recorded via a hidden camera, which participants were informed of at the end of the lab session and given the opportunity to have their recorded footage deleted before being viewed or transferred to a computer for storage. Only 4 of the 90 participants who brought their partner to the lab (4.44%) requested that their video be destroyed. Acts of physical intimacy on the remaining 86 videos ranged from light handholding to sexual behaviors.<sup>15,16</sup>

**Physical intimacy task: Self-reported passion.** Following the physical intimacy task, participants and their partners reported, on a 3-item measure, the degree to which they felt passion toward their partner during the physical intimacy task. Specifically, they rated their agreement with the statements, "During the previous physical intimacy interaction, [my romantic partner] and I were very passionate," "During the previous physical intimacy interaction, [my romantic partner] and I were very physically passionate," and "I felt sexually aroused," (1 = *strongly disagree*, 7 = *strongly agree*; Main Participant:  $\alpha = .87$ ,  $M = 4.27$ ,  $SD = 1.55$ ; Partner:  $\alpha = .88$ ,  $M = 4.41$ ,  $SD = 1.58$ ).

#### **Physical intimacy task: Self-reported passionate behaviors.**

Participants and their partners also reported the degree to which they engaged in physically passionate behaviors according to four items. Specifically, they rated their agreement with the statements, "During the previous physical intimacy interaction, [my romantic partner] and I kissed," "During the previous physical intimacy interaction, [my romantic partner] and I kissed with tongue," "During the previous physical intimacy interaction, [my romantic partner] and I made out," and "During the previous physical intimacy interaction, I touched [my romantic partner] in a sexually intimate way" (1 = *strongly disagree*, 7 = *strongly agree*; Main Participant:  $\alpha = .87$ ,  $M = 3.23$ ,  $SD = 1.89$ ; Partner:  $\alpha = .85$ ,  $M = 3.44$ ,  $SD = 1.82$ ).<sup>17</sup>

**Physical intimacy task: Coded passion.** Four independent coders rated the physical intimacy videos for the degree to which both the main participant and their partner were passionate during the task (1 = *not at all*, 7 = *extremely*). Specifically, each coder answered the questions: "How passionate does the main participant seem to be toward the partner?" (ICC = .71,  $M = 4.52$ ,  $SD = 1.07$ ) and "How passionate does the partner seem to be toward the main participant?" (ICC = .76,  $M = 4.59$ ,  $SD = 1.15$ ).

**Physical intimacy task: Coded passionate behaviors.** The four coders also rated the physical intimacy videos for the degree to which the participants engaged in four physically passionate behaviors (1 = *not at all*, 7 = *a lot*;  $\alpha = .93$ ,  $M = 2.66$ ,  $SD =$

<sup>14</sup> For participants who had broken up with their partner, the wording of these questions was instead "How emotionally intimate were you with this person (before your breakup with [your romantic partner])?" and "How physically intimate were you with this person (prior to your breakup with [your romantic partner])?" to refer specifically to emotional and physical intimacy before breakup. Participants were only asked these questions in the first follow-up survey after their break-up, not in any subsequent follow-up surveys. Because of a programming oversight, the first follow-up wave did not have the "before breakup" wording, however, so it is less clear among those who had broken-up whether any intimacy occurred before or after they broke-up in the first follow-up wave. Thus, results for effects on recent pursuit of a romantic alternative in our auxiliary analysis should be interpreted with caution.

<sup>15</sup> In Study 3, participants also reported the degree to which they had felt self-conscious during the task, which allowed us to examine whether creative individuals were simply more comfortable engaging in physical intimacy in a lab setting. Specifically, participants rated their agreement with the statements, "During the previous physical intimacy interaction, I felt self-conscious," "During the previous physical intimacy interaction, I spent most of the interaction thinking about how my behavior would be judged by the researchers," and "The previous physical intimacy interaction task was awkward" (1 = *strongly disagree*, 7 = *strongly agree*). They also responded to this item: "During the previous physical intimacy interaction, what percentage of the interaction were you thinking primarily about the study you were in?" (0-100%). Creativity was not significantly related to feelings of self-consciousness during the task according to an aggregate measure we created by z-scoring and aggregating these four items ( $\alpha = .83$ ,  $r = -.09$ ,  $p = .373$ ).

<sup>16</sup> In support of the validity of this physical intimacy task as a measure of romantic passion, both participant-reported and coded passion and passionate behaviors during this task were significantly or marginally significantly correlated with reported passion over the course of the study and in the final follow-up survey. See Table S4 in the supplemental materials for correlations.

<sup>17</sup> Participants also reported whether they held hands and cuddled with their romantic partner, however, such behaviors may not emerge from romantic passion per se (and these two items appeared to load on a different factor from the other behaviors), so we excluded them from this scale.



1.50). Specifically, each coder answered the questions: “Does the couple kiss?” ( $ICC = .92$ ,  $M = 3.56$ ,  $SD = 1.75$ ), “Does the couple kiss passionately?” ( $ICC = .89$ ,  $M = 2.77$ ,  $SD = 1.75$ ), “Does the couple make out?” ( $ICC = .86$ ,  $M = 2.33$ ,  $SD = 1.64$ ), and “Does the couple engage in sexual behavior (e.g., grinding, straddling, and feeling under clothes)?” ( $ICC = .90$ ,  $M = 1.98$ ,  $SD = 1.43$ ).

## Results

**Passion longitudinal trajectories.** As with positive illusions in Study 2, we conducted a two-step hierarchical multilevel regression analysis, with multiple responses nested within individual as part of a growth curve analysis. Specifically, we regressed our passion aggregate across intake and the three follow-up waves on creativity at intake and time point (wave number) in the first step, and then included their interaction in the second step (see Figure 5). We conducted this analysis using the SPSS MIXED procedure with the covariance structure set to unstructured. Estimation was conducted using maximum likelihood. We specified all predictor variables as fixed; however, we allowed the intercept to vary randomly at the level of individual to account for the nonindependence between individuals’ repeated responses. Predictor variables were unstandardized and grand-mean centered. Responses that occurred postbreakup were excluded from this analysis.

