MEMORIES AND FORECASTS IN CLOSE RELATIONSHIPS: A CROSS-CULTURAL INVESTIGATION

by

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Abstract

Interpersonal memories and forecasts can be influenced (or shaped) by individuals’ current relationship experiences. The present research examined cultural differences in interpersonal memories and forecasts, situated in a current/recent positive or negative interpersonal context. Significant cultural differences were observed in the negative, but not positive, interpersonal context. When a current/recent negative relationship event was made salient, Euro-Canadians brought to mind more negative memories (Studies 1 to 3), and generated more negative forecasts (Study 4), about their close other than Chinese did. This was true regardless of whether the current event was a hypothetical scenario or an actual real-life situation. Furthermore, cultural differences in interpersonal memories and forecasts in the negative condition were mediated by focal thinking, which is the extent to which individuals think about and focus on their current negative interpersonal experience (Studies 3 and 4). These negative relational memories and forecasts were associated with poorer perceived relationship quality, lower willingness to help a close other, and less forgiveness. In particular, when a close other did something that was hurtful or wrong, Euro-Canadians perceived their relationship quality to be poorer than did Chinese, partly due to the negative thoughts that came to their mind. The present findings highlighted the role of focal thinking in the way people recall and forecast interpersonal events in a current negative relational context, and further demonstrated that cultural differences in the accessibility of memories and forecasts were not attributable to potential alternative explanations such as relationship-harmony maintenance or non-linear thinking styles.
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Table of Contents

Abstract ....................................................................................................................................................... ii
Acknowledgements ......................................................................................................................................... iii
List of Figures ................................................................................................................................................ vii
List of Tables ................................................................................................................................................ viii
Chapter 1 Introduction .................................................................................................................................. 1
  Interpersonal Memories and Forecasts are Dependent on Current Experiences ........................................... 2
  Culture and the Role of Focal Thinking in Relational Memories and Forecasts ........................................... 4
  Implications of Relationship Memories and Forecasts ................................................................................. 5
  The Present Research .................................................................................................................................. 6
Chapter 2 Study One ....................................................................................................................................... 8
  Method ...................................................................................................................................................... 8
    Participants. .................................................................................................................................................... 8
    Materials and Procedure. ............................................................................................................................ 9
  Results ....................................................................................................................................................... 10
    Preliminary analyses .................................................................................................................................... 10
      Type of relationships. ............................................................................................................................... 10
      Manipulation Check ................................................................................................................................ 11
    Main analyses. .......................................................................................................................................... 12
      Proportion of negative interpersonal memories..................................................................................... 12
      Valence of overall and first recollection(s). ........................................................................................... 13
  Discussion .................................................................................................................................................. 15
Chapter 3 Study Two ...................................................................................................................................... 16
  Method ...................................................................................................................................................... 16
  Participants. .................................................................................................................................................... 16
  Materials. ..................................................................................................................................................... 16
    Focal thinking measures. ............................................................................................................................ 17
    Other potential mediator variables ........................................................................................................... 19
    Perceived relationship quality ................................................................................................................ 20
  Procedure ................................................................................................................................................... 21
  Results ....................................................................................................................................................... 22
    Preliminary analyses .................................................................................................................................... 22
      Type of relationship. ................................................................................................................................ 22
Manipulation check. .................................................................................................................. 23
Main analyses. .......................................................................................................................... 24
  Focal thinking tendencies ..................................................................................................... 24
  Self-reported focal thinking. ................................................................................................. 25
  Proportion of negative interpersonal memories ............................................................... 26
  Valence of overall recollection .......................................................................................... 27
Mediation analyses. .................................................................................................................. 28
  Focal thinking tendencies ..................................................................................................... 28
  Self-reported focal thinking. ................................................................................................. 30
  Other potential mediator variables ...................................................................................... 31
Exploratory analyses ............................................................................................................... 32
  Perceived relationship quality .............................................................................................. 32
  Willingness to help/support. ................................................................................................. 33
  Forgiveness .......................................................................................................................... 33
Discussion .................................................................................................................................. 33
Chapter 4 Study Three ............................................................................................................. 36
Method ..................................................................................................................................... 37
  Participants. .......................................................................................................................... 37
Materials and procedure. ......................................................................................................... 37
Results ..................................................................................................................................... 38
  Preliminary analyses ............................................................................................................. 38
  Type of relationship. .............................................................................................................. 38
  Manipulation check. .............................................................................................................. 39
Main analyses. .......................................................................................................................... 41
  Proportion of negative interpersonal memories ............................................................... 41
  Valence of overall recollection ......................................................................................... 42
Mediation analyses. .................................................................................................................. 43
  Relationship event judgments. ............................................................................................. 43
  Self-reported focal thinking. ................................................................................................. 43
  Other potential mediator variables ...................................................................................... 45
Relationship implications. ....................................................................................................... 45
Exploratory analyses ............................................................................................................... 46
  Perceived relationship quality .............................................................................................. 46
  Motivation to help/support. ................................................................................................. 48
List of Figures

Figure 1 The Proportion of Negative Memories Generated by Chinese and Euro-Canadians in Study 1 ..13
Figure 2 Positivity of Memories Generated by Chinese and Euro-Canadians in Study 1 .........................14
Figure 3 Examples of Matched (left) and Mis-matched (right) Stimuli .............................................18
Figure 4 Examples of Matched (Top) and Mismatched (Bottom) Stimuli ...........................................19
Figure 5 The Proportion of Negative Memories Recalled by Chinese and Euro-Canadians in Study 2 ...27
Figure 6 Positivity of all the Memories by Chinese and Euro-Canadians in Study 2 ............................28
Figure 7 The Proportion of Negative Memories Recalled by Chinese and Euro-Canadians in Study 3 ....42
Figure 8 Unstandardized Regression Coefficients for the Relationship between Culture (0 = Euro-
Canadians, 1 = Chinese) and Proportion of Negative Memories as Mediated by Self-reported Focal
Thinking in the Negative Condition in Study 3 ......................................................................................45
Figure 9 Unstandardized Regression Coefficients for the Relationship between Culture (0 = Euro-
Canadians, 1 = Chinese) and Perceived Relationship Quality as Mediated by Proportions of Negative
Memories in the Negative Condition in Study 3 ......................................................................................47
Figure 10 Unstandardized Regression Coefficients for the Relationship between Culture (0 = Euro-
Canadians, 1 = Chinese) and Proportion of Negative Forecasts as Mediated by Self-reported Focal
Thinking in the Negative Condition in Study 4 ......................................................................................57
Figure 11 Unstandardized Regression Coefficients for the Relationship between Culture (0 = Euro-
Canadians, 1 = Chinese) and Perceived Relationship Quality as Mediated by Proportions of Negative
Forecasts in the Negative Condition in Study 4 ......................................................................................59
List of Tables

Table 1 Means, Standard Deviations, and d-values for the Focal Thinking Measures Between Chinese and Euro-Canadians ................................................................. 30
Table 2 Correlations Among Memories and Relationship Implications in Study 2. ........................................ 32
Table 3 Correlations Among Memories and Relationship Implications in Study 3. ................................. 46
Table 4 Correlations Among Forecasts and Relationship Implications in Study 4. ................................. 58
Table 5 Exclusion Rate of the Four Studies Across the Positive and Negative Experimental Conditions for Euro-Canadians and Chinese. ................................................................. 74
Chapter 1

Introduction

Conflicts are nearly inevitable throughout the course of a close relationship (Brehm et al., 2002). What comes to people’s mind when they encounter challenges in their relationship? Do they tend to recall past occurrences and forecast future interactions that are in line with their present experiences? Do these recollections and forecasts of interpersonal events vary across cultures? Although there has been increasing interest in memories and forecasts in close relationships over the past few decades, most of the research has predominantly been conducted in the West (i.e., European and North American countries), with relatively little research examining these topics across cultures. The purpose of the present research was to address these questions from a cross-cultural perspective.

People’s recollections of their past and their expectancies for the future are often biased by their present experiences (Karney & Coombs, 2000; Lemay et al., 2015). Therefore, in the face of negative relationship situations, people tend to remember their relationship history, or forecast future relationship outcomes, in a negatively biased manner (e.g., recall past transgressions as more numerous or severe than they were or anticipate more negative future interactions than there will be) (Lemay et al., 2015; Loftus et al., 1995; Luchies et al., 2013; Ross, 1989). Drawing from the literature on culture and cognition, the present research examines Euro-Canadian and Chinese individuals’ interpersonal memories and forecasts. Specifically, I was interested in how the current relationship situation, either positive or negative, might influence people’s recollection and forecast of interpersonal events across cultures, and what underlying mechanisms might account for the possible cultural differences. I also explored the
interpersonal consequences of these biased cognitions, given their important implications for relationship development and maintenance.

**Interpersonal Memories and Forecasts are Dependent on Current Experiences**

How people reconstruct their past and project their future in a close relationship has a lot to do with their present experience. People’s memories of their relationship history usually reflect their current experiences, perceptions, and beliefs about their relationship (Cortes et al., 2017; Holmberg & Holmes, 1994; Holmberg & Veroff, 1991; McFarland & Ross, 1987; Patihis et al., 2019). Bower’s (1981) mood-congruence theory posits that individuals’ current mood often triggers similarly valenced memories to be accessible at the time of recall. Holmberg and Holmes’s (1994) mental model of memories also argues that people tend to draw from their current understanding of their relationship to reconstruct their past. Indeed, various daily diary and longitudinal research with dating or married couples have shown that individuals, whose current love for their partner or relationship satisfaction has declined, tend to remember their past more negatively than it was, whereas those whose current love for their partner or relationship satisfaction has improved, tend to recall their past more positively than it was (Holmberg & Holmes, 1994; Holmberg & Veroff, 1991; McFarland & Ross, 1987). Additionally, Patihis et al. (2019) demonstrated that participants who were manipulated to hold current positive appraisals of their mother recalled greater memories of love felt toward their mother during childhood than those manipulated to hold current negative appraisals.

Individuals’ current experiences can activate congruent thoughts about the future in the same way (Gilbert et al., 2002; Lemay et al., 2015; Van Boven & Loewenstein, 2003), although very few studies have directly examined this in the close relationship context. In one of the more relevant research studies, Lemay et al. (2015) examined romantic dyads’ affective and behavioral
forecasts in a daily diary study over two weeks. They found that participants’ predictions for the future tend to be similar to their current experiences. For example, when making predictions on good days, individuals forecasted more positive affect than what they would actually experience. When making predictions on bad days, however, they forecasted more negative affect than what they would actually experience. Likewise, their forecasts of their partner’s behavior showed the same pattern of results: more positive forecast than the actual behavior on good days, and more negative forecast than the actual behavior on bad days. Taken together, empirical evidence indicates that people’s reconstructions of their past and constructions of their future are often biased by their present experiences.

Memories and forecasts can be influenced by present experiences in at least two ways. First, the intensity of memories and forecasts can be altered by current experiences. For example, during a current conflict, one might remember a past relational hurt to be more hurtful than it actually was or forecast an upcoming date to be less enjoyable than it actually is. Second, the accessibility of certain types of memories and forecasts can be enhanced or impaired by current experiences. For instance, one might find it easier (or be more likely) to remember past negative experiences or forecast future negative encounters on a bad day than a regular or good day. The present research focused on the latter. Specifically, the present research investigated the accessibility of positive and negative interpersonal memories and forecasts given a current positive versus negative relationship situation.

Research on memory and forecast bias in close relationships has been largely based on European North American samples. To my knowledge, little is known about how generalizable they are to other cultures, such as East Asian cultures. The present research proposed that cultural differences might exist in people’s interpersonal memories and forecasts, and that focal
thinking (or focalism)—a cognitive tendency to focus too much on a focal event and fail to consider the influence of other events on one’s thoughts and emotions—(Wilson et al., 2000) may account for cultural differences (Lam et al., 2005).

**Culture and the Role of Focal Thinking in Relational Memories and Forecasts**

Previous research in culture and cognition has demonstrated robust cultural differences in the way people attend to, perceive and process information (see Yap et al., 2018 for a review). Holistic thinking East Asians (including Chinese, Japanese, and Koreans) tend to attend to the field as a whole, focus on the relationship between the focal object and its context, and view everything as interconnected more than analytic thinking European North Americans do. In contrast, analytic thinking individuals (including Americans and Canadians) tend to focus on the focal object and view everything as independent, detached from the context, more than holistic thinking individuals do (Nisbett, 2003; Nisbett et al., 2001). As a result, East Asians’ responses and judgments tend to be more influenced by other non-focal targets in the context, whereas European North Americans’ responses and judgments tend to be more influenced by the focal target (Chua et al., 2005; Ji et al., 2000; Kitayama et al., 2003; Masuda & Nisbett, 2001). For instance, Americans are more sensitive to changes in the focal targets than changes in the surrounding context, whereas the opposite is true for East Asians (Masuda & Nisbett, 2006). Likewise, Masuda et al. (2008) demonstrated that Japanese’s judgments of central target’s emotion were more influenced by the emotions expressed by the surrounding people’s emotion in the background than did Americans’ judgments.

These cultural-specific thinking styles appear to be particularly relevant and analogous to the process of focal thinking. Lam et al. (2005) found that holistic-thinking East Asians were less prone to focal thinking in their affective forecasts than analytic-thinking Euro-Canadians. As a
result, relative to Euro-Canadians, East Asians were less likely to overestimate the impact of a focal event, and thus predicted less extreme happiness following a positive event. In the current research, I contend that focal thinking may not only influence people’s affective forecasting, but also their cognitive responses to current situations/events. The current event can be considered as the focal target as it is the most immediate and salient. Accordingly, European North Americans may focus more on, and their responses may be more influenced by, the focal current event compared to East Asians. Indeed, there are some evidence supporting this prediction. For example, Ji et al. (2001) found that American individuals’ predictions of future events were more anchored by the given or most recent state of events than were Chinese individuals’. When predicting stock market trends and deciding whether to buy or sell stocks, Canadians were more influenced by the most recent or immediate price trend than were Chinese (Ji et al., 2008). Ji et al. (2018) have demonstrated that Chinese have a broader temporal information focus, and attend to the past and future more, compared to Euro-Canadians. Taken together, these findings suggest that the current event may have greater influence on European North Americans than on East Asians.

**Implications of Relationship Memories and Forecasts**

Negative recollections of past relationship experiences are usually associated with negative relationship outcomes. The more one ruminates about past negative experiences during a current conflict, the less constructive their conflict responses will be and the less satisfied they are with their relationship (Cortes & Wilson, 2016). Several studies have shown that individuals’ positive memories of their partners are often associated with less negative emotional responses (e.g., less hurt and anger) to a current negative relationship situation (Lemay & Neal, 2013) and
more positive behavioral responses to conflicts (e.g., increased forgiveness; McCullough et al., 1998; Rusbult et al., 1991; Van Lange et al., 1997; Wohl & McGrath, 2007).

Similarly, negative forecasts of future relationships have important implications for relationship quality and outcomes. The more optimistic or positively biased one’s expectations are, the more likely they will engage in pro-relationship efforts and persist in the presence of challenges (e.g., responding constructively during a conflict, motivated to provide support; Assad et al., 2007; Murray & Holmes, 1997; Srivasta et al., 2006). On the contrary, the more negatively biased one’s forecasts are, the more challenging it is for individuals to respond constructively and protect their relationship, in the presence of difficulties (Murray et al., 1998, 2000, 2001). This is presumably because people tend to behave and evaluate their relationship in ways that are consistent with their expectations (Baker et al., 2017; Darley & Fazio, 1980; Downey et al., 1998; McNulty & Karney, 2002; Merton, 1948; Snyder, 1984).

Therefore, I also explored how recalling and forecasting negative relational events would be associated with individuals’ relationship quality (e.g., satisfaction and trust) as well as pro-relationship behaviors (e.g., willingness to forgive, support, or help close other, etc.) in the present research.

The Present Research

The present research examined how a current relationship situation influenced Euro-Canadian and Chinese individuals’ recollection and forecast of interpersonal encounters in close relationships. Specifically, I hypothesized that in a current negative relationship situation, Euro-Canadians would recall and forecast more negative (or less positive) interpersonal events with their close other than would Chinese (Hypothesis 1). In contrast, more positive (or less negative) interpersonal memories and forecasts about their close other would come to mind for Euro-
Canadians than for Chinese in a current positive relationship situation (Hypothesis 2). To assess the generalizability of these cultural differences, I examine individuals’ relationship memories and forecasts in close relationships that involve significant others, family members, and close friends.

Additionally, I predicted that these cultural differences (if observed) would at least partially be explained by individuals’ focal thinking tendencies as Euro-Canadians would focus more narrowly on the current relationship situation than Chinese would (Hypothesis 3). Finally, I explored the implications of these interpersonal memories and forecasts on individuals’ perceived relationship quality and pro-relationship behaviors.
Chapter 2

Study One

Study 1 was an initial investigation of my hypotheses using a thought-listing procedure to assess individuals’ memories. Participants were first asked to imagine themselves in a positive or negative current relationship scenario with their close other. Then, they freely recalled past interactions between their close other and themselves in a sentence completion task. The proportion of positive versus negative memories, as well as the valence of the first memory and overall valence of all these memories served as my dependent variables.

I hypothesized that in the negative condition, Euro-Canadians would recall more negative (or less positive) interpersonal memories (in terms of proportion and valence) than would Chinese (Hypothesis 1). On the other hand, in the positive condition, Euro-Canadians would recall more positive interpersonal memories (in terms of proportion and valence) compared to Chinese (Hypothesis 2).

