
The Experiencing and Remembering of Well-Being: A Cross-Cultural Analysis

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Four studies were conducted to examine cultural differences in specific and global reports of well-being. The first two studies were designed to determine whether cultural differences in emotional experiences would emerge at the time of actual experience or at the time of retrospective judgments, using a daily diary and an experience sampling method. Using more controlled methods, Studies 3 and 4 examined the memory, conscious weighting, and nonconscious weighting hypotheses. The results indicate that although there were no cultural differences in on-line experiences of well-being, European Americans reported a higher degree of well-being than did Asian Americans in retrospective reports. Studies 3 and 4 also indicate that these cultural differences were not due to explicit memory for emotional events or conscious weighting of positive versus negative information. Rather, the cultural difference in retrospective reports of well-being appears to be due to nonconscious weighting of positive versus negative information.

According to annual surveys with nationally representative samples compiled by Veenhoven (1993), Japanese respondents were consistently less satisfied with their lives than Americans and Western Europeans from 1959 to the 1990s. Recent data on college students also replicated this international difference (Diener, Diener, & Diener, 1995; Kitayama, Markus, & Kurokawa, 2000; Mesquita & Karasawa, 2002; Oishi, Diener, Lucas, & Suh, 1999). Furthermore, there is evidence within the United States parallel to the international difference: Asian Americans are less satisfied with their lives than are European Americans (Schkade & Kahneman, 1997).

It is unclear, however, whether these cultural differences in levels of well-being (e.g., Veenhoven, 1993) are due to differences in actual experiences or differences in the way in which people remember their experiences. Do Asians report lower well-being than Europeans and Americans because they experience less happiness or because they remember less happiness?

Since the early 1900s, psychologists have investigated the degree to which individuals remember or forget pleasant and unpleasant experiences (Greenwald, 1980; Meltzer, 1930). Evidence shows that people tend to remember pleasant experiences more accurately than unpleasant experiences. This tendency is called “the optimism of memory” (Jersild, 1931). Recent studies also found individual differences such as neuroticism (Feldman Barrett, 1997) and self-esteem (Conner, Wood, & Feldman Barrett, in press) in the “optimism of memory.” Although the optimism of memory has been repeatedly found (Parkinson, Briner, Reynolds, & Totterdell, 1995), the evidence has come solely from the research conducted in the West. Throughout the 1990s, it became increasingly clear that the way in which people think, feel, and act is quite different across cultures (Heine, Lehman, Markus, & Kitayama, 1999; Markus & Kitayama, 1991, 1994; Triandis, 1995). Specifically, individuals in the West tend to view themselves in a positive light, whereas such a self-enhancing view of the self is not as common in the East. Therefore, even if Asians and European Americans experienced the same number of pleasant and unpleasant experiences, European Americans might remember and report a greater number of pleas-

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ant experiences than Asians, whereas Asians might remember and report a greater number of unpleasant experiences than European Americans.

In addition to memory effects, the cultural differences in global reports of well-being also may come from the ways in which pleasant and unpleasant pieces of information are integrated. Peng and Nisbett (1999) argue that distinctively different thinking styles of the West and East are responsible for various perceptions, pattern recognition, and emotions. Because of the law of noncontradiction, people tend to pay lopsided attention to the information consistent with the preexisting attitude, which in turn solidifies their attitude. To the extent that most European Americans have a positive attitude about their lives (Diener & Diener, 1996), they may pay more attention to positive life events and regard positive events as more relevant to their lives than negative events. On the other hand, East Asians are accustomed to thinking about both sides of a phenomenon and therefore they are likely to view both negative and positive aspects of any event as valid and consciously take into account both positive and negative information when making global judgments. Thus, even if European Americans and Asians experienced and remembered the same number of pleasant and unpleasant experiences, European Americans might view pleasant experiences as more valid than unpleasant ones and therefore report a higher level of global well-being than Asians.

Yet another possibility is that the weighting of positive versus negative information occurs at the nonconscious level. Just as earlier research on social cognition found that the impression of a person is independent of explicit memory for the target person's traits (e.g., Wyer, Srull, & Gordon, 1984), retrospective judgments of well-being may be made relatively independently of explicit memory for emotional experiences. That is, there may be no cultural difference in explicit memory for emotional events or conscious weighting of positive versus negative events. Still, because of cultural differences in implicit theories about life, European Americans may nonconsciously overestimate positive emotional experiences, whereas Asian Americans may neither overestimate nor underestimate positive emotional experiences.

STUDY 1: DAILY DIARY STUDY

This study was designed to investigate whether cultural differences in global reports of subjective well-being originate in the actual experiences or in memory biases by sampling daily experiences.

