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ISSN: 0965-8211 (Print) 1464-0686 (Online) Journal homepage: http://www.tandfonline.com/loi/pmem20

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Valerie Guilbault & Frederick L. Philippe

**To cite this article:** Valerie Guilbault & Frederick L. Philippe (2017) Commitment in romantic relationships as a function of partners' encoding of important couple-related memories, Memory, 25:5, 595-606, DOI: 10.1080/09658211.2016.1197943

To link to this article: <a href="https://doi.org/10.1080/09658211.2016.1197943">https://doi.org/10.1080/09658211.2016.1197943</a>

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## Commitment in romantic relationships as a function of partners' encoding of important couple-related memories

Valerie Guilbault and Frederick L. Philippe

Department of Psychology, University of Quebec at Montreal, Montreal, Quebec, Canada

#### **ABSTRACT**

The purpose of the present study was to investigate how significant couple-related events are encoded in the episodic memory of each partner of a romantic relationship and how they relate to each of these partners' level of commitment in an independent and additive fashion. Each partner of a couple reported a significant couple-related memory and rated their level of need satisfaction experienced during the event of the memory. In addition, each partner was shown his/her partner's memory and also rated their own level of need satisfaction for this event. Results showed that partners need satisfaction ratings of their own memory positively predicted their own commitment to the relationship directly (for women) as well as through their need satisfaction generally experienced in the relationship (for men). In addition, men's need satisfaction ratings of their own memory were associated with women's commitment while controlling for women's need satisfaction ratings of men's memory, but no such crosspartner effects were found for women. Overall, the findings shed light on an initial understanding of how a person's own memory of an event can impact another person's attitudes even when taking into account this other person's memory encoding of that same event.

#### ARTICLE HISTORY

Received 21 October 2015 Accepted 1 June 2016

#### **KEYWORDS**

Episodic memories; need satisfaction; couple relationship: relationship commitment

Memories are an important part of people's self and serve as its knowledge database (Conway & Pleydell-Pearce, 2000; Conway, Singer, & Tagini, 2004). While research has typically investigated how a person's memory can impact personal outcomes (such as his/ her identity or well-being), little is known about how a person's memory can relate to another person's perceptions. When involved in a romantic relationship, partners experience important events together and encode them in their own way, thus creating two unique memories for a same event. In the present study, we sought to examine the interactive effects that couple-related memories may have on partners involved in a romantic relationship. Specifically, we sought to clarify how a couple-related memory that is represented in both partners' memory system can be differentially linked to each partner's perceptions about the relationship.

#### **Episodic memories**

Episodic memories of personally significant events can have an influence on people's perceptions of themselves and of others. Some memories appear to be more chronically accessible than others (i.e., their potential for activation is higher when processing new information), which makes them more likely to be triggered by contextual cues or thought-about (Conway & Pleydell-Pearce, 2000; Rasmussen & Berntsen, 2009),

and are therefore more likely to be shared (Alea & Bluck, 2003) or used in novel situations to appraise or evaluate the current context (Philippe, Koestner, Beaulieu-Pelletier, Lecours, & Lekes, 2012; Singer & Salovey, 1993). Activated memories have been found to affect well-being, intentions, and behaviours even without people's awareness of the influence of their memories (Biondolillo & Pillemer, 2015; Kuwabara & Pillemer, 2010; Philippe et al., 2012; Pillemer, 2003). Supporting this impact of memories in the relationship domain, Alea and Bluck (2007) showed that having people remember positive autobiographical memories about their current romantic relationship led to a subsequent increase in perceived warmth towards their partner. Similarly, Bazzini et al. (2007) showed that couples reminiscing about a past experience involving shared laughter reported subsequent increases in their relationship satisfaction. Other studies have also found that the valence of a couple-related memory was related to marital satisfaction (Alea & Vick, 2010) and that such memories could predict increases in relationship quality or relationship dissolution one and a half year later (Philippe, Koestner, & Lekes, 2013).

#### Need satisfaction in memories

An influential component of episodic memories is the satisfaction of three basic psychological needs (Philippe, Koestner, Beaulieu-Pelletier, & Lecours, 2011). Self-determination theory posits that humans strive to satisfy three innate and universal psychological needs, namely autonomy, competence, and relatedness (Deci & Ryan, 2000). Autonomy is the need to feel authentic and to feel that actions come from oneself. Competence corresponds to the need to feel efficacious. Relatedness refers to the need to feel connected to others - to feel loved and cared for and to love and care for others. The satisfaction of these three innate psychological needs promotes daily as well as general well-being (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Sheldon, Ryan, & Reis, 1996). Need satisfaction within different close relationships has been found to relate to attachment security within those particular relationships (La Guardia, Ryan, Couchman, & Deci, 2000). The satisfaction of these basic psychological needs has also been investigated in memories and has been found to be a core experiential component of memories and one of the best predictor of well-being (Philippe, Bouizegarene, Guilbault, Rajotte, & Houle 2015; Philippe et al., 2011) and relationship quality (Philippe et al., 2013).

