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Cultural differences in holism, focalism and affective forecasting

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Cultural Differences in Holism, Focalism and Affective Forecasting

By

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Abstract

The "impact bias" in affective forecasting -- a tendency to overestimate the emotional consequences of a particular future event -- might not be a universal phenomenon. This prediction bias occurs in part because of a cognitive process known as focalism, whereby predictors focus attention narrowly on the target event and neglect other mitigating events and circumstances. It was hypothesized that East Asians, because of their holistic tendencies, would be less susceptible to focalism and consequently to the impact bias. These hypotheses were partially supported. In Study 1, participants predicted on a cold day how happy they would be when outdoor temperatures first reached 20 degrees Celsius. When this warmer weather arrived, a comparable sample of participants reported their happiness. In Study 2, participants nominated an upcoming positive event and predicted how happy they would be two weeks later if it occurred. Two weeks later, the same participants reported their actual happiness levels. In both studies, Euro-Canadians exhibited the impact bias – predicting significantly more happiness than they experienced – but Asians did not. The Euro-Canadians predicted greater happiness than Asians, whereas actual happiness levels did not differ across cultures. In addition, a measure of cognitive process revealed that the cultural difference in prediction was mediated by the degree to which participants focused on the target event itself. These results suggest that East Asians are less prone than Westerners to the impact bias, because they focus less on the target event while generating affective forecasts. Although scores on several holism measures were not predictive of focalism or affective forecasts, the results of both studies supported the hypothesized patterns of predicted and experienced happiness as well as confirmed the expected role of focalism.

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Cultural Differences in Affective Forecasting

People's judgments about the emotional impact of future events are important because they very often guide decisions and behaviours. A football fan, for example, might decide to forego a homework assignment in order to watch the Super Bowl because she believes that seeing her team victorious would make her extremely happy for days to come. Unfortunately, the results of recent experimental studies on affective forecasting suggest that the football fan is likely to have overestimated both the intensity and the duration of her emotional reactions to the event (Wilson, Wheatly, Meyers, Gilbert, & Axsom, 2000). Indeed, the *impact bias* -- defined by Gilbert, Driver-Linn and Wilson (2002) as the tendency to overestimate the emotional consequences of future life events -- has not only been observed among football fans imagining a championship season, but also among University students imagining doing well on an exam (Buehler & McFarland, 2001), assistant professors imagining achieving tenure (Gilbert, Pinel, Wilson, Bluemberg, & Wheatly,1998), and Midwestern Americans imagining what it would be like to live under the sunny skies of California (Schkade & Kahneman, 1998). In these and many other studies, the general finding is that people turn out to be less happy after a positive outcome than they had initially predicted (e.g., Dunn, Wilson, & Gilbert, 2003; Gilbert, Gill, & Wilson, 2002; Gilbert & Ebert, 2002).

What are the sources of the impact bias? This is a question that has generated a considerable amount of interest among social psychologists. Of the several explanations that exist in the literature, a particularly interesting and compelling one is that of *focalism,* or the tendency of affective forecasters to focus too narrowly on a future event that they are making a prediction about (Wilson et al., 2000). In a series of studies,

Wilson and his colleagues demonstrated that when people make affective forecasts, they tend to focus too much on the event in question and too little on other non-focal events that could affect their emotions as well. For instance, if the football fan mentioned at the beginning of this paper were asked to make an affective prediction, it is likely that she might focus too narrowly on the outcome of the football game and not enough on other occurrences (e.g., not getting her homework assignment done) that could mitigate the emotional impact of the focal event. As a result, she might overestimate how happy she would be if her football team were to win the game.

Culture, Focalism, and the Impact Bias

Although the focalism effect has been robust in Euro-North American samples, it has yet to be replicated with an East Asian sample of participants. Theoretically, there are strong reasons to believe that East Asians might be less susceptible to focalism. Recent cross-cultural research has shown that East Asians tend to engage in more holistic thinking whereas Westerners tend to engage in analytic thinking (Choi & Nisbett, 2000; Nisbett, Peng, Choi, & Norenzayan, 2001; Masuda & Nisbett, 2001; Choi, Dalal, Kim-Prieto, & Park, 2003). By definition, holistic thinkers tend to pay more attention to contextual and background information than analytic thinkers, who in contrast tend to view objects as distinct entities detached from their context (Masuda & Nisbett, 2001). In one study, Masuda and Nisbett (2001) asked both American and Japanese participants to report the contents of several animated vignettes of underwater scenes (i.e., the Michigan Fish Task). These scenes featured several distinct focal objects in the middle (large fishes), a few less conspicuous non-focal objects (seaweed, rocks, etc.), as well as the background itself (water of various colours). The results of the study indicated that

Japanese participants made more statements about contextual information and relationships (e.g., I saw a fish swimming from right to left toward to the seaweed) than did American participants, whose reports of the scene tended to focus on the focal objects (e.g., I saw three big fish swimming). In a second study, the recognition accuracy of the Japanese participants for previously seen objects deteriorated when those objects were placed in front of a novel background, whereas the same manipulation did not have an effect on American participants. For East Asians, it appears as though the focal objects and the background are perceptually bound; for Westerners, however, they appear to be separate entities.

Given this general difference in cognition, could it be the case that Westerners and East Asians see the future differently? A number of other researchers have demonstrated that holism, a fairly global variable, is predictive of other variables that are more domain-specific. For example, Choi et al. (2003) found that people's holistic tendencies predicted the amount of information they considered in making causal judgments. In the present research, the hypothesis is that people's holistic tendencies would predict focalism. The finding that Westerners tend to see the focal objects and the background as distinct entities appears to be analogous to the focalism effect; the future event in question, like the focal objects in the underwater scenes, is given the most attention while little heed is paid to the less conspicuous, non-focal events. In contrast, judging by the comparable attention they tend to pay to both focal and non-focal objects, it was expected that East Asians would focus less exclusively on the focal event when generating affective predictions. If East Asians are indeed less susceptible to focalism, then one might expect their affective forecasts to suffer less from the impact bias.

Another important characteristic of holistic thinkers from the Far East is that their thoughts are dialectical; they believe that opposites (e.g., *yin and yang)* could coexist in perfect harmony. Chinese philosophers have argued that seeing the good with the bad is the most proper way of looking at things: "for misery, happiness is leaning against it; for happiness, misery is hiding in it" (Wei, 1939 version, as cited in Ji, Nisbett, & Su, 2001). There is already some general evidence that East Asians, as a result of their holistic thinking styles, do indeed differ from Westerners in terms of how they view the future. Ji, Nisbett, and Su (2001) found that Chinese participants are more likely to predict that one's good fortunes will take a regressive turn. Extending that further, I suggest that the tendency to see the good along with the bad (a form of holistic thinking) is another reason why East Asians might be less likely than Westerners to focus too narrowly on the positive target event and overestimate how happy they would be in response to it. An Asian football fan, for instance, might predict that he would be happy to see his team win the championship but might at the same time take into account the sadness associated with not completing his homework assignment and thus offer a more even-handed affective prediction than his Western counterpart.

The Present Hypotheses and Alternative Accounts

The present research was guided by three hypotheses derived from the above discussion. First, relative to Westerners, East Asians should display greater holistic tendencies in their thinking style. Second, as a result of their general holistic thinking style, East Asians should focus less exclusively than Westerners on the target event when imagining how they would feel at some future point in time. In other words, it was expected that East Asians would be less susceptible to focalism than Westerners. Third,

if East Asians were indeed less susceptible to focalism, they should be less likely than Westerners to make overly extreme affective predictions. The following is a schematic illustration of the predicted causal model of the relationships among culture, holism, focalism, and affective prediction:

East Asians ---> High in Holism ---> Low in Focalism ---> Moderate Affective Predictions

Westerners ---> Low in Holism ---> High in Focalism ---> Extreme Affective Predictions

Tests of the above mediation model are important because they shed light on the specific mechanisms underlying the expected cultural difference in affective forecasts. Furthermore, the mediation analyses can help gainsay other alternative explanations for why East Asians might make more moderate affective predictions. For example, one could argue that Westerners might be more likely than East Asians to overestimate how happy they would be after a positive event simply because they tend to be more optimistic in general (Heine & Lehman, 1995; Chang, 2001). However, according to this alternative account we would not expect to see holism or focalism accounting for a significant portion of the relationship between culture and affective predictions. By measuring the holism and focalism variables in the present studies and treating them as potential mediators, it is possible rule out the notion that the predicted cultural difference in affective forecast is simply due to cultural differences in general optimism.

Another issue to consider is that happier "experiencers" may tend to make happier affective predictions. Indeed, psychologists have noted that there is a significant positive correlation between people's predicted and actual happiness (Buehler & McFarland, 2001). The question, then, is whether Westerners might be more likely to make happier

affective predictions simply because they are happier experiencers. Although this account seems plausible, it is important to note that it does not explain the hypothesized results. The hypothesis was that predicted happiness would differ across cultures whereas actual or experienced happiness would not (at least not as much as predictions). There is only mixed evidence that Westerners are indeed happier people than East Asians (Lu, Gilmour, Kao, Weng, Hu, Chern, Huang, & Shish, 2001) and there appears to be no difference when affect is measured on-line. For example, Oishi (2002) found that Euro-Americans reported being happier than Asians for retrospective judgments (e.g., how good or bad was last week?) but that the two groups did not differ in on-line experiences of well-being (e.g., how good or bad is today?). In assessing the accuracy of people's affective predictions, researchers have traditionally, and reasonably so, compared them to people's on-line experiences of well-being. For example, Gilbert et al. (1998) asked participants to respond to the following question: "In general, how happy would you say you are these days?" If Westerners do not experience more on-line happiness than East Asians, it would be difficult to make the case that they had offered happier affective predictions simply because they were happier experiencers. To address this issue, both predicted and experienced happiness was measured in both of the present studies and used to assess prediction biases.

With these issues and alternative accounts in mind, I designed and conducted two studies to test the aforementioned hypotheses. These studies represented very different approaches. Study 1 was a between-subject design involving a standard target event whereas Study 2 was a within-subject design involving a self-nominated target event. Specific strengths and weaknesses of each study will be explained as they are presented

and discussed, but it was my intention that these two different studies would complement one another and triangulate on the research questions I have posed. The two studies were also similar in that they share the same logic; in each study, I asked people to predict how happy they would be if a positive event were to take place and then compared those forecasts to people's actual or experienced happiness. It is worth noting that the two studies examined people's predictions for positive but not negative events. The reason for this is that focalism is thought to be the main mechanism involved in producing the impact bias for positive events (Wilson, Meyers & Gilbert, 2001). For negative events, other mechanisms, such as *immune neglect* (i.e., the tendency to underestimate one's own ability to recover emotionally), often combine to produce the impact bias (Gilbert et al, 1998). Therefore, given that this was an investigation about the mediating role of focalism, it seemed appropriate that the valence of the target events in both studies was positive.

Study 1

Study 1 featured a between-subject design in which Euro-Canadian and East-Asian participants predicted in early March how happy they would be the week when the temperature first warms up to 20 degrees Celsius (the positive target event). When the temperature did warm up to 20 degrees in April, a different but comparable group of Euro-Canadian and East Asian participants reported how happy they were. In sum, the study consisted of a 2 (Culture: Euro-Canadians vs. East Asians) x 2 (Role: Predictors vs. Experiencers) design. It was expected that Euro-Canadian predictors would predict significantly more happiness than what the Euro-Canadian experiencers would actually feel. In contrast, it was hypothesized that East Asian predictors would make significantly

less extreme affective forecasts than Euro-Canadian predictors and that they would not predict significantly more happiness than what the East-Asian experiencers would actually experience. Questionnaire items measuring holism and focalism were also included in the study to allow tests of the causal model proposed previously.