Method

Participants. The study included 106 students enrolled in a personality and subjective well-being course at the University of Illinois; 87 were European Americans (28

men, 59 women) and 19 were Asian Americans (7 men, 12 women). Of 87 European Americans, 80 (92%) were between 18 and 22 years old; 66 (76%) were majoring in social sciences (e.g., psychology, sociology, political sciences). Of 19 Asian Americans, 17 (90%) were between 18 and 22 years old; a similar proportion of Asian American participants (68%) were social science majors. Eight Asian Americans (42%) were born in the United States, whereas 2 (10.5%) had lived in the United States more than 16 years and 3 (15.8%) had lived in the United States more than 12 years. Three Asian Americans (15.8%) had lived in the United States less than 4 years and 2 Asian Americans (10.5%) had lived in the United States less than 8 years. Five of the original 87 European American (5.7%) participants dropped out, whereas none of the 19 Asian American participants (0%) dropped out of the study. Compliance rates were excellent in both groups: 75 of the 82 European Americans (86%) turned in all 7 reports, 6 of them (6.9%) missed 1 day and 1 of them (1.1%) missed 2 days; out of the 19 Asian Americans, 17 (90%) turned in all 7 reports and 2 (10%) turned in 6 reports.

Materials and procedure. The participants completed a short daily satisfaction form every night for 7 days. To ensure the daily record, they turned in the daily form on the following day. The form included items on daily satisfaction (i.e., "How good or bad was today?") on a 6-point scale (1 = *terrible*, 2 = *very bad*, 3 = *bad*, 4 = *good*, 5 = *very good*, 6 = *excellent*) as well as several domain satisfaction items. After the completion of the daily diary study, they were asked to indicate their satisfaction for the week on the same 6-point scale ("How good or bad was the week?").

Results and Discussion

As seen in Figure 1, there was no difference in actual satisfaction over the 7-day period between European Americans and Asians, 4.10 ($SD = .44$) versus 4.04 ($SD = .50$), $t(99) = .55$, *ns*. However, European Americans retrospectively rated the week as a whole significantly more favorably than did Asians, 4.80 ($SD = .92$) versus 4.16 ($SD = .90$), $t(100) = 2.73$, $p < .01$. Also, whereas there was no difference between the average daily satisfaction and the retrospective judgment of the week among Asian Americans, $t(18) = .71$, *ns*, European Americans' retrospective judgment was significantly higher than the average of daily satisfaction, $t(79) = 7.57$, $p < .01$. A two-way ANOVA with actual and retrospective satisfaction judgment as a repeated measure revealed a significant two-way interaction between cultural groups and time, $F(1, 97) = 7.86$, $p < .01$.

Next, we examined the degree to which the best day and the worst day of the week accounted for the week-as-a-whole satisfaction judgment. Similar to Parkinson et al.'s (1995) findings in England, the regression analy-

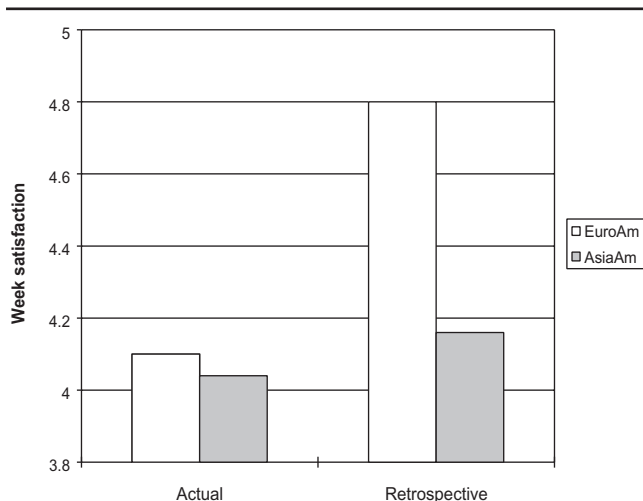


Figure 1 Actual week satisfaction and retrospective week satisfaction by culture: A daily dairy study.

NOTE: EuroAm = European Americans, AsiaAm = Asian Americans.

sis revealed that the best day significantly predicted the week-as-a-whole satisfaction ($\beta = .23$, $t = 2.08$, $p < .05$), whereas the worst day did not ($\beta = .17$, $t = 1.51$, ns) among European Americans. On the other hand, for Asian Americans, the worst day predicted the week-as-a-whole satisfaction ($\beta = .42$, $t = 1.92$, $p = .055$), whereas the best day did not ($\beta = .29$, $t = 1.34$, ns). There was no cultural difference in recency effect, because the correlation between day 7 and week-as-a-whole satisfaction was almost identical ($r = .17$ for European Americans, $.19$ for Asian Americans).