Episodic memories are thought to contribute to abstract self-knowledge, such as traits, attitudes, or self-perceptions (Conway & Pleydell-Pearce, 2000), but also to remain fairly independent of that self-knowledge (Klein, Cosmides, Tooby, & Chance, 2002; Philippe et al., 2011). One interesting aspect of need satisfaction is that it can be assessed as an experiential component of a memory, while at the same time being assessed as abstract self-knowledge within a particular context (perceived need satisfaction in one's couple) or in general (perceived need satisfaction in one's life). In that way, it is possible to test whether need satisfaction in particular memories only reflect people's self-knowledge of their need satisfaction in general or in a particular context, or if these memories have a specific effect of their own on important outcomes. For instance, need satisfaction in self-defining memories was found to contribute to well-being, over and above traits and general perceptions of need satisfaction (Philippe et al., 2011). Milyavskaya et al. (2013) have found that need satisfaction in memories could prospectively predict well-being over and above need satisfaction in the domain related to the memory (e.g., school or friends) and need satisfaction in general. Finally, need satisfaction ratings of couplerelated memories have been found to be positively associated with perceptions of relationship quality, over and above general perceptions of need satisfaction in the relationship, attachment, and other key relational variables (Philippe et al., 2013, Study 1).

Not only is need satisfaction in people's couple-related memories expected to be associated with important relational outcomes in a way that is independent from their general impression of need satisfaction in that relationship, it is also expected to relate to their partners' relational outcomes. For instance, one study (Philippe et al., 2013, Study 3) examined the effect of a single couple-related memory on both the participants' own as well as their partners'

perceptions of relationship quality. Findings revealed that participants' need satisfaction ratings of a memory involving their current partner predicted the participants' as well as their partners' perceptions of relationship quality, over and above both the participants' and partners' general perceptions of need satisfaction in the relationship. One remaining question, however, is how important couple-related events represented differently in each partner's memory system may affect each partner in two independent and additive ways that is, through the person's own encoding of the event and through his/her partner's encoding of the event. Given that memories can be shared or direct people's feelings and behaviours, their effects through one partner's subjective experience, verbal expression, or behaviours are likely to be perceived by the other partner, which is likely to also affect this other partner's perceptions of the romantic relationship but in an independent manner. As a consequence, the way a couplerelated memory is encoded in the memory system of a partner can affect his/her own relationship perceptions, but also his/her partner's perceptions of the relationship, independently of how this same memory is encoded in the memory system of this other partner.

# Gender differences in memories and in romantic relationships

A recent review suggests that, while gender differences in memories are not found in all studies, there is some evidence suggesting significant differences in the way men and women remember life events (Grysman & Hudson, 2013). Women have been found to recall more emotional memories than men (Bloise & Johnson, 2007; Davis, 1999; Grysman, 2014; Ross & Holmberg, 1992) and to rate their memories as more significant than men (Ross & Holmberg, 1992). Women's memories also seem to be characterised by more specificity (Pillemer, Wink, DiDonato, & Sanborn, 2003) and more vividness (Alea & Vick, 2010; Ross & Holmberg, 1992) than men's memories. In addition, women's vivid memories generally include more interpersonal context and are more detailed than men's (Niedźwieńska, 2003). With regard to couple-related memories, while both men and women show an increase in feelings of warmth towards their romantic partner following the recall of a personally significant couple-related memory, only women show an increase in feelings of closeness (Alea & Bluck, 2007). In addition, women's (but not men's) self-reported intensity and rehearsal of their relationship-defining memory has been associated with their own marital satisfaction (Alea & Vick, 2010).

Some gender differences have also been documented in the literature on romantic relationships suggesting that women may be more affected by their romantic relationship than men are. Women's perceived unfairness of household division was found to predict their relationship quality, but men's perceptions did not relate to their own relationship quality (Britt & Roy, 2014). Men's self-

determined motivation for sexual intercourse has been found to predict women's psychological well-being and relationship quality, but women's self-determined motivation does not predict men's well-being and relationship quality (Brunell & Webster, 2013). Also, when men report a high score of neuroticism, both they and their female partner report lower marital satisfaction whereas women's report of high neuroticism is only linked to their own marital satisfaction (Ben-Ari & Lavee, 2005). In addition, social support provided by husbands has more impact on women's marital satisfaction than wives' social support has on men's marital satisfaction (Julien & Markman, 1991). Likewise, men's support provision to their female partner has been found to predict men and women's marital satisfaction, but women's support provision does not predict men's marital satisfaction (Jensen, Rauer, & Volling, 2013). Men's coping in the relationship was found to relate to both their own and their female partner's marital quality whereas women's coping is only associated with their own marital quality (Bodenmann, Pihet, & Kayser, 2006). Together, these studies suggest that whenever cross-partner effects are examined within romantic relationships, women seem to be more affected by men's traits, attitudes, and actions, than men are affected by women's traits, attitudes, and actions. Consequently, gender differences in the association between men's and women's couple-related memories and their partners' perceptions of the relationship can be reasonably expected.

#### The present study

Although people's couple-related memories have been related to both their own and their partners' relationship quality (Philippe et al., 2013, Study 3), only the effect of one partner's memory on both partners' perceptions about their relationship was assessed. The effects of each partner's couple-related memory on both partners' perceptions have yet to be investigated. It is still unclear how people's couple-related memories are represented in both their own memory system and their partners' and how each partner's important couple-related memory interacts to predict meaningful relationship outcomes for both partners. The present study sought to examine the association of both partners' significant couple-related memories on a key relational construct - commitment.