Method

Participants

A total of 123 students at the University of Waterloo took part in the study. The final sample included only participants who could be classified as either Euro-Canadian (Canadian of European descent) or foreign-born East-Asian. The 14 students excluded from the final sample included 11 Canadian-born East Asians and 3 students from other cultural backgrounds. The final sample consisted of a total of 109 students (70 female, 39 male). Fifty-eight of those students participated at the first session as "predictors". Of the predictors, 37 were Euro-Canadians and the other 21 were foreign-born East Asians. Fifty-one of the students participated at the second session as "experiencers". Of the experiencers, 28 were Euro-Canadians and the remaining were 23 foreign-born East Asians. Each participant received a candy bar for taking part in the study.

Procedure

Predictors. On a damp, drizzly day (March 11th, 2004), two research assistants visited the students' campus center at the University of Waterloo and invited patrons at the center to participate in a study examining "people's feelings and beliefs". Patrons who agreed to participate were given a consent form (see Appendix A) and then a short questionnaire package (see Appendix B).

Section A of the questionnaire contained several questions concerning

participants' feelings. First, participants were asked to rate how happy they are on an average or typical day and how enjoyable they thought the weather was at this time on a scale ranging from 1 (not at all) to 11 (extremely). Next they were asked to predict how "happy would [they] be overall the week when the temperature first warms up to 20 degrees Celsius" on an 11-point scale (1 = Not at all happy; 11 = Extremely happy). The next two items in the section were designed to measure focalism; on scales ranging from 1 (not at all) to 11 (a great deal), participants were asked to report the extent to which their thoughts were focused on the weather (the focal event) and the extent to which their thoughts were focused on other factors (non-focal events) when they were making their predictions. The last question asked participants to predict when the temperature would in fact reach 20 degrees. This question was included to check whether Euro-Canadians and East Asians had similar ideas about when the temperature typically first warms up to 20 degrees.

Section B of the questionnaire package contained a 10-item measure of participants' general tendency to think holistically developed by Choi et al. (2003). To complete the measure, participants rated their level of agreement with a series of statements concerning relations among specific elements and broader contexts (e.g, "everything in the universe is somehow related to each other"; "the whole is greater than the sum of its parts") on a 7-point scale (1 = strongly disagree, 7 = strongly agree). Higher scores indicate greater holistic tendencies.

Finally, in Section C of the questionnaire, participants reported on several demographic factors. Most importantly, participants reported their cultural background as well as the country they were born in. These two questions were used to classify

participants as either Euro-Canadians or foreign-born East Asians. Thereafter, participants were thanked and debriefed (see Appendix C for the debriefing information participants received).

Experiencers. The session for experiencers was completed during the week that the temperature at the University of Waterloo first reached 20 degrees Celsius. The first 20-degrees day was on Sunday, April 18th and during that week (April 23rd) the same two research assistants returned to the students' campus center at the University of Waterloo and invited patrons at the center to participate in a study examining "people's feelings and beliefs". Consent forms (see Appendix A) and questionnaire packages (see Appendix D) were distributed to willing participants. The first page of the questionnaire contained several filler-items concerning people's thoughts and feelings (e.g., To what extent do you take a positive attitude towards yourself?) that were intended to camouflage the main dependent measure, which was the measure of actual happiness. Participants were asked: "Overall, how happy are you today?" and they responded using the same 11-point scale (1 = Not at all happy, 11 = Extremely happy) previously presented to the predictors. According to Gilbert et al. (1998), one-item measures of general happiness are convenient and have psychometric properties comparable to those of lengthier measures. The second page of the questionnaire contained the same 10-item measure of holism that was administered to the predictors. Next, participants completed the demographic-information section, including the items used to classify participants into the two cultural groups. After completing all of the above measures, participants were thanked and debriefed (see Appendix E).

Results

Comparability of the Samples

Gender ratios were similar in the two cultural samples. For the predictors, 68% of the Euro-Canadians and 62% of the East Asians were female, X^2 (1) < 1, *ns*. For the experiencers, 71% of the Euro-Canadians and 52% of the East Asians were female, X^2 (1) = 2.49, *ns*. All of the analyses reported below included gender as a factor. However, no gender differences emerged and therefore gender-related results are not discussed in the text.

A one-way ANOVA revealed that the mean age of the Euro-Canadian predictors was significantly older than that of the East Asian predictors (M = 20.57, SD = 1.39 for the Euro-Canadians and M = 19.19, SD = 1.03 for the East Asians), F (1, 56) = 15.75, p < .001. However, there was no significant correlation between age and predicted happiness (the major dependent variable) for either Euro-Canadians, r (35) = -.09, *ns*, or East Asians, r (19) = -.17, *ns*. Therefore, the age difference did not seem to confound the comparison of predicted happiness between the two groups. For the experiencers, there was no significant difference in age between Euro-Canadians (M = 21.7, SD = 2.49) and East-Asians (M = 20.6, SD = 2.31), F (1, 49) = 2.65, *ns*.

There was no significant difference between Euro-Canadians and East Asians in the mean number of days they thought it would take before the temperature would warm up to 20 degrees (Ms = 40 days and 37 days respectively for Euro-Canadians and East-Asians), F(1, 56) < 1, *ns*. On average, these predictions were quite accurate; the temperature reached 20 degrees 38 days after the initial session.

Predicted vs. Experienced Happiness

To test the primary hypothesis, predictors' happiness forecasts and experiencers'

happiness ratings were submitted to a 2 (Culture: Euro-Canadians vs. East-Asians) X 2 (Role: Predictors vs. Experiencers) ANOVA. The analysis revealed a significant main effect of Role, $F(1, 105) = 6.36, p < .05$, ($M = 8.93$, $SD = 1.84$ for predictors, $M = 7.76$, $SD = 1.80$ for experiencers), and a significant main effect of Culture, $F(1, 105) = 4.40, p < .05$, ($M = 8.75$, $SD = 1.73$ for Euro-Canadians, $M = 7.84$, $SD = 2.03$ for East Asians). The Role main effect indicates that, collapsing across cultures, predictors forecasted significantly more happiness than the experiencers actually felt. Thus the impact bias was observed. The Culture main effect indicates higher ratings of happiness in Euro-Canadians overall. However, of greater theoretical importance, both of the main effects were qualified by the hypothesized Culture X Role interaction, $F(1, 105) = 4.12, p < .05$. As shown in Table 1, the relevant means and subsequent contrasts were consistent with the hypotheses. Euro-Canadians predicted greater happiness than did the East Asians, $t(105) = 3.31, p < .01$, but there was virtually no difference in the actual happiness levels reported by the two groups of experiencers, $t(105) < 1$, *ns*. Examining the difference between predicted versus experienced happiness within each culture, Euro-Canadian predictors prophesized significantly more happiness than their fellow experiencers actually felt, $t(105) = 3.72, p < .001$. In contrast, East Asian predictors predicted only just as much happiness as their fellow experiencers felt, $t(105) < 1$, *ns*. Clearly, the impact bias observed in the overall analysis was driven mostly by the responses of the Euro-Canadian participants.

Holism

A separate holism score was computed for each participant by averaging across the 10 items of the holism measure ($\alpha = .62$) and these scores were submitted to a 2

(Culture) X 2 (Role) ANOVA. Means for the analysis are presented in Table 2. Consistent with the hypothesis that East Asians would display greater holistic tendencies than Euro-Canadians, the analysis revealed a significant main effect of Culture, F (1, 105) = 11.64, p <.001, (M = 5.25, SD = .73 for East Asians and M = 4.72, SD = .75 for Euro-Canadians).

Focalism

Two questionnaire items measuring focalism were completed by predictors. The first item measured the extent to which predictors focused their thoughts on the temperature increase (the target event) itself while they were making their predictions. The second item asked predictors how much they focused on other factors that might affect how they would feel. My initial plan was to reverse-score the second item and combine it with the first to form a focalism index. However, it turned out that the two items were poorly correlated (r (56) = .05, *ns*) and therefore, I analyzed them separately using one-way ANOVAs. The results for the first item were consistent with the hypotheses. Euro-Canadian predictors focused more on the target event (M = 8.32, SD = 1.93) than East Asian predictors (M = 6.90, SD = 2.59), F (1, 56) = 5.64, p <.05. For the second item, I expected that East-Asians, relative to Euro-Canadians, would focus more on other factors unrelated to the target event when generating their affective predictions. Although the means were in the expected direction (M = 7.19, SD = 2.44 for East Asians and M = 6.35, SD = 2.99 for Euro-Canadians), the difference did not approach statistical significance F (1, 56) = 1.20, *ns*.

Correlations Among the Main Dependent Variables and Mediation Analysis

The results presented thus far are generally consistent with the hypotheses. East

Asian participants tended to demonstrate more holistic thoughts, to focus less on just the target event itself, and to make more moderate affective predictions than Euro-Canadians. Before performing the proposed mediation analysis, I examined the correlations among the major variables in the study for only the predictors. Table 3 presents two correlation matrices, one for each of the cultural groups, which list those correlations. From the table, it is seen that the extent to which predictors focused on the target event was positively related to how extreme their predictions were. This finding is consistent with the idea that focalism is one of the major determinants of the impact bias. However, both the global holism measure and the extent to which participants focused on other factors were not related to people's predicted happiness. Furthermore, and unexpectedly so, scores on the holism measure did not have any association with either of the focalism items. Given these results, I decided to somewhat revise the mediation analysis that was initially proposed. Instead of testing the full model, I left the holism variable out of the analysis and tested whether the extent to which people focused on the target event mediated the observed cultural difference in prediction.

To prepare for the mediation analysis, I dummy-coded the Culture variable (0 = Euro-Canadian, 1 = East Asian). Next, three regression analyses were performed. First, participants' scores on the focalism item (mediating variable) were regressed on Culture (IV). Second, predicted happiness (DV) was regressed on Culture. Third, predicted happiness was regressed on both focalism and Culture. The results of these analyses, depicted in Figure 1, were consistent with the hypotheses. The first analysis indicated that scores on the focalism measure were related to Culture, $\beta = -.303$, $t\ (56) = 2.37$, $p < .05$.[1] The second analysis indicated that predicted happiness was also related to Culture, β = -

.384, t (56) = 3.11, p <.01. The third analysis indicated that this effect was attenuated after controlling for focalism (β = -.248, t (56) = 2.14, p < .05), and the degree of attenuation was significant by the Sobel (1982) test (t = -2.02, p < .05). Also, the relation between predicted happiness and focalism remained significant after Culture was controlled for, β = .449, t (56) = 3.88, p <.01. The results of this analysis suggest that the observed difference between Euro-Canadians and East Asians in anticipated happiness was partially mediated by focalism.

Discussion

Study 1 provided considerable support for the hypotheses. The impact bias was observed among the Euro-Canadian participants, as predictors forecasted significantly more happiness than the experiencers actually felt. For the East Asians, in contrast, the experiencers felt just as happy as the predictors had forecasted. It is important to note once again that the cultural difference was observed among the predictors but not the experiencers and that the difference in predictions was mediated by the extent to which people focused on the target event (i.e., focalism).

Given that this was a study about prediction errors, it seems fitting that at least one of the predicted hypotheses was not supported. Although East Asians scored higher than Euro-Canadians on Choi et al.'s (2003) measure of holism, participants' scores on the measure were not predictive of either focalism or their affective forecasts. There are several possible reasons why this might have been the case. First, the measure had low reliability (α = .62), which likely limited its ability to predict other variables (Kaplan & Saccuzzo, 2001). Second, global measures in general do not readily predict domain-specific variables. The holism scale used in the present study appears to be a very global

measure of cognitive tendencies that might not predict cognitive processes in a specific domain. Having said all that, the measure was chosen in the first place because in Choi et al.'s (2003) original studies, it did appear to have sound psychometric properties. For example, the authors reported that the scale had a reliability rating of $\alpha = .71$ and that it predicted a number of other domain-specific cognitive processes (e.g., the amount of information people considered in making causal judgments). Perhaps, in the present study, the measure was reactive to the focalism items that immediately preceded it. This was a distinct possibility given that the focalism items asked participants to judge where they had been focusing their attention. Thus it might still be premature to completely rule out the measure's usefulness without trying it again under different circumstances.