In short, Study 1 indicates that (a) there tends to be a greater degree of cultural difference in retrospective judgments than day-to-day evaluations and (b) the retrospective judgment of the week was predicted from the best day satisfaction among European Americans but from the worst day satisfaction among Asian Americans.

STUDY 2: PALMTOP STUDY

Participants. Participants in this experiment were 15 European Americans and 21 Asians. The participants responded either to the flyer posted in the psychology building or a message posted in the Japanese and Korean American students' e-mail newsgroups at the University of Illinois. They were paid \$20 for the completion of the study. None of the original participants dropped out of the study. The average number of surveys completed was 39.73 ($SD = 11.23$) among European Americans and 38.62 ($SD = 11.24$) among Asians, $t(34) = .29$, ns . Given that there were 49 random moments for the 7 days, on the average, participants completed the survey approximately 80% of the time signaled. Out of 21 Asians, 3 of them (14%) were born in the United States and 6 of them (29%) had been in the United

States more than 8 years. Twelve Asians (57%) had been in the United States for less than 5 years. Twelve of our European American participants (80%) were social science majors. Among 21 Asian participants, 7 (33%) were social science majors, 4 (19%) were engineering majors, 4 (19%) were undecided, 3 (14%) were humanity majors, and 2 (9%) were natural science majors.

Materials and procedures. The participants completed five random moment surveys per day for 7 consecutive days. In addition, they completed the survey when they woke up and right before they went to bed. The random moment surveys were done on a palmtop computer. Positive moods included pleasant, calm, excited, happy, affectionate, and proud, whereas negative moods included unpleasant, sad, worried, guilt, and irritated. These items were selected from Larsen and Diener (1992) and Diener, Smith, and Fujita's (1995) structure of affect to represent the major components of the pleasant and unpleasant dimensions as well as key discrete emotions. Participants were asked to indicate how they were feeling right before the beeper went off on a 7-point scale (0 = *not at all*, 1 = *very slightly*, 2 = *slightly*, 3 = *moderately*, 4 = *strongly*, 5 = *very strongly*, and 6 = *maximum intensity*). The on-line emotional experience was computed by taking the proportion of non-zero responses (i.e., 1 to 6 responses to each emotion, which indicates the presence of respective emotional experiences at that moment) to the total number of random moments (see Schimmack & Diener, 1997, for the logic). Because the proportion was not normally distributed, they were transformed via log-transformation before further statistical analyses, as outlined by Judd and McClelland (1989). After completing the palmtop survey, participants were asked to estimate how frequently and how much of the time they experienced these moods during the 7-day palmtop study on a 8-point scale (1 = 0%, 2 = 1 to 15%, 3 = 16 to 33%, 4 = 34 to 50%, 5 = 51 to 66%, 6 = 67% to 83%, 7 = 84% to 99%, and 8 = 100%).

Results and Discussion

The proportion of the time participants felt positive moods on-line was .75 ($SD = .14$) for European Americans and .84 ($SD = .13$) for Asians, $t(34) = 1.65$, $p = .11$. However, in the retrospective judgments, European Americans tended to report having been in positive moods more frequently than Asians, 4.63 ($SD = 1.09$) versus 4.29 ($SD = .85$), $t(34) = 1.07$, $p = .29$. Next, a two-way ANOVA with culture as a between-subjects and positive moods as a within-subject variable revealed a significant two-way interaction, $F(1, 34) = 5.38$, $p = .03$ (see Figure 2). For this analysis, the on-line and retrospective measures of positive moods were standardized so that these variables were on the same metric. The proportion of the time participants felt negative moods on-line was

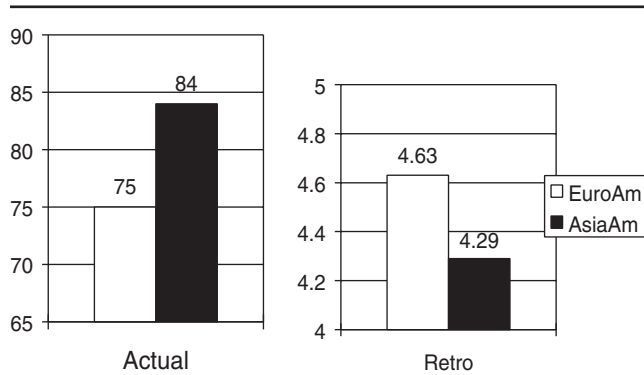


Figure 2 Actual proportion of time positive moods were present and retrospective judgments by culture: A palmtop study.

NOTE: EuroAm = European Americans, AsiaAm = Asian Americans.