An important feature of romantic relationship is the commitment of the partners to the relationship (Sternberg, 1986). Commitment is characterised by a long-term orientation that involves a will to maintain the relationship even during hard times (Acker & Davis, 1992). Commitment of both partners to a romantic relationship has been associated with relationship maintenance behaviours (Ramirez, 2008) such as accommodation and willingness to sacrifice (Etcheverry & Le, 2005) and relationship persistence over time (Etcheverry & Le, 2005). It has also been associated with greater relationship satisfaction and is a consistent

negative predictor of relationship dissolution across studies (Le et al., 2010). It thus constitutes a central relational variable. Therefore, in the present study, we examined the effect of partners' personally meaningful couplerelated memories on their commitment to the relationship.

Following past research (Philippe et al., 2013), need satisfaction in each partner's memory was expected to be associated with one's own commitment ratings, as well as with one's partner's commitment ratings. In addition, given that episodic memories are expected to contribute to self-knowledge structures (Conway & Pleydell-Pearce, 2000) while still preserving an independent function (Klein & Loftus, 1993; Milyavskaya, Philippe, & Koestner, 2013), these associations should be only partly mediated by perceived need satisfaction in the couple relationship. Given the documented gender differences in memories and in relationships, we also explored differences between men's and women's partner effects. Traits of extraversion, neuroticism, and agreeableness were also controlled in the present study, since those traits can influence romantic outcomes (e.g., Holland & Roisman, 2008).

#### Method

#### **Participants**

The sample included 138 people in couples (69 heterosexual couples) recruited through advertisements on a Canadian university campus and in a community journal. One couple was excluded from analyses since it was found to be a clear multivariate outlier (final n = 68 couples). This sample size is adequate to detect correlations of medium effect size (based on past research, see Philippe et al., 2013) with a power of .80. The mean age was 25.45 years (SD = 7.10) for women and 28.13 years (SD = 8.87) for men. All partners had been involved in their relationship for at least one year at the time of the study (M = 4.46)years, SD = 2.74). Length of the relationship was not associated with any study variable (rs < |.13|, ps > .28).

#### Measures

#### General measures

#### Personality traits

The Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) was used to assess extraversion, neuroticism, and agreeableness. Participants were asked to indicate how well each pair of adjectives described them on a 7-point Likert scale ranging from Strongly disagree to Strongly agree. Extraversion and neuroticism were assessed with two items each. Item inter-correlations were .53 for men's extraversion, .62 for men's neuroticism, .05 for men's agreeableness, .70 for women's extraversion, .27 women's neuroticism, and .04 for agreeableness.



#### Need satisfaction in the relationship

The Basic Need Satisfaction in Relationships Scale (La Guardia et al., 2000) was used to assess satisfaction of the three basic psychological needs postulated by selfdetermination theory (i.e., autonomy, competence, relatedness) experienced within the romantic relationship. Each need was assessed with three items and an index of need satisfaction in the relationship was computed by averaging the scores of those nine items. Participants rated each item on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Sample items include "When I am with my partner, I feel free to be who I am" (autonomy), "When I am with my partner, I feel like a competent person" (competence), and "When I am with my partner, I feel loved and cared about" (relatedness). Cronbach's alpha coefficients were .85 for men and .87 for women in this study.

#### Commitment to the relationship

Six items of the *Investment Model Scale* (Rusbult, Martz, & Agnew, 1998) were used to assess commitment to the current romantic relationship. Participants rated their commitment on a 7-point Likert scale ranging from *Not at all* to *Strongly*. A sample item is "I want our relationship to last for a very long time." Alphas were .86 for men and .80 for women.

#### **Memory measures**

#### **Episodic couple memory**

Participants and partners were asked to describe separately a significant (important) memory about their relationship. They were instructed to recall a positive event they had experienced within their current relationship that often came to their mind. They were instructed not to take too much time in choosing the perfect memory, but instead to select one that spontaneously came to mind. Instructions also stressed that they should not be preoccupied by their partners' opinion about their memory. They were asked to report what happened, where it occurred, with whom, and how they and the other people present reacted. Finally, they were instructed to provide enough details so that we could understand what happened in the memory, as if they had to tell it to someone. Instructions for the memory were drawn from past research on this topic (Alea & Vick, 2010; Philippe et al., 2013; Singer & Salovey, 1993).

#### Memory need satisfaction

Participants and partners were asked to rate the satisfaction of their three basic psychological needs in their memory: "Think back to how you experienced the event or moment you described above when it occurred and respond to each of the following statements." Ratings were made on a 7-point Likert scale ranging from -3 (strongly disagree) to +3 (strongly agree), with 0

corresponding to *Do not agree nor disagree or not applicable* – this latter option indicating that there was either an equal level of both need satisfaction and need thwarting or that the event was neither characterised by need thwarting nor need satisfaction. Two items assessed each need and the six items were averaged to create a global score of memory need satisfaction. Sample items were "I felt free to do things and to think how I wanted" (autonomy), "I felt competent or capable" (competence), and "I felt connected to one or more people" (relatedness). Alphas were .77 for men and .71 for women. Participants and partners also rated the personal valence of the event on a scale ranging from –3 (*very negative*) to +3 (*very positive*). An example of a participant's memory is

My boyfriend and I made a trip to New York. On a beautiful evening, we walked on the Brooklyn Bridge. It was so nice out there that we stopped to admire the view. At that very moment, he proposed to me. I could not believe it. Although we had not been together for a long time, I felt that the timing was right.