Method

Participants. Two hundred and twenty-four Euro-Canadian undergraduates from a Canadian University (54 men, 170 women; $M_{\text{age}} = 18.44$ years, $SD = 2.10$) and 225 Chinese undergraduates from a Chinese University (112 men and 111 women, 2 unknown; $M_{\text{age}} = 19.01$ years, $SD = 1.33$) participated in this study.\textsuperscript{1} They either received course credit or payment for

\textsuperscript{1} Under the assumption that power = .90, $\alpha = .05$, and $f = .175$ (assuming small to medium effect size from Cortes & Wilson’s (2016) finding), an a priori power analysis using G*Power3.1 (Faul et al., 2009) estimated that a total sample size of $N = 346$ is required to detect the interaction effect between culture and condition. Although the gender distribution was not balanced among Euro-Canadians, the culture X condition effect found in this study does not seem to be driven by gender. When gender was included in the main ANCOVAs as a 3rd independent variable, the interaction of culture and condition remained the same, and gender did not interact with any of the main or interaction effects, $p_s \geq .112$. Moreover, when I examined women participants only, the pattern of results remained the same. It is worth noting that the same findings were replicated across all subsequent studies even when the gender ratio for Euro-Canadians was similar to Chinese participants in those studies.
their participation. All materials were translated into Chinese and checked by bilingual researchers for equivalence. The same applied to all the other studies.

**Materials and Procedure.** Participants who were interested read the consent form and gave their consent (see Appendix A for all ethics document), and reported their age, gender and ethnicity.

There were two ostensibly unrelated parts to this study. In the first part, participants were randomly assigned to either a positive or a negative condition. In the positive condition, participants were asked to read about, and vividly imagine, a scenario in which their close other did something kind or nice for them (i.e., “You are going through a difficult and stressful time of your life. Your close other went out of his/her way to help, support, and be there for you.”). In the negative condition, participants were asked to read about, and vividly imagine, a scenario in which their close other did something that hurt or wronged them (i.e., “You have always trusted your close other. One day, you found out that he/she betrayed your trust and lied to you.”). They then indicated the initial of the close other they were picturing in their mind, and specified their relationship with this close other. This close other can be a significant other, a family member, or a close friend. In both conditions, participants were instructed to visualize themselves in the scenario in the current moment, and describe it in detail (e.g., things that would be happening, how they would be feeling, what they would be thinking or saying, and how they would be reacting in the situation) (see Appendix B). Participants then indicated how positive or negative the imagined event was from -5 (Very negative) to +5 (Very positive). The open-ended

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2 To make sure that the imagined relationship events were comparable and equally realistic across cultures, I adopted the events from a cross-cultural pilot study in which participants recalled personal experience of a happy or hurtful relationship event.
description and the valence rating were used as a manipulation check, to make sure participants followed the instruction properly and imagined an interpersonal event as instructed.

In the supposedly unrelated second part of the study, participants recalled interpersonal events that involved their close other and themselves in a sentence completion task. They were instructed to complete (up to 10) sentences with specific/concrete behaviors/actions that their nominated close other did that involved them. These could be anything—good or bad—that came to mind as long as they were things that their close other did to or for them (and not personal characteristics, such as the type of person they are/were). Each sentence began with “My close other…” (see Appendix C). After completing the sentence completion task, participants’ verbatim descriptions of each of their recalled events were re-presented to them one at a time. For each event recalled, we asked participants “How positive or negative was this event to you?” (-5 = Very negative, +5 = Very positive).

Results

Degrees of freedom varied across different analyses due to missing data.

Preliminary analyses.

Type of relationships. Four Euro-Canadians and four Chinese, who were thinking about their ex-partners, course-mates, or idol as their close others, were excluded from subsequent analyses because I am only interested in close relationships. There was a culture difference in the type of close other that participants came up with, $\chi^2(2, N = 441) = 7.01, p = .030$. Specifically, Chinese (30%) were more likely than Euro-Canadians (19%) to choose family members as their
close other. Otherwise, Euro-Canadians and Chinese were similarly likely to nominate significant other (30% versus 27%) and close friends (51% versus 43%) as their close other.³

**Manipulation Check.** Twelve Euro-Canadians and 11 Chinese failed the manipulation as they did not provide meaningful descriptions of events as instructed (e.g., left it blank, wrote irrelevant content, or insisted their close other would never do that to them, etc.). In addition, eight Euro-Canadians and 14 Chinese did not follow instructions of the sentence completion task and described personal characteristics of their close other instead of specific behaviors that their close other did to or for them.⁴ As a result, the final sample consists of 200 Euro-Canadians (44 men, 156 women; \(M_{\text{age}} = 18.45\) years, \(SD = 2.14\)) and 196 Chinese (93 men, 101 women, 2 unknown; \(M_{\text{age}} = 19.02\) years, \(SD = 1.32\)).

A 2 (Culture) X 2 (Condition) ANOVA conducted on the valence of the imagined scenario revealed that the relationship scenario in the negative condition (\(M = -3.43, SD = 1.58\)) was significantly more negative than that in the positive condition (\(M = 1.90, SD = 3.15\)), \(F(1, 392) = 448.14, p < .001, \eta_p^2 = .53\).⁵ No other effects were significant, \(F_s(1, 392) \leq 2.48, ps \geq .116\), indicating that there was no systematic differences in the valence of the imagined scenario across the two cultures. Nonetheless, because the significance value of the culture main effect

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³ Type of close relationships did not interact with any of our culture X condition interaction effect of interest, \(ps \geq .232\).

⁴ More Euro-Canadians were excluded for failing the manipulation check in the positive (9.3%) than in the negative (1.8%) condition, \(\chi^2(1, N = 220) = 6.12, p = .013\). Otherwise, no other significant differences in the dropout rates were present across the two experimental conditions, \(ps \geq .173\).

⁵ Upon a closer examination, we found that some of the participants in the positive condition were describing and focusing on the stressful and difficult time that they were going through, rather than how their close other went of the way to support and be there for them. Consequently, these participants rated the supposed positive situation negatively, and hence could potentially explain why the average rating of the positive scenario was not high.
was .116, I still controlled event valence in all subsequent analyses to be more conservative (results remained the same regardless whether the covariate was included or not).\(^6\)

**Main analyses.**

**Proportion of negative interpersonal memories.** For the sentence completion task, Euro-Canadians \((M = 7.26, SD = 2.47)\) recalled slightly more things about their close other than did Chinese \((M = 6.74, SD = 3.00)\), \(F(1, 392) = 4.04, p = .064, \eta^2_p = .01\). There was no significant condition main effect or culture and condition interaction effect on the total number of recollections, \(Fs(1, 392) \leq 2.17, ps \geq .141\).

Given that the proportion of positive and negative memories are complementary with each other,\(^7\) I only focus on one of them in the following analyses. I computed the proportion of negative memories by dividing the number of negative memories by the total number of memories described by each participant. A 2 (culture) X 2 (condition) ANCOVA on the proportion of negative memories, with event valence as a covariate, revealed significant culture and condition main effects, \(Fs(1, 391) \geq 9.57, ps \leq .002, \eta^2_p \geq .02\). These main effects were further qualified by a significant interaction between culture and condition, \(F(1, 391) = 13.01, p < .001, \eta^2_p = .03\) (see Figure 1). As expected, after imagining their close other betrayed their trust and lied to them, Euro-Canadians \((M = .35, SE = .03)\) recalled a greater proportion of negative behaviors from their close other than Chinese did \((M = .18, SE = .03)\), \(F(1, 391) =

\(^6\) It is important to note that the pattern of findings remained the same after I controlled for the event’s valence main effect as well as its higher order interaction effects (i.e., valence X condition and valence X culture interactions, neither of which was significant, \(ps > .411\)).

\(^7\) Majority of the recalled events (approx. 73 – 80%) were rated as positive (i.e., valence ratings range from +1 to +5), and approximately 15 – 25% of recalled events were rated as negative (i.e., valence ratings range from -1 to -5). The rest of the recalled events (5% or less) were rated as neutral (i.e., valence ratings of 0).
22.39, \( p < .001, \eta_p^2 = .05 \). Contrary to my prediction, however, there was no cultural difference in the positive interpersonal condition, \( F(1, 391) = .13, p = .720 \).

**Figure 1**

*The Proportion of Negative Memories Generated by Chinese and Euro-Canadians in Study 1.*

![Figure 1](image)

*Note.* Error bars are standard errors.

**Valence of overall and first recollection(s).** The overall valence of interpersonal memories was computed by averaging the valence ratings of all the events participants recalled. A 2 (culture) X 2 (condition) ANCOVA on the overall valence of memories, with event valence as a covariate, revealed significant condition and culture main effects, \( Fs(1, 391) \geq 3.97, ps \leq .047, \eta_p^2 \geq .01 \), which were further qualified by a significant interaction between them, \( F(1, 391) = 12.50, p < .001, \eta_p^2 = .03 \) (see Figure 2). Supporting Hypothesis 1, the interpersonal memories generated by Euro-Canadians (\( M = 1.28, SE = .24 \)) in the negative condition were less positive...
than those recalled by Chinese ($M = 2.48, SE = .25$), $F(1, 391) = 15.23, p < .001, \eta_p^2 = .04$. There was no cultural difference in the positive condition, $F(1, 391) = 1.19, p = .277$.

**Figure 2**

*Positivity of Memories Generated by Chinese and Euro-Canadians in Study 1.*

![Figure 2](image)

*Note.* Error bars are standard errors.

The same pattern of results was obtained for the valence of the first memory generated: the significant main effects of culture and condition, $Fs(1, 391) \geq 8.87, ps \leq .003, \eta_p^2 \geq .02$, were further qualified by a significant interaction, $F(1, 391) = 11.16, p = .001, \eta_p^2 = .03$. The first interpersonal memory generated by Euro-Canadians ($M = .88, SE = .33$) were less positive than the one generated by Chinese ($M = 3.03, SE = .35$) in the negative condition, $F(1, 391) = 26.06, p < .001, \eta_p^2 = .06$, whereas no cultural difference was found in the positive condition, $F(1, 391) = .15, p = .695$. Because findings with valence of first memory always concurred with the overall valence of memories, I will only report results for the overall valence of memories in all subsequent studies.
Discussion

Consistent with past literature, participants in the negative condition recalled more negative experiences with the close other than participants in the positive condition (Cortes & Wilson, 2016). More importantly, Study 1 offered support for Hypothesis 1: after imagining themselves in a negative scenario with their close others, Euro-Canadians recalled more negative behaviors by their close other (both in terms of proportion and valence) compared to Chinese. These findings suggest that imagining a close other’s hurtful action begets other negative memories about their close other, and that Euro-Canadians did this to a greater extent than did Chinese. This is presumably because Euro-Canadians are more anchored and biased by the focal imagined scenario than their Chinese counterparts.

Hypothesis 2, however, was not supported as there was no cultural difference in participants’ memories (both in terms of proportion and valence) after imagining their close other going out of the way to help and support them. This might be due to the ambiguous elements present in the positive manipulation. Upon closer examination, some participants (27 Euro-Canadians and 20 Chinese) in the kindness condition focused on the negative aspect of the scenario (i.e., “the stressful and difficult time that they were going through”), rather than the positive aspect (i.e., “how their close other went of the way to support and be there for them”). Consequently, cultural differences might have been masked since participants viewed the supposedly positive scenario negatively or not as positively as it could have been. When I excluded these participants from the analyses, however, the same culture and condition interaction effect was found. This suggests that it was unlikely a valid alternative explanation for the null finding in the positive condition. Nonetheless, I refined the instruction in the positive condition in the next study.
Chapter 3

Study Two

Study 2 aimed to replicate and extend findings from Study 1 by (1) examining focal thinking tendencies as a potential underlying mechanism, and (2) exploring some of the interpersonal implications of these biased relationship memories.

In line with my hypothesis and findings from Study 1, I expected Euro-Canadians to recall more negative (or less positive) relationship memories in the negative condition (Hypothesis 1), and more positive interpersonal memories in the positive condition (Hypothesis 2), compared to Chinese. In addition, I hypothesized that cultural differences in individuals’ memories would at least in part be mediated by their focal thinking tendencies (Hypothesis 3). Finally, I examined whether relatively negative interpersonal memories would be associated with poorer perceived relationship quality and more negative relationship sentiments.

Method

Participants. Two hundred and fifty one Euro-Canadian undergraduates from a Canadian University (44 men, 205 women; \(M_{age} = 22.08\) years, \(SD = 7.01\)) and 222 Chinese undergraduates from a Chinese University (36 men and 186 women, 2 unknown; \(M_{age} = 19.81\) years, \(SD = 1.97\)) participated in this study.8

Materials.

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8 Under the assumption that power = .90, \(\alpha = .05\), and \(f = .16\) (based on effect size of \(\eta^2_p = .025\) from Study 1), an a priori power analysis using G*Power3.1 (Faul et al., 2009) estimated that a total sample size of \(N = 412\) is required to detect the interaction effect between culture (Chinese vs. Canadians) and condition (Positive vs. Negative).
**Focal thinking measures.** Participants’ focal thinking tendencies were first assessed using Masuda et al.’s (2008) emotion judgment task. In this task, they saw pictures of a cartoon character in the context of a group of four other cartoon characters (see Figure 3 for examples). Each picture illustrated one focal target person in the middle of the picture expressing one of two emotions (happiness or sadness) with four non-focal targets in the background expressing either the same emotion as the focal target (matched) or a different emotion from the focal target (unmatched). There are four versions for each focal target person—two genders (male and female) and two ethnicities (Caucasian and Asian)—resulting in a total of 16 images. Participants learned that the task was to examine whether facial expressions of the cartoon characters in the pictures were sufficiently clear to be used in future educational books. They were asked to judge how happy or sad the focal target person was on an 11-point scale (-5 = Very sad, +5 = Very happy). The discrepancies in emotion judgments between matched and mismatched stimuli indicates the extent to which participants’ perception of the focal targets’ emotions were influenced by the surrounding non-focal targets’ emotions. Specifically, smaller discrepancies between matched and mismatched judgments imply stronger focal thinking. At the end of this emotion judgment task, participants also reported the extent to which they felt the background targets’ emotional expression affected their judgments of the central targets’ emotion on a 7-point scale (1 = Not at all, 7 = Very much).
Following Masuda et al.’s (2008) emotion judgment task, I developed a relationship judgment task—as another measure—to assess participants’ focal thinking tendencies in a context that is more closely related to the current study. It consisted of a set of cartoon pictures of couples in various positive or negative relationship situations that happened along the temporal dimension (i.e., present, past, and future). In this task, participants saw pictures of a current relationship event embedded in the context of four other relationship events that either happened in the past or may happen in the future (see Figure 4 for examples). Each picture illustrated one positive or negative focal current event with four non-focal past or future events that were either of the same valence as the focal current event (matched) or different valence from the focal current event (mismatched). This resulted in a total of eight stimuli. Participants were asked to judge how positive or negative the current relationship event was on an 11-point scale (−5 = Very negative, +5 = Very positive). The aim of this relationship judgment task was to assess the extent to which other past or future relationship events affected one’s judgment of a current relationship event. Therefore, the greater the discrepancies in judgments between the matched and mismatched sets, the more their perceptions of the focal current event were

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9 In a separate pretest, each of the relationship events was presented individually with a separate group of Euro-Canadians and Chinese participants to ensure they are judged to be similarly positive or negative across cultures.
influenced by the non-focal past or future events. We expected Euro-Canadians’ judgments to be more focused on, and anchored by, the focal current event, and less influenced by the other non-focal past and future events compared to Chinese’s judgments. At the end of this task, participants also reported the extent to which the past/future events affected their judgments of the present event on a 7-point scale (1 = Not at all, 7 = Very much).

**Figure 4**

*Examples of Matched (Top) and Mismatched (Bottom) Stimuli.*

*Other potential mediator variables.* Although the current research examined focal thinking as the underlying mechanism for the predicted cultural differences in interpersonal memories, two other potential alternative explanations warrant some investigation. First, compared to Euro-Canadians, Chinese are generally more motivated to maintain relationship
harmony and interpersonal affiliation, and thus may be more likely to display relationship-serving bias in their memories and forecasts (Endo et al., 2000; Markus & Kitayama, 1991; Song & Wang, 2014). Second, cultural differences in individuals’ lay theories of change may potentially explain the expected cultural variations in individuals’ memories as well. Chinese, who tend to endorse the belief that events/people change non-linearly over time, may be less likely to assume continuity of their current relationship experience compared to Euro-Canadians, who tend to believe that events/people generally remain stable or change linearly over time (Ji, 2005, 2008; Ji et al., 2001). As such, Chinese individuals’ recollection of the past may be less in line with their current experience than do Euro-Canadians’.

Accordingly, these two factors were examined in this study. Participants’ motivation to maintain relationship harmony was assessed using two items: (a) “How important is it for you to maintain a harmonious relationship with your close other?” (1 = Not important at all; 7 = Very important), and (b) “How much do you value relationship harmony with your close other?” (1 = Not at all; 7 = Very much). Participants’ non-linear thinking styles were assessed using Ji et al.’s (2001) change prediction tasks. They were presented with four different hypothetical scenarios and asked to predict the likelihood of an opposite event happening. For example, “Two senior students in university have been dating each other for two years. What is the percentage likelihood that they will break up after graduation?”

**Perceived relationship quality.** Participants’ perception of their relationship with their nominated close other was measured using an adapted version of the Satisfaction and Trust subscales of the Perceived Relationship Quality Scale (Fletcher et al., 2000; see Appendix D). Sample items include “How satisfied are you with your relationship with <initial of their close other> right now?” and “How much do you trust <initial of their close other> right now?”
($\alpha_{\text{Canadian}} = .939$ and $\alpha_{\text{Chinese}} = .929$). Participants answered these items on a 7-point scale ($1 = \text{Not at all}; 7 = \text{Very much}$). The higher the ratings, the better they perceived their relationship quality to be (i.e., more satisfied with their relationship and greater trust with their close other).

**Procedure.** Participants completed the questionnaire online.\(^{10}\) After obtaining their consent, they reported their age, gender and ethnicity. Participants then completed the emotion judgment and relationship event judgment tasks that assess their focal thinking tendencies, questions that assess their motivation to maintain relationship harmony, and the change prediction task that assess linear versus non-linear thinking styles.