This analysis revealed a positive association of creativity with passion, although this effect did not reach significance ( $b = .08$ ,  $\beta = .10$ ,  $t(110.19) = 1.18$ ,  $p = .239$ ). As hypothesized, the main effect of time on passion was negative and significant ( $b = -.05$ ,  $\beta = -.10$ ,  $t(305.49) = -3.29$ ,  $p = .001$ ), with passion declining over the course of the study. As hypothesized, creativity significantly moderated the decline of passion over time ( $b = .04$ ,  $\beta = .06$ ,  $t(304.47) = 2.21$ ,  $p = .028$ ). Among less creative individuals ( $-1$  SD), passion significantly declined over time ( $b = -.09$ ,  $\beta = -.15$ ,  $t(307.25) = -3.91$ ,  $p < .001$ ). However, among more creative individuals ( $+1$  SD), passion remained relatively stable and did not significantly decline over time ( $b = -.02$ ,  $\beta = -.03$ ,  $t(302.71) = -.80$ ,  $p = .424$ ). Examined from the other direction, at intake, creativity was not significantly associated with

greater passion ( $b = .02$ ,  $\beta = .03$ ,  $t(146.56) = .31$ ,  $p = .760$ ). However, approximately 9-months later, creativity was associated with significantly greater passion ( $b = .15$ ,  $\beta = .19$ ,  $t(163.28) = 2.02$ ,  $p = .045$ ).<sup>18,19</sup>

**Positive illusions of partner attractiveness longitudinal trajectories: Partner-reported attractiveness.** To test the trajectory of the potential mediator of positive illusions, and to afford a replication of Study 2, we again conducted a two-step hierarchical multilevel regression analysis, this time examining the effects of creativity on positive illusions of partner attractiveness ratings over time. Specifically, accounting for nesting of multiple responses within individual via the same multilevel modeling growth curve procedures as for passion, we regressed ratings of partner attractiveness across intake and the three follow-up waves on creativity at intake, time, and participants’ partner’s self-ratings of his or her own attractiveness in the first step, and then included the interaction of creativity and time in the second step (see the top panel of Figure 6). Responses that occurred postbreakup were again excluded from this analysis.

This analysis revealed a positive main effect of creativity on partner attractiveness ratings ( $b = .37$ ,  $\beta = .20$ ,  $t(85.96) = 2.60$ ,  $p = .011$ ), with more creative individuals reporting greater partner attractiveness overall. The main effect of time was also negative and marginally significant ( $b = -.08$ ,  $\beta = -.06$ ,  $t(254.63) = -1.76$ ,  $p = .080$ ), with ratings of partner attractiveness declining over the course of the study. The main effect of participants’ partner’s self-ratings of his or her own physical attractiveness on participants’ ratings of that partner’s attractiveness was also positive and significant ( $b = .19$ ,  $\beta = .23$ ,  $t(86.42) = 3.05$ ,  $p = .003$ ), indicating that participants and their partners showed some degree of conver-

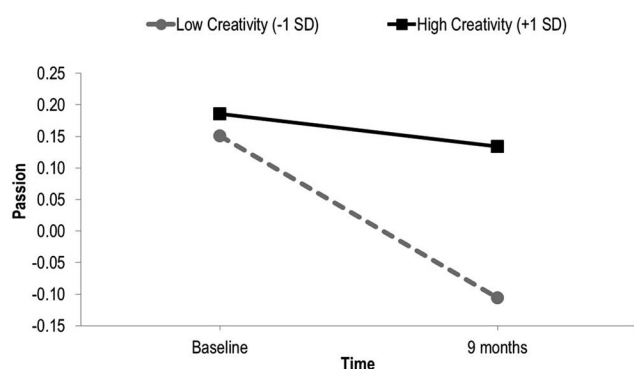


Figure 5. Study 3: The longitudinal effect of time (from baseline to approximately 9-months later) on passion among participants high versus low in creativity.

<sup>18</sup> At the suggestion of reviewers, we also examined whether the effect of creativity on reduced declines in passion over time might be explained by greater approach relationship goals (Impett et al., 2008) or greater sexual communal strength (Muise et al., 2013) among more creative individuals. Fortunately, in addition to creativity, this study also included at intake a 4-item assessment of relationship approach goals ( $\alpha = .87$ ,  $M = 6.23$ ,  $SD = .72$ ; Gable, 2006), and a 6-item assessment sexual communal strength ( $\alpha = .78$ ,  $M = 5.41$ ,  $SD = .99$ ; Muise et al., 2013). Creativity was not significantly correlated with greater approach relationships goals ( $r = .07$ ,  $p = .416$ ), although, replicating previous findings, greater approach goals were associated with greater romantic passion ( $b = .35$ ,  $t(108.90) = 5.44$ ,  $p < .001$ ). Creativity was significantly and positively correlated with greater sexual communal strength ( $r = .21$ ,  $p = .019$ ), and sexual communal strength was also associated with greater romantic passion ( $b = .23$ ,  $t(107.63) = 4.74$ ,  $p < .001$ ). The Creativity  $\times$  Time interaction effect remained significant ( $b = .04$ ,  $t(298.11) = 2.28$ ,  $p = .023$ ), however, controlling for the main effect of approach relationship goals ( $b = .31$ ,  $t(104.31) = 4.93$ ,  $p < .001$ ) and its interaction effect with time ( $b = .02$ ,  $t(302.64) = .79$ ,  $p = .430$ ), as well as the main effect of sexual communal strength ( $b = .18$ ,  $t(105.14) = 3.82$ ,  $p < .001$ ) and its interaction effect with time ( $b = -.03$ ,  $t(304.08) = -1.91$ ,  $p = .058$ ).

<sup>19</sup> We also conducted additional analyses examining whether creativity was related to the experience of more positive emotions. Specifically, we included assessments of how frequently participants had experienced each of five positive emotions (i.e., happy, awe, excited, amused, and proud) over the previous 3 months in each follow-up survey after intake (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = most of the time;  $\alpha = .82$ ,  $M = 3.47$ ,  $SD = .65$ ). Using the same multilevel analytic procedures as for passion, we found that both the main effect of creativity ( $b = .03$ ,  $t(109.96) = .47$ ,  $p = .642$ ) and the interaction effect with wave ( $b = -.02$ ,  $t(199.73) = -.42$ ,  $p = .678$ ) on positive emotions were nonsignificant, as was the main effect of wave ( $b = .002$ ,  $t(200.65) = .08$ ,  $p = .940$ ).

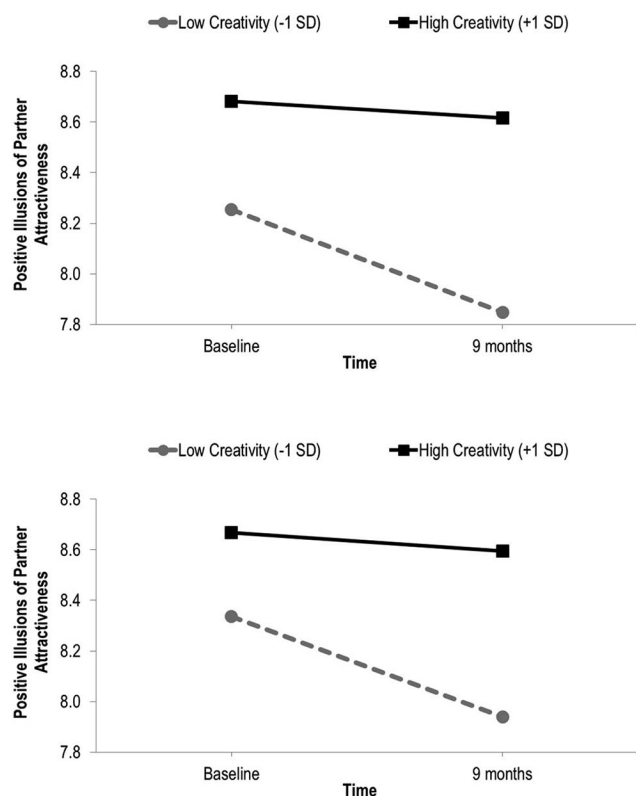


Figure 6. Study 3: The longitudinal effect of time (from baseline to approximately 9-months later) on participants' positive illusions of their partner's attractiveness (ratings of their partner's physical attractiveness controlling for participants' partner's self-ratings of his or her own physical attractiveness in the top panel or *objectively coded* partner physical attractiveness in the bottom panel) among participants high versus low in creativity.