#### Need satisfaction in the partner's memory

All participants were presented with their partners' memory description and asked to rate their *own* level of need satisfaction when they experienced the event described by their partner's memory. Items and response scales were the same as those assessing need satisfaction in their own memory. Alphas were .63 for men and .80 for women. All participants also rated the personal valence of their partners' memory on a scale ranging from -3 (*very negative*) to +3 (*very positive*). An example of a partner's memory is

I can't get this image out of my head. When our first child was born, the doctor placed her in my girlfriend's arms. I remember the moment when she held our child for the first time. It was a beautiful moment.

#### Remembrance of the partner's memory

After being shown their partners' memory description, participants and partners were asked to what extent they recalled that event on a 7-point Likert scale ranging from *Not at all* to *Strongly*. Mean recall was 6.75 (SD = 0.63) for men and 6.71 (SD = 0.90) for women, thus ascertaining that all partners' memories were, on average, well recollected by the other partner.

#### Significance of the partner's memory

Participants were asked how significant (important) they found their own and their partners' memory on a 7-point Likert scale ranging from *Not at all* to *Strongly*. Mean significance of men's memory was 6.43 (SD = 0.85) for men and 6.26 (SD = 1.02) for women and mean significance of women's memory was 6.40 (SD = 0.79) for women and 6.24 (SD = 1.16) for men. Paired *t*-tests revealed no significant differences in perceptions of significance, t(67) = 1.17, t=1.17, t

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memory, thus confirming that men and women perceived the memory of their partners as significant as did their partners.

#### **Procedure**

For the purpose of clearly delineating the method used in the present procedure section, people who initially took part in the study will be designated as "participants", and their romantic partners, who were invited to participate afterwards, will be labelled "partners". The participants first completed an online questionnaire about their current romantic relationship. Participants completed the personality trait measure and indicated their need satisfaction in the relationship and their commitment to their partner. Next, participants were asked to describe a significant (important) memory about their relationship.

<sup>1</sup>After the memory description, participants were asked to rate the valence of their memory and were asked to rate their need satisfaction in the memory described. At the end of the questionnaire, participants were asked to provide the email of their partner. These partners were then invited to complete the same online questionnaire. At the end of the questionnaire, the partners were presented with the participants' memory description and asked to indicate their own level of need satisfaction for that event. Finally, participants were contacted again and presented with their partners' memory description and asked to rate their own level of need satisfaction experienced during the event described by their partners. The data analysed in this study are part of a larger study, which involved a second phase in laboratory. Only the first phase will be analysed in this article. Participants and partners each received \$25 in compensation for their time at the end of the second phase.

A total of 111 participants completed the first questionnaire and they all (except one participant) provided their partners' email. Of this number, 74 partners completed their questionnaire. Finally, 68 participants completed the last questionnaire and were retained for the final analyses. We tested whether couples that completed the whole study were significantly different from those who dropped out. There were no significant differences on all variables, except one. Commitment was higher for women who completed the study (M = 6.30, SD = 0.80)than for those who dropped out (M = 5.89, SD = 1.19), t (109) = 2.16, p < .05, d = .41. Effect size was medium. Commitment was not significantly different between men who completed the study (M = 6.10, SD = 0.96) and those who dropped out (M = 6.02, SD = 0.94), t(77) = 0.44, ns.

#### **Results**

#### Data analyses

Results were analysed as a function of the gender of participants. Therefore, rather than distinguishing people by "participant" and "partner", we now identify them as men and women. Reference to partners should thus be understood as any of the two romantic partners in a relationship. First, gender differences were tested with paired t-tests and correlational analyses were conducted at the dyad level between men's and women's variables.

A dyadic path analysis was conducted in Mplus 7 using the Actor-Partner Interdependence Model (APIM; Kenny, Kashy, & Cook, 2006) to test whether need satisfaction in the couple-related memory of each partner was related to their commitment. This analysis permits to control for the non-independence of the data and to investigate both actor effects (e.g., the effect of women's memory need satisfaction on their own commitment ratings) and partner effects (e.g., the effect of women's memory need satisfaction on their male partners' commitment) at the same time. Gender differences were evaluated in the model (e.g., does the association between women's memory need satisfaction and women's commitment differ from the association between men's memory need satisfaction and men's commitment?) by constraining specific paths coefficients across gender to be equal (see Kenny et al., 2006). Model fit discrepancies between the freely estimated model (original non-constrained model) and the constrained model provides information on whether the constrained coefficients differ from each other across gender (Kline, 2011). Based on Chen (2007) and Cheung and Rensvold (2002), Marsh et al. (2013) suggest not using only the chi-square, which is sample-size dependent, but to use the changes in the goodness of fit of the TLI and RMSEA. If the decrease in fit for the constrained model is less than .01 for the TLI and that the RMSEA increases by less than .015, then there is reasonable support for the constrained model.

In the path analysis, we also used bootstrapping to assess the robustness of each association. This technique consists in computerised draws of n cases with replacement from the current sample. For each draw, the association between x and y is calculated, and that for k draws (usually k = 5000). These estimates can be ordered from the lowest to the highest coefficient obtained for  $x \rightarrow y$ , from which a 95% confidence interval can be calculated. A bootstrap 95% confidence interval that does not include the value zero suggests that the effect is significant at p < .05. This technique approximates the sampling distribution of the population and therefore provides more robust coefficient estimates in small sample sizes.