.48 ($SD = .22$) for European Americans and .45 ($SD = .20$) for Asian Americans, $t(34) = .21$, *ns*. There was also no difference in the retrospective judgments, 2.53 ($SD = .95$) versus 2.47 ($SD = .80$), $t(34) = .23$, *ns*. There was no two-way interaction between time of report and culture, $F(1, 34) = .00$, *ns*. In sum, Study 2 replicated Study 1 in the reports of positive emotional experiences.

STUDY 3: WEEKLY EVENT STUDY

Studies 1 and 2 demonstrated that European Americans and Asians were equally satisfied with their day-to-day lives and experienced positive emotions with similar frequency, yet European Americans later reported being more satisfied with the week as a whole and experiencing positive emotions more frequently than did Asian Americans. These studies, however, did not explicate why such cultural differences emerged only at the retrospective judgments. The first goal of Study 3 was to examine the mediating role of explicit memory for positive and negative events using the free recall method. Second, in Studies 1 and 2, the retrospective judgments covered a longer time period than on-line judgments. Thus, cultural differences could be due to the different criteria people employ for satisfaction for a day versus satisfaction for a week (e.g., Asians may have used a more lenient criterion for a “good day” than for a “good week”). The second goal of Study 3 was to control for the difference in the period covered in actual and retrospective judgments. To do so, we asked participants to evaluate the previous 14 days (i.e., immediate judgment). Two weeks later, participants were asked to evaluate the 2-week period evaluated at Time 1 (i.e., delayed judgment). Although immediate judgments are different from random moment ratings and daily ratings used in Studies 1 and 2 in terms of the time frame, these judgments are similar in a sense that specific pieces of rele-

vant information are more readily available in memory in comparison with delayed, retrospective judgments.

Method

Participants. Participants were 28 European American students (9 men, 18 women) who were enrolled in an introductory psychology course at the University of Illinois and 23 Japanese students (12 men, 11 women) who were enrolled in an introductory psychology course at Nippon University, Tokyo, Japan.

Materials and procedure. At Time 1, participants were asked to list events that happened to them during the previous 14 days. Then they were asked to evaluate their lives during the previous 2 weeks by answering the following three items: “I am satisfied with the last 2 weeks of my life” (1 = *strongly disagree* to 7 = *strongly agree*), “The conditions of my life during the previous 2 weeks were excellent” (1 = *strongly disagree* to 7 = *strongly agree*), and “The last 2 weeks of my life were . . .” (1 = *terrible* to 7 = *delightful*) ($\alpha = .91$ for European Americans, .73 for Japanese). Two weeks later, participants came back to the same experimental laboratory and were asked, without warning, to recall all the events that they had listed at Time 1. After the free recall, they were asked to evaluate their lives during the 2 weeks prior to Time 1 on the same three-item satisfaction scale ($\alpha = .92$ for European Americans, .62 for Japanese).

Results and Discussion

Replicating Studies 1 and 2, we found a marginally significant interaction between time of reports (actual vs. recalled) and culture (European Americans vs. Japanese), $F(1, 49) = 3.05$, $p < .10$. There was no cultural difference between European Americans ($M = 4.30$, $SD = 1.47$) and Japanese ($M = 4.44$, $SD = 1.21$) in satisfaction at Time 1, $t(49) = -.34$, *ns*. Nevertheless, European Americans’ recalled satisfaction at Time 2 ($M = 4.92$, $SD = .84$) was marginally significantly higher than Japanese ($M = 4.49$, $SD = .94$), $t(49) = 1.69$, $p < .10$. Whereas there was no difference between Time 1 and Time 2 satisfaction among Japanese (i.e., 4.44 vs. 4.49), paired $t(23) = -.32$, *ns*, there was a significant increase in recalled satisfaction among European Americans (i.e., 4.30 vs. 4.92), paired $t(27) = -2.50$, $p < .05$ (see Figure 3).

Explicit memory for events. Next, we tested whether there would be cultural differences in memory for emotional events. There was no interaction between culture and time of reports in positive events, $F(1, 41) = .73$, *ns* (see Table 1). There was a marginally significant two-way interaction between time of reporting and culture, $F(1, 41) = 4.03$, $p < .10$. In addition, whereas Japanese participants wrote approximately an equal number of positive and negative life events at Time 1 (3.95 vs. 3.52), $t(22) =$

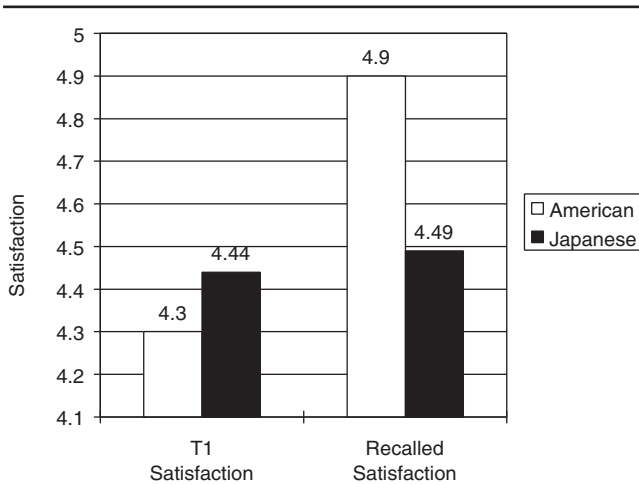


Figure 3 Time 1 satisfaction and recalled satisfaction by culture (European Americans vs. Japanese) in Study 3.
NOTE: T1 = Time 1.