gence in their assessment of the partner's attractiveness. The interaction of creativity and time was in the predicted direction ( $b = .07$ ,  $\beta = .04$ ,  $t(253.78) = 1.34$ ,  $p = .183$ ), although it did not reach significance in this analysis. Among less creative individuals ( $-1$  SD), partner attractiveness ratings significantly declined over time ( $b = -.14$ ,  $\beta = -.10$ ,  $t(254.14) = -2.18$ ,  $p = .030$ ). However, among more creative individuals ( $+1$  SD), partner attractiveness ratings remained relatively stable and did not significantly decline over time ( $b = -.02$ ,  $\beta = -.02$ ,  $t(254.29) = -.37$ ,  $p = .708$ ). Examined from the other direction, at intake, the effect of creativity was not significantly associated with greater partner attractiveness ratings ( $b = .26$ ,  $\beta = .14$ ,  $t(142.99) = 1.62$ ,  $p = .107$ ). In contrast, approximately 9-months later, creativity was associated with significantly greater partner attractiveness ratings ( $b = .47$ ,  $\beta = .25$ ,  $t(143.03) = 2.92$ ,  $p = .004$ ).

**Positive illusions of partner attractiveness longitudinal trajectories: Objective partner attractiveness.** In addition to examining positive illusions controlling for participants' partner's self-ratings of his or her own attractiveness, Study 3 extended beyond Study 2 by affording a test of positive illusions controlling for objective partner physical attractiveness rated by coders rather than partner's self-ratings. To examine positive illu-

sions controlling for objective ratings, we again conducted a two-step hierarchical multilevel regression analysis as in the previous positive illusions analysis. Specifically, accounting for nesting of multiple responses within individual via the same multilevel modeling growth curve procedures as for passion, we regressed ratings of partner attractiveness across intake and the three follow-up waves on creativity at intake, time, and objective partner attractiveness in the first step, and then included the interaction of creativity and time in the second step (see the bottom panel of Figure 6). Responses that occurred postbreakup were again excluded from this analysis.

This analysis yielded identical conclusions to the positive illusions analysis controlling for partner self-ratings above. That is, this analysis revealed a positive main effect of creativity on partner attractiveness ratings in the first step ( $b = .30$ ,  $\beta = .16$ ,  $t(88.03) = 2.16$ ,  $p = .034$ ), with more creative individuals reporting greater partner attractiveness overall. The main effect of time was again negative and marginally significant ( $b = -.08$ ,  $\beta = -.06$ ,  $t(260.67) = -1.75$ ,  $p = .081$ ), with ratings of partner attractiveness declining over the course of the study. The main effect of coded partner physical attractiveness on participants' ratings of that partner's attractiveness was also positive and significant ( $b = .32$ ,  $\beta = .24$ ,  $t(89.35) = 3.10$ ,  $p = .003$ ), indicating that participants also had some degree of accuracy in their reports of their partner's attractiveness. Examining the second step, the interaction of creativity and time was once again in the predicted direction ( $b = .07$ ,  $\beta = .04$ ,  $t(259.84) = 1.28$ ,  $p = .202$ ), although it again did not reach significance. Among less creative individuals ( $-1$  SD), partner attractiveness ratings significantly declined over time ( $b = -.13$ ,  $\beta = -.10$ ,  $t(260.19) = -2.14$ ,  $p = .033$ ). However, among more creative individuals ( $+1$  SD), partner attractiveness ratings remained relatively stable and did not significantly decline over time ( $b = -.02$ ,  $\beta = -.02$ ,  $t(260.33) = -.41$ ,  $p = .681$ ). Examined from the other direction, at intake, the effect of creativity was again not significantly associated with greater partner attractiveness ratings ( $b = .20$ ,  $\beta = .11$ ,  $t(146.83) = 1.26$ ,  $p = .210$ ). In contrast, approximately 9-months later, creativity was again associated with significantly greater partner attractiveness ratings ( $b = .41$ ,  $\beta = .22$ ,  $t(146.89) = 2.51$ ,  $p = .013$ ).

**Mediation by positive illusions of partner attractiveness: Partner-reported attractiveness.** Next, we tested whether greater positive illusions about partner attractiveness among more creative individuals might mediate the association of creativity with passion over time. To test this potential mechanism, we conducted mediation analyses using Model 4 of the PROCESS macro in SPSS (Hayes, 2013). Specifically, we conducted a mediation analysis in which we examined the direct and indirect pathways from creativity at intake on changes in reported passion, as measured by the passion aggregate approximately 9 months later, controlling for baseline passion according to the same passion aggregate. Partner physical attractiveness ratings from the first and second follow-up surveys at approximately 3 and 6 months (averaged) served as the potential mediator of the indirect pathway. We also controlled for intake passion to examine direct and indirect effects

of creativity on change in passion over the course of the study,<sup>20</sup> and controlled for participants' partner's self-ratings of his or her own physical attractiveness, to examine positive illusions over and above partner self-ratings, in this analysis.

As illustrated in the top panel of Figure 7, there was a significant indirect effect of baseline creativity on passion in the final lab session through positive illusions of partner attractiveness while controlling for baseline passion and partner self-rated attractiveness ( $b = .05$ ; bootstrapped  $SE = .03$ ; bootstrapped indirect effect 95% confidence interval, CI: .01, .13). According to this path analysis, baseline creativity positively and significantly predicted partner attractiveness ratings at the first and second follow-up surveys ( $b = .42$ ,  $\beta = .24$ ,  $t(83) = 2.83$ ,  $p = .006$ ) while controlling for partner self-rated attractiveness ( $b = .12$ ,  $\beta = .17$ ,  $t(83) = 1.86$ ,  $p = .067$ ) and baseline passion ( $b = .96$ ,  $\beta = .49$ ,  $t(83) = 5.57$ ,  $p < .001$ ). These greater partner attractiveness ratings then predicted higher levels of later passion ( $b = .12$ ,  $\beta = .29$ ,  $t(82) = 3.04$ ,  $p = .003$ ) while controlling for baseline passion ( $b = .37$ ,  $\beta = .46$ ,  $t(82) = 5.15$ ,  $p < .001$ ), partner self-rated attractiveness ( $b = .03$ ,  $\beta = .10$ ,  $t(82) = 1.30$ ,  $p = .198$ ), and the direct effect of baseline creativity, which no longer had a significant effect on passion at the end of the study ( $b = .07$ ,  $\beta = .10$ ,  $t(82) = 1.23$ ,  $p = .222$ ). In contrast, before controlling for the indirect pathway through partner attractiveness ratings, this direct effect of baseline creativity on passion at the end of the study had

been positive and significant ( $b = .12$ ,  $\beta = .17$ ,  $t(83) = 2.13$ ,  $p = .036$ ), while controlling for baseline passion ( $b = .49$ ,  $\beta = .61$ ,  $t(83) = 7.53$ ,  $p < .001$ ) and partner self-rated attractiveness ( $b = .05$ ,  $\beta = .15$ ,  $t(83) = 1.85$ ,  $p = .067$ ).