Finally, it is also recommended to use bias-corrected bootstrap 95% confidence interval estimates to test for the significance of mediations and of their indirect effects in path analyses (Preacher & Hayes, 2008). Bootstrap 95% confidence intervals not including the value zero suggest that the indirect effect is significant at p < .05.

#### Gender differences

Paired t-tests revealed that there was a marginal difference between men's (M = 6.10, SD = 0.96) and women's (M =

6.30, SD = 0.80) commitment, t(67) = 1.78, p < .10, showing that women were slightly more committed than men. In addition, the difference between women's (M = 2.28, SD = 0.63) need satisfaction ratings of their own memory and men's (M = 1.99, SD = 0.88) need satisfaction ratings of their own memory was significant, t(67) = 2.27, p < .05, thus suggesting that women rated their own memory as more need satisfying than men's ratings of their own memory. The difference between men's (M = 2.07, SD = 0.74) and women's (M = 2.28, SD = 0.62) need satisfaction ratings of women's memories was marginally significant, t(67) = 1.98, p < .10, whereas the difference between men's (M = 1.99, SD = 0.87) and women's (M = 2.02, SD =0.95) need satisfaction ratings of men's memories was not significant, t(67) = -0.31, ns

#### Correlational results

Table 1 shows the means, standard deviations, and correlational results of all study variables. As it is typically the case, both women's and men's commitment were positively correlated with each other (r = .48, 95% CI [.18, .68]), as well as were women's and men's ratings of need satisfaction in the relationship (r = .24, 95% CI [.02, .45]). Correlations among memory need satisfaction ratings were also examined. Women's need satisfaction ratings of their own memory were uncorrelated with men's need satisfaction ratings of their own memory (r = .00, 95% CI [-.22, .27]). Moreover, men's need satisfaction ratings of their female partners' memory were also not correlated with women's need satisfaction ratings of their own memory (r = .10, 95% CI [-.15,.32]). In contrast, women's need satisfaction ratings of their male partners' memory were positively correlated with men's need satisfaction ratings of their own memory (r = .45, 95% CI [.05, .70]). These results suggest a perceived reciprocity about the relationship from both partners in terms of commitment and need satisfaction ratings of the relationship, but only women's need satisfaction experience of a past couple-related event seems to correspond to the need satisfaction experience of their male partners for the same event. Men's need satisfaction experience in a past event selected by their female partners seems to differ from how their female partners' experienced that event in terms of need satisfaction.

Furthermore, men's need satisfaction ratings of their own memory was positively correlated with men's need satisfaction ratings of their female partners' memory (r = .37, 95% CI [.14, .58]), but the same association was not supported for women's ratings (r = .11, 95% CI [-.07, .34]). These results suggest that men rated their own memory and their female partners' memory somewhat more similarly in terms of need satisfaction than did women. As a consequence, the correlation between men's need satisfaction ratings of their female partners' memory and women's need satisfaction ratings of their own memory was lower (r = .10) than the correlation between women's need satisfaction ratings of their male

partners' memory and men's need satisfaction ratings of their own memory (r = .45), as explained above.

#### **Dyadic path analysis**

A dyadic path analysis was tested with women's and men's need satisfaction ratings of their own memory as well as of their partners' memory as exogenous variables. Women's and men's need satisfaction ratings of the relationship and commitment to the relationship were included as endogenous dependent variables, with relationship need satisfaction modelled to mediate the associations between memory need satisfaction and commitment. Covariances were estimated between partners' need satisfaction ratings of the relationship as well as between partners' commitment to account for their non-independence. The estimation method consisted of Robust Maximum Likelihood. The estimated model was a just-identified model therefore yielding a perfect fit to the data. Figure 1 presents the standardised path coefficients of the path analysis and the results of this model are described in the following sections.<sup>2</sup> Table 2 shows the coefficients and bootstrap 95% confidence intervals for all direct effects. First, direct effects of need satisfaction ratings of memories on commitment are outlined, followed by their indirect effects on commitment through need satisfaction ratings of the relationship (mediations), and finally their dyadic (crosspartner) effects.

#### Direct effect of one's memory on one's commitment

The path analysis showed a direct and positive effect of women's need satisfaction ratings of their own memory on women's commitment independently of their need satisfaction ratings of the relationship. No direct association of men's need satisfaction ratings of their memory was found on men's commitment. An equality constraint was imposed on these paths (men's coefficient constrained to equal women's coefficient). Results revealed almost no changes in the goodness of fit, therefore suggesting that the size of the coefficients do not differ between men and women (see Table 3, C1).

Women's need satisfaction ratings of their male partners' memory did not predict women's commitment, and men's need satisfaction ratings of their female partners' memory did not relate to men's commitment. Therefore, the pattern of association between memory and commitment seems to be driven by the memory self-selected as significant, but not by the one selected by the partner.

#### Indirect effect of memories on commitment

As for the association between memory need satisfaction and relationship need satisfaction, results indicated that men's need satisfaction ratings of their own memory were associated with men's need satisfaction ratings of the relationship. On the other hand, women's need satisfaction ratings of their own memory were not associated with women's need satisfaction ratings of the relationship.