.73, *ns*, and at Time 2 (2.09 vs. 1.65), $t(22) = 1.07$, *ns*, European Americans wrote significantly more positive events than negative events at Time 1 (4.75 vs. 1.85), $t(25) = 3.14$, $p < .01$, and at Time 2 (2.25 vs. .75), $t(19) = 3.38$, $p < .01$. This pattern was confirmed by a significant two-way interaction between culture and valence of the event at Time 1, $F(1, 47) = 4.06$, $p = .05$, and Time 2, $F(1, 41) = 3.14$, $p < .10$.

Does memory mediate cultural difference? Next, we tested whether memory for emotional experiences would mediate cultural differences in retrospective judgments of satisfaction. To do this, we first computed a residual satisfaction score by taking the difference between predicted Time 2 satisfaction score (based on Time 1 satisfaction) and observed Time 2 satisfaction. The residual satisfaction score is theoretically the same as the difference score between Time 1 and Time 2 satisfaction. Consistent with the above analysis, there was a significant association between culture (European Americans = 1, Japanese = 2) and residual satisfaction score, $\beta = -.31$, $p < .05$. That is, European Americans' recalled satisfaction was much higher than expected, whereas Japanese

recalled satisfaction was lower than expected. Similar to the residual satisfaction score, we computed the residual positive event score and residual negative event score, respectively, by predicting Time 2 events from Time 1 events. According to Baron and Kenny (1986), mediation is established when all of the following conditions are met: (a) the independent variable (here, culture) should be significantly associated with the mediator (here, residual event scores), (b) the independent variable should be significantly associated with the dependent variable (here, residual satisfaction scores), and (c) the mediator should be significantly associated with the dependent variable, controlling for the independent variable. Here, conditions a and c were not met. Indeed, even when both positive and negative residual event scores were included in the regression equation, culture still marginally significantly predicted residual satisfaction, $\beta = -.29$, $p < .10$. In short, Study 3 indicates that cultural difference in recalled reports of well-being was not due to cultural difference in explicit memory for emotional events.

STUDY 4: WEIGHTING OF POSITIVE VERSUS NEGATIVE EVENTS

Recall that the conscious weighting hypothesis assumes that cultural differences exist in the way in which individuals consciously weigh positive versus negative information in making global judgments, whereas the nonconscious weighting hypothesis assumes that cultural differences exist not in the conscious weighting but in the nonconscious weighting. The goals of the final experiment were (a) to test the conscious weighting versus the nonconscious weighting hypothesis and (b) to identify boundary conditions for cultural differences in retrospective reports of well-being. If the conscious weighting hypothesis is correct, then European Americans should rate positive life events as more relevant to their lives than Asians. On the other hand, if the nonconscious weighting hypothesis is correct, then we should see no cultural difference in the relevance ratings of positive and negative events per se but should see cultural difference in the retrospective judgments of life.

TABLE 1: The Number of Positive and Negative Events Listed by European Americans and Japanese Participants in Study 3

	Time 1			Time 2 (Recalled)		
	Positive	Negative	t	Positive	Negative	t
European American	4.75 (4.22)	1.85 (1.18)	3.14**	2.25 (1.80)	.75 (.79)	3.38**
Japanese	3.95 (1.92)	3.52 (1.70)	.73	2.09 (1.41)	1.65 (1.15)	1.07
<i>t</i> value	.81		-3.68**		.33	
2.95**						

NOTE: Standard deviations are in parentheses.

Method

Participants. Ninety-three European American and 78 Asian American students at the University of Illinois participated in the Time 1 portion of the study. Of the original participants, 72 (77%) European American (26 men, 46 women) and 63 (81%) Asian American students (31 men, 32 women) completed both Times 1 and 2.