**Mediation by positive illusions of partner attractiveness: Objective partner attractiveness.** We also again tested for mediation by greater positive illusions about partner attractiveness, this time controlling for objective partner physical attractiveness. To test this potential mechanism, we conducted the same mediation analyses as with partner self-rated attractiveness, only controlling for objective partner physical attractiveness instead of partner self-report.

As illustrated in the bottom panel of Figure 7, there was a significant indirect effect of baseline creativity on passion in the final lab session through positive illusions of partner attractiveness while controlling for baseline passion and objective partner attractiveness ( $b = .04$ ; bootstrapped  $SE = .03$ ; bootstrapped indirect effect 95% CI [.005, .12]). According to this path analysis, baseline creativity positively and significantly predicted partner attractiveness ratings at the first and second follow-up surveys ( $b = .35$ ,  $\beta = .20$ ,  $t(85) = 2.34$ ,  $p = .021$ ) while controlling for objective partner attractiveness ( $b = .25$ ,  $\beta = .21$ ,  $t(85) = 2.40$ ,  $p = .019$ ) and baseline passion ( $b = .96$ ,  $\beta = .49$ ,  $t(85) = 5.62$ ,  $p < .001$ ). These greater partner attractiveness ratings then predicted higher levels of later passion ( $b = .13$ ,  $\beta = .30$ ,  $t(84) = 3.12$ ,  $p = .003$ ) while controlling for baseline passion ( $b = .36$ ,  $\beta = .45$ ,  $t(84) = 5.04$ ,  $p < .001$ ), objective partner attractiveness ( $b = .01$ ,  $\beta = .02$ ,  $t(84) = .82$ ,  $p = .816$ ), and the direct effect of baseline creativity, which no longer had a significant effect on passion at the end of the study ( $b = .07$ ,  $\beta = .10$ ,  $t(84) = 1.33$ ,  $p = .188$ ). In contrast, before controlling for the indirect pathway through partner attractiveness ratings, this direct effect of baseline creativity on passion at the end of the study had been positive and significant ( $b = .12$ ,  $\beta = .16$ ,  $t(85) = 2.06$ ,  $p = .043$ ), while controlling for baseline passion ( $b = .48$ ,  $\beta = .60$ ,  $t(85) = 7.43$ ,  $p < .001$ ) and objective partner attractiveness ( $b = .04$ ,  $\beta = .08$ ,  $t(85) = 1.00$ ,  $p = .319$ ).

**Physical intimacy task: Self-reported passion.** We next examined the association of baseline creativity with passion and passionate behaviors in the physical intimacy task occurring approximately 9 months later, as reported by participants. To test this association, we conducted two parallel analyses in which we regressed passion during the physical intimacy task, as reported by the main participant and his or her partner, on the main participant's baseline creativity. We additionally controlled for baseline passion as assessed by the passion aggregate approximately 9 months earlier.<sup>21</sup> This analysis revealed a significant main effect of baseline creativity on the main participants' reports of having been passionate during the physical intimacy task ( $b = .40$ ,  $\beta = .21$ ,  $t(87) = 2.15$ ,  $p = .034$ ), while controlling for their baseline

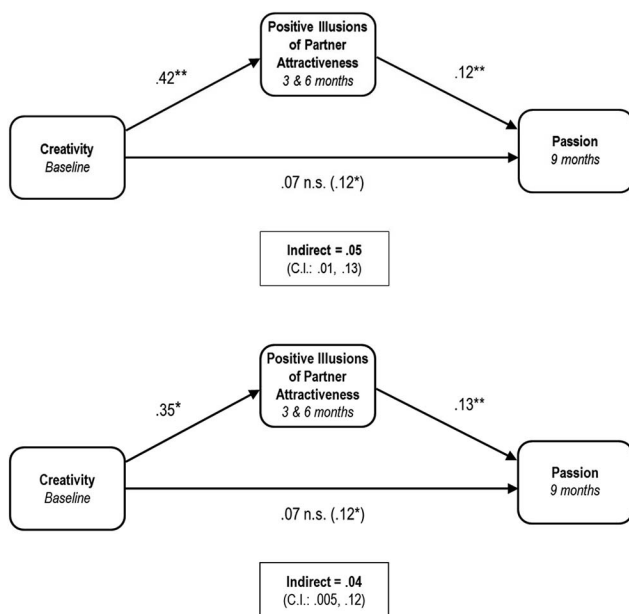


Figure 7. Study 3: Mediation analyses testing whether the effect of creativity at baseline on passion 9 months later is mediated by positive illusions of partner attractiveness at 3 and 6 months. Baseline passion and partner physical attractiveness, according to participants' partner's self-ratings of his or her own physical attractiveness (top panel) or objectively coded physical attractiveness (bottom panel), are controlled for in the analysis. Unstandardized path coefficients are shown. The direct effect in parentheses represents the association of creativity with passion when the mediator is excluded from the model. Asterisks indicate statistical significance, \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

<sup>20</sup> Path analyses conducted without controlling for baseline passion in this and the subsequent mediation analysis yielded identical conclusions, with a significant indirect effect of creativity on passion through positive illusions. Thus, positive illusions of partner attractiveness appeared to at least partially mediate both the main effect of creativity on passion and the effect of creativity on change in passion over time.

<sup>21</sup> In parallel analyses in which we did not control for baseline passion in this and all subsequent analyses, all hypotheses yielded identical conclusions. We control for baseline passion here to examine whether effects exist over and above original individual differences in passion that may have existed at intake and to better test creativity's influence on change in trajectory in passion rather than individual differences in passion.



passion ( $b = .77, \beta = .35, t(87) = 3.58, p < .001$ ). In contrast, baseline creativity did not predict the degree to which their partner felt passionate during the physical intimacy task ( $b = .27, \beta = .14, t(87) = 1.31, p = .195$ ), controlling for the main participant's baseline passion at intake ( $b = .25, \beta = .11, t(87) = 1.07, p = .289$ ), which also did not significantly predict the partner's reported passion in the task.

#### Physical intimacy task: Self-reported passionate behaviors.

We next examined the association of creativity with reported passionate behaviors in the task (i.e., kissed, kissed with tongue, made out, or touched partner in a sexually intimate way). We again conducted two parallel regression analyses in which we regressed passionate behaviors during the physical intimacy task, as reported by the main participant and their partner, on the main participant's baseline creativity while again controlling for the main participant's baseline reported passion. This analysis again revealed a significant main effect of baseline creativity on the main participants' reports of passionate behaviors during the physical intimacy task ( $b = .64, \beta = .27, t(87) = 2.69, p = .008$ ), while controlling for their baseline passion at intake ( $b = .60, \beta = .22, t(87) = 2.21, p = .030$ ). The main participant's baseline creativity also predicted the degree to which *their partner* reported that they had engaged in passionate behaviors during the physical intimacy task ( $b = .56, \beta = .25, t(87) = 2.39, p = .019$ ), while controlling for the main participant's baseline passion ( $b = .39, \beta = .15, t(87) = 1.45, p = .150$ ). Thus, while participants' creativity did not significantly influence the degree of passion the partner felt during the task, it did appear to influence the degree to which he or she recognized they had engaged in more passionate behaviors—behaviors that were likely initiated by the main participant.