Next, participants were randomly assigned to the same positive or negative condition as in Study 1. To ensure that the positive scenario was unambiguously positive, the description of the relationship scenario in the positive condition was limited to “Your close other went out of his/her way to help, support, and be there for you”. Participants then indicated the initial of their close other and specified their relationship with this close other as in Study 1. To examine (and potentially control for) the possibility of systematic differences in relationship closeness across cultures and condition, participants also indicated how close they were to their close other ($1 = \text{Not close at all}; 7 = \text{Very close}$). Next, participants reported how positive or negative ($-5 = \text{Very negative}; +5 = \text{Very positive}$) the imagined scenario was, and reported how happy or unhappy ($-5 = \text{Very unhappy}; +5 = \text{Very happy}$) they would be feeling in the imagined scenario.

As in Study 1, participants’ memories about their close other were assessed using a sentence completion task. For each of the recollections, other than reporting the valence of the event, participants also indicated how easy or difficult it was to recall the event ($1 = \text{Very easy}, \ldots$.

\(^{10}\) Unlike Study 1, this and the following studies are all completely done online due to the COVID19 pandemic.
10 = *Very difficult*). After the sentence completion task, participants reported the extent to which they were thinking about the imagined relationship scenario as they were recalling close other’s past deeds in the sentence completion task (0 = *not at all*, 10 = *absolutely*). This served as another focal thinking measure that is more relevant to the task at hand.

Finally, to explore the potential relationship implications that may be associated with their biased memories, participants’ current appraisal of their relationship was measured using the perceived relationship quality scale. Participants were also asked to respond to various hypothetical relationship scenarios: (1) “Suppose your close other is going through a difficult and stressful time right now. How willing are you to go out of your way to help/support them in this situation?” (1 = *Not willing at all*; 7 = *Completely willing*), and (2) “Suppose your close other betrayed your trust and lied to you right now. How long (number of days) would it take you to forgive them in this situation?”

**Results**

Degrees of freedom varied across different analyses due to missing data.

**Preliminary analyses.**

*Type of relationship.* Because I am interested in close relationships, eight Euro-Canadians and 11 Chinese, who were thinking about their ex-partners, course-mates, or idol as their close others, were excluded from subsequent analyses as in Study 1. Indeed, these participants indicated they are not close to their nominated “close others” (their closeness rating was below mid-point; ranged between 1 and 3 on the 7-point scale). There was a significant difference in the type of close relationships Euro-Canadians and Chinese thought about, \( \chi^2(2, N = 446) = 42.66, p < .001 \).\(^\text{11}\) Euro-Canadians were more likely than Chinese to choose significant

\(^{11}\) Types of relationship did not interact with any of our culture X condition interaction effect of interest, *ps ≥ .375*.\(^\text{11}\)
other (42% vs. 17%) as their close other, whereas Chinese were more likely than Euro-
Canadians to choose family members (31% vs. 12%) as their close other. Individuals from both
cultures were similarly likely to choose close friends as their close others (46% of Euro-
Canadian vs. 52% of Chinese).

A 2 (Culture) X 2 (Condition) ANOVA on the closeness ratings showed that Euro-
Canadians (\(M = 6.27, SD = 1.25\)) reported greater closeness to their nominated close other than
did Chinese (\(M = 5.81, SD = 1.20\)), \(F(1, 442) = 15.22, p < .001, \eta^2 = .03\). Participants who
imagined a current positive relationship event (\(M = 6.30, SD = .98\)) also reported greater
closeness to their nominated close other than participants who imagined a current negative
relationship event (\(M = 5.78, SD = 1.44\)), \(F(1, 442) = 19.81, p < .001, \eta^2 = .04\). Nevertheless,
the culture and condition interaction effect was not significant, \(F(1, 442) = 1.43, p = .232\).\(^{12}\)

**Manipulation check.** Three Euro-Canadians and three Chinese did not provide
meaningful descriptions of events as instructed (e.g., wrote irrelevant information or insisted the
imagined event would never happen, etc.). Additionally, 22 Euro-Canadians and 33 Chinese did
not follow instructions of the sentence completion task and described personal characteristics of
their close other instead of specific behaviors that their close other did to or for them.\(^{13}\) As a
result, the final sample consists of 210 Euro-Canadians (34 men and 174 women, 2 other; \(M_{age} =

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\(^{12}\) Results remained the same when closeness ratings were included as a covariate in all the subsequent analyses,
except for proportion of negative memories: the simple effect of culture in the positive condition appeared to be
significant as well, \(p = .025\). That is, Euro-Canadians also recalled a greater proportion of negative things about their
close other in the positive condition than Chinese did.

\(^{13}\) Significantly more Chinese (15.6%) than Euro-Canadians (9.4%) were excluded for failing the sentence
completion check, \(\chi^2(1, N = 446) = 4.05, p = .044\). However, the exclusion rate for failing the sentence completion
task did not differ significantly across the two experimental conditions for Euro-Canadians or Chinese, \(p_s \geq .497\).
22.20 years, \( SD = 7.05 \) and 175 Chinese (26 men and 149 women; \( M_{\text{age}} = 19.79 \) years, \( SD = .91 \)).

A 2 (Culture) x 2 (Condition) ANOVA indicated that participants in the positive condition (\( M = 3.87, SD = 2.05 \)) indeed imagined a significantly more positive scenario than participants in the negative condition did (\( M = -3.73, SD = 1.64 \)).\(^{14}\) \( F(1, 381) = 1580.40, p < .001, \eta^2_p = .81 \). Similarly, participants also reported feeling significantly more happy in the positive (\( M = 3.72, SD = 2.24 \)) than in the negative condition (\( M = -3.97, SD = 1.66 \)), \( F(1, 381) = 1432.35, p < .001, \eta^2_p = .79 \). No other effects were significant, \( F_s(1, 381) \leq 2.09, ps \geq .149 \).

These findings suggest that the valence of, and participants’ feeling about, the imagined scenario did not vary across cultures. Nonetheless, following Study 1, I controlled for event’s valence and participants’ feeling in all subsequent main analyses (findings did not change when I did not control for these covariates).\(^{15}\)

**Main analyses.**

**Focal thinking tendencies.** As expected, in the emotion judgment task, Chinese (\( M = 3.59, SD = 1.92 \)) reported that the non-focal background targets’ emotional expressions affected their judgments of the focal targets to a greater extent than did Euro-Canadians (\( M = 3.00, SD = 1.71 \)), \( F(1, 383) = 9.93, p = .002, d = .33 \). To further examine whether these self-reports concurred with participants actual emotional judgments, the average absolute discrepancies between matched and mismatched judgments were computed for each participant. Consistent

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\(^{14}\) Compared to Study 1, the higher positive valence ratings in the positive condition in Study 2 suggests that the positive manipulation is now unambiguously positive.

\(^{15}\) When I controlled for the two covariates’ main effect as well as their higher order interaction effects (none were statistically significant, especially after controlling for multiple comparison, \( ps \geq .051 \)), the pattern of findings remained the same, except that the culture X condition interaction effect on memory valence became non-significant, \( p = .553 \).
with their self-reports, the discrepancies in judgments were greater for Chinese ($M = 1.21, SD = .73$) than for Euro-Canadians ($M = .71, SD = .43$), $F(1, 383) = 69.45, p < .001, \eta^2_p = .03$, suggesting that Chinese’s judgments of the focal targets were more influenced by the non-focal background targets than Euro-Canadian’s judgments were.

The absolute discrepancies in the valence ratings between matched and mismatched stimuli on the relationship judgment task—another measure of focal thinking tendencies—were also averaged for each participant. Consistent with my prediction, Chinese ($M = 4.78, SD = 1.63$) reported that past and future relationship events affected their judgments of the present relationship event to a greater extent than did Euro-Canadians ($M = 3.89, SD = 1.97$), $F(1, 380) = 22.94, p < .001, \eta^2_p = .03$, such that their actual valence ratings: Chinese’s judgments ($M = 3.14, SD = 2.00$) of the current relationship event were more influenced by the past and future relationship events than Euro-Canadians’ judgments were ($M = 1.31, SD = 1.31$), $F(1, 383) = 116.80, p < .001, \eta^2_p = .11$.

Taken together, these findings supported my prediction that Chinese tend to display lower focal thinking tendency compared to Euro-Canadians.

**Self-reported focal thinking.** Participants reported the extent to which they were thinking about the imagined relationship scenario while completing the sentence task. A 2 (Culture) X 2 (Condition) ANCOVA, with event’s valence and participants’ feeling as covariates, revealed a significant condition main effect only, $F(1, 379) = 11.83, p = .001, \eta^2_p = .03$, such that participants in the positive condition ($M = 6.99, SE = .39$) reported that they thought about the imagined scenario more than participants in the negative condition ($M = 4.49, SE = .41$).

Unexpectedly, the main effect of culture was not significant, $F(1, 379) = .26, p = .610$, nor was the interaction between culture and condition, $F(1, 379) = 1.85, p = .174$. 

25
Proportion of negative interpersonal memories. On average, Chinese ($M = 7.52, SD = 2.85$) recalled more experiences with their close other than did Euro-Canadians ($M = 6.82, SD = 2.61$), $F(1, 381) = 6.21, p = .013, \eta_p^2 = .02$. Again, I focused on the proportion of negative interpersonal memories and ran a 2 (Culture) X 2 (Condition) ANCOVA, with event’s valence and participants’ feeling as covariates, on it. The main effects of culture and condition, $Fs(1, 379) \geq 9.45, ps \leq .002, \eta_p^2 \geq .02$, and the interaction between them were all significant, $F(1, 379) = 6.02, p = .015, \eta_p^2 = .02$ (see Figure 5). As expected, after imagining a close other’s wrongdoing, Euro-Canadians ($M = .36, SE = .04$) recalled a greater proportion of negative behaviors from their close other than Chinese did ($M = .19, SE = .04$), $F(1, 379) = 21.70, p < .001, \eta_p^2 = .05$. In contrast, there was no cultural difference in the positive condition, $F(1, 379) = 1.61, p = .205$, which replicated Study 1’s results but was not consistent with Hypothesis 2.16

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16 Majority of the recalled events (approx. 76 – 81%) were positive (i.e., valence ratings range from +1 to +5), and approximately 13 – 23% of recalled events were negative (i.e., valence ratings range from -1 to -5). The rest of the recalled events (6% or less) were rated as neutral (i.e., valence ratings of 0).
Figure 5

The Proportion of Negative Memories Recalled by Chinese and Euro-Canadians in Study 2.

Note. Error bars represent standard errors.

Valence of overall recollection. A 2 (Culture) × 2 (Condition) ANCOVA on the averaged valence ratings of all the recalled events, with event’s valence and participants’ feeling as covariates, showed significant main effects of culture and condition, $F$s(1, 379) ≥ 6.85, $ps$ ≤ .009, $\eta_p^2$ ≥ .02, and a significant interaction between them, $F$(1, 379) = 4.41, $p$ = .036, $\eta_p^2$ = .01 (see Figure 6). Supporting my hypothesis, after imagining their close other betrayed their trust and lied to them, the overall valence of Euro-Canadians’ recollections about their close other ($M$ = 1.23, $SE$ = .35) were less positive than Chinese’s ($M$ = 2.32, $SE$ = .34), $F$(1, 379) = 10.82, $p$ =
.001, $\eta_p^2 = .03$. There was, again, no cultural difference after imagining their close other went out of the way to help and support them, $F(1, 379) = .14, p = .713$.\(^{17, 18}\)

**Figure 6**

*Positivity of all the Memories by Chinese and Euro-Canadians in Study 2.*

![Bar chart showing positivity of memories by Chinese and Canadians in positive and negative conditions.](chart)

*Note.* Error bars represent standard errors.

**Mediation analyses.**

**Focal thinking tendencies.** Given that cultural differences only emerged in the negative condition, I examined the indirect effect of culture on memory through participants’ focal thinking tendencies in the negative condition only. Using Hayes’s (2018) PROCESS SPSS

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\(^{17}\) The valence of participants’ first recollection showed the same pattern of results. As hypothesized, the main effects of culture and condition, $F$s$(1, 379) \geq 3.95, ps \leq .048, \eta_p^2 \geq .01$, were qualified by a significant interaction between them, $F(1, 379) = 5.54, p = .019, \eta_p^2 = .01$. In the negative condition, the valence of the first memory about their close other was less positive for Euro-Canadians ($M = 1.59, SE = .45$) than that for Chinese ($M = 3.03, SE = .44$), $F(1, 379) = 11.11, p = .001, \eta_p^2 = .03$. There was no cultural difference in the positive condition, $F(1, 379) = .002, p = .961$.

\(^{18}\) The overall ease of recall of positive and negative interpersonal memories were computed by averaging the respective ease of recall ratings. A 2 (culture) X 2 (condition) X 2 (within participant factor: memory type) mixed ANCOVA conducted on the ease of recall of interpersonal memories indicated that it was more difficult to recall negative ($M = 3.14, SE = .22$) than positive ($M = 2.50, SE = .17$) memories, $F(1, 147) = 10.22, p = .002, \eta_p^2 = .07$. No other effects were significant, $F$s$(1, 147) \leq 2.49, ps \geq .117$. 

28
macro for model 4, I entered culture (0 = Euro-Canadians, 1 = Chinese) as the predictor, proportion of negative memories as the dependent variable, and discrepancies in emotion and relationship events judgments (i.e., focal thinking tendencies) as the mediator in two separate mediation analyses, controlling for the manipulated event’s valence and participants’ feeling. It should be noted that I multiplied the discrepancies in judgments—in all mediation analyses—by -1 so that greater number corresponded to stronger focal thinking for a more intuitive and consistent interpretation of the results.

As expected, Euro-Canadians showed stronger focal thinking than Chinese as measured by the emotion judgment task, $b = -0.56$, $t(186) = 6.05$, $p = .001$ (see Table 1 for the respective Ms and SDs). Focal thinking, however, was not significantly associated with the proportion of negative memories, $b = -0.02$, $t(186) = .44$, $p = .660$. Thus, the indirect effect of culture on memory through focal thinking in the emotion judgment task was not significant: 95% bias-corrected confidence intervals of both indirect effects based on 10,000 bootstrap samples contained zero, 95% CI [-.03, .05].

Likewise, although Euro-Canadians showed stronger focal thinking than Chinese as measured by the relationship judgment task, $b = -2.16$, $t(186) = 8.96$, $p = .001$ (see Table 1), the association between focal thinking and proportion of negative memories did not reach statistical significance, $b = -0.03$, $t(186) = 1.77$, $p = .078$. Thus, the indirect effect of culture on memory through individuals’ focal thinking tendencies was not significant: 95% bias-corrected confidence intervals of both indirect effects based on 10,000 bootstrap samples contained zero, 95% CI [-.01, .13]).
The pattern of results were the same when overall valence of memories and valence of first memory were included as dependent variables in the mediation analyses.\textsuperscript{19}

**Self-reported focal thinking.** Although participants’ self-reported focal thinking in the negative condition was not predicted by culture in this study ($t(186) = -0.52$, $p = .604$; see Table 1), it was significantly associated with the proportion of negative memories as expected, $b = .05$, $t(186) = 9.10$, $p < .001$. The more participants reported thinking about the current negative relationship scenario, the more negative memories about their close other they brought to mind. Nevertheless, the indirect effect of culture on proportion of negative memories through their self-reported focal thinking was not significant in this study, 95\% CI [-.07, .04]. The same was true with overall valence of memories and valence of first memory.

**Table 1**

*Means, Standard Deviations, and d-values for the Focal Thinking Measures Between Chinese and Euro-Canadians.*

<table>
<thead>
<tr>
<th>Focal Thinking Measures</th>
<th>Chinese</th>
<th>Euro-Canadians</th>
<th>Cohen’s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td><strong>Emotion judgment task</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reports</td>
<td>3.59</td>
<td>1.92</td>
<td>3.00</td>
</tr>
<tr>
<td>Discrepancies in judgments</td>
<td>1.21</td>
<td>.73</td>
<td>.71</td>
</tr>
<tr>
<td><strong>Relationship judgment task</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reports</td>
<td>4.78</td>
<td>1.63</td>
<td>3.89</td>
</tr>
<tr>
<td>Discrepancies in judgments</td>
<td>3.14</td>
<td>2.00</td>
<td>1.31</td>
</tr>
<tr>
<td><strong>Thinking about current situation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reports</td>
<td>5.72</td>
<td>3.35</td>
<td>5.73</td>
</tr>
</tbody>
</table>

\textsuperscript{19} The mediation results also remained the same regardless whether participants’ self-reports or actual discrepancies in judgments were entered as the mediators.
**Other potential mediator variables.** Running similar analyses as above, I also explored two other potential explanations: whether individuals’ harmony-maintenance motivation and linear thinking style would mediate the relationship between culture and their interpersonal memories.

I expected Euro-Canadians to be less motivated to maintain relationship harmony, which might predict recalling greater proportion of negative memories, compared to Chinese. Culture, however, did not predict harmony-maintenance motivation, $t(186) = -.25, p = .805$. The association between harmony-maintenance motivation and proportion of negative memories was not significant either, $t(186) = .63, p = .531$. Thus, culture did not have an effect on proportion of negative memories through individuals’ motivation to maintain relationship harmony (the 95% bias-corrected confidence interval of the indirect effect contained zero, 95%CI [-.01, .01]).

As expected, Chinese displayed more non-linear thinking than did Euro-Canadians, $b = 7.85, t(186) = 4.85, p < .001$. The associations between linear thinking style and the proportion of negative memories, however, was not significant, $t(186) = -.65, p = .514$. As such, linear thinking styles did not mediate the relationship between culture and proportion of negative memories (the 95% bias-corrected confidence interval of the indirect effect contained zero, 95%CIs [-.05, .03]).

Again, these patterns of results were the same with overall valence of memories and valence of first memory as dependent variables in the mediation analyses.