It is also worth noting that only one of the two focalism items produced results consistent with the hypotheses. Specifically, the cultural groups did not differ in the extent to which they focused on other events or factors unrelated to the focal event in question. In hindsight, the wording of that particular item may have been somewhat ambiguous and thus the meaning of item might have been up for interpretation. For example, going shopping for some people might be an event totally unrelated to how nice the weather is. For others, however, whether or not they go shopping could very well depend on the weather. In this case, going shopping might not be thought of as an event or factor unrelated to the focal event. Thus, the ambiguity of the phrase "factors other than the weather" might be one reason why the item did not produce the expected results.

Putting aside the problems with a couple of the measures, the findings gathered in Study 1 extend our understanding of affective forecasting considerably. The expected cultural difference in prediction was found and a specific mechanism was identified to

explain it. However, there were also several limitations that should be addressed. First, the validity of Study 1 hinges on the assumption that most people would view the change to milder climates as a positive event. Although this assumption seems fair, there was a slim chance that East Asians might not view the arrival of warmer weather as a positive event. Could that be the reason why they made more moderate affective predictions? More data collection in another context is needed to answer this question. Second, the study's between-subject design precluded an examination of prediction accuracy of individual participants, or accuracy at the correlational level, because each participant provided only a prediction or an experience (Loewenstein & Schkade, 1998). It would be interesting to see whether there would be a cultural difference in the extent to which participants' predictions and actual experiences are correlated. More generally, the between subject design may raise concerns about the comparability of the predictors and experiencers. Although sampling at the same location, in the same academic term and during the same time of day are reassuring precautions, it is still difficult to rule out the possibility that the two samples did differ systematically on at least one of the relevant variables. Fortunately, this particular concern should mostly affect the interpretation of only the Role main effect but not the critical Role X Culture interaction.

Study 2

Study 2 complemented Study 1 in several important ways. First, to address the concern that the East Asians in the first study might have been less fond of warmer weather (the target event) than the Euro-Canadians and as a result made more moderate predictions, participants in Study 2 were asked to nominate their own positive target events. This change ensured that all participants were making predictions concerning

events that they saw as positive. Second, Study 2 featured a within-subject design in which each participant was both the predictor and the experiencer. This design ensured that there were no individual differences between predictors and experiencers and it also permitted an examination of prediction accuracy using within-subject comparisons as well as correlational analyses. Third, Study 2 took place in the laboratory using a sample of participants who had identified their cultural background in a previous mass-testing session. The move to a laboratory setting allowed several changes. For example, the non-European sample was narrowed from East Asians in general to specifically Chinese so that participants could be presented with instructions and materials written in their own native language. According to Ross, Xun, and Wilson (2002), cultural identities may be stored in separate knowledge and thinking structures in bicultural individuals, with each structure activated by its associated language. I expected that materials and instructions presented in Chinese would activate the Chinese participants' collective, holistic-thinking selves, which might otherwise be hidden beneath their newly adopted Western selves. Thus, it was expected that the cultural effects observed in Study 1 would be even stronger in Study 2. Another benefit of the laboratory setting was that there were fewer time constraints, and thus it was possible to administer additional measures. In Study 2, I included the Michigan Fish Task (Masuda & Nisbett, 2001) in the procedure to measure participants' tendencies to think holistically. Furthermore, an open-ended thought-listing item was added to the prediction questionnaire to assess the extent to which participants had focused on non-focal factors (i.e., factors apart from the target event) while they were making their affective predictions.

In short, participants in Study 2 were asked (at Time 1) to imagine and describe a

specific positive event that they expected would take place within two weeks' time, and to predict how happy they would be two weeks later if the event were indeed to occur. To assess the accuracy of their predictions, participants' ratings of their actual happiness were collected two weeks later (Time 2) and compared to their initial forecasts.

Method

Participants

A total of 47 students from an undergraduate psychology class at the University of Waterloo took part in the study. These participants had reported their cultural background in an earlier mass-testing session and were selected because they identified themselves as either foreign-born Chinese or Canadian of European descent. In the final sample, only participants who actually did experience the positive event they had mentioned at Time 1 were included; seven (3 Euro-Canadians and 4 Chinese) participants were excluded for this reason. The final sample consisted of 40 participants (20 Euro-Canadians and 20 Chinese; 25 females and 15 males). Participants received either partial course credits or 10 Canadian dollars as compensation.

Materials and the Characteristics of the Experimenter

All sessions were conducted by the same Asian-Canadian bilingual research assistant. The Euro-Canadian sample received instructions and questionnaires spoken and written in English and the Chinese sample received instructions and questionnaires spoken and written in Chinese. The Chinese version of the materials, including experimental scripts, was first written in English and then translated into Chinese by a bilingual research assistant. They were further back-translated by another independent translator to ensure a balanced equality of literal and sense meaning (Brislin, 1980).

Procedure

Time 1. Participants arrived at the laboratory and the experimenter met them individually. After obtaining informed consents (see Appendix F), participants were given a questionnaire package (See Appendix G). Section A of the questionnaire asked participants to think of and describe a specific positive event that they expected to take place within two weeks' time. Examples of positive events nominated by the participants included finishing school projects, attending a party, going home for a long weekend, etc. Several closed-ended items were included in Section B to assess the characteristics of the positive events nominated by the participants (e.g., how positive is the event you just described; how likely is it that the event will actually take place; how important is the event for you; how much control do you have over whether the event occurs; how often have you experienced events similar to this in the past).

Section C of the questionnaire featured the primary dependent measure. On an 11-point scale (1 = Not at all happy, 11 = Extremely happy), participants predicted how happy they would be overall two weeks later if the event were indeed to occur. Next they completed a thought-listing task that asked them to describe the thoughts that went through their minds as they were making their affective predictions. Participants' responses were transcribed for data coding (responses from Chinese participants were first translated into English by a bilingual research assistant). Two coders independently counted the frequency with which participants had mentioned in their writing other factors (those unrelated to the target event) that affected their predictions. The ratings of the two coders correlated highly, r (38) = .81. In addition to the open-ended thought list measure, several closed-ended items were used to assess the focus of participants'

thoughts as they generated their affective predictions. The two most pertinent items asked participants to rate (on an 11-point scale; 1 = not at all, 11 = absolutely) the extent to which they had focused on the target event while they were making their predictions and the extent to which they had focused on other factors unrelated to the target event. These thought-focus measures were designed to assess the extent to which participants exhibited focalism. The remaining two items were more exploratory; they assessed the degree of focus on similar past events and typical happiness levels.

Following the questionnaire, participants completed an abridged version of the Michigan Fish Task.[2] In the original study (Study 1) conducted by Masuda and Nisbett (2001), participants watched eight animated vignettes of underwater scenes. For the present study, I randomly selected four of these scenes. Each of the scenes contained several salient, active objects (e.g., fish) and other less salient, inert objects (e.g., seaweed, rocks). An example from one of the scenes is presented in Appendix H. Before any of the scenes were shown, the experimenter told the participants that they would later have to answer some questions about what they had seen. After seeing each scene twice, participants were asked: "What did you see in the animation? Please describe it, taking as much as two minutes" (Masuda & Nisbett, 2001, p.925). Participants wrote their responses on a piece of paper and these responses were transcribed for data coding (responses from Chinese participants were first translated into English by a bilingual research assistant).

Adopting the coding rules established by Masuda and Nisbett (2001), two independent coders coded the participants' responses in terms of the number of references (including name, number, attributes, feeling, behaviour and location) that were

made about the salient, active objects in the vignettes and the number of references that were made about the non-salient, inert objects in the vignettes. Appendix I presents examples of how each sentence written by the participants was coded. For the sentence, "I saw three big fish swimming from left to right", the participant was coded as having made five statements (the name, the number, the attribute, the behaviour and the location) about an active, salient object (the fish). A list of the active and inert objects participants could have potentially seen is presented in Table 4. According to Masuda and Nisbett (2001), the more statements participants make about active, salient objects, the less holistic (i.e, the more analytic) they are deemed to be. On the contrary, the more statements participants make about inert, non-salient objects, the more holistic they are deemed to be.

The coders also distinguished between statements that referred to relationships with active objects from those that referred to relationships with inert objects. The second example in Appendix I is an illustration of a statement that referred to relationships with an inert object (the green seaweed). The modifier in the sentence was seaweed; if the modifier were instead a moving fish, then the statement would have been coded as one that referred to relationships with an active object. Masuda and Nisbett (2001) reasoned that holistic thinkers, because they pay more attention to the background or the field, should make more statements about relationships with inert, non-salient objects. Analytic thinkers, in contrast, should make more statements about relationships with active, salient objects because they tend to pay more attention to the main focal points.

Correlations between the two coders for each of the four categories were high: r (38) = .99 for the number of references made to inert objects, r (38) = .90 for the number

of references made to active objects, r (38) = .93 for number of references made to inert relationships, r (38) = .96 for number of references made to active relationships. All analyses were performed on the codes averaged across the two coders. After the participants had completed the Michigan Fish Task, they were reminded that they would be contacted again two weeks later for Part 2 of the study and were then thanked and dismissed.

Time 2. Two weeks after the initial laboratory session, participants were contacted via e-mail by the same experimenter and asked to log on to the Internet to complete a follow-up questionnaire (Appendix J). The first page of the questionnaire contained several filler-items concerning people's thoughts and feelings (e.g., Do you take a positive attitude towards yourself?) that were intended to camouflage the main dependent measure: "Overall, how happy are you today?" This was the measure of actual happiness level. Participants were asked to respond on the same 11-point scale (1 = Not at all happy, 11 = Extremely happy) used in the prediction question at Time 1. On the second page of the questionnaire, participants were asked to answer several questions about the target events they had imagined at Time 1, including whether they could remember the event and whether the event actually took place within the last two weeks. These two particular questions were used to select the final sample; only participants who answered "yes" to both were included. The third and final page of the questionnaire contained the same 10-item measure of holism (Choi et al., 2003) as the one used in Study 1. After completing all of the above measures, participants were thanked, debriefed (see Appendix L for the debriefing letter distributed to the participants) and given instructions on how they could collect their compensation.

Results

Comparability of the Samples

Gender ratios were similar in the two cultural samples: 60% of the Euro-Canadians and 65% of the Chinese were female, X^2 (1) < 1, *ns*. Preliminary analyses were performed with gender entered as a factor. However, no gender differences emerged. Thus in order to maximize statistical power, given the small sample size, gender was not included as a factor in the analyses reported below.

A one-way ANOVA revealed that the mean age of the Euro-Canadian participants was significantly younger than that of the Chinese participants (M = 18.8, SD = .89 for the Euro-Canadians and M = 19.7, SD = 1.63 for the Chinese), F (1, 38) = 4.18, p < .05. However, there was no significant correlation between age and predicted happiness (the major dependent variable) for either Euro-Canadians (r (18) = -.05, *ns*) or Chinese (r (18) = .25, *ns*). Therefore, the age difference did not seem to confound the comparison of predicted happiness between the two groups.

Several closed-ended questionnaire items (all on 11 point-scales) were used to assess the characteristics of the positive events participants had mentioned at Time 1. According to the means presented in Table 5, Euro-Canadian and Chinese participants imagined positive events that had very similar characteristics. Specifically, ANOVAs indicated that the two groups of participants did not differ in the extent to which they saw the events as positive, F (1, 38) = 1.16, *ns*, likely to occur, F (1, 38) = 1.91, *ns*, important, F (1, 38) < 1, *ns*, and controllable, F (1, 38) < 1, *ns*. Nor did the two groups differ in how frequently they had experienced similar events in the past, F (1, 38) = 1.14, *ns*. These null-effects are critical to the validity of the study; if Euro-Canadian and Chinese

participants nominated qualitatively different positive events, then it might be inappropriate to compare their affective predictions. For example, if Euro-Canadians nominated events that were significantly more positive, then the finding that they predicted more happiness than Chinese would be difficult to interpret. Fortunately, the above analyses indicate that both Euro-Canadians and Chinese nominated comparable target events.