**Physical intimacy task: Coded passion.** In addition to self-reported passion, we were also interested in objective measures of romantic passion. Therefore, we regressed the degree to which the main participant and partner appeared passionate during the physical intimacy task, as evaluated by independent coders, on the main participant's baseline creativity and again controlling for the main participant's baseline passion. This analysis again revealed a significant main effect of baseline creativity on how passionate the main participant seemed during the physical intimacy task ( $b = .51, \beta = .36, t(83) = 3.61, p < .001$ ), while controlling for their reported baseline passion at intake ( $b = .31, \beta = .20, t(83) = 2.03, p = .045$ ). The main participant's baseline creativity also predicted the degree to which *their partner* was observed engaging in passionate behavior ( $b = .33, \beta = .22, t(83) = 2.11, p = .038$ ), while controlling for the main participant's baseline reported passion ( $b = .41, \beta = .25, t(83) = 2.46, p = .016$ ).

**Physical intimacy task: Coded passionate behaviors.** Finally, we regressed coded passionate behaviors engaged in by the couple (i.e., kissed, kissed passionately, made out, or engaged in sexual behavior) on the main participant's baseline creativity at intake while controlling for their baseline passion at intake. This analysis also revealed a significant main effect of creativity on passionate behaviors, such that more creative individuals appeared to engage in more physically passionate behaviors, as observed by independent coders ( $b = .65, \beta = .33, t(83) = 3.17, p = .002$ ), controlling for their baseline passion at intake ( $b = .20, \beta = .10, t(83) = .92, p = .358$ ).

**Physical intimacy task: Mediation by positive illusions of partner attractiveness.** We next tested whether positive illusions of partner attractiveness might mediate the association of

creativity with coded passion in the physical intimacy task. Again using Model 4 of the PROCESS macro in SPSS (Hayes, 2013), we examined the direct and indirect pathways from creativity at intake on coded passion 9 months later. Partner physical attractiveness ratings from the first and second follow-up surveys (averaged) again served as the potential mediator of the indirect pathway and we controlled for coded partner physical attractiveness, to examine positive illusions over and above objective partner physical attractiveness.

There was a significant indirect effect of baseline creativity on coded passion through positive illusions of partner attractiveness, while controlling for objective partner attractiveness ( $b = .06$ ; bootstrapped  $SE = .04$ ; bootstrapped indirect effect 95% CI [.002, .16]). According to this path analysis, baseline creativity positively and significantly predicted partner attractiveness ratings at the first and second follow-up surveys ( $b = .40, \beta = .24, t(82) = 2.13, p = .036$ ) while controlling for objective partner attractiveness ( $b = .31, \beta = .26, t(82) = 2.49, p = .015$ ). These greater partner attractiveness ratings then predicted higher levels of coded passion of the main participant in the physical intimacy task 9 months later ( $b = .16, \beta = .20, t(81) = 1.90, p = .060$ ) while controlling for objective partner attractiveness ( $b = -.09, \beta = -.10, t(81) = -.91, p = .367$ ), and the direct effect of baseline creativity ( $b = .16, \beta = .35, t(81) = 3.21, p = .002$ ). In contrast, before controlling for the indirect pathway through partner attractiveness ratings, this direct effect of baseline creativity on coded passion in the physical intimacy task had been larger in magnitude and significance ( $b = .54, \beta = .40, t(82) = 3.69, p < .001$ ), while controlling for objective partner attractiveness ( $b = -.04, \beta = -.04, t(82) = -.41, p = .682$ ). Parallel analysis testing the indirect effect of creativity at baseline on the main participants' passion in the physical intimacy task (indirect effect  $b = .10$ ; bootstrapped  $SE = .06$ ; bootstrapped 95% CI [.006, .24]) through positive illusions of partner attractiveness was also significant.

We next examined mediation of the effect of creativity on coded and self-reported engagement in specific passionate behaviors in the physical intimacy task. Positive illusions of partner attractiveness did not significantly mediate the effect of baseline creativity on coded (indirect effect  $b = .08$ ; bootstrapped  $SE = .06$ ; bootstrapped 95% CI [-.009, .21]) or self-reported passionate behaviors (indirect effect  $b = .09$ ; bootstrapped  $SE = .06$ ; bootstrapped 95% CI [-.01, .23]) in the physical intimacy task, however. Thus, it may be the case that positive illusions of partner attractiveness may be particularly important to feelings of passion over necessarily whether these feelings of passion are enacted in specific passionate acts, perhaps because of these acts largely also involving the consent of their romantic partner, although this is highly speculative. Furthermore, when partner's self-reported physical attractiveness was controlled for instead of objective partner physical attractiveness, all indirect effects through positive illusions of partner attractiveness were significant. (We present a detailed analysis of only coded passion controlling for coded partner physical attractiveness in the interest of brevity.)

**Auxiliary analysis: Longitudinal engagement with romantic alternatives trajectories.** In addition to examining associations of creativity with passion for a romantic partner, we also wished to explore, as an auxiliary analysis, the possibility that creativity may also be increasing passionate behaviors with romantic alternatives. As with self-reported passion, and using the same multilevel

analytic procedures, we conducted a two-step hierarchical multi-level growth curve regression analysis in which we regressed self-reported engagement in emotional and physical intimacy with an alternative romantic partner across intake and the three follow-up waves on creativity at intake and time in the first step, and then included their interaction in the second step. Because responses for engagement with a romantic alternative that occurred postbreak-up were only collected once after a break-up and referred to the period before the dissolution of the relationship, we did not exclude these postbreak-up responses.

This analysis revealed a positive main effect of creativity ( $b = .37$ ,  $\beta = .16$ ,  $t(115.70) = 2.36$ ,  $p = .020$ ), with more creative individuals reporting greater emotional and physical engagement with an alternative romantic partner across the study. Thus, although creativity may increase passion in a relationship, it also appeared to be associated with greater engagement with alternatives, hinting at a stronger tendency to feel passion for romantic alternatives as well. The main effect of time on engagement with alternatives was negative ( $b = -.10$ ,  $\beta = -.06$ ,  $t(314.14) = -1.68$ ,  $p = .093$ ), with reported engagement with alternatives declining over time, although this effect was only marginally significant. The effect of creativity on engagement with alternatives was not significantly moderated by time ( $b = .10$ ,  $\beta = .05$ ,  $t(319.19) = 1.32$ ,  $p = .187$ ). Thus, creativity primarily had a main effect on engagement with alternative partners that did not change significantly over the course of the study.<sup>22</sup>

## Discussion

Replicating effects of creative personality observed in Studies 1A and 1B, Study 3 revealed that having a more creative personality was associated with greater passion over time. Among less creative individuals, passion significantly declined over time. In contrast, among more creative individuals, passion remained relatively stable over time. In short, complementing the cross-sectional findings from Studies 1A and 1B, Study 3 used longitudinal procedures to demonstrate this Creativity  $\times$  Time interaction effect.