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Table 1. Means, standard deviations, and correlations between need satisfaction	is, and corre	elations bet	s paau uaam.	atisfaction ir	in memories, in the relationship and commitment	າ the relations	ship and con	nmitment.							
Variables	M	SD	-	2	3	4	2	9	7	∞	6	10	11	12	13
1. W's extraversion	4.71	1.54	1												
2. M's extraversion	4.51	1.33	13	ı											
3. W's neuroticism	4.20	1.09	05	01	ı										
4. M's neuroticism	3.04	1.30	−.24	80:	10	ı									
5. W's agreeableness	4.37	0.84	.20 <sup>⊘</sup>	12	47**	.10	ı								
6. M's agreeableness	4.33	1.00	.03	14	60:	50**	08	ı							
7. W's NS in the relationship	5.87	0.85	80:	12	33**	−.21 <sup>©</sup>	.19	.12	1						
8. M's NS in the relationship	2.67	0.85	06	.27*	—.21 <sup>©</sup>	16	03	04	.24*	ı					
9. W's commitment	6.30	0.80	11	14	15	16	90.	.01	.54**	.15	1				
10. M's commitment	6.10	96.0	20	11.	—.21 <sup>₽</sup>	60:	09	90:	.29*	.45**	**84.	1			
11. W's NS in own memory	2.28	0.63	.22	18	90:	16	60:	.19	.16	02	*53	90.	ı		
12. M's NS in own memory	1.99	0.88	25*	06	$22^{\odot}$	08	05	.18	.32**	.42**	.37**	.35**	00:	ı	
13. W's NS in partners' memory	2.02	0.95	17	18	20	10	14	.23 <sup>©</sup>	.20 <sup>©</sup>	.05	.20	02	1.	.45**	1
14. M's NS in partners' memory	2.07	0.75	10	.12	18	9.	07	60:	90.	**68:	.01	.35**	.10	.37**	01

Note: N = 68. W = Women; M = Men; NS = Need satisfaction

A model with an equality constraint on these paths revealed virtually no change in goodness of fit, thus suggesting that these coefficients are not significantly different for men and women (see Table 3, C2).

Results also showed that men's need satisfaction ratings of their female partners' memory were associated with men's need satisfaction ratings of the relationship. However, women's need satisfaction ratings of their male partners' memory were not related to women's need satisfaction ratings of the relationship. A model constraining these two paths to be equal revealed large fit discrepancy, therefore suggesting that these paths are characterised by gender differences (see Table 3, C3).

Results further showed that men's need satisfaction ratings of their own memory and of their female partners' memory had an indirect association with their own commitment through men's need satisfaction ratings of the relationship. Bias-corrected bootstrap 95% confidence interval suggested that these mediations are significant [.02; .29] and [.00; .29], respectively, p < .05. However, there was no indirect influence of women's need satisfaction ratings of their own or of their male partners' memory on women's commitment through women's need satisfaction ratings of the relationship since women's memory ratings were not associated with their need satisfaction ratings of the relationship. Bias-corrected bootstrap 95% confidence interval further suggests these mediations to be non-significant [-.02; .24] and [-.10; .09], respectively.

#### Direct dyadic (cross-partner) effect of memories

Men's need satisfaction ratings of their own memory were positively associated with women's commitment. However, there was no direct effect of women's need satisfaction ratings of their own memory on men's commitment. An equality constraint between men and women on these paths revealed large model fit discrepancy, therefore suggesting that the coefficients for this particular path differ between males and females (see Table 3, C4). Thus, how men (but not women) perceive important past events related to their current romantic relationship in terms of need satisfaction seems to be directly associated with their partners' commitment, over and above both partners' perceived need satisfaction ratings of the relationship.

#### Indirect dyadic (cross-partner) effect of memories

Results showed that men's need satisfaction ratings of their own memory were related to women's need satisfaction ratings of the relationship. Yet, women's need satisfaction ratings of their own memory were not related to men's need satisfaction of the relationship. An equality constraint between men and women on these paths revealed large model fit discrepancy, therefore suggesting that there is a significant gender difference for this relationship (see Table 3, C5). As for the association between ratings of the partners' memory and ratings of the relationship, men's

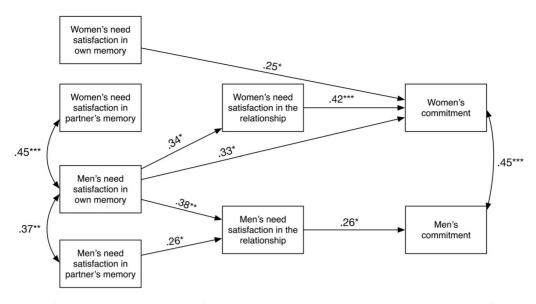


Figure 1. Path analysis of the association between need satisfaction in couple-related memories and commitment. Note: Only significant paths and covariances are reported. Standardised coefficients are shown in the figure. Exogenous covariances represent correlations between variables. \*p < .05, \*\*p < .01, \*\*\*p < .001.

Table 2. Standardised path coefficients estimated from the model (P) and bootstrap 95% confidence intervals for these estimates (95% CI).