Predicted vs. Actual Happiness

To test the primary hypotheses, participants' predicted and actual happiness were submitted to a 2 (Culture: Euro-Canadians vs. Chinese) X 2 (Affect: Predicted vs. Actual) mixed ANOVA, with Affect as a within-subject factor. The analysis revealed a significant main effect of Affect, $F(1, 38) = 8.77, p < .01$, ($M = 8.5$, $SD = 1.37$ for predicted happiness, $M = 7.53$, $SD = 1.99$ for actual happiness) and a marginally significant main effect of Culture, $F(1, 38) = 3.73, p = .061$, ($M = 8.43$, $SD = 1.57$ for Euro-Canadians, $M = 7.60$, $SD = 1.79$ for Chinese). The Affect main effect indicates that, collapsing across cultures, participants forecasted significantly more happiness than they actually experienced. Thus the impact bias was again observed. The marginally significant Culture effect indicates somewhat higher ratings of happiness in Euro-Canadians overall. Of greater theoretical interest, however, both of the main effects were qualified by a significant Culture X Affect interaction, $F(1, 38) = 4.20, p < .05$. As shown in Table 6, the relevant means and subsequent contrasts were consistent with the hypotheses. Euro-Canadians predicted greater happiness than did the Chinese, $t(38) = 3.22, p < .01$. However, there was no significant cultural difference in actual happiness levels reported by the two groups of participants, $t(38) < 1$, *ns*. Examining the difference

between predicted versus actual happiness within each culture, Euro-Canadian participants predicted significantly more happiness than they experienced, t (38) = 3.54, p < .01. In contrast, Chinese participants predicted only as much happiness as they experienced, t (38) < 1, *ns*. Thus, the impact bias effect observed in the omnibus analysis was driven mainly by the responses of the Euro-Canadian participants.

Interestingly, this cultural difference was found exclusively for measures assessing bias -- the extent to which predictions differed systematically from actual happiness at the mean level. Analyses that assessed other forms of prediction accuracy did not yield cultural differences. First, correlational analyses revealed that the association between predicted and actual happiness was not any stronger among the Chinese participants (r (18) = .26, *ns*) than the Euro-Canadians (r (18) = .29, *ns*). This measure of accuracy assesses whether participants who predicted they would be happiest were indeed happiest in actual experience. In addition, I computed the absolute value of the difference between predicted and actual happiness for each participant. Unlike measures of bias, this measure assesses the degree to which predicted and actual feelings diverge, irrespective of the direction of the difference. Thus it examines accuracy rather than bias. The absolute difference scores were not significantly higher among the Euro-Canadians (M = 1.85, SD = 1.73) than among the Chinese (M = 1.80, SD = 1.28), F (1, 38) < 1, *ns*.

Holism

Two methods were used to measure participants' global holistic tendencies. At Time 1, participants completed the Michigan Fish Task, which yielded four scores: the number of references made to inert objects, the number of references made to active

objects, the number of references made to relationships with active objects, and the number of references made to relationships with inert objects. As Masuda and Nisbett (2001) had done, I analyzed only the first sentences of participants' responses. Masuda and Nisbett argued that holistic thinkers should tend to start their recall with statements about inert, non-salient objects whereas analytic thinkers should find active, salient objects easier to come to mind. In the present study, it was expected that relative to Euro-Canadians, Chinese participants would recall inert objects and their relationships with other things more frequently. It was also expected that Euro-Canadians would recall more salient objects and active relationships than would the Chinese participants.

These hypotheses were only partially supported by the means displayed in Table 7. Euro-Canadians did make significantly more statements about relationships involving active, salient objects, $F(1, 38) = 5.57$, $p < .05$; they also made somewhat more overall statements about the active, salient objects than did the Chinese, even though the difference was not statistically significant, $F(1, 38) = 1.60$, *ns*. In terms of the number of statements about relationships involving inert, non-salient objects, the Chinese made slightly more of those than the Euro-Canadians but the difference was not significant, $F(1, 38) < 1$, *ns*. The means for the number of statements made about inert objects in general were in the expected direction but again the difference did not approach statistical significance, $F(1, 38) < 1$, *ns*.

Participants also completed the 10-item questionnaire measure of holism (same as the one used in Study 1) at Time 2. A score for this measure was computed for each participant by averaging across the 10 items ($\alpha = .75$). A one-way ANOVA was performed on the holism scores and, consistent with the hypothesis, the analysis revealed

that Chinese participants scored significantly higher on the measure ($M = 5.16$, $SD = .79$) than their Euro-Canadian counterparts ($M = 4.52$, $SD = .71$), $F(1, 38) = 7.23$, $p < .01$.

Focalism

Next I examined the two close-ended items included in the questionnaire to measure the focalism construct. The first item measured the extent to which participants focused their thoughts on the target event itself while they were making their predictions. The second item asked participants how much they focused on other factors that might affect how they would feel. Correlational analyses revealed that the two items were again poorly correlated ($r(38) = -.10$, *ns*) and therefore I analyzed them separately in one-way ANOVAs. As in Study 1, the results for the first item were consistent with the hypotheses; Euro-Canadian participants focused more on the target event ($M = 9.20$, $SD = 1.06$) than did Chinese participants ($M=8.15$, $SD = 1.39$), $F(1, 38) = 7.26$, $p < .01$. However, the results for the second item indicated that there was no significant difference between the Chinese and Euro-Canadians in the extent to which they focused on other factors unrelated to the target events ($M = 5.70$, $SD = 2.43$ for Chinese and $M = 6.30$, $SD = 3.20$ for Euro-Canadians), $F(1, 38) < 1$, *ns*.

An open-ended thought-listing item was also used to measure the focalism construct. This item asked participants to write out the thoughts going through their minds when they were making their affective predictions. Two coders counted the number of times participants mentioned factors, or other events apart from the target event in their responses. It was expected that, relative to Euro-Canadians, Chinese would mention more of these non-focal events. However, it was found that participants very rarely mentioned non-focal events and no significant difference was observed between

the two groups (M = .45, SD = .60 for Euro-Canadians and M = .20, SD = .41 for Chinese), F (1, 38) = 2.34, p = .13.

Two other "focus" items were used to assess participants' thoughts at the time of prediction. These items were not necessarily to measure focalism and were included for exploratory purposes. One-way ANOVAs revealed that Euro-Canadians (M = 7.38, SD = 2.48) and Chinese (M = 7.31, SD = 3.11) did not differ in the extent to which they considered their reactions to similar past experiences, F (1, 38) < 1, *ns*, and their usual levels of happiness, F (1, 38) < 1, *ns*, (M = 7.70, SD = 1.77 for Euro-Canadians and M = 7.89, SD = 1.80 for Chinese).

Correlations Among the Main Dependent Variables and Mediation Analysis

Although some measures included in this study did not yield the hypothesized effects, the results presented thus far are still partially consistent with the hypotheses. As hypothesized, relative to Euro-Canadians, Chinese participants tended to score higher on the 10-item holism measure, to pay less attention to active, salient objects in the Michigan Fish Task (i.e., displayed less analytic tendencies), to focus less on just the target event itself, and to make more moderate affective predictions than Euro-Canadians. Before performing the mediation analyses that were initially proposed, I examined the zero-order correlations among the major variables in the study. Table 8 presents two correlation matrices that list those correlations. From the table, it is seen that there was a very strong relationship between the affective predictions of the Euro-Canadians and the extent to which they had focused on the target event (r (18) = .72, p <.001). For the Chinese, the same relationship was marginally significant (r (18) = .38, p <.11). These correlations are consistent with the notion that focalism is one of the key psychological

mechanisms behind the impact bias. However, the extent to which people focused on other factors outside of the target events was not significantly related to their affective predictions, even though the two variables co-varied in the expected direction for participants of both cultures (r (18) = -.24 for the Euro Canadians and r (18) = -.14 for the Chinese). The analyses also revealed that participants' scores on the holism measure were, unexpectedly, not related to their predicted happiness nor were they associated with either of the focalism items. Finally, the number of active relationships participants recalled in the Michigan Fish Task, which was thought of as a measure of analytic tendencies (or the lack of holistic ones), was also not significantly related to either of the focalism items. And even more surprisingly, it was negatively correlated with affective predictions among the Chinese (r (18) = -.53 $p < .01$).

Given these results, it seemed appropriate to revise the mediation analysis I had initially proposed. Instead of testing the full model, I left the holism variables out of the analysis and tested, as I had in Study 1, whether the extent to which people focused on the target event mediated the observed cultural difference in prediction. To prepare for this analysis, I dummy-coded the Culture variable (0=Euro-Canadian, 1= Chinese). Next, three regression analyses were performed. In the first analysis, participants' scores on the focalism item (mediating variable) were regressed on Culture (IV). In the second analysis, predicted happiness (DV) was regressed on Culture. In the third analysis, predicted happiness was regressed on both focalism and Culture. The results of these analyses, depicted in Figure 3, were consistent with my hypotheses. Scores on the focalism measure were related to Culture, β = -.400, t (38) = 2.69, p <.01; they were also related to predicted happiness after Culture had been controlled for, β = .485, t (38) =

3.60, p <.001 Predicted happiness was related to Culture, β= -.489, t (38) = 3.46, p <.001, and this relationship was attenuated after controlling for focalism (β = -.295, t (38) = 2.19, p < .05), and the degree of attenuation was significant by the Sobel (1982) test (t = -2.23, p < .05). The results of this analysis suggest that the observed difference between Euro-Canadians and Chinese in anticipated happiness was mediated by the degree of focus on the target event.

Discussion

Study 2 conceptually replicated Study 1 and provided further support for the primary hypotheses. As in the first study, the impact bias was observed among the Euro-Canadians but not the Chinese. Euro-Canadian participants anticipated that they would be very happy in two weeks' time if the positive events they had imagined were to occur. However, those participants were less happy on average than they had predicted even though they did experience the events. By comparison, the Chinese made affective predictions that were more moderate and easier to live up to. Indeed, Chinese participants on average experienced just as much happiness at Time 2 as they had predicted at Time 1. Furthermore, and as expected, the cultural difference was observed only for predicted happiness and not for the experienced level of happiness. The cultural difference in prediction was mediated, as in the first study, by the extent to which people focused on the target events (i.e., focalism).

The within-subject design of the present study permitted an examination of prediction accuracy (or inaccuracy) at the correlational level. The analyses revealed that the correlation between predicted and actual happiness for the Chinese participants was not any stronger than the one observed for the Euro-Canadians. The lack of a cultural

difference at the correlational level was not surprising. Theoretical and empirical analyses suggest that focalism should produce systematic biases at the mean level more so than inaccuracy at the correlational level (Wilson & Gilbert, 2003). Focalism prompts a systematic bias in prediction, rather than simply random error, because it leads people to make affective over-predictions that are congruent with the valence of the focal event. Since focalism was thought to be largely responsible for the cultural difference in prediction, it was expected that the difference would be seen in terms of bias at the mean level rather than either correlational or absolute accuracy.

The two measures that were used to assess participants' global holistic tendencies did not fully support the hypotheses, but produced at least some suggestive results. On Choi et al.'s (2003) measure of holism, Chinese participants expectedly scored higher than Euro-Canadians. Unexpectedly, however, participants' scores on the measure were not predictive of either focalism or their affective forecasts. In Study 1, it was suspected that perhaps the measure's lack of reliability might have limited its ability to predict other variables. In the present study, the reliability of the measure was somewhat improved, α = .75, but scores on this measure still were not related to the other major variables in the study. In the Michigan Fish Task, Euro-Canadians did expectedly make more relationship statements involving the active, focal objects in the vignettes, but this variable was not related to other dependent variables in any discernible way. Unfortunately, the two measures' lack of ability to predict focalism and affective forecasts precluded them from the mediation analyses that were performed. Also, as in Study 1, the focalism item that measured the extent to which participants focused on other factors unrelated to the focal event did not support the hypotheses and thus it too was excluded from the mediation

analysis.