Materials and procedure. Participants were asked to list life events that happened to them during the previous 2 weeks. They were then asked to rate each event in terms of how much positive emotion (e.g., happiness, pride, joy) and negative emotion (e.g., anger, sadness, and frustration) they felt when they experienced each event on a 7-point scale (0 = *not at all*, 1 = *very slightly*, 2 = *slightly*, 3 = *moderately*, 4 = *strongly*, 5 = *very strongly*, and 6 = *with maximum intensity*). A research assistant classified each event as either positive, negative, or neutral based on the intensity ratings provided by the participants. When the event elicited positive emotions moderately (3) or with higher intensity and did not elicit negative emotions at all, or elicited negative emotions only very slightly (1) or slightly (2), this event was classified as positive. When the event elicited negative emotions moderately (3) or with higher intensity and did not elicit positive emotions at all, or elicited positive emotions only very slightly (1) or slightly (2), this event was classified as negative. Other events were classified as neutral. After the emotion ratings of life events during the 2 weeks, participants were asked to evaluate the previous 2 weeks of their lives using the three-item satisfaction scale used in Study 3 ($\alpha = .90$ for European Americans, $.89$ for Asian Americans). Two weeks later, the participants returned to the same laboratory and were asked to evaluate the 2 weeks they evaluated at Time 1 using the same scale ($\alpha = .89$ for European Americans, $.89$ for Asian Americans). However, before this task, they were presented with two of their own life events that they had listed at Time 1. We told participants that "I want you to look back these 2 weeks of your life. To help you remember these 2 weeks better, I selected two events that you described 2 weeks ago." To test the conscious weighting hypothesis, we asked relevance of these two events to their lives during that 2-week period on a 7-point scale, ranging from 1 (*not at all relevant*) to 7 (*extremely relevant*). The type of events presented was experimentally manipulated (i.e., either two positive events, PP; one positive one negative, PN; one negative one positive, NP; or two negative events, NN) within each cultural group to control for the type of information made accessible at the time of delayed satisfaction judgments. In addition, we manipulated the order in which a positive or negative event was presented to examine whether the order in which positive and negative pieces of information were integrated would make a

difference in the delayed satisfaction judgments. After Time 1, we first randomly divided 171 original participants into PP (57), PN (28), NP (29), and NN (57) conditions. However, because 14 of the 114 participants originally assigned to PP and NN conditions did not have two positive or two negative events, these participants were reassigned randomly into either the PN or NP condition.

Results and Discussion

Time 1 versus recalled satisfaction. As predicted, when people were led to pay attention solely to positive aspects of life in retrospective judgments (i.e., PP condition), recalled satisfaction increased over Time 1 satisfaction judgments among European Americans ($M = 4.79$, $SD = 1.25$ to $M = 5.25$, $SD = .82$), paired $t(21) = 2.55$, $p = .02$. Among Asian Americans, however, the increase was non-significant ($M = 4.67$, $SD = 1.19$ to $M = 4.82$, $SD = .85$), paired $t(19) = 1.19$, *ns*. Of interest, when people were led to pay attention solely to negative aspects of life in retrospective judgments (i.e., NN condition), recalled satisfaction did not decrease over Time 1 satisfaction judgments for either European ($M = 3.50$, $SD = 1.48$ to $M = 3.71$, $SD = .96$), paired $t(21) = -.78$, *ns*, or Asian Americans ($M = 3.67$, $SD = 1.47$ to $M = 3.80$, $SD = 1.13$), paired $t(14) = -.39$, *ns*. Most important, consistent with the predictions, there was no two-way interaction between culture and immediate versus delayed judgments in the PP, $F(1, 40) = .10$, *ns*, and NN conditions, $F(1, 35) = .03$, *ns* (see Figure 4).

We also predicted that when people were led to pay attention to both positive and negative information, European Americans should weigh positive aspects more than negative ones, whereas Asian Americans should weigh both positive and negative information equally. Consistent with the prediction, there was a two-way interaction between culture and time of reports in the NP condition, $F(1, 26) = 4.28$, $p < .05$ (see Figure 4). Although there was no cultural difference in Time 1 satisfaction, $t(27) = -.04$, *ns*, European Americans' recalled satisfaction was significantly higher than Asian Americans' at Time 2, $t(27) = 2.17$, $p < .05$. Also, consistent with the predictions, European Americans' recalled satisfaction at Time 2 was significantly higher than their ratings at Time 1 ($M = 4.10$, $SD = 1.48$ at Time 1 vs. $M = 4.83$, $SD = .96$ at Time 2), paired $t(13) = -2.20$, $p < .05$. In contrast, Asian Americans' recalled satisfaction at Time 2 was slightly lower than their ratings at Time 1 in the NP condition ($M = 4.12$, $SD = 1.42$ at Time 1 vs. $M = 3.93$, $SD = 1.23$ at Time 2), paired $t(13) = -.64$, *ns*. However, the predicted interaction was not observed in the PN condition, $F(1, 26) = .00$, *ns*. In the PN condition, both European ($M = 4.43$, $SD = 1.52$ to $M = 4.62$, $SD = 1.23$) and Asian Americans' recalled satisfaction judgments at Time 2