		W's NS in the relationship		NS in the tionship	W's commitment		M's co	ommitment
Predictors	P	95% CI	P	95% CI	P	95% CI	P	95% CI
W's NS in own memory	.17	[10; .47]	04	[35; .21]	.25*	[.01; .62]	.01	[37; .48]
M's NS in own memory	.34*	[.03; .64]	.38**	[.09; .64]	.33*	[.03, .58]	.18	[05; .57]
W's NS in partners' memory	.04	[26; .23]	11	[30; .09]	06	[23; .13]	15	[36; .09]
M's NS in partners' memory	10	[37; .19]	.26*	[03; .56]	14	[36; .05]	.17	[10; .50]
W's NS in the relationship	_	_	_	_	.42**	[.19; .58]	.19	[12; .60]
M's NS in the relationship	_	-	_	_	03	[20; .16]	.26*	[.06; .63]

Note: N = 68. W: Women; M: Men; NS: Need satisfaction; CI: Confidence intervals.

Table 3. Fit indices of the constrained models across men and women.

Equality constraints	χ <sup>2</sup>	df	CFI	TLI	RMSEA
C1. W's NS in own memory → W's commitment &	0.33	1	1.00	1.17	.00
M's Ns in own memory → M's commitment					
C2. W's NS in own memory $\rightarrow$ W's NS in the relationship &	0.56	1	1.00	1.11	.00
M's NS in own memory $\rightarrow$ M's NS in the relationship					
C3. W's NS in partners' memory → W's NS in the relationship &	1.79	1	.99	.80	.11
M's NS in partners' memory $\rightarrow$ M's NS in the relationship					
C4. W's NS in own memory → M's commitment &	1.40	1	1.00	.90	.08
M's NS in own memory → W's commitment					
C5. W's NS in own memory → M's NS in the relationship &	4.90	1	.96	.01	.24
M's NS in own memory → W's NS in the relationship					

Notes: Original non-constrained model has zero degree of freedom and has therefore a perfect fit to the data with  $\chi^2 = 0$ , CFI = 1.00, TLI = 1.00, and RMSEA = .00. It is possible for the TLI and RMSEA in constrained models to yield better values of fit given that these indices incorporate a penalty for lack of parsimony (constrained models are more parsimonious, see Marsh et al., 2013).

C: Constraint; W: Women; M: Men; NS: Need satisfaction;

need satisfaction ratings of their female partners' memory were not related to women's need satisfaction ratings of the relationship nor were women's need satisfaction ratings of their male partners' memory related to men's need satisfaction ratings of the relationship.

Results further showed that men's need satisfaction ratings of their own memory were indirectly associated

with women's commitment through women's need satisfaction ratings of the relationship. Bias-corrected bootstrap 95% confidence intervals suggested this indirect effect to be significant [.01; .34], p < .05. No indirect effect of women's need satisfaction ratings of their own memory was found on men's commitment through men's need satisfaction ratings of the relationship since women's need

<sup>\*</sup>p < .05.

<sup>\*\*</sup>p < .01.

satisfaction ratings of their own memory were not related to men's need satisfaction ratings of the relationship. Bias-corrected bootstrap 95% confidence intervals suggested that this indirect effect is not significant [–.13; .07], ns. Overall, these results suggest that men's percep-

tions of important couple-related events relate to women's commitment, both directly and indirectly.

#### **Discussion**

The objective of the present study was to provide a better understanding of how memories can differentially influence both partners of a romantic relationship. Results revealed that men's need satisfaction ratings of their own memories were related to men's need satisfaction ratings of their female partners' memories, whereas women's need satisfaction ratings of their own memories was less strongly associated with their need satisfaction ratings of their male partners' memories. This result suggests that men may tend to remember different events related to their relationship as more similar than women do. In line with this finding, previous research has demonstrated that women think about their romantic relationship with more complexity than men (Acitelli & Young, 1996). In addition, women reported higher scores of need satisfaction for their own memory as compared to how men rated their female partners' memory, while women's and men's need satisfaction ratings of men's memories did not differ significantly. This latter result may suggest that women chose couple-related memories that were more need satisfying or that they tend to rate their own couple-related memories as being more need satisfying than men. Previous research showing that women rate their couple-related memories as having more personal importance than men suggests that the latter hypothesis could be more likely (Ross & Holmberg, 1992). Also noteworthy is that each partner's need satisfaction ratings of their own memory were associated with their own commitment to the relationship directly (for women and men) as well as through their own need satisfaction ratings of the relationship (for men). Of importance, men's need satisfaction ratings of their own memories were positively linked to women's commitment, over and above both partners' perceptions of need satisfaction in the relationship. However, no such cross-partner effects emerged for women.

## Memories are related to one's own commitment directly and indirectly

Partners' own memories were found to be related to their own commitment to the relationship directly (for women and men) and indirectly (for men) through their own need satisfaction ratings of the relationship. The association between couple-related memories and relationship quality is supported by previous research on memories (Alea & Vick, 2010; Philippe et al., 2013). This study adds

to the current literature by showing that need satisfaction ratings of a couple-related memory relate not only to people's ratings of their relationship, but also to their commitment to the relationship. Significant couple-related memories are likely to be chronically accessible and may be triggered by environmental cues, thought-about, or shared more frequently (Alea & Bluck, 2007; Philippe et al., 2013). The recurrent activation of need-satisfying memories about the relationship will shape partners' attitude towards the romantic relationship and result in a perception that the relationship satisfies their psychological needs, which, in turn, is likely to lead to greater commitment to the relationship. In support of this hypothesised sequence, Kuwabara and Pillemer (2010) found that the activation of a positive personal memory had an impact people's subsequent intentions and behaviour. Additionally, others have found that remembering a couple-related memory has an influence on people's perceptions of their romantic relationship (specifically, that it increases feelings of warmth for men and women, and closeness for women only; Alea & Bluck, 2007). The present study suggests that these activated memories will directly shape partners' commitment to the relationship so that significant memories that are highly need satisfying will lead to greater commitment to the relationship. For men, this relationship is also mediated by their need satisfaction ratings of the relationship such that the more need satisfying they rated their couple-related memory, the more need satisfying they perceived their relationship to be, which was associated with higher commitment to the relationship.