Although results did not reveal an overall main effect of creativity on passion across all waves of the study, the effect of creativity did emerge by the end of the study. This pattern may be due in part to features of the participant sample. Because these participants were all in relationships over a year, but relatively short in duration, they were likely just at the peak of romantic passion and the beginning of passion decline, on average. Indeed, the average relationship duration was 2.45 years, approximately the average and most frequent theorized duration of peak romantic passion predicted at approximately between 1.5 to 3.0 years (Tennov, 1979).

Building on Study 2, Study 3 also provided longitudinal support for our proposed mechanism of greater positive illusions of partner attractiveness. Creative individuals viewed their partners as more physically attractive, as compared with both their partner's self-rating and objective attractiveness ratings of their partner, which in turn appeared to account for maintenance of feelings of passion over the course of the study.

Furthermore, more creative individuals exhibited greater passion toward their partner according to more objective, behavioral measures of passion. Creativity predicted greater passion in a brief physical intimacy task 9 months later, even when controlling for initial individual differences in passion at the beginning of the study. Furthermore, creativity predicted greater passion in the physical intimacy task

according to (a) participants' reports of their passion and physically passionate behaviors, (b) their partner's reports of their physically passionate behaviors, and (c) the objective behavioral coding of their and their partner's passion and physically passionate behaviors. We also found evidence that positive illusions of partner attractiveness similarly mediated effects of creativity on both their self-reported and coded passion in the physical intimacy task, although not physically passionate behaviors.

Finally, an auxiliary analysis revealed that creativity is also linked to greater romantic engagement with alternative partners, an effect that was not significantly moderated over time. These findings suggest that although creativity may be associated with increased passion for a romantic partner, it may also be associated with more broad feelings of passion generally, including toward romantic alternatives.

## Meta-Analytic Summary

Although results generally followed the predicted pattern across studies, a number of main and interaction effects of creativity fell short of statistical significance. Therefore, we felt it prudent to conduct a meta-analytic summary of the effects of creativity on romantic passion, as well as positive illusions of partner attractiveness. Such meta-analyses can also provide more precise effect size estimates of creativity and its buffering effects against the effects of time and greater relationship duration. In addition to the main studies previously presented, we also took this as an opportunity to include any potential file drawer results, by including effects from additional correlational data we collected but that did not warrant a full write-up as a primary study because of redundancy and a suboptimal participant sample. We elaborate on and briefly summarize the results of this additional sample in [Appendix S.B](#) of the supplemental materials. Including this study brought our total sample to 997 participants.

We calculated an overall meta-analytic fixed effect  $\beta$  for both the main effect of creativity on romantic passion and the interaction of creativity and risks of passion decline (e.g., relationship length and time, as described in each study) by calculating standardized  $\beta$ s for each study and weighting each  $\beta$  by the inverse of its variance. In Study 3, we calculated standardized  $\beta$ s for only the longitudinal passion aggregate over the objectively coded passion in the physical intimacy task because this assessment paralleled the other studies more closely. To calculate the meta-analytic  $SE$  for each hypothesized effect, we took the square root of the reciprocal of the sum of the weights. By dividing the meta-analytic  $\beta$  by this meta-analytic  $SE$ , we calculated a  $z$  statistic.

The meta-analytic  $\beta$ s associated with both the main and interaction effects of creativity were significant. As hypothesized, the meta-analytic main effect of creativity on romantic passion, while controlling for risk of decline assessments, was positive and sig-

<sup>22</sup> Although this romantic engagement with a top romantic alternative might be thought of as infidelity, not all participants indicated at the beginning of the study that they were in an entirely monogamous relationship. In analyses excluding participants who indicated that they or both themselves and their partner were allowed to have romantic or sexual relationships outside of their primary relationship, all hypotheses yielded identical conclusions with the exceptions of the main effect of creativity, which dropped from significant to marginally significant ( $p = .053$ ), and the main effect of time dropped from marginally significant to nonsignificant ( $p = .165$ ).

nificant,  $\beta = .13$ ,  $z = 4.18$ ,  $p < .001$ , such that greater creativity was associated with greater passion. This main effect of creativity was also significantly moderated by risk of passion decline,  $\beta = .06$ ,  $z = 2.52$ ,  $p = .012$ . According to meta-analyzed simple slopes, when risk of passion decline was low ( $-1$  SD; e.g., at earlier relationship durations or at earlier time points), creativity was only marginally significantly associated with greater romantic passion,  $\beta = .08$ ,  $z = 1.73$ ,  $p = .084$ . In contrast, when risk of passion decline was high ( $+1$  SD; e.g., at later relationship durations or at later time points), creativity was significantly associated with greater romantic passion,  $\beta = .19$ ,  $z = 4.25$ ,  $p < .001$ .<sup>23</sup>

In addition to the effect of creativity on romantic passion, we also investigated the meta-analytic effect of creativity on positive illusions of partner attractiveness in Studies 2 and 3, as well as the potential interaction effect of creativity and time. For Study 3, we used effects controlling for objective partner attractiveness because this analysis improved on analyses controlling for partner self-ratings. The meta-analytic  $\beta$ s associated with both the main and interaction effects of creativity were again significant. As hypothesized, the meta-analytic main effect of creativity on positive illusions of partner attractiveness while controlling for the main effect of time was positive and significant,  $\beta = .15$ ,  $z = 3.50$ ,  $p < .001$ , such that greater creativity was associated with greater positive illusions. This main effect of creativity was also significantly moderated by time,  $\beta = .05$ ,  $z = 2.42$ ,  $p = .016$ .<sup>24,25</sup>

## General Discussion

The present investigation identifies a novel predictor that differentiates those who maintain long-term passion from those who do not (O'Leary et al., 2012). In Studies 1A, 1B, and 3, results revealed that more creative individuals—those with more creative personalities and who engage in more creative behaviors—exhibit higher levels of passion over time. Although less creative individuals exhibit the normative tendency for passion to decline over time (Acker & Davis, 1992; Hatfield et al., 2008; Hatfield et al., 1984; Traupmann & Hatfield, 1981; Tucker & Aron, 1993), more creative individuals exhibited no such decline.

In Studies 2 and 3, we also observed evidence for one potential mechanism through which creativity might help individuals maintain romantic passion: positive illusions regarding the partner's physical attractiveness. Study 2 provided longitudinal evidence of a predictive link between dispositional creativity and greater positive illusions. In a sample of newly committed couples, who tend to be at a pivotal moment in their relationship when passion is at elevated risk of decline, greater creativity predicted higher levels of positive illusions of partner attractiveness a year later, whereas positive illusions of partner attractiveness did not predict higher levels of creativity a year later. Study 3 built on these findings by providing longitudinal evidence, in an analysis controlling for objective partner attractiveness, of a significant indirect effect of creativity on the maintenance of passion through greater positive illusions.