**Relationship implications.** Finally, I examined the association between memory and negative relationship consequences. Consistent with past literature and my hypothesis, the more

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20 The results remained the same regardless whether I used the likelihood from each individual item or the average likelihood of all four items (as an indicator for non-linear thinking) as the mediator(s).
negative individuals’ memories about their close other were, the poorer they perceived their relationship quality to be (i.e., being less satisfied with their relationship, and trusting their close other less) and the less willing they were to help and support their close other in need (see Table 2). Individuals’ memories, however, were not associated with the number of days it would take to forgive their close other.\(^{21}\)

**Table 2**

*Correlations Among Memories and Relationship Implications in Study 2.*

<table>
<thead>
<tr>
<th>Measures</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proportion of Negative memories</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Overall memory valence</td>
<td>-.93**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Valence of 1st memory</td>
<td>-.72**</td>
<td>.77**</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4. Perceived relationship quality</td>
<td>-.60**</td>
<td>.67**</td>
<td>.51**</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Forgiveness (no. of days)(^{a})</td>
<td>.13</td>
<td>-.15*</td>
<td>-.02</td>
<td>-.17**</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6. Willingness to help/support</td>
<td>-.38**</td>
<td>.47**</td>
<td>.38**</td>
<td>.59**</td>
<td>-.33**</td>
<td>—</td>
</tr>
</tbody>
</table>

*Note.* The pattern of correlations was the same across Euro-Canadians and Chinese.

\(^{a}\) Sample size was \(n = 233\) after excluding 17 outliers whose number of days to forgive a close other was more than 3 standard deviations above the mean.

\(^*p < .05; **p < .01.\)

**Exploratory Analyses.**

This part of the data analysis was exploratory: I examined whether culture and condition would interact to influence any of the relational outcomes.

**Perceived relationship quality.** Only the main effect of condition was significant, \(F(1, 378) = 14.72, p < .001, \eta_p^2 = .04.\) Participants in the positive condition (\(M = 6.10, SE = .17\)....
perceived their relationship quality to be poorer than those in the negative condition ($M = 4.85, SE = .18$).

**Willingness to help/support.** Both main effects were significant. In general, participants in the positive condition ($M = 6.65, SE = .15$) were more willing to help and support their close other in need than those in the negative condition ($M = 5.97, SE = .16$), $F(1, 377) = 5.76, p = .017, \eta^2_p = .02$. Euro-Canadians ($M = 6.47, SE = .08$) were generally more willing than Chinese ($M = 6.15, SE = .09$) to help and support their close other, $F(1, 377) = 6.89, p = .009, \eta^2_p = .02$.

**Forgiveness.** Only the main effect of culture was significant, $F(1, 227) = 4.63, p = .032, \eta^2_p = .02$. Chinese ($M = 19.49, SE = 3.05$) tended to take a longer time to forgive their close other than Euro-Canadians did ($M = 10.92, SE = 2.62$).

**Discussion**

As in Study 1, Study 2 showed that in the negative condition, Euro-Canadians brought to mind more negative memories (both in proportion and valence) about their close other than Chinese did. On the other hand, no cultural differences in individuals’ interpersonal memories were present in the positive condition, despite a more refined manipulation in Study 2. The consistent null finding in the positive condition will further be discussed in the general discussion.

In addition, Study 2 showed that Euro-Canadians were more focal in their thinking (at least as assessed by the emotion and relationship event judgment task) than Chinese were. As predicted, Euro-Canadians’ emotion and relationship event judgments were more focused on, and anchored by, the focal target person/event than Chinese’s judgments were. However, none of them mediated the relationship between culture and individuals’ memories in the negative
condition in this study. I continued to examine this in subsequent studies to better understand the relationships among these variables.

Cultural differences in self-reported focal thinking (i.e., the extent to which they were thinking about the imagined negative relationship scenario as they were recalling their close other’s past deeds) did not reach statistical significance in Study 2. Nonetheless, participants’ self-reported focal thinking was associated with their memories as expected. Specifically, the more they reported thinking about the imagined negative scenario, the more negative their memories about their close others were. I continued to examine these variables in subsequent studies to clarify the relationship among them.

In addition to focal thinking, I examined two other potential mediators that could account for the cultural differences in individuals’ memories. First, the current results may reflect a motivational explanation (e.g., maintain relationship harmony) instead. East Asians tend to exhibit relationship-serving bias, especially in the face of a relationship threat, more than do European North Americans (Endo et al., 2000; Markus & Kitayama, 1991; Song & Wang, 2014). Compared to Euro-Canadians, Chinese may be more motivated to maintain a harmonious relationship and be less likely to recall negative behaviors of their close other in the negative condition. However, no cultural difference was found in participants’ motivation to maintain relationship harmony. Perhaps the measure I used did not adequately capture participants’ motivation to maintain relationship harmony. Therefore, I continued to examine harmony-maintenance motivation using a different measure in the subsequent studies.

Second, cultural differences in the lay theories of how events develop across time may also account for the current results. Chinese may be more likely than Euro-Canadians to believe that people and events change non-linearly over time (Ji, 2005; Ji et al., 2001). That is,
relationship events can change from good to bad, and then from bad to good again. Even if the current relationship situation is negative, Chinese may be more likely than Euro-Canadians to believe that it was positive earlier or it would become positive later. As such, Chinese may bring to mind more positive (or less negative) past memories about their close other compared to Euro-Canadians. Although we did find the expected cultural differences in individuals’ non-linear thinking styles, they did not mediate the relationship between culture and memory in the present study.

Finally, Study 2 showed that recalling more negative things about a close other was moderately associated with negative relationship implications. In particular, the more negatively one remembered their close other, the poorer they perceived their relationship quality to be, and the less willing they were to help/support a close other in need. Recollecting more negative behaviors by their close other, however, was not associated with the amount of time it takes to forgive a close other who transgressed.

Taken together, Studies 1 and 2 supported Hypothesis 1, but no cultural difference was found for the positive condition (Hypothesis 2). One limitation with both studies is that the manipulation of current relationship events relied on people’s imagination of hypothetical scenarios involving their close other and themselves. Although this ensures the current relationship event to be similar and comparable across all participants, it limits the mundane realism of the manipulation to a certain extent. Moreover, hypothetical events that people imagined may not be as impactful as actual events that they had experienced. Therefore, in the following two studies, I tested whether the same pattern of findings would be replicated in the context of people’s real-life experience.
Chapter 4

Study Three

In the first two studies, I relied on participants’ imagination of a hypothetical relationship scenario that involved their close other and themselves. Events or experiences that are imagined may not be as powerful or realistic as actual experience, and thus their impacts may be limited. The purpose of Study 3 was to extend and increase the mundane realism of the previous studies by examining individuals’ memories in response to recent real-life relationship events that actually happened between their close other and themselves. As such, participants in this study were asked to recount an actual recent relational event instead of imagining a hypothetical one. Consistent with my hypothesis and findings from Studies 1 and 2, I expected Euro-Canadians to recall more negative behaviors by close others (both in terms of proportion and valence) after a recent negative encounter with them was made salient, compared to Chinese (Hypothesis 1). Considering that no cultural differences were found in the positive condition with the previous two studies, I did not expect there to be one in this study.

Even though the indirect relationship between culture and memory through focal thinking tendencies and self-reported focal thinking about the imagined relationship scenario were not significant in the negative condition in Study 2, I continued to examine whether they would mediate the cultural differences in individuals’ memories (in the negative condition) in this study (Hypothesis 3). Finally, consistent with past research and findings from Study 2, I expected memories about a close other to be associated with perceived relationship quality and relationship sentiments.

Studies 3 and 4 were conducted in the fall of 2020 after the COVID-19 outbreak. Both studies were done online.
Method

Participants. Two hundred and forty three Euro-Canadian undergraduates from a Canadian University (33 men, 209 women, 1 other; $M_{age} = 18.91$ years, $SD = 3.95$) and 269 Chinese undergraduates from a Chinese University (46 men, 223 women; $M_{age} = 19.58$, $SD = 1.02$) participated in this study. They either received course credit or payment for their participation. Similarly, all materials were translated into Chinese and checked by bilingual researchers for equivalence.

Materials and procedure. After completing the demographic questionnaire, participants were randomly assigned to a positive or negative condition. Instead of imagining a hypothetical event, participants were asked to recount a relationship event that recently happened between them and their close other (see Appendix E). Specifically, in the negative condition, participants were asked to “think of a recent relationship event in which someone you are close to made you feel upset, hurt, or angry, no matter how big or small the incident was, or whether your close other realized it or not.” In the positive condition, participants were asked to “think of a recent relationship event in which someone you are close to made you feel happy or loved.” Then, participants indicated the initial of, their relationship and their closeness with, their close other. Participants also reported the valence of, and their feelings about, their recent encounter with the close other using the same two questions as in Study 2. Because participants were describing events that actually happened, they were also asked to indicate the date of the encounter.

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22 Under the assumption that power = .90, $\alpha = .05$, and $f = .14$ (based on the average effect size of $\eta^2_{p} = .019$ from Studies 1 and 2), an a priori power analysis using G*Power3.1 (Faul et al., 2009) estimates that a total sample size of $N = 535$ is required to detect the interaction effect between culture (Chinese vs. Canadians) and condition (Positive vs. Negative).
Next, participants completed the same sentence completion task as in the previous two studies. They also reported the extent to which they were thinking about the recent encounter with their close other using the same item as in Study 2. As in Studies 1 and 2, participants completed the same perceived relationship quality scale (\(\alpha_{\text{Canadian}} = .940\) and \(\alpha_{\text{Chinese}} = .913\)), and responded to the following two hypothetical relationship scenarios: (1) “Suppose your close other is going through a difficult and stressful time right now. How motivated are you to go out of your way to help/support them in this situation?” \((1 = \text{Not at all}; 7 = \text{Completely})\), and (2) “Suppose your close other betrayed your trust and lied to you right now. How willing would you be to forgive them?” \((1 = \text{Not willing at all}; 7 = \text{Completely willing})\).

Finally, I measured participants’ focal thinking tendencies, harmony-maintenance motivation, and linear thinking style at the end instead of the beginning of the study (i.e., after the experimental manipulation). Since the relationship event task assessed focal thinking as well as the emotion judgment task, I only used the former in Study 3 to save time. Additionally, I used the self-construal scale (Singelis, 1994) to measure participants’ independent versus interdependent self-view as a proxy for their motivation to maintain relationship harmony. Research has shown that interdependent individuals are more motivated to maintain relationship harmony that independent individuals (Endo et al., 2000; Markus & Kitayama, 1991; Song & Wang, 2014).

Results

Degrees of freedom varied across different analyses due to missing data.

Preliminary analyses.

Type of relationship. Six Euro-Canadians and 12 Chinese, who did not think of a close other, were excluded from subsequent analyses. A chi-square test of independence showed that
there was a significant association between culture and the types of close relationship they thought about, $\chi^2(2, N = 494) = 11.68, p = .003$.\(^{23}\) Consistent with Study 2, post-hoc follow up tests showed that Euro-Canadians (31%) were more likely than Chinese (18%) to choose significant other, whereas Chinese (35%) were more likely than Euro-Canadians (27%) to choose family members, as their close other. Individuals from both cultures were similarly likely to choose close friends as their close other (42% vs. 47%).

As in Study 2, a 2 (Culture) X 2 (Condition) ANOVA on the closeness ratings indicated that Euro-Canadians ($M = 6.03, SD = 1.31$) reported greater closeness to their nominated close other than Chinese did ($M = 5.75, SD = 1.20$), $F(1, 490) = 6.26, p = .013, \eta_p^2 = .01$. Participants in the positive condition ($M = 6.14, SD = 1.06$) also reported greater closeness to their close other than participants in the negative condition ($M = 5.69, SD = 1.35$), $F(1, 490) = 16.62, p < .001, \eta_p^2 = .03$. The culture and condition interaction effect was not significant, $F(1, 490) = .00, p = .999$, suggesting that culture differences in relationship closeness did not vary systematically across condition.\(^{24}\)

**Manipulation check.** Due to the online nature of this study and the requirement of recounting actual encounters with their close other, there were more substandard responses compared to the previous two studies. Two Euro-Canadian and 20 Chinese did not provide meaningful descriptions of events, (e.g., insisted no such events happened, or indicated they were happy these days despite they were assigned to the negative condition, etc.). In addition, 35 Euro-Canadians and 50 Chinese did not follow instructions of the sentence completion task and

\(^{23}\) Types of relationship interacted with culture X condition: cultural differences found in individuals’ memories were greater for close friends than for significant other or family member.

\(^{24}\) Results remained the same regardless whether closeness was included as a covariate in the analyses or not.
described personal characteristics instead of specific behaviors of their close other. After excluding the above participants, the final sample in Study 3 consisted of 201 Euro-Canadians (25 men, 175 women, 1 other; $M_{age} = 19.00$, $SD_{age} = 4.25$) and 187 Chinese (25 men, 162 women; $M_{age} = 19.58$, $SD_{age} = .97$).

Participants’ estimated date of event were first converted into number of months from the time of study completion (October, 2020). A 2 (Culture) X 2 (Condition) ANOVA on the number of months showed that a significant condition main effect: negative encounters with their close others ($M_{months\,ago} = 7.40$, $SD = 25.48$) were further away in time than positive encounters ($M_{months\,ago} = 2.17$, $SD = 17.27$), $F(1, 380) = 5.30$, $p = .022$, $\eta_p^2 = .01$. No other effects were significant, $Fs(1, 380) \leq 1.32$, $ps \geq .252$, indicating that the event’s date was not systematically different across cultures.

A 2 (Culture) X 2 (Condition) ANOVA on event’s valence and happiness ratings confirmed that participants in the positive condition recounted a significantly more positive recent encounter ($M = 3.49$, $SD = 2.57$), and reported feeling significantly happier ($M = 3.33$, $SD = 2.48$) about their recent encounter, than participants in the negative condition ($M = -2.36$, $SD = 1.71$ for event’s valence; $M = -2.85$, $SD = 1.87$ for happiness ratings), $Fs(1, 384) \geq 749.04$, $ps < .001$, $\eta_p^2 \geq .66$. Notably, the culture and condition interaction effects were significant, $Fs(1, 384) \geq 15.43$, $ps < .001$, $\eta_p^2 \geq .04$. Specifically, in the negative condition, Euro-Canadians indicated the recent encounter to be more negative ($M = -2.79$, $SD = 1.51$) and reported feeling more

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25 Significantly more Chinese (7.8%) than Euro-Canadians (0.8%) were excluded for failing the manipulation check, $\chi^2(1, N = 494) = 13.95$, $p < .001$. Likewise, Chinese were more likely than Euro-Canadians to be excluded for failing the sentence completion check, $\chi^2(1, N = 494) = 4.91$, $p = .027$. These exclusion rates for the manipulation and sentence completion checks, however, were not significantly different across the two experimental condition (for either Euro-Canadians and Chinese participants), $ps \geq .096$.

26 51% of the participants recounted events that occurred within the past month and 92% of them recounted events that occurred within the past year.
unhappy \((M = -3.43, SD = 1.42)\), than Chinese did \((M = -1.90, SD = 1.79)\) for event’s valence; \(M = -2.24, SD = 2.08\) for happiness ratings), \(Fs(1, 384) \geq 10.54, ps \leq .001, \eta_p^2 \geq .03\). In the positive condition, Euro-Canadians \((M = 4.00, SD = 2.28)\) indicated the recent encounter to be more positive than Chinese did \((M = 2.94, SD = 2.77)\), \(F(1, 384) = 10.81, p = .001, \eta_p^2 = .03\), but they did not differ significantly in terms of their feelings, \(F(1, 384) = 2.33, p = .128\). Thus, Euro-Canadians recounted more extreme interactions with their close other than did Chinese in response to our instruction. As in Studies 1 and 2, I controlled for event’s valence and participants’ feeling in all the subsequent analyses (results again remained the same when these covariates were excluded).\(^{27}\)

**Main analyses.**

*Proportion of negative interpersonal memories.* Unlike Studies 1 and 2, the main effects of culture and condition on total number of events recalled were not significant, \(Fs(1, 384) \leq 2.58, ps \geq .109\), but the interaction effect between culture and condition was, \(F(1, 384) = 3.98, p = .047\). Specifically, Euro-Canadians in the negative condition recalled fewer close other’s past deeds than Chinese did, \(F(1, 384) = 4.86, p = .028\), whereas there was no culture differences in the positive condition, \(F(1, 384) = .55, p = .458\).\(^{28}\)

As in previous two studies, I used proportion of negative memories as my main dependent variable in a 2 (Culture) x 2 (Condition) ANCOVA (with event’s valence and participants’ feeling as covariates). The main effects of culture and condition, \(Fs(1, 382) \geq 13.84, ps < .001, \eta_p^2 \geq .04\), were once again further qualified by a significant interaction

\(^{27}\) When I controlled for the two covariates main effects as well as their higher order interactions, the culture X condition interaction effects remained unchanged.

\(^{28}\) Majority of the recalled events (approx. 66 – 83%) were positive (i.e., valence ratings range from +1 to +5), and approximately 13 – 33% of recalled events were negative (i.e., valence ratings range from -1 to -5). The remaining recalled events were rated as neutral (i.e., valence ratings of 0).
between them, \( F(1, 382) = 36.35, p < .001, \eta^2 = .09 \) (see Figure 7). As expected, in the negative condition, Euro-Canadians \((M = .47, SE = .03)\) recalled a greater proportion of close other’s past misdeeds than Chinese did \((M = .14, SE = .03)\), \( F(1, 382) = 88.84, p < .001, \eta^2 = .19 \). In line with the previous two studies, there was no cultural difference in the positive condition, \( F(1, 382) = .01, p = .946 \).

**Figure 7**

*The Proportion of Negative Memories Recalled by Chinese and Euro-Canadians in Study 3.*

![Figure 7](image_url)

*Note.* Error bars represent standard errors.