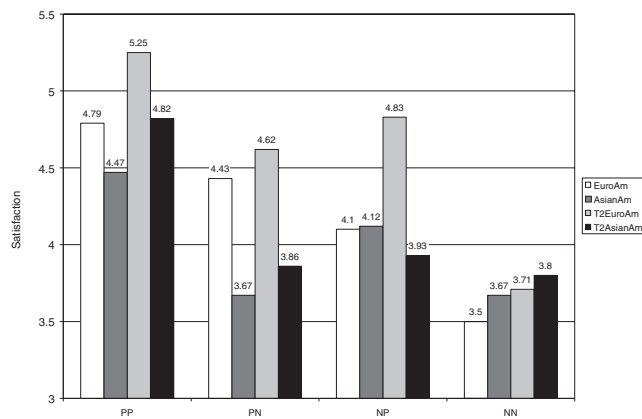


Figure 4 Time 1 satisfaction and recalled satisfaction at Time 2 in Study 4.

NOTE: EuroAm = European Americans, AsiaAm = Asian Americans, T2EuroAm = Time 2 European Americans, T2AsianAm = Time 2 Asian Americans, PP = two positive events, PN = one positive event and one negative event, NP = one negative event and one positive event, NN = two negative events.

($M = 3.67$, $SD = 1.33$ to $M = 3.86$, $SD = 1.32$) were slightly higher than their ratings at Time 1. The unexpected difference between PN and NP conditions suggests that even when both positive and negative information is presented, the order in which these pieces of information are presented influences the subsequent judgments differently across cultures. When positive information is followed by negative information, it seems that negative information reduces the effect of positive information even among European Americans. However, when negative information is followed by positive information, positive information seems to nullify the effect of negative information among European Americans, whereas positive information does not override the effect of negative information among Asian Americans.

Relevance of positive and negative events to life. As seen in Table 2, there was no evidence for the conscious weighting hypothesis. In both PP and NN conditions, there was no significant difference in relevance ratings between cultures. Also, in the PN and NP conditions, there was no cultural difference in relevance ratings. Contrary to our expectation, European Americans tended to rate the negative event as more relevant to their lives than Asian Americans, $t(26) = 1.86$, $p < .10$. Thus, cultural variations in reports of well-being are not caused by explicit weighting of positive versus negative information.

GENERAL DISCUSSION

Recently, Kahneman (1999) argued that global measures of well-being are vulnerable to various judgmental biases and might not be the best measure of well-being.

TABLE 2: Relevance Ratings in Study 4

Condition	Valence of Rated Event	European American	Asian American	t Value
PP	P	5.52 (1.12)	5.00 (1.56)	1.27
	P	5.35 (1.15)	4.74 (1.55)	1.45
PN	P	4.79 (1.85)	4.79 (1.72)	0.00
	N	5.21 (1.05)	4.64 (1.65)	1.09
NP	N	5.36 (1.28)	4.36 (1.55)	1.86
	P	5.57 (1.16)	4.93 (1.21)	1.44
NN	N	5.32 (1.43)	4.73 (1.87)	1.08
	N	5.14 (1.64)	4.00 (1.93)	1.93

NOTE: Standard deviations are in parentheses. PP = two positive events, PN = one positive event and one negative event, NP = one negative event and one positive event, NN = two negative events, P = positive, N = negative.

Unfortunately, previous cultural research in well-being relied primarily on global retrospective judgments. Therefore, it was unclear from the previous results whether the obtained cultural differences reflected cultural differences in daily experiences or were confounded with memory and various judgmental biases. A first major finding was that although we found a cultural difference in the mean level of retrospective reports of well-being between East and West, the on-line measures of well-being did not show any indication of such difference.

The next question was why such cultural differences occur in global, retrospective judgments of well-being despite the fact that there seems to be no cultural difference in on-line experiences. We proposed two mediating processes in this regard. The first account was the cultural difference in "optimism of memory." Although Study 3 replicated the culture-by-time of reports interaction, there was no evidence for cultural difference in memory for emotional events. Study 3 also eliminated the alternative explanation that the findings from Studies 1 and 2 were due to cultural difference in the criteria used for on-line versus retrospective judgments, because the periods covered by satisfaction judgments of Times 1 and 2 were exactly the same.

The second account for the cultural difference was the conscious weighting hypothesis that predicted that European Americans would view positive information available in memory as more relevant than negative information available in memory, whereas Asian Americans would view both positive and negative information as equally relevant. Although the NP condition of Study 4 replicated the patterns of well-being reports found in the previous three studies, there was no noticeable cultural difference in the way in which Asian and European Americans consciously weighed positive versus negative information.