Study 3 leveraged a dyadic, laboratory-based physical intimacy procedure to garner behavioral evidence that creative individuals better maintain high levels of passion. Study 3 also began to test the auxiliary hypothesis that creativity might be

associated not only with increased romantic passion for a romantic partner, but also with increased romantic passion for romantic alternatives outside of the relationship. In support of this hypothesis, individuals with more creative personalities were significantly more likely to report having engaged in emotional and physical intimacy with a romantic alternative over the course of the study.

## Implications

The present research has diverse implications for research on romantic passion; we underscore two of them here. First, previous empirical work on long-term romantic passion has found that declines in romantic passion are the norm rather than the exception, suggesting a relatively grim prognosis for the notion of enduring passion (Acker & Davis, 1992; Hatfield et al., 2008; Hatfield et al., 1984; Traupmann & Hatfield, 1981; Tucker & Aron, 1993). However, a newer and growing body of research has begun to identify the circumstances under which people are more versus less likely to sustain passion over time (Aron et al., 2000; Birnbaum et al., 2016; Impett et al., 2008; Maxwell et al., 2017; Muise et al., 2013; Welker et al., 2014). The present work builds on this research by offering a systematic investigation of creativity—a novel and potentially important predictor of the maintenance of long-term passion. Also, given that the previously identified predictors of romantic passion are largely relational (e.g., engaging in novel activities with one's partner, partner responsiveness, and relationship approach motivation), the present emphasis on creativity high-

<sup>23</sup> In Studies 1A, 1B, 2, and 3, we also included a 10-item assessment of self-esteem (Rosenberg, 1965). To examine whether effects of creativity on romantic passion might instead be accounted for by self-esteem, as suggested by an anonymous reviewer, we additionally calculated meta-analytic  $\beta$ s for effects from these three studies controlling for self-esteem. The meta-analytic main effect of creativity on romantic passion was positive and marginally significant,  $\beta = .07$ ,  $z = 1.79$ ,  $p = .073$ . The meta-analytic interaction effect of creativity and risk of passion decline was also significant and in the predicted pattern,  $\beta = .05$ ,  $z = 2.20$ ,  $p = .028$ . These meta-analytic results suggest that the effects of creativity on passion are largely robust beyond any effects of self-esteem.

<sup>24</sup> Meta-analytic main effects of creativity and its interaction with time on positive illusions of partner attractiveness similarly remained significant when self-esteem was controlled for ( $\beta = .13$ ,  $z = 3.22$ ,  $p = .001$  and  $\beta = .04$ ,  $z = 2.04$ ,  $p = .041$ , respectively).

<sup>25</sup> Creativity might also influence relationship quality components other than passion (e.g., satisfaction, intimacy), either independently of its effect on passion or through it. Where possible, we report parallel analyses in Appendix S.D in the supplemental materials. Main effects of creativity on satisfaction and intimacy were fairly consistently observed across studies, although declines in satisfaction and intimacy over time were less consistently observed, as were interactions between creativity and time. Despite this, meta-analytic test statistics found significant evidence that creativity was also associated with greater relationship satisfaction and intimacy, and that this effect grew stronger with risk of passion decline for intimacy, but not satisfaction. Thus, although we were primarily interested in the effects of creativity on romantic passion, our results suggest that creativity is associated with higher relationship quality more broadly. Furthermore, as previously mentioned, it is plausible that associations of creativity with greater romantic satisfaction and intimacy are because of greater passion increasing satisfaction. We find some evidence for this in our 9-month longitudinal study, in which higher levels of romantic passion predicted greater relationship satisfaction over time (controlling for baseline satisfaction), whereas the reverse association was negligible. We summarize the results of these analyses in Appendix S.A in the supplemental materials.



lights the importance of a novel category of predictors: individual differences, especially those that may be amenable to experimental manipulation.

Second, the present work contributes to the positive illusions literature by identifying a previously unexplored predictor of positive illusions. Although we only explored effects on positive illusions of partner physical attractiveness, creativity may be an especially helpful attribute in the motivated distortion of partner attributes. Furthermore, the present findings also add to work on positive illusions of partner physical attractiveness by providing evidence that they may be especially important to the maintenance of passion in romantic relationships (Barelds & Dijkstra, 2009; Barelds et al., 2011; Barelds-Dijkstra & Barelds, 2008). To date, links between positive illusions on partner physical attractiveness and relationship outcome measures have mainly focused on “warmer,” less “hot,” measures of relationship quality (Barelds & Dijkstra, 2009; Neff & Karney, 2002). The present investigation therefore represents the first, to our knowledge, link between such positive illusions and romantic passion.

More generally, the present work helps to advance our knowledge of how specific personality dimensions relate to specific dimensions of relationship quality. Such targeted approaches might help to improve our understanding of whether specific relationship outcomes are particularly influenced by some personality characteristics over others. For instance, as conscientiousness has been found to be especially important for predicting keeping promises (Peetz & Kammrath, 2011), and we have evidence that having a creative personality is important to maintaining romantic passion, other personality constructs might be especially relevant to other specific aspects of the relationship.

### Limitations and Future Directions

Although the current studies provide evidence that creativity predicts greater passion in long-term relationships, these studies have limitations that can serve as springboards for future research. First, although our longitudinal studies provide some suggestion of the causal direction of effects, none of our studies contained an experimental manipulation of creativity or creative personality. Experimental procedures could provide more causal evidence of the effect of creativity on passion, as well as a more nuanced understanding of how creative personality might influence passion and positive illusions. Future studies, for example, might randomly assign participants to engage in creative behaviors to help differentiate whether the passion promoting effects of creativity arise from personality characteristics, engaging in a creative task, or an interaction of the two. Such interactions between personality and creative tasks seem an especially fertile area of future research. For instance, creative activities could be more rewarding for those with more creative personalities and therefore more likely to spark feelings of passion.

Whether greater passion is the result of personality characteristics or from engaging in creative behaviors also has important implications for individuals' relationship decisions. If greater passion is largely because of aspects of a creative individual's personality that cannot be increased through engaging in creative behaviors, individuals who strongly value

lifelong romantic passion might be best served by seeking out partners high in creative personalities rather than trying to foster creative experiences for themselves and their romantic partner. Furthermore, if an individual especially wanted to avoid a partner who might be at risk for engaging in infidelity, he or she might seek to avoid individuals with a highly creative personality. In contrast, if greater passion among creative individuals is largely because of engaging in creative behaviors, inducing such creative behaviors may serve as an important avenue for passion intervention.

Although we included a behavioral measure of romantic passion in Study 3, our investigation relied heavily on self-report measures of romantic passion. The use of additional behavioral or implicit measures of romantic passion would help to reduce the possibility that effects might be because of self-presentation bias. For instance, passion might be assessed using newly developed tools for assessing implicit sexual desire (de Jong, 2016), or previously developed dot-probe tasks that assess attentional adhesion to potential mates (Maner, Gailliot, Rouby, & Miller, 2007) might be revised to assess attentional adhesion to a romantic partner. Second, our investigation also relied heavily on self-report measures of creativity and personality assessments. The extent to which objectively creative individuals similarly experience greater romantic passion remains an open question. Future research might more thoroughly examine whether differences exist between simply engaging in creative activities and being especially skilled at them in their effects on romantic passion, as well as whether certain domains of creativity might have stronger effects on romantic passion than others (e.g., being a painter vs. mathematician).