**Valence of overall recollection.** In line with previous two studies, a 2 (Culture) \* 2 (Condition) ANCOVA on overall memory valence, with event’s valence and participants’ feeling as covariates, showed that the significant main effects of culture and condition, \( Fs(1, 382) \geq 11.86, ps \leq .001, \eta^2 \geq .03 \), were qualified by a significant interaction between them, \( Fs(1, 382) \geq 29.09, ps < .001, \eta^2 \geq .07 \). Supporting Hypothesis 1, while a recent hurtful or upsetting encounter with their close other was made salient, the overall valence of Euro-
Canadians’ recollections about their close others \((M = .71, SE = .26)\) was less positive than Chinese’s \((M = 2.70, SE = .23)\), \(F(1, 382) = 46.28, p < .001, \eta^2_p = .11\). There was, again, no cultural difference in the positive condition, \(F(1, 382) = 1.78, p = .182\).  

**Mediation analyses.**

**Relationship event judgments.** Following Study 2, I examined the indirect effect of culture on memory through participants’ focal thinking tendency in the negative condition only.  

Using Hayes’s (2018) PROCESS SPSS macro for model 4, I entered culture \((0 = Euro-Canadians, 1 = Chinese)\) as the predictor, focal thinking in relationship event judgments as the mediator, and the proportion of negative memories as the dependent variable in the mediation analysis, controlling for manipulated event’s valence and participants’ feeling.  

In line with Study 2, even though cultural differences in individuals’ focal thinking tendency were as expected, \(b = -1.13, t(222) = 4.34, p < .001\), their focal thinking tendency were not associated with the proportion of negative memories they generated, \(b = .002, t(222) = .14, p = .887\). Consequently, focal thinking did not mediate the effect of culture on proportion of negative memories (95% bias-corrected confidence intervals of the indirect effect based on 10,000 bootstrap samples contained zero, 95% CI [-.03, .02]). The same pattern of results was found with overall valence of memories and valence of first memory as well.  

**Self-reported focal thinking.** Recall that although the indirect relationship between culture and memory in the negative condition through individuals’ self-reported focal thinking

\[29\] Once again, results from valence of the first memory concurred with the results from the averaged valence ratings of all memories. A significant culture and condition interaction effect, \(F(1, 382) = 33.79, p < .001, \eta^2_p = .08\), showed that the valence of Euro-Canadians’ first recollection about their close other \((M = .27, SE = .34)\) in the negative condition was less positive than Chinese’s \((M = 3.06, SE = .30)\), \(F(1, 382) = 55.92, p < .001, \eta^2_p = .13\), whereas there was no cultural difference in the positive condition, \(F(1, 382) = 1.73, p = .189\).  

\[30\] The mediation results remained the same regardless whether self-reports or discrepancies in relationship events judgments were entered as the mediators.
did not reach statistical significance in Study 2, the anticipated pattern of results was evident. I examined this mediation again in the current study using Hayes’s (2018) PROCESS SPSS macro for model 4. I entered culture (0 = Euro-Canadians, 1 = Chinese) as the predictor, self-reported focal thinking as the mediator, and proportion of negative memories as the dependent variable in the mediation analysis, controlling for the same two covariates. As expected, Euro-Canadians reported thinking about the recent negative encounter with their close other to a greater extent than did Chinese, $b = -.89, t(225) = -2.02, p = .045$. This greater focus on their close other’s recent wrongdoing was associated with recollecting a greater proportion of negative memories about their close other, $b = .04, t(225) = 6.12, p < .001$. Although the direct effect of culture on proportion of negative memories was still significant after accounting for the mediator, $b = -.28, t(225) = -6.81, p < .001$, the 95% bias-corrected confidence intervals of the indirect effect of culture on proportion of negative memories through their self-reported focal thinking ($b = -.03$) in the negative condition did not contain 0, 95% CI $[-.07, -.001]$. See Figure 8.31

The same pattern of results was obtained when overall memory valence and valence of first memory were entered as the dependent variable.32

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31 Given the correlational nature of these variables, I also examined whether the reverse mediation model was significant. Unfortunately, the 95% bias-corrected confidence interval based on 10,000 bootstrap samples of the indirect effect of culture on self-reported thinking through proportion of negative memories ($b = -1.20$) also did not contain 0, 95% CI [-1.76 to -.74], suggesting that proportion of negative memories also mediated the relationship between culture and self-reported thinking.

32 The 95% bias-corrected confidence intervals of the indirect effects of culture on overall memory valence ($b = .29$) and valence of first memory ($b = .25$) through their self-reported focal thinking in the negative condition did not contain 0, 95% CIs [.01, .60] and [.001, .578], respectively. The reverse mediation models, however, were also significant, the indirect effect of culture on self-reported thinking through overall memory valence ($b = -.94$) or valence of first memory ($b = -.72$) did not include 0 as well, 95% CI [-1.45, -.52] and [-1.17, -.33], respectively.
**Figure 8**

*Unstandardized Regression Coefficients for the Relationship between Culture (0 = Euro-Canadians, 1 = Chinese) and Proportion of Negative Memories as Mediated by Self-reported Focal Thinking in the Negative Condition in Study 3.*

![Diagram showing the relationship between culture, self-reported focal thinking, and proportion of negative memories.]

\[ a = .89^* \]

\[ c' = -.28^{***} \]

\[ c = -.32^{***} \]

\[ b = .04^{***} \]

**Note.** *p < .05. \*\*\*p < .001

**Other potential mediator variables.** Following Study 2, I again explored whether individuals’ motivation to maintain relationship harmony and linear thinking style would mediate the relationship between culture and their interpersonal memories in the negative condition. As in Study 2, the indirect effect of culture on memories (in terms of proportion and valence) through self-construal or non-linear thinking were all not significant (all the 95% bias-corrected confidence intervals of the indirect effect contained zero, [<- .01, > .02]).

**Relationship implications.** Consistent with Study 2 and my hypothesis, the more negative individuals’ memories about their close other were, the poorer they perceived their relationship quality, the less motivated they were to help and support a close other in need, and the less willing they were to forgive a close other who transgressed. See Table 3.
Table 3

*Correlations Among Memories and Relationship Implications in Study 3.*

<table>
<thead>
<tr>
<th>Measures</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>1. Proportion of Negative memories</td>
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<td>2. Overall memory valence</td>
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<td>-93**</td>
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<td></td>
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<td>3. Valence of 1st memory</td>
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<td>.83**</td>
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<tr>
<td>4. Perceived relationship quality</td>
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<td>.60**</td>
<td>.52**</td>
<td></td>
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<td>5. Motivation to help/support</td>
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<td>-.30**</td>
<td>.39**</td>
<td>.28**</td>
<td>.51**</td>
<td></td>
</tr>
<tr>
<td>6. Willingness to forgive</td>
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<td>-.16*</td>
<td>.24**</td>
<td>.17*</td>
<td>.47**</td>
<td>.43**</td>
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</tbody>
</table>

*Note.* The pattern of correlations was the same across Euro-Canadians and Chinese. *p < .01; **p < .001.

Exploratory analyses. As in Study 2, I explored whether culture and condition would interact to influence any of these relationship outcomes.

**Perceived relationship quality.** Unlike Study 2, the main effect of condition, \( F(1, 381) = 4.62, p = .032, \eta^2_p = .01 \), was further qualified by a culture and condition interaction, \( F(1, 381) = 5.49, p = .020, \eta^2_p = .01 \). In line with my expectation, the pattern of interaction was consistent with their memories. After recounting a recent negative encounter with their close other, Euro-Canadians (\( M = 4.91, SE = .16 \)) perceived their relationship quality with their close other to be poorer than did Chinese (\( M = 5.32, SE = .14 \)), \( F(1, 381) = 5.21, p = .023, \eta^2_p = .01 \). There was, however, no cultural difference in the positive condition, \( F(1, 381) = 1.34, p = .248 \).

To further examine whether the individuals’ memories about their close other mediated the cultural differences in their perceived relationship quality in the negative condition, I ran a mediation analysis using Hayes’ s (2018) PROCESS SPSS macro for model 4. Culture (0 = Euro-Canadians, 1 = Chinese) was entered as the predictor, proportion of negative memories as the mediator, and perceived relationship quality as the dependent variable. The relationship between culture and proportion of negative memories was significant as expected, \( b = -.32, t(224) = - \).
7.10, \( p < .001 \). Proportion of negative memories in turn was associated with perceived relationship quality, \( b = -1.31, t(224) = -4.37, p \leq .001 \): the more negative memories participants recounted about their close other, the poorer their perceived relationship quality to be. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples of the indirect effect of culture on perceived relationship quality through proportion of negative memories (\( b = .41 \)) did not contain 0, 95%CI [.22, .63]. The direct effect of culture on perceived relationship quality became non-significant once proportion of negative memories were accounted for, \( b = -.09, t(224) = -.43, p = .668 \). See Figure 9. The same pattern of results was found with overall memory valence and valence of first memory as the mediator.\(^{33}\)

**Figure 9**

*Unstandardized Regression Coefficients for the Relationship between Culture (0 = Euro-Canadians, 1 = Chinese) and Perceived Relationship Quality as Mediated by Proportions of Negative Memories in the Negative Condition in Study 3.*

More importantly, the reverse mediation model—the indirect effect of culture on proportion of negative memories through perceived relationship quality—was not significant (the 95% bias-corrected confidence interval based on 10,000 bootstrap samples of the indirect effect

\(^{33}\) The 95% bias-corrected confidence intervals of the indirect effects of culture on perceived relationship quality through overall memory valence (\( b = .429 \)) and valence of first memory (\( b = .427 \)) in the negative condition did not contain 0, 95% CIs [.25, .64] and [.23, .66], respectively. The reverse mediation models were not significant: the indirect effect of culture on overall memory valence (\( b = .220 \)) and valence of first memory (\( b = .251 \)) through perceived relationship quality included 0, 95% CI [-.06, .50] and [-.07, .58], respectively.
contained 0, 95% CI [-.05 to .01]). This is also true for overall memory valence and valence of first memory.

Taken together, these findings indicate that, when a recent negative encounter with a close other was made salient, Euro-Canadians brought to mind more negative interpersonal memories (both in terms of proportion and valence) than Chinese did, and such negative memory predicted poorer relationship quality.

Motivation to help/support. None of the main effects of culture or condition were significant, $F$s($1$, $381$) $\leq$ 2.54, $p \geq .112$. There was also no significant interaction between culture and condition, $F(1$, $381$) = .07, $p = .797$.

Willingness to forgive. Consistent with Study 2, a significant main effect of culture showed that Chinese ($M = 4.41$, $SE = .11$) were less willing to forgive a close other who betrayed their trust and lied to them than Euro-Canadians did ($M = 4.98$, $SE = .10$), $F(1$, $379$) = 14.93, $p < .001$, $\eta^2_p = .04$. None of the other effects were significant, $F$s($1$, $379$) $\leq$ 1.22, $p \geq .271$.

Discussion

The findings based on real-life relationship events in Study 3 paralleled the results based on hypothetical relationship event in Studies 1 and 2. After recounting a recent negative encounter with their close other, Euro-Canadians recalled more of their close other’s past misdeeds than Chinese did (supporting Hypothesis 1). Cultural differences in relational memories were once again not evident in the positive condition (not supporting Hypothesis 2). This will be further discussed in the general discussion.

Consistent with findings from Study 2 and my prediction, Euro-Canadians displayed higher focal thinking tendency than Chinese did: Euro-Canadians’ judgments of a current relational event in the relationship judgement task were less influenced by the other past or
future relational events than Chinese’s judgments were. However, individuals’ focal thinking (as assessed by the relationship judgment task) did not mediate the relationship between culture and memory as predicted.

Unlike Study 2, but consistent with my prediction, Euro-Canadians reported thinking about their recent encounter with their close other as they were recalling their close other’s past deeds to a greater extent than Chinese did. Perhaps participants found it more relevant to be thinking about an actual recent event that had happened than a hypothetical event while they were recalling their close others’ past behaviors. Alternatively, perhaps actual experiences are just more impactful and salient compared to hypothetical ones. More importantly, the effect of culture on individuals’ interpersonal memories (both in proportion and in valence) in the negative condition were mediated by their focus on the recent negative encounter with their close other as expected. That is, compared to Chinese, Euro-Canadians in the negative condition were thinking more about the recent negative interpersonal encounter, which in turn was associated with more negative memories of close other (supporting Hypothesis 3).

This conclusion, however, should be interpreted with caution because the reversed mediation model—specifically, the indirect relationship between culture and self-reported focal thinking through their interpersonal memories—was significant as well. Thus, it is also plausible that compared to Chinese, Euro-Canadians in the negative condition were recalling more close other’s past misdeeds, which led them to focus on the recent negative encounter with their close other more. It seems difficult to (statistically) tease apart these two processes based on the current study design. There is also no strong theoretical assumption to ascertain whether the supposed mediator (thinking about the recent encounter) influenced the supposed dependent
variable (relational memories) or vice versa, although the former seems to make more intuitive sense.

Once again, individuals’ motivation to maintain relationship harmony (as assessed by their self-construal) did not mediate the relationship between culture and interpersonal memory in the negative condition, since no cultural difference was found in individuals’ self-construal in this study. Similar to Study 2, individuals’ non-linear thinking also did not mediate the relationship between culture and memory in the negative condition, despite the expected cultural differences in their non-linear thinking styles.

Finally, as expected and consistent with Study 2, individuals who recalled more negative relationship memories tended to perceive their relationship quality to be poorer, be less willing to forgive their close other who transgressed, and be less motivated to help and support their close other in need. Furthermore, in line with their memories, after recounting a recent negative encounter with their close other, Euro-Canadians perceived their relationship quality to be poorer than Chinese did. More importantly, cultural differences in participants’ perceived relationship quality were mediated by the negative memories they brought to mind about their close other.
Chapter 5

Study Four

Some research has shown similarities between thinking about the past and thinking about the future (e.g., they both share common neural network; Addis et al., 2007; Okuda et al., 2003), whereas other research has shown differences between them (e.g., in terms of the intensity of emotions elicited, the extent to which people value past and future, etc.; Caruso, 2010, Guo et al., 2012). The purpose of Study 4 was to extend the research to future forecasts by examining whether Euro-Canadians, compared to Chinese, would forecast more negative behaviors (both in terms of proportion and valence) from their close other after recounting a recent negative encounter with them (Hypothesis 1). Given that there were no cultural differences in the positive condition across Studies 1 to 3, I did not expect there to be cultural difference in future forecasts after they recounted a recent positive encounter with their close other (Hypothesis 2). I also investigated the indirect relationship between culture and future forecast through individuals’ focal thinking tendencies or attention to their recent relationship encounter (Hypothesis 3).

Finally, in line with findings from Studies 2 and 3, I predicted that individuals’ negative forecasts about their close other would be associated with poorer perceived relationship quality and more negative relationship sentiments.

Method

Participants. Two hundred and thirty eight Euro-Canadian undergraduates from a Canadian University (37 men, 200 women, 1 other, 13 missing; $M_{\text{age}} = 19.57$ years, $SD = 4.14$)
and 307 Chinese undergraduates from a Chinese University (55 men and 252 women; \( M_{age} = 19.58 \) years, \( SD = 1.23 \)) completed this study.\(^{34}\)

**Materials and Procedure.** The procedure was identical to Study 3 except that participants completed the sentence task with future (instead of past) events that would involve their close other and themselves. Participants completed (up to 10) sentences with specific/concrete behaviors/actions that they forecasted their nominated close other would do in the future that would involve them. Each sentence began with “My close other will…” (see Appendix F). After participants described each forecast, they reported its valence (-5 = Very negative, +5 = Very positive).

**Results**

Degrees of freedom varied across different analyses due to missing data.

**Preliminary analysis.**

**Type of relationship.** Four Euro-Canadians and 20 Chinese, who were not thinking about a significant other, family member, or close friend as their close other, were excluded from subsequent analyses. A chi-square test of independence showed no cultural difference in the types of close relationship, \( \chi^2(2, N = 521) = 4.42, p = .110 \). Euro-Canadians chose (27%) significant other, (44%) close friend, and (29%) family members, and Chinese chose (21%) significant other, (53%) close friend, and (26%) family members.\(^{35}\)

In terms of relationship closeness, the culture and condition main effects were significant: Euro-Canadians (\( M = 6.06, SD = 1.27 \)) reported greater closeness to their close other than

\(^{34}\) Under the assumption that power = .90, \( \alpha = .05 \), and \( f = .20 \) (based on effect size of \( \eta_p^2 = .039 \) from Study 3), an a priori power analysis using G*Power3.1 (Faul et al., 2009) estimated that a total sample size of \( N = 259 \) is required to detect the interaction effect between culture (Chinese vs. Canadians) and condition (Positive vs. Negative).

\(^{35}\) Types of relationship did not interact with any of our culture X condition interaction effect of interest, \( ps \geq .348 \).
Chinese did \((M = 5.75, SD = 1.18), F(1, 517) = 9.04, p = .003, \eta_p^2 = .02,\) and participants in the positive condition \((M = 6.20, SD = 1.01)\) reported greater closeness to their close other than participants in the negative condition \((M = 5.63, SD = 1.33), F(1, 517) = 29.47, p < .001, \eta_p^2 = .05.\) There was no significant culture and condition interaction effect, \(F(1, 517) = .08, p = .785.\)

**Manipulation check.** As in Study 3, six Euro-Canadian and 41 Chinese failed the manipulation as they did not provide meaningful descriptions of events, especially in the negative condition (e.g., either insisted no such events happened or indicated they were happy these days despite being assigned to the negative condition). Furthermore, 14 Euro-Canadians and 39 Chinese did not follow instructions of the sentence completion task and described personal characteristics of their close other instead of specific behaviors or things their close other would do to or for them. As such, the final sample in Study 4 consisted of 214 Euro-Canadians (32 men, 181 women, 1 other; \(M_{age} = 19.47, SD_{age} = 4.06\)) and 207 Chinese (27 men, 180 women; \(M_{age} = 19.52, SD_{age} = 1.26\)).

In terms of the objective temporal distance of the recent encounter with their close other, a 2 (Culture) X 2 (Condition) ANOVA showed no significant effects, \(Fs(1, 414) \leq 1.65, ps \geq .200,\) suggesting that the temporal distance of the recent encounter was not systematically different across cultures or conditions.