Given that a cultural difference emerged consistently at the time of retrospective, global judgments, the key cultural difference seems to consist in nondeliberate, heuristic processes involving the global judgments of well-being. In this regard, recent research on reaction time of well-being judgments with various time frames is illuminating (Robinson & Clore, in press). These researchers showed that reaction time in making well-being judgments increased monotonically as time frame gets longer from “now,” “last hour,” to “week.” However, reaction time for “past month,” “past year,” or “in general” did not differ from reaction time for “past week,” and they did not differ from one another, suggesting that well-being judgments with long time frames are based on a prior theory (Nisbett & Wilson, 1977; Ross, 1989) rather than actual experiences. Of interest, these theories share the common idea that people use these theories in various judgments without being aware of their influence. Also relevant to the current findings is the fact that implicit theories are often culturally learned and shared widely among people in a given culture (e.g., Chiu, Morris, Hong, & Mennon, 2000; Oishi, Wyer, & Colcombe, 2000; Wilson, Laser, & Stone, 1982). Thus, it is plausible that (a) there is a great deal of cultural variation in implicit theories about life (e.g., “life is good” in the West, whereas “good and bad things happen in life” in the East), (b) retrospective, global judgments of well-being are essentially theory-driven rather than data-driven, and (c) there is cultural difference in global, retrospective judgments of well-being, despite the lack of cultural difference in on-line emotional experiences.

Finally, the comparison between on-line and global reports of well-being in the present research has another important implication for the fundamental issue of “What is happiness?” In this regard, in Tolstoy’s (1886/1991) novel *The Death of Ivan Ilych*, Ivan spent a lot of time playing card games. If he carried a palmtop and recorded his moods at random moments, he would have experienced positive moods most of the time (before he became ill, of course). Yet, he appeared to feel that his life was not what life should be. On the other hand, in Dostoevsky’s (1880/1981) *The Brothers Karamazov*, Alyosha spent a lot of time worrying about his brothers and father. He would have experienced a lot of negative emotions at random moments. Yet, he seemed to have a very positive sense of general well-being. If the researcher were to use the average of on-line mood as an index of well-being, then the daily experience of positive mood, pleasure in particular, would determine one’s well-being (Oishi, Schimmack, & Diener, 2001). If the researcher were to use only global reports of well-being, then they might not reflect the day-to-day experience of well-being to a great degree. It is noteworthy that depression research found that when depressed, people recall

their past in gloomy terms; however, when the depression lifts, their recall brightens (Beck, 1976). That is, retrospective judgments seem to be as important as actual experiences in understanding subjective experiences of well-being. Thus, the discussion of “What is happiness?” should highlight that on-line and global reports capture different but equally important aspects of well-being.

One remaining issue in the current studies is the discrepancy between the results of the first two studies and those of Study 3. In Study 3, we did not find cultural differences in the participants’ evaluations of their lives during the previous 14 days at Time 1. In contrast, cultural differences were found in the participants’ evaluations of their lives during the previous 7 days in Studies 1 and 2. One major difference between the studies lies in the fact that the week-as-a-whole judgments in the first two studies were supposed to integrate all of the daily or momentary reports, whereas in Study 3, there was no specific information provided to the participants as to how they were supposed to form their judgments. The likely impact of this difference is that the week-as-a-whole judgments required in the first two studies would have probably been more difficult because the judgments should have incorporated all the specific judgments made during the week. Judgments in Study 3 did not require such an integration. In other words, even when the time frame was exactly the same, one type of judgment depended more on the use of judgmental heuristics than the other due to the amount of information that individuals were supposed to have integrated. As shown in social judgments literature (see Wyer & Srull, 1989), when there are many pieces of information that individuals are supposed to use in making global retrospective judgments, they tend to rely on judgmental heuristics such as implicit theories about their lives. The issue of time frame and judgmental complexity is an important one in research and theory of social judgments (cf. Robinson & Clore, in press) and needs further elaboration in the future.

CONCLUSION

The present research showed that there was no cultural variation in day-to-day well-being between European Americans and Asian Americans (or Japanese); however, European Americans tended to report being more satisfied with their lives than Asian Americans or Japanese reported in retrospect. Because global reports of well-being appear to be based in part on people’s implicit theories about life, cultural variation in implicit theories (Peng & Nisbett, 1999) seems to be responsible for the Culture \times Time of Report interaction found in this research. Equally important, the divergence between on-line and global reports of well-being found

in this investigation indicates multiple processes governing well-being judgments. These findings point to two major directions in well-being research: (a) the uncovering of nondeliberate judgment processes involving well-being and (b) the investigation of the consequences of on-line versus global reports of well-being. These lines of research should in turn shed light on the subtle, yet powerful, role of culture on subjective well-being.

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