Despite problems with a few of the measures, the results of Study 2 generally supported the primary hypotheses and addressed some of the questions Study 1 had left unanswered. For example, there was a slight possibility that the standard target event (the arrival of warmer weather) used in Study 1 might have meant different things to the two cultural groups. One could have argued that the Euro-Canadians were making more extreme affective predictions simply because the arrival of warmer weather was more positive and important to them than to the East Asians. In the present study, however, the same argument was no longer valid. Euro-Canadians still made more extreme affective predictions than the Chinese even though the two groups of participants were imagining target events that they perceived to be very similar on several dimensions (positivity, importance, controllability, etc).

It was anticipated that Chinese instructions and materials would induce Chinese participants to think more holistically and produce an even larger cultural difference in predicted happiness. *Eta-squared*, a common measure of effect size, was computed for the Culture main effect on predicted happiness in each study. In Study 1, Eta-squared was .147, which means that 14.7% of the variability in predicted happiness was attributable to Culture. In Study 2, Eta-squared was .239. Therefore, the cultural difference in prediction appeared to be considerably larger in Study 2 than in Study 1. Although the two studies differed in several important ways (e.g., between subjects vs. within subject design), it may be that the larger effect is due partially to the use of Chinese instructions and materials.

In summary, the patterns of predicted and experienced happiness were remarkably

similar across the two studies. It hardly seemed to matter whether the target events were self-nominated or standardized or that the study took place in the laboratory instead of the students' campus center. Generally speaking, Study 2 appeared to have converged on the same conclusions that were reached in Study 1 and those conclusions appear to be fairly robust.

General Discussion

Support for two major hypotheses was obtained in the present studies. First, it was predicted that the impact bias would be observed among Westerners but not among East Asians. This primary hypothesis was clearly supported. In Study 1, Euro-Canadians overestimated how happy they would be to experience the onset of 20-degrees weather whereas East Asians did not. In Study 2, a different group of Euro-Canadians over-predicted how happy they would be two weeks later if an expected positive event were to occur but their Chinese counterparts averted the same error. As expected, the cultural groups differed on only predicted but not experienced happiness. Second, it was hypothesized that the cultural difference in affective predictions would be mediated by focalism. In both studies, focalism (operationalized as the extent to which people focused on the target event while they made their predictions) partially mediated the observed cultural difference in affective forecasts. Therefore, evidence for the proposed cognitive mechanism was found.

It is important to emphasize that the predictions of the East Asians were "less biased", but not necessarily more "accurate", than those of the Westerners, because there was no cultural difference in correlational or absolute accuracy. The appropriate conclusion about the pattern of predicted and experienced happiness, therefore, should be

that the systematic bias observed at the mean level among the Westerners was absent among the East-Asians. It was not the case that the East-Asians were, nor were they hypothesized to be, clairvoyants who could predict exactly the same amount of happiness they experience or that they have some mystical insights about what the future holds. The difference in prediction was partly due to differences in basic cognitive processes, namely the extent to which individuals focused on the target events.

The present results suggest that the impact bias in affective forecasts might not be a universal phenomenon. To the best of my knowledge, cultural differences have not been documented elsewhere in the affective forecasting literature. The results of the current studies also attest to Wilson et al.'s (2001) conclusion that focalism is the key mechanism responsible for the impact bias for positive future events. People less susceptible to focalism, East Asians for example, tend not to overestimate future affective reactions. Thus the findings extend our understanding of affective forecasting considerably.

The present research also contributes to the broader area of cross-cultural social cognition. In particular, it extends a relatively young and slender line of investigation examining how and why Westerners and East Asians tend to think differently about the future. Heine and Lehman (1995) argued that the two cultural groups perceive the future differently because they have different self-enhancement motives. They presented evidence demonstrating that Westerners were generally more optimistic than East Asians because they were more motivated to self-enhance. Later, Ji et al. (2001) contended that people in the East and the West have different future outlooks because of different cultural beliefs and cognitive tendencies. Ji et al. reported that East Asians anticipated

more change in the future because their beliefs are dialectic as opposed to analytic. In the present research, the identified mechanism behind the cultural difference in affective prediction bias involves the type of cognitive processing that occurs at the time of prediction; relative to East-Asians, Euro-Canadians appeared to be more susceptible to focalism as they reported having focused more on the target events. Consequently, they made more extreme affective predictions. Although these three programs of research posit quite different underlying mechanisms, they all appear to triangulate on the phenomenon that Easterners and Westerners see their personal future very differently. Further research is needed to determine how the processes examined in these three programs of research intersect one another.

The practical implications of the present results are complex because they depend on whether one thinks the impact bias is adaptive, an issue which remains contentious among psychologists (Wilson & Gilbert, 2003). On the one hand, the impact bias might be beneficial because if people believe that finishing an important school project or having a party would make them very happy, then it is possible that they might be more motivated (i.e., try harder) to realize those positive events. From this perspective, East Asians would seem to benefit by learning from Westerners about focusing their thoughts on the positive target events, which in turn should produce more extreme affective predictions. On the other hand, the impact bias might sometimes be disadvantageous. If people overestimate the amount of happiness they could derive from certain positive outcomes, they might exert much time and energy pursuing those outcomes but still end up no happier than before. From this standpoint, Westerners would seem to benefit by learning from East Asians about focusing less on the target events and making more

moderate affective forecasts. For teachers and managers of culturally-diverse workgroups, these implications could potentially be very useful. For example, if a group of Asian students appears to view finishing a school project as not particularly rewarding, then they could perhaps benefit from imagining with other Western classmates what it would be like to finish the project. In business, if managers suspect that their subordinates' overly extreme predictions would prove costly in terms of time and energy, then it might be wise in those instances to seek input from Asian employees when plans based on those predictions are revisited.

There are several limitations to the present research. First, as mentioned previously, each of the studies on its own has methodological weaknesses and one should exercise caution when interpreting them individually. However, the patterns of results were remarkably consistent and reliable across both studies and together they provided very strong support for the primary hypotheses. According to Loewenstein and Schkade (1999), the best way to study affective predictions is to use both the between-subjects (Study 1) and within-subject designs (Study 2). The present studies were planned with those suggestions in mind.

Second, focalism only partially mediated the relationship between culture and affective predictions. Thus, there are potentially other mechanisms that need to be identified before we could fully understand why East Asians offered more moderate affective predictions. One interesting direction future research could take is to examine whether cultural differences in self-construal affect people's affective predictions. According to Kitayama, Markus, Matsumoto, and Norasakkunkit (1997), the major cultural task of people in Western societies is to "find, confirm, and express…positive

aspects of the self" (p.1260); expecting the most out of an event they think will happen seems consistent with that goal. By contrast, Easterners' construal of the self tends to be based on interdependence and their main cultural task is simply to fit in with others (Kitayama et al., 1997). It makes theoretical sense that Easterners might be inclined not to feel too positive about a personal future event. Whether this difference in self-construal directly affects affective predictions or whether it works through focalism is also an interesting empirical question.

Third, it was hypothesized that participants' holistic tendencies would predict focalism. However, none of the holism measures predicted how much participants focused on the target events or how happy they expected to feel. An important question which remains unanswered by the present research is what mediates the relationship between culture and focalism. In other words, why did the Westerners focus more on the target events than did the East Asians? One possibility might be that focusing on positive events is a way through which Westerners could self-enhance. However, it is worth noting that Study 1 used a non-self-relevant target event – the arrival of warm weather – that was selected in part because it could not directly serve self-enhancement motives. It would be a stretch to suggest that prediction about reactions to warm weather can serve to boost or maintain a positive view of one-self.

Related to the question of what mediates the relationship between culture and focalism, it might still be worthwhile in future studies to retest the holism-focalism link because it makes theoretical sense that if a person were holistic then he or she should also be less likely to focus on just one particular thing or event at any one time. In the present research, the psychometric properties of the holism measures were questionable; with

better measures (i.e., less abstract, more reliable), holism might yet predict focalism.

Finally, the current studies examined affective forecasts for only positive but not negative events. In future studies, it will be interesting to see whether East-Asians would also make less extreme predictions than Westerners when anticipating -20 degrees weather, dental surgery, or other displeasures in their personal lives. It seems likely that East-Asians would also focus less narrowly on negative events than Westerners and predict that they would be less sad. Another interesting extension to the current research, in light of the cultural difference in affective predictions, is to include behavioural measures to see whether Westerners would indeed exert more effort than East Asians to ensure that the expected positive events take place. Finding a connection between affective predictions and behavioural consequences would not only further advance the literature but would also confirm the importance of studying people's anticipated feelings.

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Endnotes

1. The degrees of freedom were 56 for these analyses because they involved only the responses of the predictors and not the experiencers.
2. I would like to thank Dr. T. Masuda for providing me with the stimulus materials. For a detailed description of the equipments needed for this task, please refer to Masuda and Nisbett (2001).

Table 1.

Predicted vs. Experienced Affect by Culture (Study 1)

	Culture	
Role	Euro-Canadian	East Asian
Predictors		
M	9.46_a	8.00_b
SD	1.54	2.00
n	37	21
Experiencers		
M	7.82_b	7.70_b
SD	1.54	2.10
n	28	23

Note: Greater values indicate greater predicted or experienced happiness. Within columns and rows, means that do not share a common subscript letter differ significantly ($p < .05$).

Table 2.

Holism Scores by Culture and Role (Study 1)

	Culture	
Role	Euro-Canadian	East Asian
Predictors		
M	4.94_a	5.39_b
SD	0.68	0.75
n	37	21
Experiencers		
M	4.59_a	5.12_b
SD	0.81	0.70
n	28	23

Note: Greater values indicate greater holistic tendencies. Within columns and rows, means that do not share a common subscript letter differ significantly ($p < .05$).

Table 3.

Correlations among Holism, Focalism, and Affective Predictions by Culture (Study1)

	Focus on target event	Focus on other factors	Prediction
Euro-Canadian (n=37)			
Holism	.071	-.153	.117
Focus on target event	_____	.061	.454**
Focus on other factors		_____	.006
East Asians (n=21)			
Holism	-.062	-.069	.208
Focus on target event	_____	-.108	.474*
Focus on other factors		_____	.154

Note: *p <.05, ** p <.001

Table 4.

Examples of Active vs. Inert Objects in the Michigan Fish Task (Study 2)

Active, Salient Objects	Inert, Non-Salient Objects
Fish	Plants (e.g., Seaweed)
Sea Turtle	Rocks
Jellyfish	The water
Bug	Reef
Seahorse	Coral
Frog	Seashell
Air Bubbles	Starfish

Table 5.

Participants' ratings of event characteristics (Study 2)

Item		Culture: Euro-Canadian	Culture: Chinese	*F*
Positive	*M*	9.65	9.25	
	SD	1.04	1.30	1.16 (*ns*)
Likely to Occur	*M*	10.35	9.90	
	SD	0.87	1.17	1.97 (*ns*)
Importance	*M*	8.90	8.60	
	SD	1.29	2.09	<1 (*ns*)
Controllability	*M*	6.85	7.10	
	SD	3.82	2.90	<1 (*ns*)
Previous Experience	*M*	7.50	6.55	
	SD	2.95	2.68	1.14 (*ns*)

Table 6.

Predicted vs. Actual Affect by Culture (Study 2)

	Culture	
Affect	Euro-Canadian	Chinese
Predicted		
M	9.25_a	7.75_b
SD	1.25	1.48
Actual		
M	7.60_b	7.45_b
SD	1.88	2.09

Note: Greater values indicate greater predicted or actual happiness. Within columns and rows, means that do not share a common subscript letter differ significantly ($p < .05$).

Table 7.