#### Cross-partner effects of couple-related memories

A noteworthy finding of the present study is that men's memory encoding was related to women's reported commitment directly as well as through women's need satisfaction ratings of the relationship, independently of the way women remembered the events of men's memories. This is the first study to our knowledge that shows that a person's own memory can be linked to his/her romantic partners' engagement. It may be that partners' encoding and subsequent reconstruction of important couplerelated events influence their attitudes and behaviours towards their partners. To the extent that they hold significant need-satisfying couple-related memories, their behaviour towards their partner will be shaped in a way that is consistent with how these memories are represented in their memory system, and they will therefore act with a more caring or committed attitude towards their partner. These behaviours will lead their partner to feel more committed to the relationship and perceive their needs to be more satisfied in the relationship, which will in turn also lead to more commitment. This interpretation is in accordance with past research on couple-related memories (e.g., Philippe et al., 2012, 2013). Furthermore, in the relationship literature, studies have found that people's behaviours in a

romantic relationship influence partners' satisfaction (Brock & Lawrence, 2009; Jensen et al., 2013) and commitment (Stafford & Canary, 1991; Stanley, Markman, & Whitton, 2002), and that people's perceptions of the relationship relate to their relationship satisfaction (Buunk, 2001; Neff & Karney, 2003).

In the present study, this pattern of results was only found between men's memories and women's commitment (and not between women's memories and men's commitment). This gender difference is in line with research suggesting that women may be more sensitive to their partners' behaviours in the relationship (Acitelli, 1992; Acitelli & Antonucci, 1994; Acitelli & Young, 1996; Julien & Markman, 1991), perhaps because they have been socialised to attend more to relational cues than men (Crawford & Chaffin, 1997). Correspondingly, several studies have found that men's behaviours affect women's attitudes, but not the inverse. For example, social support provided by husbands influences women's marital satisfaction more than wives' social support affects men's marital satisfaction (Julien & Markman, 1991). Men's support provision is predictive of both men's and women's marital satisfaction, whereas women's support provision does not relate to men's marital satisfaction (Jensen et al., 2013). Greater discussion of the relationship by men in an interview is associated with higher relationship satisfaction for women, whereas this effect is not observed for men (Acitelli, 1992). Overall, it seems that women's perceptions about the relationship are consistently more affected by men's attitudes and behaviours than men's perceptions about the relationship are by women's behaviours. Thus, it is possible that men's memories have a stronger effect on women than women's memories have on men. However, the postulate that the effect of memories is transmitted through behaviours toward the other partner cannot be confirmed by the present study so further research will be needed to shed more light on the specific process through which memories influence partners' attitudes and perceptions.

#### Limitations

Some limitations regarding the present study should be underscored. First, the data analysed are cross-sectional which does not allow us to determine whether partners' memories influence commitment or whether commitment affects the encoding and reconstruction of couple-related memories or both. Longitudinal studies will be required to tease out the direction of this relationship. A second limitation is that all measures are self-reported. Although need satisfaction either self-reported or coded from judges are strongly correlated (Philippe et al., 2011) and that cross-partner effects are shown in the present study, it would still be informative to show that couple-related memories can have an impact on actual couple-related behaviours. Third, this study only assessed *positive* couple-related memories. An interesting avenue for

future research would be to look at the impact of negative couple-related memories as well as positive ones on partners' commitment and investigate if results are the same across both types of memories. A fourth limitation concerns our sample. The sample consisted of highly committed couples (high means on commitment for both men and women and women who dropped out from the study were slightly lower on commitment). Therefore, results may not apply directly to couples with lower levels of commitment. Also, participants had been involved in their romantic relationship for an average of four years and a half. Results may not generalise to couples that have been together for a decade or more. In addition, the sample of this study was moderate in size. Thus, although most results are consistent with the literature (e.g., Bodenmann et al., 2006; Jensen et al., 2013; Philippe et al., 2013), results of this study should be replicated within a larger sample. Nonetheless, the present research provides initial findings showing that a person's own memories can impact another person's attitudes even when controlling for the other person's memories of the same event.

#### **Notes**

- Following Philippe et al.'s (2015) recommendations, general questionnaires were assessed before memory questionnaires to avoid priming effects from memory descriptions.
- The path analysis was conducted again while controlling for men's and women's extraversion, neuroticism, agreeableness, significance of their own and their partners' memory, remembrance of their partners' memory, or participants' age and valence of their memory and results remained virtually the same (significant paths remained significant at the same p value).

#### **Disclosure statement**

The authors declare no financial interest or benefit arising from the applications of this research.

No potential conflict of interest was reported by the authors.

#### **Funding information**

This research was supported by a Master's scholarship from the Fonds de Recherche du Québec-Société et Culture (FRQSC) awarded to Valerie Guilbault and a grant from the Social Sciences and Humanities Research Council of Canada awarded to Frederick L. Philippe [grant number 435-2012-1358].

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