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36 Results remained the same regardless whether closeness was included as a covariate or not.
37 Chinese (14.3%) were more likely than Euro-Canadians (2.6%) to be excluded based on the manipulation check, \(\chi^2(1, N = 521) = 21.58, p < .001.\) Likewise, significantly more Chinese (17.8%) than Euro-Canadians (6.0%) were excluded based on the sentence completion check, \(\chi^2(1, N = 521) = 16.40, p < .001.\) In this study, more Chinese were excluded for failing the manipulation check in the negative (18.1%) than in the positive (9.8%) condition, \(\chi^2(1, N = 287) = 3.93, p = .047.\) There were no other significant differences in the exclusion rates across the two experimental conditions, \(ps \geq .206.\)
38 55% of the participants recounted events that occurred within the past month and 94% of the them recounted events that occurred within the past year.
A 2 (Culture) X 2 (Condition) ANOVA showed that participants in the positive condition 
(M = 3.66, SD = 2.02) recounted a significantly more positive encounter with their close other 
than participants in the negative condition (M = -2.64, SD = 1.74), F(1, 417) = 1247.50, p < .001, 
ηp² = .75. Participants in the positive condition (M = 3.18, SD = 2.57) also felt significantly 
happier about the recent encounter with their close other than participants in the negative 
condition (M = -3.13, SD = 1.76), F(1, 417) = 877.58, p < .001, ηp² = .68. The interaction 
between culture and condition were significant for valence ratings, F(1, 417) = 28.23, p < .001, 
ηp² = .06, and marginally significant for happiness ratings, F(1, 417) = 2.84, p = .093, ηp² = .01. 
Specifically, in the negative condition, Euro-Canadians indicated their recent encounter with 
close other to be more negative (M = -3.12, SD = 1.61), and reported feeling more unhappy (M = 
-3.41, SD = 1.84), than Chinese did (M = -2.12, SD = 1.74 for valence rating, M = -2.81, SD = 
1.63 for happiness rating), Fs(1, 417) ≥ 4.25, ps ≤ .040, ηp² ≥ .01. In the positive condition, 
Euro-Canadians (M = 4.11, SD = 1.62) indicated the current event to be more positive than 
Chinese did (M = 3.22, SD = 2.27), F(1, 417) = 11.87, p = .001, ηp² = .03, but they did not differ 
significantly in terms of their feelings, F(1, 417) = .14, p = .711. I controlled for both 
manipulated event’s valence and participants’ feeling in all the subsequent main analyses as in 
previous studies (results remained unchanged when these covariates were omitted). ³⁹

Main analyses.

Proportion of negative interpersonal forecasts. Chinese (M = 6.87, SE = .20) generated 
a slightly greater number of forecasts than Euro-Canadians did (M = 6.36, SE = .20), F(1, 415) = 

³⁹ It should be noted that when the covariates main effects as well as their higher order interaction effects were 
controlled for in the ANCOVA models, the culture X condition interaction effects of interest became non-
significant, ps ≥ .378, although the pattern of results were still in the expected direction. Given that the condition X 
event’s valence interactions were also significant (ps ≤ .015), any conclusions drawn from the ANCOVAs in the 
current study should be interpreted with caution because event’s valence might have confounded the main findings 
in this study.
3.23, \( p = .073 \). A 2 x 2 ANCOVA on the proportion of negative forecasts, with event’s valence and participants’ feeling as covariates, showed significant main effects of culture and condition, \( F_s(1, 415) \geq 3.51, ps < .062, \eta_p^2 \geq .01 \), and interaction between them, \( F(1, 415) = 4.90, p = .027, \eta_p^2 = .09 \). As expected, in the negative condition, Euro-Canadians (\( M = .34, SE = .04 \)) forecasted a greater proportion of negative behaviors by a close other than Chinese did (\( M = .16, SE = .03 \)), \( F(1, 415) = 26.42, p < .001, \eta_p^2 = .06 \) (supporting Hypothesis 1). No difference was found between Euro-Canadians (\( M = .19 SE = .04 \)) and Chinese (\( M = .12, SE = .03 \)) forecasts in the positive condition, \( F(1, 415) = 3.02, p = .083^{40} \).

**Valence of overall forecasts.** Consistent with previous three studies, the significant main effects of culture and condition on the overall forecast valence, \( F_s(1, 415) \geq 3.68, ps \leq .056, \eta_p^2 \geq .01 \), were further qualified by a significant interaction between them, \( F(1, 415) \geq 4.33, ps \leq .038, \eta_p^2 \geq .01 \). Supporting hypothesis 1, the overall valence of the forecasts generated by Euro-Canadians (\( M = 1.34, SE = .30 \)) in the negative condition were less positive than those generated by Chinese (\( M = 2.65, SE = .27 \)), \( F(1, 415) = 18.14, p < .001, \eta_p^2 = .04 \). There was, again, no cultural difference in the positive condition, \( F_s(1, 415) \leq 1.20, p \geq .274^{41} \).

**Mediation analyses.**

**Relationship event judgments.** Following Study 3, I examined whether cultural differences in individuals’ forecasts in the negative condition was mediated by their focal

---

40 Majority of the forecasted events (approx.67 – 82%) were positive (i.e., valence ratings range from +1 to +5), and approximately 13 – 28% of forecasted events were negative (i.e., valence ratings range from -1 to -5). The remaining forecasted events were rated as neutral (i.e., valence ratings of 0).

41 Results from valence of the first forecast concurred with overall forecast valence. A significant culture and condition interaction effect on valence of first forecast, \( F(1, 415) = 9.53, p = .002, \eta_p^2 = .02 \), revealed that the first forecast generated by Euro-Canadians (\( M = 1.03, SE = .34 \)) in the negative condition was less positive than those generated by Chinese (\( M = 2.63, SE = .31 \)), \( F(1, 415) = 20.60, p < .001, \eta_p^2 = .05 \). No cultural difference was found in the positive condition, \( F(1, 415) = .002, p = .962 \).
Using Hayes’s (2018) PROCESS SPSS macro for model 4, I entered culture as the predictor, focal thinking in relationship event judgments as the mediator, and proportion of negative forecasts as the dependent variable, controlling for manipulated event’s valence and participants’ feeling. Consistent with previous two studies and my prediction, Euro-Canadians displayed higher focal thinking tendency than did Chinese, $b = -1.00$, $t(222) = 3.94$, $p < .001$. Their focal thinking tendencies, however, were not associated with the proportion of negative forecasts generated, $t(222) = .53$, $p = .598$. Thus, individuals’ focal thinking did not mediate the effect of culture on proportion of negative forecasts (95% bias-corrected confidence intervals of the indirect effect based on 10,000 bootstrap samples contained 0, 95% CI [-.02, .04]). The same was true for overall valence of forecasts and valence of first forecast.

**Self-reported focal thinking.** Following Study 3, I examined the indirect effect of culture on individuals’ forecasts in the negative condition through their self-reported focal thinking. I entered culture as the predictor, self-reported focal thinking as the mediator, and proportion of negative forecasts as the dependent variable in the mediation analysis, controlling for the same two covariates. Consistent with my prediction and findings from Study 3, Euro-Canadians reported thinking about the negative relationship encounter with their close other to a greater extent than did Chinese, $b = -1.22$, $t(223) = -2.86$, $p = .005$. As expected, the more they think about their close other’s recent wrongdoing, the more negative forecasts they generated about their close other, $b = .02$, $t(223) = 2.71$, $p = .007$. Although the direct effect of culture on proportion of negative forecasts were still significant after controlling for the mediator, $b = -.13$, $t(223) = -2.67$, $p = .008$, the 95% bias-corrected confidence intervals of the indirect effect of culture on proportion of negative forecasts through self-report focal thinking ($b = -.02$) was
entirely below 0, 95% CIs [-.05, -.004], indicating a significant mediation effect.\textsuperscript{42} See Figure 10.

The same pattern of results was obtained when overall forecast valence (but not valence of first forecast) was entered as the dependent variable.\textsuperscript{43}

**Figure 10**

*Unstandardized Regression Coefficients for the Relationship between Culture (0 = Euro-Canadians, 1 = Chinese) and Proportion of Negative Forecasts as Mediated by Self-reported Focal Thinking in the Negative Condition in Study 4.*

\[
\begin{align*}
\text{Culture} & \rightarrow \text{Self-reported Focal Thinking} \\
& \quad - a = .12^{**} \\
& \quad c' = -.13^{**} \\
& \quad c = -.15^{**} \\
& \quad \text{Proportion of Negative Forecasts} \\
& \quad b = .02^{**}
\end{align*}
\]

*Note.* \(**p < .01\)

**Other potential mediator variables.** As in Study 3, the indirect effect of culture on future forecasts (in terms of proportion and valence) through self-construal and non-linear thinking styles were non-significant (all the 95% bias-corrected confidence intervals of the indirect effect contained zero, 95% CIs [< -.007, > .008]).

**Relationship implications.** Consistent with findings from previous studies and my hypothesis, negative forecasts about close other were associated with poorer perceived

\textsuperscript{42} The reverse mediation model—the indirect relationship between culture and self-reported thinking about the recent encounter through proportion of negative forecasts—was also significant (the 95% bias-corrected confidence interval based on 10,000 bootstrap samples of the indirect effect of culture on self-reported thinking through proportion of negative forecasts \((b = -.25)\) did not contain 0, 95% CI [-.53, -.05].

\textsuperscript{43} The 95% bias-corrected confidence intervals of the indirect effect of culture on overall forecast valence \((b = .18)\) through their self-reported focal thinking did not contain 0, 95% CI [.01, .42]. The reverse model, unfortunately, was also significant, \(b = -.19, 95\% \text{ CI} [-.44, -.01].\)
relationship quality with close other, lower willingness to forgive close other, and lower 
motivation to help or support close other. See Table 4.

Table 4
Correlations Among Forecasts and Relationship Implications in Study 4.

<table>
<thead>
<tr>
<th>Measures</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proportion of Negative forecasts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Overall forecast valence</td>
<td>-.93**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Valence of 1st forecast</td>
<td>-.79**</td>
<td>.86**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Perceived relationship quality</td>
<td>-.66**</td>
<td>.76**</td>
<td>.70**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Willingness to forgive</td>
<td>-.32**</td>
<td>.38**</td>
<td>.33**</td>
<td>.46**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Motivation to help/support</td>
<td>-.36**</td>
<td>.45**</td>
<td>.42**</td>
<td>.54**</td>
<td>.46**</td>
<td></td>
</tr>
</tbody>
</table>

Note. The pattern of correlations was the same across Euro-Canadians and Chinese.
**p < .001.

**Perceived relationship quality.** As in Study 3, there was a significant culture and 
condition interaction effect on participants’ perceived relationship quality, $F(1, 415) = 6.23, p =
.013, \eta_p^2 = .02$. In the negative condition, Euro-Canadians ($M = 4.60, SE = .17$) perceived their 
relationship quality to be poorer than Chinese did ($M = 5.27, SE = .16$), $F(1, 415) = 13.79, p <
.001, \eta_p^2 = .03$. There was no cultural difference in the positive condition, $F(1, 415) = .00, p =
1.00.

Following Study 3, I further examined whether individuals’ forecasts mediated cultural 
differences in perceived relationship quality in the negative condition. I entered culture (0 = 
Euro-Canadians, 1 = Chinese) as the predictor, proportion of negative forecasts as the mediator, 
and perceived relationship quality as the dependent variable, controlling for manipulated event’s 
valence and participants’ feeling, in the mediation analysis. As expected, culture predicted 
proportion of negative forecasts, $b = -.15, t(223) = -3.21, p = .002$. Proportion of negative 
forecasts in turn were associated with perceived relationship quality, $b = -2.50, t(223) = -9.32, p
Consistent with Study 3, a 95% bias-corrected confidence interval based on 10,000 bootstrap samples of the indirect effect of culture on perceived relationship quality through proportion of negative forecasts ($b = .38$) did not contain 0, 95%CI [.13, .68]. The significant total effect of culture on perceived relationship quality, $b = .55$, $t(223) = 2.48$, $p = .014$, also became non-significant once proportion of negative forecasts was accounted for, $b = .17$, $t(223) = .89$, $p = .373$. See Figure 11. The same was true with overall forecast valence or valence of first forecast as the mediator.

Figure 11

Unstandardized Regression Coefficients for the Relationship between Culture (0 = Euro-Canadians, 1 = Chinese) and Perceived Relationship Quality as Mediated by Proportions of Negative Forecasts in the Negative Condition in Study 4.

$$
\begin{align*}
\text{Culture} & \rightarrow \text{Proportions of Negative Forecasts} & b = .38^* \\
\text{Proportions of Negative Forecasts} & \rightarrow \text{Perceived Relationship Quality} & b = .55^* \\
& \rightarrow \text{Perceived Relationship Quality} & c = .17
\end{align*}
$$

Note. * $p < .05$. ** $p < .01$. *** $p < .001$

Motivation to help/support. Consistent with Study 3, none of the main effects of culture or condition, or interaction between them, was significant, $F$s(1, 414) ≤ .70, $p \geq .404$.

---

44 The reverse mediation model—the indirect relationship between culture and proportion of negative forecasts through perceived relationship quality—is, however, was also significant (the 95% bias-corrected confidence interval based on 10,000 bootstrap samples of the indirect effect ($b = .06$) did not include 0, 95% CI [-.12, -.01]).

45 The 95% bias-corrected confidence interval based on 10,000 bootstrap samples of the indirect effect of culture on perceived relationship quality through overall forecast valence ($b = .40$) or valence of first forecast ($b = .40$) also did not contain 0, 95%CI [.10, .74] and [.13, .70], respectively. The respective reverse models, however, were significant as well, 95%CI [.15, 1.19] and [.16, 1.25], respectively.
**Willingness to forgive.** A significant main effect of culture, \( F(1, 414) = 6.20, p = .013, \eta^2_p = .02 \), was further qualified by a significant interaction between culture and condition, \( F(1, 414) = 5.03, p = .025, \eta^2_p = .01 \). Unexpectedly, in the negative condition, Euro-Canadians (\( M = 5.26, SE = .18 \)) were more willing to forgive their close other who betrayed their trust and lied to them than Chinese did (\( M = 4.60, SE = .17 \), \( F(1, 414) = 11.87, p = .001, \eta^2_p = .03 \). There was no cultural difference in willingness to forgive in the positive condition, \( F(1, 414) = .01, p = .915 \).

**Discussion**

The pattern of results with participants’ forecasts was consistent with the previous three studies. As predicted, after recounting a recent negative encounter with close other, Euro-Canadians generated more negative forecasts (in terms of proportion and valence) about their close other than Chinese did. There were no cultural differences in the positive condition as in previous studies.

Once again, compared to Chinese individuals’ judgments, Euro-Canadians’ judgments of a current target relational event in the relationship judgement task were less influenced by the other past or future relational events, indicating that they displayed higher focal thinking tendency than Chinese did. In line with Study 3, however, individuals’ focal thinking did not mediate the relationship between culture and their forecasts in the negative condition.

Nonetheless, consistent with Study 3 and my prediction, Euro-Canadians reported thinking about the recent encounter with their close other to a greater extent than Chinese did. Notably, this cultural difference in individuals’ self-reported focal thinking in turn was associated with more negative forecasts about their close other’s future behaviors in the negative condition. As in Study 3, however, this conclusion should be interpreted with caution because the reversed mediation model—the indirect effect of culture on self-reported thinking through
their forecasts—was significant as well. Nevertheless, it seems to make more intuitive sense for one’s attention on a recent relational encounter to influence one’s relational forecasts than the other way round.

As in Studies 2 and 3, no cultural difference was found in individuals’ self-construal. As such, individuals’ motivation to maintain relationship harmony (as assessed by their self-construal) did not mediate the relationship between culture and forecasts in the negative condition. Likewise, although the expected cultural differences in participants’ non-linear thinking were present, they did not mediate the relationship between culture and forecasts in the negative condition.

Finally, as expected, individuals who generated more negative forecasts about their close other’s behavior also perceived their relationship quality to be poorer (i.e., less satisfaction and less trust), were less willing to forgive their close other who transgressed, and were less motivated to help and support their close other in need. Furthermore, consistent with Study 3, Euro-Canadians perceived their relationship quality to be poorer than did Chinese in the negative condition, and this cultural difference in their perceived relationship quality was mediated by their future forecasts. Unlike Study 3, however, the conclusion drawn from this mediation analysis should be interpreted with caution because the equally plausible reverse models—the indirect relationship between culture and forecasts through their perceived relationship quality—were also significant. Indeed, this finding also appears to be consistent with Lemay et al.’s (2015) study, which demonstrated that individuals’ forecasts regarding close other’s behaviors were largely influenced by the current state of their relationship.
Chapter 6

General Discussion

How people reconstruct and forecast their relational encounters, which are often dependent on their present experiences, can have huge implications for the well-being of their close relationships. The present research examined cultural differences in individuals’ interpersonal memories and forecasts in a current positive (e.g., close other kind act) versus negative (e.g., close other misdeed) relationship situation. Across four studies, I consistently found that Euro-Canadians brought to mind more negative memories (Studies 1 to 3), and generated more negative forecasts (Study 4), about their close other in a current negative relationship situation than Chinese did. Unexpectedly, however, there was no cultural differences in a current positive relationship situation. These results are true for hypothetical (Studies 1 and 2) and real-life (Studies 3 and 4) situations. The current findings were also not limited to a specific type of close relationships (e.g., romantic partners, family members, or close friends).