Mean Number of Statements in Each Category Made by Participants in the Michigan Fish Task (Study 2)

Category		Culture: Euro-Canadian	Culture: Chinese	*F*
Relationships involving active,				
salient objects	*M*	1.15	.40	
	SD	1.29	.60	5.57 ($p < .01$)
Relationships involving inert,				
non-salient objects	*M*	.40	.53	
	SD	.68	.66	< 1 (*ns*)
Active, salient objects	*M*	24.0	21.4	
	SD	7.49	5.16	1.60 (*ns*)
Inert, non-salient objects	*M*	3.03	3.13	
	SD	2.06	2.89	<1 (*ns*)

Table 8.

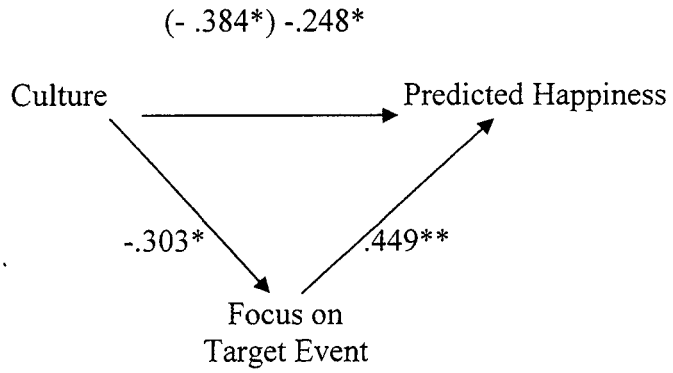
Correlations among Holism, Focalism, and Affective Predictions by Culture (Study2)

	Recall of active relationships (analytic tendencies)	Focus on target event	Focus on other factors	Prediction
Euro-Canadian (n=20)				
Holism	-.165	-.124	.043	.118
Recall of active relationships (analytic tendencies)	____	-.116	-.146	-.236
Focus on target event		____	-.362	.717**
Focus on other factors			____	-.243
Chinese (n=20)				
Holism	.147	-.047	.117	-.360
Recall of active relationships (analytic tendencies)	____	-.330	.087	-.534*
Focus on target event		____	.030	.378
Focus on other factors			____	-.139

Note: *p <.05, ** p <.001

Figure 1.

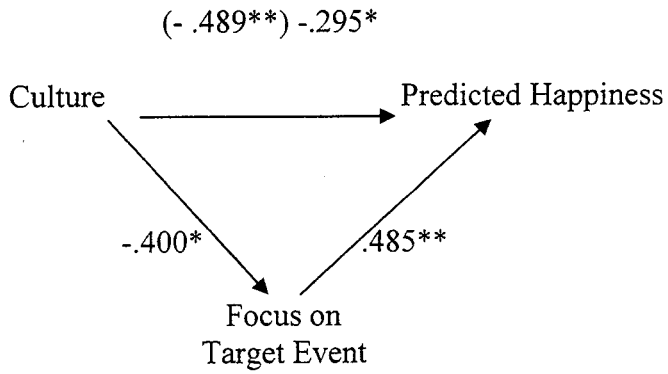
Cultural Difference in Predicted Happiness as Mediated by Scores on the Focalism Measure (Study 1).



Note: The Culture variable was dummy-coded (0=Euro-Canadians, 1=East Asians). Path coefficients are standardized regression coefficients. The value in parenthesis is the correlation coefficient for the relationship between Culture and Predicted Happiness without controlling for Focalism. *p <.05, **p <.001

Figure 2.

Cultural Difference in Predicted Happiness as Mediated by Scores on the Focalism Measure (Study 2).



Note: The Culture variable was dummy-coded (0=Euro-Canadians, 1=Chinese). Path coefficients are standardized regression coefficients. The value in parenthesis is the correlation coefficient between the Culture and Predicted Happiness without controlling for Focalism. $*p < .05$ $**p < .001$

Appendix A

Letter of Information and Consent for Participants

Investigators: Dr. Mike Ross, Department of Psychology, University of Waterloo 888 4567 ext. 3047, email: mross@watarts.uwaterloo.ca
Kent Lam, Department of Psychology, Wilfrid Laurier University 884-0710, ext. 3971 email: bigocean@hotmail.com

You are invited to participate in a study that concerns people's feelings and beliefs. Past research indicates that people's thinking styles are related to how they feel. The purpose of the present study is to investigate whether the relationship is moderated by personality traits (e.g., culture) and environmental factors (e.g., weather). As a participant in this study, you will be asked to complete a short questionnaire. Participation in this study is voluntary, and will take approximately 5 minutes of your time.
During the study, you may leave unanswered any question you prefer not to answer. All information you provide is considered completely confidential; indeed, your name will not be included or in any other way associated with the data collected in the study. Furthermore, because the interest of this study is in the average responses of the entire group of participants, you will not be identified individually in any way in any written report, publication or presentation resulting from this study.
Data collected during this study, with identifying information removed, will be retained for 7 years, in a locked office to which only researchers associated with this study have access. By volunteering for this study, you will learn about psychological research in general and the topic of this study in particular. You will also receive a free UW pen or a chocolate bar (your choice) as thanks. Please note that you may quit after the study has started by advising the researcher of your decision. Although you may not benefit personally from your participation in this study, the information obtained from this research will help psychologists understand the relationship between people's feelings and beliefs. There are no known or anticipated risks associated with participation in this study. If you have any question about participating in this study, please feel free to ask the researchers. If you have additional questions at a later date, please contact Kent Lam at 884-0710, ext 3971. *This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at 519-888-45467, Ext. 6005'.*

Appendix B

FEELINGS AND BELIEFS STUDY

A. Feelings Questionnaire

1. On an average or typical day, how happy are you?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all happy Extremely happy

2. In your opinion, how enjoyable is today's weather?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all enjoyable Extremely enjoyable

3. How happy would you be overall the week when the temperature first warms up to 20 degrees Celsius?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all happy Extremely happy

4. When you were predicting how happy you would be the week after temperature first warms up to 20 degrees (C), to what extent were your thoughts focused on each of the following:

a. The temperature and the weather and how it would make me feel.

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all A great deal

b. Factors other than the temperature and the weather that would be affecting my feelings (e.g., other events or life circumstances).

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all A great deal

5. Please predict when the temperature will warm up to 20 degrees (C):

____(month), _____(day)

B. Beliefs Questionnaire

Please use the following scale to indicate the extent to which you agree with each of the following statements.

1 2 3 4 5 6 7

Strongly Disagree Strongly Agree

1. Everything in the universe is somehow related to each other. _____

2. Even a small change in any element in the universe can lead to substantial alterations in others. _____

3. Any event has a numerous number of causes although some of the causes are not known. _____

4. Any event has a numerous number of results although some of the results are not known. _____

5. Nothing is unrelated. _____

6. It's not possible to understand the pieces without considering the whole picture._____

7. The whole is greater than the sum of its parts._____

8. Paying attention to the field is more important than paying attention to its elements. _____

9. A marker of good architecture is how harmoniously it blends with other buildings around it. _____

10. Sometimes, the empty space in a painting is just as important as the objects. _____

C. BACKGROUND INFORMATION The following items assess several demographic and personal characteristics (e.g., age, sex, cultural background) that may be related to people's responses in this study. You may leave unanswered any question you prefer not to answer. All information you provide is considered completely confidential

1. Your Sex: male _____ female _____

2. Your Age: _____

3. Your Ethnic/Racial Background: Below is a list of ethnic/racial background categories that students have typically used to describe themselves in our prior research. If you prefer to describe your background using different words, please feel free to use labels that you feel best capture your own personal background (please use the OTHER category and describe the label).

East Indian _____(please describe: _____)

Caucasian _____(please describe: _____)

Black _____(please describe: _____)

Asian/Oriental _____(please describe: _____)

Other _____(please describe: _____)

4. You and Your Family's Cultural Heritage:

Country you were born in: _____

Country your parents were born in: mother _____

father _____

5. What is your first language?

_____ English

_____ Other (please specify) _____

6. In a usual or typical day, what percentage of the time do you speak in your first language?

_____ % (0 to 100)

Appendix C

Post-Study Information Letter for Participants

Investigators: Dr. Mike Ross, Department of Psychology, University of Waterloo 888-4567 ext. 3047, email: mross@watarts.uwaterloo.ca
Kent Lam, Department of Psychology, Wilfrid Laurier University 884-0710, ext. 3971 email: bigocean@hotmail.com

Thank you for taking the time to help us with our research. The topic we are studying today is referred to as "affective forecasting". In other words, we are interested in how accurately people are able to forecast their affective reactions to positive events. In past research, it has been found that people often tend to overestimate their affective reactions (e.g., thinking that they would be extremely happy after getting an A+ when in fact they were only somewhat happy). We think that this tendency is predicted by one's cultural background and tendency to think holistically. In this study, you predict how happy you would be the week after the temperature first hits 20 degrees (a positive event). When the temperature does indeed reach 20 degrees a few weeks from now, we will ask another similar group of people to report how happy they are at that time. This way, we will be able to compare predictions and actual experiences to see whether they differ and, in doing so, take participants' cultural background and tendency to think holistically into account (items measuring these variables were included in the questionnaire you completed).

Because you have been told the purpose and predictions of this study, please do not discuss your experience with other students until the end of this term. If other students were aware of our predictions, we would not be able to invite them to participate in our follow-up study. We truly appreciate your participation and hope that this has been an interesting experience for you. If you want to discuss this study further, please do not hesitate to contact Dr. Mike Ross or Kent Lam. For a summary of the findings, please contact Kent Lam at any time after June 1st, 2004. *This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at 519-888-45467, Ext. 6005*'. Our research is based on the following publications, which could provide you with further information on the topic of "affective forecasting":

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. P. Zanna (Ed.), Advances in Experimental Social Psychology, 35. San Diego: Academic Press.

Buehler, R., & McFarland, C. (2001). Intensity bias in affective forecasting: The role of temporal focus. Personality and Social Psychology Bulletin, 27, 1480-1493.

Appendix D

FEELINGS AND BELIEFS STUDY

A. How Do You Feel?

To begin, we would like to ask you several questions about how you feel generally. Please circle a number on each of the scales to indicate your general feelings at this moment:

1. On the whole, do you feel that you are an energetic person?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all energetic Extremely energetic

2. Generally speaking, do you think that you are a calm person?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all calm Extremely calm

3. Overall, how happy are you today?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all happy Extremely happy

4. Overall, how sad are you today?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all sad Extremely sad

5. To what extent is the statement "I am always busy" true of you?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all true Extremely true

6. Overall, how stressed are you feeling today?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all stressed Extremely stressed

7. On the whole, how worried are you about the future?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all worried Extremely worried

8. Overall, to what extent do you have a positive attitude toward yourself?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10----------11
Not at all positive Extremely positive

B. Your Beliefs About Things In General

Please use the following scale to indicate the extent to which you agree with each of the following statements.

1 2 3 4 5 6 7

Strongly Disagree Strongly Agree

1. Everything in the universe is somehow related to each other. _____

2. Even a small change in any element in the universe can lead to substantial alterations in others. _____

3. Any event has a numerous number of causes although some of the causes are not known. _____

4. Any event has a numerous number of results although some of the results are not known. _____

5. Nothing is unrelated. _____

6. It's not possible to understand the pieces without considering the whole picture._____

7. The whole is greater than the sum of its parts._____

8. Paying attention to the field is more important than paying attention to its elements. _____

9. A marker of good architecture is how harmoniously it blends with other buildings around it. _____

10. Sometimes, the empty space in a painting is just as important as the objects. _____

C. BACKGROUND INFORMATION The following items assess several demographic and personal characteristics (e.g., age, sex, cultural background) that may be related to people's responses in this study. You may leave unanswered any question you prefer not to answer. All information you provide is considered completely confidential

1. Your Sex: male _____ female _____

2. Your Age: _____

3. Your Ethnic/Racial Background: Below is a list of ethnic/racial background categories that students have typically used to describe themselves in our prior research. If you prefer to describe your background using different words, please feel free to use labels that you feel best capture your own personal background (please use the OTHER category and describe the label).