Studies 2 and 3 revealed that the effect of creativity on passion may be largely because of individuals with more creative personalities being better able to see their partner as more physically attractive than he or she really is. However, this is just one many possible pathways through which creativity may help to improve romantic passion. In addition to positive illusions of physical attractiveness, more creative individuals might also be able to positively distort other attributes of their partner in ways that make him or her more alluring. Although we found little evidence that creativity predicts positive illusions systematically across a range of partner traits in Study 2, future research might identify other specific partner attributes that are enhanced by creativity. Furthermore, future investigations might also examine the psychological or perceptual processes through which individuals distort the attractiveness of their partners. Although the present results suggest that more creative individuals rate their partners as more physically attractive over time compared with their objective attractiveness, it is unclear whether this effect is because of selective attention to positive physical traits, a selective memory bias toward times when their partner looked particularly attractive or when they were younger, continual gestalt perceptual distortion while interacting with their partner, or some other mechanism.

More creative individuals may also be predisposed to create more novel and exciting social experiences for themselves and their partners—experiences known to promote romantic passion (Aron & Aron, 1986; Aron et al., 2000; Reissman, Aron, &

Bergen, 1993; Sheets, 2014).<sup>26</sup> Future studies might examine the types of activities and behaviors creative individuals engage in with their romantic partners. Similarly, creative individuals appear to be slower to habituate to various stimuli (Martindale, Anderson, Moore, & West, 1996; Martindale & Armstrong, 1974), which may translate into slower habituation to romantic partners. Assessing habituation rates among creative individuals, as it extends to their romantic partner may, therefore, also represent another interesting avenue for future research. Another potential pathway through which creativity may increase passion is suggested by recent work indicating that romantic passion and creativity may share similar biological underpinnings. fMRI studies of romantic passion have linked the experience of passion with the dopamine-reward system (Acevedo et al., 2012; Aron et al., 2005; Bartels & Zeki, 2000; Fisher, Aron, & Brown, 2005; Ortigue, Bianchi-Demicheli, Patel, Frum, & Lewis, 2010; Xu et al., 2011), which also appears to be involved in creativity (Chermahini & Hommel, 2010; Inzelberg, 2013). For instance, patients given dopamine or dopamine agonists sometimes exhibit spontaneous bursts of creativity (Inzelberg, 2013), and individuals with a higher spontaneous eyeblink rate—a marker of elevated dopamine levels—appear to also display higher levels creative performance (Chermahini & Hommel, 2010). Creativity also appears to be associated with bipolar disorder and schizophrenia, two forms of mental illness associated with excess dopamine (Jamison, 1993; Kyaga et al., 2011; Tremblay et al., 2010). Given passion and creativity's similar association with the dopaminergic system of the brain, though highly speculative, it may be that individuals higher in creativity may have chronically higher activation of this reward system, potentially predisposing them to the experience of passion. Future investigation of shared chronic activation of the dopaminergic-reward system between creativity and passion may therefore prove to be particularly intriguing direction of exploration.

Creativity is also strongly associated with openness to experience (Batey, Furnham, & Safiullina, 2010; Dollinger, Urban, & James, 2004; Furnham, 1999; Furnham, Batey, Anand, & Manfield, 2008), one of the Big Five personality traits in the dominant five-factor model of personality, which refers to the extent to which individuals tend to: be imaginative, sensitive to art and beauty, intellectually curious, behaviorally flexible, experience a depth of emotion, and possess unconventional attitudes (Costa & McCrae, 1985, 1992). Although openness to experience represents a broader construct than creativity, future research might examine whether some or all of these aspects of openness to experience are similarly related to greater passion, potentially offering further avenues for greater romantic passion. Furthermore, although we treat passion as a unitary construct across studies, recent research suggests that a dual model of romantic passion may be more appropriate for studying passion (Acevedo & Aron, 2009; Carbonneau & Vallerand, 2013; Ratelle, Carbonneau, Vallerand, & Mageau, 2013). These models distinguish between a harmonious passion or romantic love, and a more obsessive form of passion, with the former related to greater relationship quality and the latter related to diminished relationship quality. Future research might explore whether creativity is more strongly linked to harmonious or obsessive forms of passion.<sup>27</sup> More broadly, future research

could explore possible downsides of creativity for romantic relationships. Although evidence from our studies of effects of creative personality on passion over time suggests that at least some of this creativity might be channeled toward their perception of their partner, it is less clear whether creativity in everyday life would necessarily be directed toward one's romantic partner or relationship. Instead, such creativity might be more likely to be applied to an individual's work or potentially to alternative romantic partners. For instance, as we found initial evidence for in Study 3, more creative individuals tended to exhibit greater emotional and physical intimacy with romantic alternatives in addition to greater passion for their romantic partner. Further replications and experimental evidence would help to strengthen our confidence in this initial association, and would help add to our knowledge of the potential downsides of creativity. In addition, an exploration of potential mechanisms through which creativity influences engagement with romantic alternatives may also be a fruitful avenue for future research. It remains an open question, for example, whether or not individuals with more creative personalities might show similar biased perceptions of the physical attractiveness of alternatives, simply seeing the world as more beautiful generally. Finally, creative individuals may also experience greater passion in nonromantic domains, such as for their work, friends, or hobbies. Whether such potential passion for things outside of an individuals' relationship adds to feelings of passion for their romantic partner or detracts from it could also prove an interesting direction for future research.

## Conclusion

Cross-sectional and longitudinal evidence supported our hypotheses that creativity predicts greater romantic passion, especially among individuals at elevated risk for passion decline. This effect appears to be driven, at least in part, by more creative individuals viewing their partner as more physically attractive than he or she really is. Just as Marcel and Robert's creative spirits in Proust's *The Captive and the Fugitive* may have led them to be especially inclined to view Albertine or Rachel as exalted and irresistible, the present work supports the idea that creativity may foster a tendency to experience and maintain heightened feelings of romantic passion for one's romantic partner.

<sup>26</sup> We had initially hypothesized that self-expansion might drive our creativity effects, and we included some evidence consistent with this hypothesis in the initial submission of this article (see Appendix S.E in the supplemental materials for a summary). The editor and an anonymous reviewer proposed the positive illusion hypothesis, and we found it compelling. In preparing the revised manuscript, we conducted a priori analyses of that hypothesis in both studies that allowed for such a test (Studies 2 and 3).

<sup>27</sup> Although our studies did not include the optimal scales for distinguishing between these two types of passion, Study 3 afforded a test of effects on an adapted state measure of mania longitudinally (Lee, 1977). This test revealed a nonsignificant main effect of creativity ( $b = -.05$ ,  $t(118.25) = -.39$ ,  $p = .696$ ), as well as a nonsignificant Creativity  $\times$  Time interaction effect ( $b = .04$ ,  $t(313.12) = 1.14$ ,  $p = .254$ ). These null effects are consistent with the possibility that creativity might be more likely to foster harmonious than obsessive passion, but additional research is required before drawing clear conclusions.

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