Importantly, the current research also examined and found that cultural differences in individuals’ negative relational memories and forecasts in the negative condition were mediated by their tendency to think about or focus on the recent negative encounter with their close other. Additionally, the accessibility of negative memories and forecasts were associated with poorer perceived relationship quality and lesser pro-relationship behaviors (i.e., lower motivation to help and support a close other, and lower willingness to forgive a close other). Notably, in the negative condition, Euro-Canadians perceived their relationship quality to be poorer than did Chinese, and this cultural difference in perceived relationship quality was mediated by the accessibility of their negative memories and forecasts about their close other. Taken together, the findings in this thesis provided some support for my hypotheses.
Although I expected Euro-Canadians to remember and forecast more positive behaviors from their close other than Chinese in the positive condition, there were no cultural differences in their memories and forecasts in the positive condition across all four studies. In hindsight, the consistent null finding in the positive condition is not completely surprising considering some of the literature on the negativity bias – an asymmetry in the way people attend to and process negative versus positive information (Baumeister et al., 2001; Cacioppo & Berntson, 1994; Larsen, 2009). Research has found that people focus on negative information more readily, and process them more extensively, than positive ones (Ito et al., 1998; Vaish et al., 2008). As such, they tend to spend more time dwelling on negative events, and reason about them more, than positive ones (Boals et al., 2014; Larsen, 2009; Mickley & Kensinger, 2008). It is possible that cultural differences in individuals’ biased relational memories and forecasts were only salient or evident in the negative, but not positive, condition because the psychological effects or impacts of negative relationship events are just disproportionately greater than the equally intense positive relationship events (Baumeister et al., 2001). Given that cultural differences were only found when participants imagined or recounted negative relationship encounters in the current research, I will be focusing the rest of the discussion on the accessibility of negative memories and forecasts in the negative condition.

To my knowledge, the current research is the first to provide evidence showing that Euro-Canadians and Chinese differ in the extent to which their relational memories and forecasts are biased by their current relationship situation, especially when it is a negative relational encounter. Previous research in the close relationship literature domain has shown that in negative relationship situations, people (especially those with low trust, low commitment, or high in attachment anxiety) tend to remember and forecast their relationship encounters in a
negatively biased manner (Cortes & Wilson, 2016; Lemay et al., 2015; Luchies et al., 2013; McFarland & Ross, 1987). Consistent with these findings, I also found that people tend to bring to mind more negative memories and generate more negative forecasts about their close other in a current negative than positive relational situation. Furthermore, the current research extended prior research by demonstrating that the degree of bias in relationship memories and forecasts was greater for Euro-Canadians than Chinese when they encounter a current or recent negative relationship situation.

Additionally, in the culture and cognition literature domain, researchers have established that European North American’s attention and responses were more likely to be narrowly focused on, and influenced by, a focal current event compared to East Asians (Ji et al., 2001; Ji et al., 2008; Lam et al., 2005; Nisbett et al., 2001). Replicating Masuda et al.’s (2008) finding, I found that Euro-Canadians were less likely than Chinese to base their judgments of the focal person’s emotion on the emotions of the non-focal people in the surrounding background. The current research further demonstrated that these differences in visual-spatial attention can be extended to people’s attention to events or experiences along the temporal dimension. Across three studies, I consistently found that Euro-Canadians’ judgments of a current focal relationship event were less influenced by past and future non-focal relationship events than Chinese’s judgments were. This provided some evidence for the reliability of the relationship judgment task. Furthermore, the discrepancies in participants’ judgments ($r = .338$) as well as their corresponding self-reports ($r = .373$) between Masuda et al.’s (2008) emotion judgment task and my relationship judgment task were significantly correlated, $p < .001$. This provided some support for the convergent validity of the relationship judgment task.
Finally, Euro-Canadians also reported that they were more likely than Chinese to be focusing on or thinking about the current relationship event while they were recalling or forecasting their close other’s behaviors in the sentence completion task.

More importantly, the current thesis expands both domains of research by showing that Euro-Canadians were thinking about their close other’s recent wrongdoing (i.e., focal target event) to a greater extent than did Chinese, and this higher tendency to focus on their recent negative encounter was associated with more negative memories and forecasts of their close other’s behaviors. In other words, Euro-Canadians’ relational memories and forecasts were more anchored and biased by their current experiences (i.e., close other’s recent wrongdoing) than Chinese’s memories and forecasts were. These findings are consistent with Lam et al.’s (2005) affective forecasting research, which demonstrated that Euro-Canadians displayed greater impact bias in their affective forecasts than East Asians did, and that the cultural difference in their affective forecasts was mediated by the degree to which they focused on the target event.

Findings from the present research further extend the culture and focal thinking literature in a few ways. First, cultural differences in focal thinking led to differences not only in forecasting one’s own affect but also in forecasting other people’s behavior. Furthermore, the present research shows that the focal thinking process not only applies to individuals’ prediction of future encounters but also to individuals’ recollection of past experiences. Therefore, individuals who are more likely to focus their attention narrowly on the current focal event are more likely to base their recollections of the past and forecasts of the future on their current experiences. Finally, adding to the past research that showed that focal thinking leads to more errors in individuals’ affective forecasts for positive events (Lam et al., 2005; Wilson et al.,
2000; Wilson & Gilbert, 2003), the present research shows that focal thinking can influence individuals’ memories and forecasts for negative (interpersonal) events as well.

To be sure, although the expected cultural difference—Euro-Canadians exhibit higher focal thinking tendency than do Chinese—was consistently found across the three focal thinking measures in the current research, only individuals’ self-reported tendency to think about the recent relational encounter with their close other mediated the cultural differences in their memories and forecasts in the negative condition. Unexpectedly, individuals’ general focal thinking tendencies (as assessed by emotional judgment and relationship event judgment tasks) did not mediate the relationship between culture and memory/forecast. Perhaps this was because the self-reported focal thinking question was more specific and directly relevant to what individuals were doing in the sentence completion task than the two general judgment tasks. Alternatively, it could be because the self-reported thinking measure was more valid than the two judgement tasks at capturing the specific focal thinking process that is most applicable to the context of the current research. In retrospect, the three focal thinking measures appear to be tapping into slightly different components of the focal thinking construct. The emotion judgment task (in Study 2) measures the extent to which other non-focal background people’s emotions influence one’s judgments about a focal person. The relationship event judgment task (in Studies 2 to 4) measures the extent to which non-focal past and future relationship events influence one’s appraisal of the focal present event. The self-reported focal thinking question (in Studies 2 to 4) directly measures the extent to which one focuses on the current relationship event or keeps the current event in mind as one recalls or forecasts their close other’s behaviors. Recall that focal thinking refers to a cognitive tendency to focus too much on a focal event and fail to consider the influence of other events on one’s thoughts and emotions (Wilson et al., 2000). As such, it seems
that the two judgment tasks are capturing “the influence of other people/events on the evaluation of a focal target” part of the focal thinking construct, while the self-reported focal thinking question is capturing “the focus on/attention to the focal target” part of the focal thinking construct. Indeed, the correlations between the two judgment tasks were small or moderate (.338 < rs < .373), while the correlations between the self-reported focal thinking question and the two judgment tasks were negligible (-.018 < rs < .065). This is not surprising given that Na et al. (2010) have demonstrated that different measures of the same construct can produce consistent and reliable cultural differences even though the correlations among them are negligible.

Considering that the mechanism of interest in the current research was how focusing narrowly on a current relational encounter begets other loosely related relational memories and forecasts of their close other, the self-reported thinking question may have been a more valid measure to capture it than the two judgment tasks. Indeed, Lam et al.’s (2005) research also demonstrated a similar mediating role of a thought focus variable in people’s affective forecasts.

It is worth noting that the current study examined two alternative explanations that could contribute to the cultural differences in individuals’ interpersonal memories and forecasts. First, encounters that can threaten relational harmony (e.g., close other’s wrongdoing) are typically more undesirable for individuals from interdependent Eastern cultures (i.e., Chinese) than individuals from independent Western cultures (i.e., Euro-Canadians) (Markus & Kitayama, 1991). As such, Chinese may have recalled or forecasted less negative behaviors of their close other in the negative condition because they were more motivated to maintain relational harmony than do Euro-Canadians (Endo et al., 2000; Song & Wang, 2014). Second, European North Americans are more likely to believe stability in their interpersonal experiences or tend to predict more linear changes (if changes do occur) than do East Asians (Ji, 2005, 2008; Ji et al., 2001).
As such, Euro-Canadians may be more likely than Chinese to believe that their current negative relational experiences or close other’s current behaviors will not change, and thus be more likely to recall and forecast negative behaviors from their close other based on their current negative experience. Nevertheless, neither of them accounted for the cultural differences in individuals’ interpersonal memories/forecasts in the negative condition.

Although the current study showed that the indirect relationship between culture and memory/forecast was not due to individuals’ motivation to maintain relationship harmony or non-linear thinking styles, the weak mediation effect of focal thinking suggests that other potential alternative mediators warrant some discussion. For instance, cultural differences in the way East Asian and North American individuals attribute causes to behaviors or experience mixed emotions might have potentially contributed to the observed cultural effects. East Asians tend to attribute other people’s behaviors to external situational factors, whereas North Americans tend to attribute other people’s behaviors to internal dispositional traits (Chiu et al., 2000; Choi et al., 1999; Lee et al., 1996; Miller, 1984, Morris & Peng, 1994). More importantly, this cultural difference tends to be more significant when individuals provided attributions for deviant than prosocial behaviors (Miller, 1984). When reminded of their close others’ wrongdoing, Euro-Canadians may be more likely than Chinese to attribute it to their close other’s stable internal dispositions (e.g., he/she is a selfish person), which may lead to more congruent recall and forecast of their close other’s behaviors. In terms of ambivalent emotions, East Asians tend to report more mixed emotions than European North Americans do (Miyamoto et al., 2010). When a negative current relationship situation is made salient, Chinese may respond with more ambivalent and complex emotions, which may lead to less negative responses (in memory and forecast) to negative relationship situations. Last, but not least, our
psychological immune system—which helps defend our emotional well-being from threats by making sense of our negative emotional experiences or rationalizing them in a self-serving manner (Wilson & Gilbert, 2005)—may differ across cultures, which could lead to different response to negative relationship situations. Relationships with close others represent an important self-defining component for interdependent East Asians more than for independent European North Americans (Markus & Kitayama, 1991). When encountering an unpleasant relationship event, Chinese may be more motivated than Euro-Canadians to make sense of and rationalize their negative experiences in a “relationship-serving” manner (Endo, 1997; Hoshino-Brown et al., 2005), showing stronger psychological immunity, which may lead them to remember or forecast their close other in more favorable ways. Future studies should continue to explore potential alternative mediators to better understand the relationship between culture and negative relational memories and forecasts.

Apart from these theoretical reasons, the significant, albeit weak, mediation effect of focal thinking could also be due to certain methodological reasons, such as the third variable problem or measurement error. For example, the mediating relationship between culture and individuals’ memories/forecasts through focal thinking could be conditioning on a third variable unbeknownst to us. Also, because only one item was used to measure the extent to which individuals were focusing on and thinking about the current relationship situation while recalling/forecasting about their close other during the sentence completion task, it could have introduced a large margin of measurement error that underestimated the current mediation effect.

At this point, it should be noted that cultural differences in the types of close relationships that participants thought about (i.e., Euro-Canadians thought about their significant other more than Chinese did in Studies 2 and 3, whereas Chinese thought about their family member more
than Euro-Canadians did in Studies 1 to 3) might have presented some ambiguities in the interpretation of the current findings. For instance, one could argue that Euro-Canadians might keep negative thoughts (that could threaten their relationship) about their close other in mind more than Chinese do because it is possible for one to break up and leave a romantic partner, but much harder to do so with a family member. This is possible but may not be plausible because the same pattern of results were found when I only examined participants who thought about similar targets (their significant other, or a family member), although some of the effects did not reach statistical significance due to small sample sizes. Moreover, about half of the participants from each cultural group in each study thought about a close friend. When examining only participants who thought about a close friend, I found the same pattern of results as I did with the full sample. Furthermore, participants from the two cultural groups in Study 4 did not differ in the type of close relationships they nominated, and they still showed the same results as in Studies 1 to 3. Thus, the type of relationship people thought about did not seem to drive the effects observed in the present project.

The present findings may have implications for attachment orientations in close relationships. Individuals high in attachment anxiety tend to have heightened accessibility of negative emotional memories and lower accessibility of positive memories about their romantic partners, compared to individuals low in attachment anxiety (Cortes & Wilson, 2016; Mikulincer, 1998; Mikulincer & Orbach, 1995). Researchers have shown that individuals high (versus low) in attachment anxiety were less likely to adaptively manage their relational memories (e.g., distant negative memories about their close other and keep the positive ones close; Cortes et al., 2017; Cortes & Wilson, 2016), and more likely to ruminate about past negative experiences incessantly (Burnette et al., 2009; Lanciano et al., 2012). The present
research suggests a potential process underlying these findings. That is, individuals with higher, rather than lower, attachment anxiety may exhibit higher focal thinking tendency (i.e., be more likely to think about and focus on their current negative encounter with their close other), and thus be more likely to bring to mind negative memories and forecasts about their close other, resulting in poorer relational outcomes.

Consistent with past literature (Cortes et al., 2017, Karney & Coombs, 2000; Lemay et al., 2015; Murray & Holmes, 1997; Murray et al., 2000, 2001, 2006), the current study also demonstrated that recalling and forecasting close other’s negative behaviors were associated with negative relationship implications – poorer perceived relationship quality, lower willingness or motivation to help/support a close other in need or forgive a close other who transgressed. In particular, I found (in Studies 3 and 4) that after recounting a recent negative encounter with a close other, Euro-Canadians perceived their relationship quality to be poorer than did Chinese, and furthermore this cultural difference in perceived relationship quality was mediated by their negative relational memories and forecasts. Notably, the reverse mediation in Study 3 was not significant, offering more support for the idea that Euro-Canadians’ poorer perception about their relationship quality in the negative condition was at least in part because they were more likely than Chinese to bring to mind other negative memories about their close other. The indirect relationship between culture and perceived relationship quality through negative relational forecasts (in Study 4), however, was less clear because the alternative explanation (i.e., individuals’ perceived relationship quality mediating the cultural differences in negative forecasts about their close other’s behaviors) was equally plausible. Perhaps in a threatening relational situation, one’s negative forecasts about their close other and poor perception of their relationship quality with them are influencing each other in an endless vicious cycle. Future
research should examine this possibility as this negative pattern of relationship dynamic, if true, could further exacerbate the current negative relational situation and motivate individuals to behave in relationship-destructive ways (Cortes & Wilson, 2016; Lemay et al., 2015).

So far in this thesis, I have been highlighting how one’s focus on their close other’s current wrongdoing brings about other negative memories/forecasts about their close other, and how the accessibility of these negative memories/forecasts can have negative relationship implications (e.g., perceive poor relationship quality). Although these processes are generally detrimental for people’s well-being or the well-being of their relationship, they can also be adaptive at times depending on the context of the relationship (McNulty & Fincham, 2012). In harmful or abusive relationships, for example, the tendency to focus on a close other’s wrongdoing and recall more of their past misdeeds or forecast more of their negative future behaviors may actually offer more benefit than harm to oneself. It may encourage one to perceive their relationship quality to be poor and end the destructive relationship early rather than enduring it.

**Limitations and Future Research**

Several limitations inherent in the current thesis deserve some discussion. One of the biggest concerns was that a substantial number of participants had to be excluded due to their failure in following the instructions or lack of effort in completing the main task (Huang et al., 2012). The online nature of Studies 3 and 4 (during the pandemic) and the recounting of actual relational encounters may compromise the quality of participants’ open-ended responses. The relatively high exclusion rate (ranging between 9% and 15% for Euro-Canadians and 14% and 28% for Chinese across all four studies) deserves some discussion.
First, the power to detect the effects of interest is considerably reduced after excluding participants who failed the manipulation and sentence completion checks. It is, however, worth noting that the pattern of results remained the same even when participants who provided personal characteristics instead of close other behaviors (as instructed) were included in the main analyses (i.e., using a less stringent exclusion criteria). Moreover, Web experiments typically have a mean attrition rate of about 34% (Musch & Reips, 2000). Zhou and Fishbach (2016) specifically examined common social psychology paradigms that were cognitively taxing and involved writing open-ended essays on MTurk in a more recent study, and found that these online studies have dropout rates ranging between 30% and 50%. Therefore, the relatively high exclusion rate in the present thesis, albeit undesirable, is not uncommon.

Second, and more importantly, high exclusion rates may introduce unwarranted confounds and undermine the internal validity of a research, particularly if random assignment had been violated and participants’ attrition was condition dependent (Zhou & Fishbach, 2016). For example, if more participants had insisted that their close other never did anything to upset them, then the attrition based on the manipulation check would be condition dependent as more data would be excluded from the negative than positive condition. A closer examination of the exclusion rates in the present research, however, showed that they were similarly distributed across the two experimental conditions in all of the studies except for Euro-Canadians in Study 1 and Chinese participants in Study 4 (see Table 5). Given the consistent findings across all the four studies, it seems unlikely that selective attrition (if any) has compromised the internal validity of the present findings.\footnote{Although more Chinese than Euro-Canadian participants were excluded for not describing close other behaviors in the sentence completion task (as instructed), it is important to note that the pattern of results remained the same even after I use a less stringent criteria and include all participants in the main analyses.}

That being said, it will be imperative for future research to
replicate the present findings using other methodologies, or perhaps in a lab setting (instead of online studies).

Table 5

*Exclusion Rate of the Four Studies Across the Positive and Negative Experimental Conditions for Euro-Canadians and Chinese.*

<table>
<thead>
<tr>
<th>Checks</th>
<th>Study</th>
<th>Euro-Canadians</th>
<th>Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>Manipulation</td>
<td>Study 1</td>
<td>9.3%&lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.8%&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td></td>
<td>Study 2</td>
<td>0.8%</td>
<td>1.8%</td>
</tr>
<tr>
<td></td>
<td>Study 3</td>
<td>2.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>Study 4</td>
<td>2.9%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Sentence Completion Task</td>
<td>Study 1</td>
<td>1.9%</td>
<td>5.3%</td>
</tr>
<tr>
<td></td>
<td>Study 2</td>
<td>9.7%</td>
<td>9.0%</td>
</tr>
<tr>
<td></td>
<td>Study 3</td>
<td>14.0%</td>
<td>15.3%</td>
</tr>
<tr>
<td></td>
<td>Study 4</td>
<td>3.8%</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

*Note.* Exclusion rates in a row sharing subscripts are significantly different from each other.