East Indian _____(please describe: _____)

Caucasian _____(please describe: _____)

Black _____(please describe: _____)

Asian/Oriental _____(please describe: _____)

Other _____(please describe: _____)

4. You and Your Family's Cultural Heritage:

Country you were born in: _____

Country your parents were born in: mother _____

father _____

5. What is your first language?
_____ English
_____ Other (please specify) _____

6. In a usual or typical day, what percentage of the time do you speak in your first language?
_____ % (0 to 100)

Appendix E

Post-Study Information Letter for Participants

Investigators: Dr. Mike Ross, Department of Psychology, University of Waterloo 888-4567 ext. 3047, email: mross@watarts.uwaterloo.ca
Kent Lam, Department of Psychology, Wilfrid Laurier University 884-0710, ext. 3971 email: bigocean@hotmail.com

Thank you for taking the time to help us with our research. A few weeks ago, we asked another similar group of participants to predict how happy they would be the week after the temperature first hits 20 degrees. As you probably know, the temperature did in fact warmed up to 20 degrees a couple of days ago and so today we are asking participants to tell us how happy they are indeed. What we are interested in doing is to compare peoples' affective predictions and actual experiences to see whether they differ. Thus the topic we are studying today is referred to as "affective forecasting". In other words, we are interested in how accurately people are able to forecast their affective reactions to positive events (e.g., the temperature warming up). In past research, it has been found that people often tend to overestimate their affective reactions (e.g., thinking that they would be extremely happy being in warmer weather when in fact they were only somewhat happy). We think that this tendency is predicted by one's cultural background and tendency to think holistically. Thus, when comparing people's predictions and actual experiences to see whether they differ, we will take their cultural background and tendency to think holistically into account (items measuring these variables were included in the questionnaire you completed).

Because you have been told the purpose and predictions of this study, please do not discuss your experience with other students until the end of this term. If other students were aware of our predictions, we would not be able to invite them to participate in our follow-up study. We truly appreciate your participation and hope that this has been an interesting experience for you. If you want to discuss this study further, please do not hesitate to contact Dr. Mike Ross or Kent Lam. For a summary of the findings, please contact Kent Lam at any time after June 1st, 2004. *This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at 519-888-45467, Ext. 6005*'. Our research is based on the following publications, which could provide you with further information on the topic of "affective forecasting":

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. P. Zanna (Ed.), Advances in Experimental Social Psychology, 35. San Diego: Academic Press.

Buehler, R., & McFarland, C. (2001). Intensity bias in affective forecasting: The role of temporal focus. Personality and Social Psychology Bulletin, 27, 1480-1493.

Appendix F

Letter of Information and Consent for Participants

Investigators: Dr. Mike Ross, Department of Psychology, University of Waterloo 888-4567 ext. 3047, email: mross@watarts.uwaterloo.ca
Kent Lam, Department of Psychology, Wilfrid Laurier University 884-0710, ext. 3971 email: bigocean@hotmail.com

You are invited to participate in a study that concerns people's perceptions of life events. Past research indicates that people's perceptions of life events might possibly be related to their personality traits, including their beliefs and memory. As a participant in this study, you will be asked to complete two short questionnaires, one today and one two weeks (available on the Internet) later. You will also be asked to complete a computer-based memory task. Participation in this study is voluntary, and will take approximately 30 minutes today and 30 minutes two weeks later.

During the study, you may leave unanswered any question you prefer not to answer. All information you provide is considered completely confidential; indeed, your name will not be included or in any other way associated, with the data collected in the study. Furthermore, because the interest of this study is in the average responses of the entire group of participants, you will not be identified individually in any way in any written report, publication or presentation resulting from this study.

Data collected during this study, with identifying information removed, will be retained for 7 years, in a locked office to which only researchers associated with this study have access. By volunteering for this study, you will learn about psychological research in general and the topic of this study in particular. You will also receive 0.5 research credit for participating in today's session and an additional 0.5 credit for participating in the Internet session two weeks later. Please note that you may quit after the study has started by advising the researcher without the loss of research credit. Although you may not benefit personally from your participation in this study, the information obtained from this research will help psychologists understand people's perceptions of life events. There are no known or anticipated risks associated with participation in this study. If you have any question about participating in this study, please feel free to ask the researchers. If you have additional questions at a later date, please contact Kent Lam at 884-0710, ext 3971. *This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at 519-888-45467, Ext. 6005'.*

Consent of Participant

I have read the information presented in the information letter about a study being conducted by Dr. Mike Ross and (Kent Lam) of the Department of Psychology at the University of Waterloo (Wilfrid Laurier University). I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted. I am aware that I may withdraw from the study without penalty at any time by advising the researchers of this decision. This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from my participation in this study, I may contact the Director, Office of Research Ethics at (519) 888-4567 ext. 6005. With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

PRINT NAME: _____

SIGNATURE: _____

DATE: _____

WITNESS: _____

通知信

教員調查研究者: 羅斯麥克爾 (Dr. Michael Ross)，心理學部門，888-4567，分機3047。
學生調查研究者: 林智衡 (Kent Lam)，心理學部門，888-0710，分機 3971 (請留下口信)。

在這個研究當中,我們有興趣了解人們對日常事件的看法.過往研究指出人對日常事件的看法和他的個人特點(例如他的記憶力和信念)是非常有關. 我們今日想收集更多有關的資料. 這過研究是分為兩個部份. 今日我們會請求你填滿一份問卷和在電腦上做一個記憶力測試(三十分鐘). 兩星期後, 我們再會請求你在網上填滿另一份問卷(十至十五分鐘).

您在這項研究中的參予是自願的。您在任何時候向研究人員表示要退出的意願，也不會受到處罰。如果您有不願意回答的問題，可以留空。您的答案是保密的，只有授權調查研究者才可使用您的答案。這項研究內沒有與您參予有關的直接利益或可預料到的傷害。

我們在這個研究當中收集到的資料會儲藏在這一個部門之內,為期七年．完成研究之後，您將會收到一個因為參于所得到的實驗分數(完成第一部分有 1 分，
完成第二部分有另外 1 分)．

這一項研究已經過了人物研究和動物照管事務所的復審與獲得了道德批准。假如您對於參于有任何建議或疑問，請聯系事務所的賽克斯蘇桑(Susan Sykes)，888-4567，分機6005。

□ □ □

我參予這項研究是自願的。我在任何時候向研究人員表示要退出的意願，也不會受到處罰。如果我有不願意回答的問題，可以留空。我的答案是保密的，只有授權調查研究者才能得到使用您的答案的機會。我明白這項研究內沒有與我參予有關的直接利益或可預料到的傷害。我知道這一項研究已經過了人物研究和動物照管事務所的復審與獲得了道德批准。假如我對於參于有任何建議或疑問，我可以通知事務所的賽克斯蘇桑(Susan Sykes)，888-4567，分機6005。

姓名: _____

學生號碼: _____

簽名: _____ 日期: _____

Appendix G

PERCEPTIONS OF LIFE EVENTS

Information:

In this study, we are interested in learning about people's interpretations of events in their lives. At the beginning of the study, we will ask you to think of and describe a specific, positive event that you expect to occur within the next two weeks. (An expected positive event might be attending a party, finishing an assignment, having a nice dinner date, etc). Thereafter, we will ask you several questions about the event. In addition, you will be asked about several personal characteristics.

Anonymous Code:

To ensure that your responses remain anonymous, please do not write your name on this questionnaire. Instead, please create an anonymous code by providing the following information:

1. The first 2 letters of your mother's maiden name (e.g., for "Smith" print S M).

2. A two digit # representing the month in which you were born (e.g., if born in February, print 0 2).

3. The first 2 letters of your father's first name (e.g., for "Jack", print J A).

YOUR CODE: ___ ___ /___ ___ /___ ___

Instructions:
Please complete the items in the order that they are presented (for purposes of experimental control), without flipping ahead or back.

When you are finished, please inform the researcher.

A. Positive Upcoming Event

Please take a moment to think about one specific, positive event or situation that **you expect will take place** within the next two weeks. (An expected positive event might be finishing an assignment, meeting with good friends and family, etc). When you have that event in mind, please describe details such as how and when the event will unfold.

_____

_____

_____

_____

_____

_____

_____

_____

B. Event Ratings:

Please answer the following questions:

1. How positive is the event you just described?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

Slightly positive Extremely positive

2. How likely is it that the event will actually take place?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

Not at all likely Extremely likely

3. The event you described will take place _____ days from now.

4. How important is the event for you?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

Not at all important Extremely important

5. How much control do you have over whether the event occurs?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

No control Complete control

6. How often have you experienced events similar to this in the past?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

Never before Very often

C. Expected Feelings

If the positive event you described takes place, how happy will you be overall two weeks from today?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all happy Extremely happy

Above, you predicted how happy you would be feeling two weeks from today (if the positive event takes place). In the space below, please explain the reasons behind your predictions.

When you were predicting how happy and how sad you would be two weeks from now, to what extent were your thoughts focused on each of the following:

1. The upcoming positive event itself and how it would make me feel.

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all Absolutely

2. Factors other than the positive event that would be affecting my feelings (e.g., other events or life circumstances).

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all Absolutely

3. Experiences with similar positive events in the past.

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all Absolutely

4. My usual or typical level of happiness.

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all Absolutely

人們對日常事件的看法

研究目的:

在這個研究當中, 我們有興趣了解人們對日常事件的看法. 在研究開始的時候, 我們想你去描述一件在未來兩個星期之內你認為會發生在你身上的正面事件（例如, 成功地完成一份功課, 和好友或家人聚會）. 然後, 我們會問你一些關於這件事情的問題. 最後, 請回答幾條個人資料的問題.

無名編碼:

為了確保你無憂慮地回答這份問卷. 你無需填上真實姓名. 你只需創造一個無名編碼:

1. 你母親姓名的首2個字母, (例如"CHAN"填CH.)
2. 你生日的月份（例如二月, 填02）.
3. 你父親名字的首二個字母（例如"JACK"填JA）

__ /__/__

指示:

請順序回答以下的問題.當完成後, 請通知研究人員.

甲. 將發生的正面事件:

請用一會兒去想像一件在未來兩個星期之內, 你**認為會發生在你身上**的正面事件（例如, 成功地完成一份功課, 和好友或家人聚會）. 請用以下空位本來描述這件事會何時及怎樣發生.

乙. 事件評估: 請回答下列一些問題.

你剛才描述過的那份事情的正面程度有多高?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

稍微地正面　　極度地正面

事件會發生的可能性有多高?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

可能性極低　　可能性極高

事件將會在 ___ 日內發生.

事件對你有多重要?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

完全不重要　　極度地重要

這件事會否發生, 是否由你控制?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

沒有任何控制　　完全由我控制

你有幾經常經歷過同一類型的事件?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

從不發生　　經常性發生

丙. 預期的感受

如果你以上提及過的事情真是發生的□，整體來說，你兩個星期後將有幾開心？

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

完全不開心　　極度地開心

以上你預料兩個星期後你會有幾開心, 請解繹你作出這個預料的原因。

當你預料兩星期後你會有幾開心和幾傷心的時候, 你的注意力是集中在:

1. 我提及的正面事件和它令我的感受:

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

不是 絕對是

2. 正面事件之外的其他因素:

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

不是 絕對是

3. 以往經歷過的同類型事件:

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

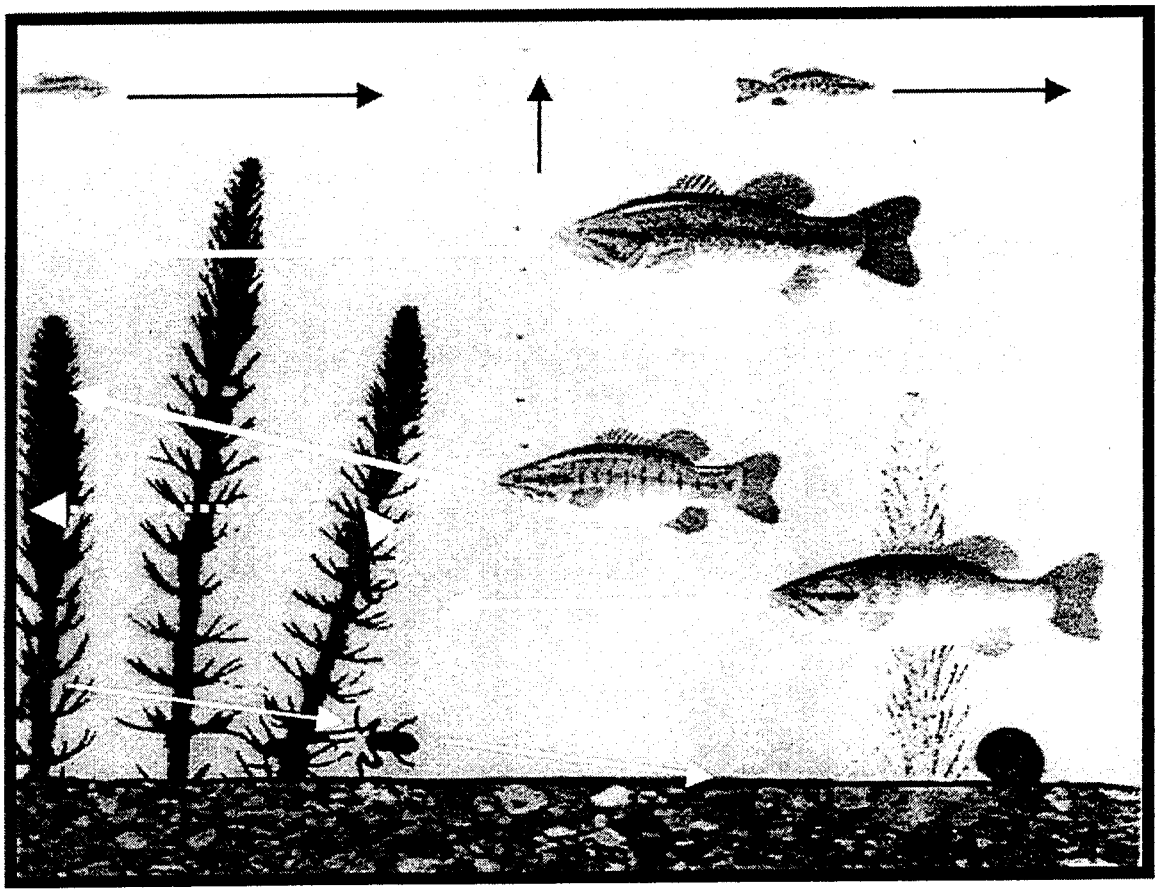
不是 絕對是

4. 你慣常的開心程度:

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11

不是 絕對是

Appendix H



Appendix I

Examples:

I saw three (*number)* big (*attribute)* fish *(name)* swimming (*swimming*) from right to left (*location*)

# of references to active salient objects:

number (three)	= 1
attribute (big)	= 1
name (fish)	= 1
behaviour (swimming)	= 1
location (right to left)	= 1
Total	= 5

At the beginning (*time*), a big (*attribute*) fish (*name*) was swimming (*behavior*) towards (***relation to inert object***) the green (*attribute*) seaweed (*name*)

# of references to active salient objects:

time (at the beginning)	= 1
attribute (big)	= 1
name (fish)	= 1
behaviour (swimming)	= 1
total	= 4

# of references to inert non-salient objects:

attribute (green)	= 1
name (seaweed)	= 1
total	= 2

# of references to relationships with inert objects: 1

Note: Examples from Masuda and Nisbett (2001)

Appendix J

PERCEPTIONS OF LIFE EVENTS

Information:

In this study, we are interested in learning about people's interpretations of events in their lives. Two weeks ago, you completed an initial questionnaire on these topics, and today we would like to ask you some further questions.

Anonymous Code:

To ensure that your responses remain anonymous, please do not write your name on this questionnaire. Instead, please create an anonymous code by providing the following information:

1. The first 2 letters of your mother's maiden name (e.g., for "Smith" print S M).

2. A two digit # representing the month in which you were born (e.g., if born in February, print 0 2).

3. The first 2 letters of your father's first name (e.g., for "Jack", print J A).

YOUR CODE: ___ ___ /___ ___/___ ___

Instructions:

Please complete the items in the order that they are presented (for purposes of experimental control). Do not go back and change your response to an item once you have moved on to the next one.

When you are finished, please click on the "submit" button to submit the questionnaire.

Please note that your responses are entirely anonymous and that we greatly appreciate your honesty and thoughtfulness in answering these questions.

A. How Do You Feel?

Please answer the following questions.

1. On the whole, do you feel that you are an energetic person?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all energetic Extremely energetic

2. Generally speaking, do you think that you are a calm person?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all calm Extremely calm

3. Overall, how happy are you today?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all happy Extremely happy

4. To what extent is the statement, "I am often a very busy person", true of you?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all true Extremely true

5. Overall, how stressed are you feeling today?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all stressed Extremely stressed

6. On the whole, how worried are you about the future?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all worried Extremely worried

7. Overall, to what extent do you have a positive attitude toward yourself?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all positive Extremely positive

B. Specific Positive Event

1. Two weeks ago, we asked you to identify a specific, positive event or situation that you expected to happen between then and now:

i) Do you remember what the event was?
No _____
Yes _____

ii) If yes, please briefly identify the event that you expected to occur:

_____

_____

iii) Did the event actually occur?
No _____
Yes_____

2. How many days ago did the event you described take place? _____ days ago.

3. How happy did you feel at the time the event took place?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all happy Extremely happy

4. How positive was the event?
1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Slightly positive Extremely positive

5. How important was the event for you?
1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Not at all important Extremely important

6. How often have you experienced events similar to this in the past?
1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
Never before Very often

C. Your Beliefs About Things In General

Please use the following scale to indicate the extent to which you agree with each of the following statements.

1 2 3 4 5 6 7

Strongly Disagree Strongly Agree

1. Everything in the universe is somehow related to each other. _____

2. Even a small change in any element in the universe can lead to substantial alterations in others. _____

3. Any phenomenon has a numerous number of causes although some of the causes are not known. _____

4. Any phenomenon has a numerous number of results although some of the results are not known. _____

5. Nothing is unrelated. _____

6. It's not possible to understand the pieces without considering the whole picture._____

7. The whole is greater than the sum of its parts._____

8. Paying attention to the field is more important than paying attention to its elements. _____

9. A marker of good architecture is how harmoniously it blends with other buildings around it. _____

10. Sometimes, the empty space in a painting is just as important as the objects. _____

人們對日常事件的看法

研究目的:

在這個研究當中, 我們有興趣了解人們對日常事件的看法。 兩個星期前，你填了一份相同話題的問卷； 今日，我們想再問你一些同類型的問題。

無名編碼:

為了確保你無憂慮地回答這份問卷. 你無需填上真實姓名. 你只需創造一個無名編碼:

4. 你母親姓名的首2個字母, (例如"CHAN"填CH.)
5. 你生日的月份（例如二月, 填02）.
6. 你父親名字的首二個字母（例如"JACK"填JA）

__ /__/__

指示:

請順序回答以下的問題.當完成後, 請按 “submit”.

□. □□□□?

請回答下列一些問題.

1. □ □ □ □□□ □ □ □ □ □ □ □ □ □ □□

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
完全沒有精力 極度有精力

2. □ □ □ □□□ □ □ □ □ □ □ □ □□

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
完全不冷靜 極度冷靜

3.□ □ □ □□□ □ □ □ □ □ □?

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
完全不開心 極度開心

4. "我是一個經常很忙的人"，這句說話可否用來形容你？

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
完全不可 絕對可以

5. 總括來說，你今天覺得有多大壓力？

1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
完全沒有壓力 極大壓力

6. 總括來說，你有多擔心你的將來？
1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
完全沒有擔心 極度擔心

7. 總括來說，你認為你對自己的態度有多正面？
1----------2----------3---------4----------5---------6----------7----------8----------9----------10---------11
完全負面 極度正面

乙. 你兩星期前提及過的正面事件

1. 兩星期前, 你提及過一件正面事情你覺得會發生在你身上:

i) 請問你可否記得個你提及過的一件事情?

記得____
記不得___

ii) 請簡短地寫出你提及過的一件事情(English is OK) .

_____

_____

iii) 你提及過的一件事情在這兩星期內到底有沒有發生?

有___
沒有___

2. 若你提及過的一件事情有發生的話, 它是在幾多日前發生? ___ 日前

3. 事件發生當時你有幾開心?

1----------2----------3----------4----------5----------6----------7----------8----------9----------10----------11

完全不開心 極度開心

4. 事件的正面程度有多高?

1----------2----------3----------4----------5----------6----------7----------8----------9----------10----------11

稍微地正面 極度地正面

5. 事件對你有多重要?

1----------2----------3----------4----------5----------6----------7----------8----------9----------10----------11

完全不重要 極度地重要

6. 若有發生的話, 你有幾經常經歷過同一類型的事件?

1----------2----------3----------4----------5----------6----------7----------8----------9----------10----------11

從不發生 經常性發生

丙. 你對事物的一般信念

請用以下的尺度來評估下列每一句句子:

1 2 3 4 5 6 7

強烈地不同意 強烈地同意

1. 宇宙裡一切的東西也是被某種方法互相聯繫. ___

2. 在宇宙中某一元素即使有少許的轉變也足以導致其他元素有實質的變動. ____

3. 任何一種現象都有很多起因, 但有些起因是未知的. ____

4. 任何一種現象都有很多結果, 但有些結果是末知的. ____

5. 沒有事情是不相關的. ____

6. 在沒有考慮一樣事物的整體前, 是不可能了解它其中的部份. ___

7. 整體是大於它部分的總和. ___

8. 集中注意力在背景是重要過集中注意力在它面前的元素. ___

9. 好的建築物是在於它與附近的其他大廈能否和諧地混合. ___

10. 有時, 圖畫裏空白的部份是和它裏的物體一樣重要. ___

Appendix K

Post-Study Information Letter for Participants

Investigators: Dr. Mike Ross, Department of Psychology, University of Waterloo 888-4567 ext. 3047, email: mross@watarts.uwaterloo.ca

Kent Lam, Department of Psychology, Wilfrid Laurier University 884-0710, ext. 3971 email: bigocean@hotmail.com

Thank you for taking the time to help us with our research. The topic we are studying today is referred to as "affective forecasting". In other words, we are interested in how accurately people are able to forecast their affective reactions to positive events. In past research, it has been found that people often tend to overestimate their affective reactions (e.g., thinking that they would be extremely happy after getting an A+ when in fact they were only somewhat happy). We think that this tendency is predicted by one's cultural background and tendency to think holistically. In the first questionnaire, you predicted how you would feel if the positive event you mentioned were to indeed occur. In the second questionnaire, you reported how you actually felt. To assess forecast accuracy, we will compare participants' predicted and actual affect and, in doing so, take one's cultural background and tendency to think holistically into account.

Beginning 24 hours after the completion of the study, you may visit the PAS building (room TBD)[i] at anytime during office hours (Monday to Friday 9am – 4:30pm; no appointment necessary) to pick up credit slips (or cash payments). At that time, please bring your UW student card for identification.

Because you have been told the purpose and predictions of this study, please do not discuss your experience with any other student until the end of this term. If other students in class were aware of our predictions, we would not be able to invite them to participate. We truly appreciate your participation and hope that this has been an interesting experience for you. If you want to discuss this study further, please do not hesitate to contact Dr. Mike Ross or Kent Lam. For a summary of the findings, please contact Kent Lam at any time after June 1st, 2004. *This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at 519-888-45467, Ext. 6005*[i]. Our research is based on the following publications, which could provide you with further information on the topic of "affective forecasting":

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. P. Zanna (Ed.), Advances in Experimental Social Psychology, 35. San Diego: Academic Press.

Buehler, R., & McFarland, C. (2001). Intensity bias in affective forecasting: The role of temporal focus. Personality and Social Psychology Bulletin, 27, 1480-1493[ii].