Next, I used the same sentence completion task to measure the dependent variable (i.e., accessibility of positive versus negative relationship memories and forecasts) across all four studies in the present research. It would be prudent for future research to use different measures to replicate the current findings. For example, researchers may use reaction time taken for the first negative relationship event to come to mind as a measure of memory/forecast accessibility in future studies. A longer reaction time taken for one to recall/forecast a close other wrongdoing will suggest that those negative memories/forecasts are less accessible (i.e., harder to bring to mind. Such findings may further strengthen the validity of the present research.

Although participants imagined a current hypothetical relationship scenario (in Studies 1 and 2) and recounted a recent encounter with their close other (in Studies 3 and 4), I did not
capture their “in-the-moment” memories/forecasts that came to mind during a current negative relationship event. While it will be ideal for future research to experimentally manipulate a current conflict between participants and their close other, it can be quite challenging to do so ethically. Nonetheless, future research may use diary studies to examine individuals’ memories/forecasts immediately following a conflict with their close other.

Incidentally, diary studies or longitudinal study designs can offer other benefits too. For instance, although the current research focuses on how current relationship events bias the accessibility of certain types of memories/forecasts, people’s memories/forecasts can also be biased in terms of accuracy (as mentioned in the introduction). That is, during a negative relationship situation, people may remember past events or predict future events more negatively than they actually were or are. Future research may use longitudinal study designs or diary studies to examine how current relationship events bias the accuracy of Euro-Canadian and Chinese individuals’ memory/forecasts by comparing their recollection/forecasts with their actual experiences.

It is important to note that the mediation of the cultural differences in memories/forecasts in the negative condition through focal thinking should be interpreted with caution as the equally plausible alternative model—individuals’ negative memories/forecasts mediating the cultural differences in focal thinking—was significant as well. Because of the correlational nature of these variables and the significant reverse mediation, the present research cannot (statistically) rule out the alternative explanation, although it seems more intuitive to assume that individuals’ focus on a current negative relational event leads them to bring to mind other related memories and forecasts than the other way round. It would be prudent for future research to clarify the
mediating (or even causal) role of focal thinking by directly manipulating it in an experimental setting.

Majority of the research in the current culture and cognition literature has examined and documented robust cross-cultural differences in a great variety of cognitive processes (see Yap et al., 2018 for a review). Instead of extending the literature in culture and memory/forecast beyond East-West differences, findings from the current thesis are once again limited to these two cultures. Future studies should broaden their samples and examine these biased relational memories/forecasts across individuals with different socio-economic status, religious heritage, and ethnic groups.

Although the current study examined and found negatively biased memories/forecasts to be associated with lower willingness/motivation to help and support a close other as well as lower willingness to forgive, these potential consequences are entirely based on participants’ self-reports. It is unclear whether or not their self-reports will be translated to actual behaviors in the face of a current relationship threat. Nonetheless, it serves as a good starting point for future research to replicate these findings with actual relationship behaviors.

Conclusion

Taken together, this thesis sheds light on some of the cultural similarities and differences in individuals’ relational memories and forecasts. While there were no cultural differences in the accessibility of memories and forecasts about their close other when individuals’ current relationship experiences were positive, Euro-Canadians recalled and forecasted more negative behaviors by their close others than did Chinese when their current relational experience was negative. Notably, the tendency to think about and focus on close other’s hurtful actions brought about other related negative memories and forecasts about their close other, and this effect was
stronger among Euro-Canadians than among Chinese. Furthermore, neither of the cultural differences in memories nor forecasts was attributable to potential alternative explanations such as motivation to maintain relationship harmony or non-linear thinking styles. These negatively biased memories and forecasts have important implications on individuals’ perceived relationship quality, willingness/motivation to help or support a close other, and forgiveness. The present research may serve as a great starting point for future research to examine broader implications for real-life interactions (e.g., conflict behaviors and responses), and expand beyond the close relationship context to a wider range of social contexts (e.g., work-place relationships).
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Appendix A

Ethics Documents

Letter of Information

Açai Berry
Suhui Yap and Professor Li-Jun Ji
Department of Psychology, Queen’s University

PURPOSE OF THE STUDY: This study is being conducted to examine people’s management of relationship memories/forecasts in the present. For this study, you will be asked to recall/forecast some past/future events that involve you and your close-other, and answer some questions regarding how you would likely think, feel and respond. The study will take approximately 20 minutes, and you will receive 0.5 course credit toward your PSYC course.

RISKS: The risks associated with this study is minimal, although there is a chance that you may experience some emotional discomfort. Some of the items may be personal and sensitive in nature. Although it would be greatly appreciated if you would answer all material as frankly as possible, you may decline to answer any questions you don’t feel like answering by skipping the question. Your participation is completely voluntary and you will not be penalized for withdrawing from the study, or not participating at all. You may withdraw from the study by closing the internet browser or by informing the experimenter at any time without any penalty.

CONFIDENTIALITY: Your data will be completely anonymous, meaning that your responses will not be connected to any identifying information. Any information gathered from this study may be used in multiple analyses related to social psychology, and that this information will remain confidential, anonymized and be stored in a secured database forever. Any personal-identifying information (e.g., name) collected in this study will not be connected with the data (it will only be used for granting credit/rewards). The demographic information collected in this study will only be reported in aggregated formats. The data may also be presented in professional psychological journals or at scientific conferences, but any such presentations will be of general findings and will never breach individual confidentiality. Should you be interested, you are entitled to a copy of the findings. The Queen's General Research Ethics Board (GREB) may request access to study data to ensure that the researcher(s) have or are meeting their ethical obligations in conducting this research.

Consent Form

IF I HAVE QUESTIONS: I am aware that if I have any comments or questions regarding the conduct of this research or my rights as a research participant, I may contact Dr. Li-Jun Ji at lijunji@queensu.ca or Suhui Yap at suhui.yap@queensu.ca. Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at 1-844-535-2988 (Toll free in North America) or 1-613-533-2988 outside North America or email Chair.GREB@queensu.ca.

CONSENT: I have read the above statements, understood the nature of the Açai Berry study, and freely consent to participate in this research by signing below. I understand that my participation in this study is voluntary and I may withdraw my participation by closing the browser, or by informing the experimenter that I do not wish to continue with the study. Once I leave this laboratory, my right to withdraw ends. I understand that every effort will be made to maintain the confidentiality of the data now and in the future. The experimenter has also answered my questions satisfactorily. I am aware that the data may be published in professional journals or presented at scientific conferences, but any such presentations will
be of general findings and will never breach individual confidentiality. I have not waived any legal rights by consenting to participate in this study. I hereby authorize the use of all records and data derived from this experiment for research purposes.

By clicking “next”, I acknowledge that I have read the information in this form and I consent to participate in the Açai Berry study voluntarily.
This study aims to explore the role of culture in individuals’ management of interpersonal memories, and their downstream consequences on relationship well-being and outcomes. This study was experimental in nature. Participants were randomly assigned to one of two conditions (positive vs. negative). In the positive condition, participants were asked to imagine/recall an event in which their nominated close other did something very kind or nice for them. In the negative condition, participants were asked to imagine/recall an event in which their nominated close other did something that hurt or wronged them. After which, all participants completed a sentence completion task, recalling the behaviors of their close other in the past.

Past literature has shown East Asians, who are more holistic, tend to exhibit less focal thinking tendencies than do North Americans, who are more analytic (Lam et al., 2005). As such, compared to East Asians, North Americans may be more likely to recall positive and negative interpersonal memories in a current unrelated positive and negative situation, respectively. These memory biases, in turn, could have important implications on relationship well-being and outcomes (e.g., higher relationship satisfaction, greater likelihood of forgiveness, less maladaptive conflict responses, greater relationship endurance/commitment, etc.).

The results in this study will enrich understanding about the role of culture in people’s management of interpersonal memories, as well as the downstream consequences of any relationship-enhancing memory bias on relationship well-being and outcomes. If you would be interested to receive a copy of the results of this study, you may contact Suhui Yap at suhui.yap@queensu.ca. If you have a more general interest in this area of research, you may wish to consult the following:


We really appreciate your participation and hope that this has been an interesting experience for you. Please note once again that you can withdraw from this study at any time with no penalty, however, you can only do so up to this point. Once you leave this laboratory, your right to withdraw ends. The questionnaires used in this study are for research purposes only, and the confidentiality of your answers will be protected. Should the data be disposed of, or published, you will remain anonymous in all cases. If answering any of the questions in this study raises concerns for you or makes you feel uncomfortable, you may wish to contact Queen’s Counselling Services at 613-533-2893 or the researchers immediately. Suhui Yap at suhui.yap@queensu.ca or Dr. Li-Jun Ji at lijunji@queensu.ca. If you have any ethical concerns about this study you may contact the Chair of the General Research Ethics Board at 1-844-535-2988 (Toll free in North America) or 1-613-533-2988 outside North America or email Chair.GREB@queensu.ca.

Thank you for your participation!
Debriefing Letter (Study 4)

This study aims to explore the role of culture in individuals’ management of interpersonal forecasts, and their downstream consequences on relationship well-being and outcomes. This study was experimental in nature. Participants were randomly assigned to one of two conditions (positive vs. negative). In the positive condition, participants were asked to recall an event in which their nominated close other did something very kind or nice for them. In the negative condition, participants were asked to recall an event in which their nominated close other did something that hurt or wronged them. After which, all participants completed a sentence completion task, forecasting the behaviors of their close other in the near future.

Past literature has shown East Asians, who are more holistic, tend to exhibit less focal thinking tendencies than do North Americans, who are more analytic (Lam et al., 2005). As such, compared to East Asians, North Americans may be more likely to forecast positive and negative interpersonal memories in a current unrelated positive and negative situation, respectively. These forecast biases, in turn, could have important implications on relationship well-being and outcomes (e.g., higher relationship satisfaction, greater likelihood of forgiveness, less maladaptive conflict responses, greater relationship endurance/commitment, etc.).

The results in this study will enrich understanding about the role of culture in people’s management of interpersonal forecasts, as well as the downstream consequences of any relationship-enhancing forecast bias on relationship well-being and outcomes. If you would be interested to receive a copy of the results of this study, you may contact Suhui Yap at suhui.yap@queensu.ca. If you have a more general interest in this area of research, you may wish to consult the following:


We really appreciate your participation and hope that this has been an interesting experience for you. Please note once again that you can withdraw from this study at any time with no penalty, however, you can only do so up to this point. Once you leave this laboratory, your right to withdraw ends. The questionnaires used in this study are for research purposes only, and the confidentiality of your answers will be protected. Should the data be disposed of, or published, you will remain anonymous in all cases. If answering any of the questions in this study raises concerns for you or makes you feel uncomfortable, you may wish to contact Queen’s Counselling Services at 613-533-2893 or the researchers immediately. Suhui Yap at suhui.yap@queensu.ca or Dr. Li-Jun Ji at lijunjji@queensu.ca. If you have any ethical concerns about this study you may contact the Chair of the General Research Ethics Board at 1-844-535-2988 (Toll free in North America) or 1-613-533-2988 outside North America or email Chair.GREB@queensu.ca.

Thank you for your participation!
January 09, 2019

Miss Suhui Yap
Ph.D. Candidate
Department of Psychology
Queen's University
Kingston, ON, K7L 3N6

GREB Ref #: GPSYC-907-18; TRAQ # 6025463
Title: "GPSYC-907-18 Culture and management of past relational memories in the present"

Dear Miss Yap:

The General Research Ethics Board (GREB), by means of a delegated board review, has cleared your proposal entitled "GPSYC-907-18 Culture and management of past relational memories in the present" for ethical compliance with the Tri-Council Guidelines (TCPS 2 (2014)) and Queen's ethics policies. In accordance with the Tri-Council Guidelines (Article 6.14) and Standard Operating Procedures (405.001), your project has been cleared for one year. You are reminded of your obligation to submit an annual renewal form prior to the annual renewal due date (access this form at http://www.queensu.ca/traq/signon.html; click on "Events;" under "Create New Event" click on "General Research Ethics Board Annual Renewal/Closure Form for Cleared Studies"). Please note that when your research project is completed, you need to submit an Annual Renewal/Closure Form in Romeo/traq indicating that the project is 'completed' so that the file can be closed. This should be submitted at the time of completion; there is no need to wait until the annual renewal due date.

You are reminded of your obligation to advise the GREB of any adverse event(s) that occur during this one-year period (access this form at http://www.queensu.ca/traq/signon.html; click on "Events;" under "Create New Event" click on "General Research Ethics Board Adverse Event Form"). An adverse event includes, but is not limited to, a complaint, a change or unexpected event that alters the level of risk for the researcher or participants or situation that requires a substantial change in approach to a participant(s). You are also advised that all adverse events must be reported to the GREB within 48 hours.

You are also reminded that all changes that might affect human participants must be cleared by the GREB. For example, you must report changes to the level of risk, applicant characteristics, and implementation of new procedures. To submit an amendment form, access the application by at http://www.queensu.ca/traq/signon.html; click on "Events;" under "Create New Event" click on "General Research Ethics Board Request for the Amendment of Approved Studies." Once submitted, these changes will automatically be sent to the Ethics Coordinator, Ms. Gail Irving, at University Research Services for further review and clearance by the GREB or Chair, GREB.

On behalf of the General Research Ethics Board, I wish you continued success in your research.

Sincerely,

Dean Tripp, Ph.D.
Chair
General Research Ethics Board

c: Dr. Li-Jun Ji, Supervisor
    Dr. Elizabeth Kelley, Chair, Unit REB
Appendix B
Manipulation of relationship event (Studies 1 & 2)

Positive condition:

In this task, you will be presented with a scenario in which someone you are close to did something that hurt/wronged you. Please imagine the following situation happening between you and your close other currently.

You have always trusted your close other. One day, you found out that he/she betrayed your trust and lied to you.

Try to vividly imagine and visualize in your mind the things that would be happening, how you would be feeling, what you would be thinking or saying, and how you would be reacting. In a few sentences, please provide a detailed description of the situation you were picturing in your mind in the blank space provided below.

Negative condition:

In this task, you will be presented with a scenario in which someone you are close to did something that was kind/nice for you. Please imagine the following situation happening between you and your close other currently.

Your close-other went out of their way to help, support, and do something nice for you.

Try to vividly imagine and visualize in your mind the things that would be happening, how you would be feeling, what you would be thinking or saying, and how you would be reacting. In a few sentences, please provide a detailed description of the situation you were picturing in your mind in the blank space provided below.
Appendix C
Sentence Completion Task (Studies 1 – 3)

This part of the study will ask you to complete sentences regarding <insert close other’s initial>. Please complete each sentence with specific/concrete behaviors/actions that <insert close other’s initial> did that involved you. They can be anything, good or bad – as long as they are specific behaviors/actions (i.e. what they did to/for you), and NOT personal characteristics (e.g. the type of person they were/are).

Please complete the sentences based on whatever comes to mind. Complete as many sentences (up to ten) as what comes to your mind. There are no right or wrong answers. Please complete each sentence with the first thought that comes to your mind.

<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
Appendix D

Perceived Relationship Quality Scale

Below are some questions asking how you feel about your current relationship with <insert close other’s initial> at the moment. Please answer the following questions according to how you feel about them right now.

1 2 3 4 5 6 7
Not at all Very Much

Relationship Satisfaction
1. How satisfied are you with your relationship with <insert close other’s initial> right now?
2. How content are you with your relationship with <insert close other’s initial> right now?
3. How happy are you with your relationship with <insert close other’s initial> right now?

Trust
4. How much do you trust <insert close other’s initial> right now?
5. How much can you count on <insert close other’s initial> right now?
6. How dependable is <insert close other’s initial> right now?
Appendix E
Manipulation of relationship event (Studies 3 & 4)

Positive condition:

In this part of the study, we would like you to take a moment to think about a specific relationship event that occurred recently in which someone you are very close to made you feel happy or loved, no matter how big or small the incident is, or whether he/she realized it or not. (e.g., he/she went out of the way to help and support you, did something nice for you, said something nice to you, or his/her behavior toward you was thoughtful, etc.)

This person can be your significant other, a very close friend, or your family member.

Now, we’d like you to describe your interaction with your close other in this situation you just thought about. In your description of the event, please try to include as many details as you are comfortable providing. Try to visualize in your mind the specific event and the interactions you had with your close other at that time. Think about what your close other did that made you feel loved, how you felt, what you thought or said, and how you reacted.

Negative condition:

In this part of the study, we would like you to take a moment to think about a specific relationship event that occurred recently in which someone you are very close to made you feel upset, angry, or hurt, no matter how big or small the incident is, or whether he/she realized it or not. (e.g., he/she told a friend about something you think should have remained private, did something hurtful behind your back, did not trust you, lied to you, neglected you, said something that embarrassed you in front of others, etc.)

This person can be your significant other, a very close friend, or your family member.

Now, we’d like you to describe your interaction with your close other in this situation you just thought about. In your description of the event, please try to include as many details as you are comfortable providing. Try to visualize in your mind the specific event and the interactions you had with your close other at that time. Think about what your close other did that upset you, how you felt, what you thought or said, and how you reacted.
Appendix F
Sentence Completion Task (Study 4)

This part of the study will ask you to complete sentences regarding <insert close other’s initial>. Please complete each sentence with specific/concrete behaviors/actions that you forecast <insert close other’s initial> will do in the near future that involve you. They can be anything, good or bad – as long as they are specific behaviors/actions (i.e. what they will do to/for you), and NOT personal characteristics (e.g. the type of person they are/will be).

Please complete the sentences based on whatever comes to mind. Complete as many sentences (up to ten) as what comes to your mind. There are no right or wrong answers. Please complete each sentence with the first thought that comes to your mind.

<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.
<insert close other’s initial> ____________________________________________________.