# Two faces of human happiness: Explicit and implicit life satisfaction

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Evidence is provided for implicit aspects of life satisfaction. In study 1 the implicit life satisfaction measure (ILS): (i) showed moderate reliability as well as convergent and incremental validity; (ii) appeared to be affected by temporary mood and social desirability to a lesser extent than explicit measures; and (iii) showed cultural invariance in contrast to explicit measures that revealed cross-cultural differences, as found in previous research. Study 2 showed that the ILS replicated theoretically expected differences between those known to have encountered chronically negative life experiences (North Korean defectors) and those without such experiences (South Koreans). Implications of these findings for explicit and ILS are discussed.

*Key words: cultural difference, implicit association test, implicit life satisfaction, subjective wellbeing.*

'How are you?' is a question that is commonly asked to because it is believed that the answer can provide insight into how satisfied people are with their lives. While this reasoning is logical, it is proposed that reports of one's own subjective experiences do not provide the full picture of the life satisfaction construct. In this article, evidence for implicit life satisfaction (ILS) will be given by demonstrating the psychometric properties of an implicit measure of life satisfaction and by using it to demonstrate known group differences among those who have experienced chronically low satisfaction with life and those who have not.

## Explicit and implicit modes of life satisfaction

Most of the current investigations into the subjective well-being domain (SWB) have used the self-reported or the explicit method in the investigation of life satisfaction. This method is characterized by a reliance on the conscious responses of the participant and, in the case of life satisfaction, consists of people's attitudes about their perceived level of well-being (Diener, 1984). However, when people make such evaluations, significant variability is also reflected in their responses due to the influence of positive and negative life experiences (Suh, Diener & Fujita, 1996; Csikszentmihalyi & Hunter, 2003) and experimental results have indicated that life satisfaction changes according to situation (Schwarz & Clore, 1983). Thus, what a person may report at any one time reflects their current situation and may not necessarily reveal individuals' experiences throughout their life.

In contrast, implicit methods do not rely on conscious responses and, ideally, do not reveal to the participant the construct that is being measured (Greenwald, McGhee & Schwartz, 1998; Egloff & Schmukle, 2002) and are less susceptible to voluntarily control (Kim 2003, 2004). Instead, implicit methods attempt to measure introspectively unrecognized appraisals of an object. In terms of the life satisfaction domain, Kim (2004) proposed that explicit life satisfaction represents 'a conscious or controlled evaluative judgment of one's life' whereas implicit life satisfaction (ILS) reflects an introspectively unidentified strength of positive versus negative associations with one's life, processed without conscious awareness.[1]

While there is little direct evidence to suggest that ILS exists, the cognitive-experiential self-theory (CEST; Epstein, 1990) provides evidence for two partially independent information processing systems. The CEST proposes that there is a rational system that operates according to a person's conscious understanding and an experiential system that processes information automatically and spontaneously. These two systems parallel our conceptualization of explicit and implicit life satisfaction and a goal of this study is to provide evidence for this argument.

Because life satisfaction is defined as a subjective experience it is reasonable to ask whether the implicit method provides any meaningful information for understanding the life satisfaction construct. In fact, there is evidence to believe that an implicit measure may reveal meaningful and important information. We have observed for the past decade that the most heavily investigated implicit assessment method, the implicit association test (IAT; Greenwald, McGhee. & Schwartz, 1998), has provided useful information and made important contributions in understanding multiple aspects of a single psychological construct. Although controversy exists (Bosson, Swann

& Pennebaker, 2000), the available evidence indicates that the IAT method is valid (Greenwald & Nosek, 2001) and assesses a different aspect of a construct than what is measured by explicit methods (Asendorpf, Banse & Mücke, 2002). Numerous measures such as racial attitudes (Greenwald *et al.*, 1998), self-esteem (Greenwald & Farnham, 2000) and attitudes to risk (Ronay & Kim, 2006) using the IAT have been developed and published with significant psychometric and empirical evidence. For example, in a recent review, Nosek, Greenwald and Banaji (2007) noted that the IAT method shows acceptable internal consistency ranging from 0.7 to 0.9, a somewhat low test-retest reliability (median $r = 0.56$) and limited influence from faking instructions. The IAT also showed significant signs of construct validity by showing evidence for convergent and divergent validity using the multi-trait, multi-method approach (Kim, Sarason & Sarason, 2006) and by also showing predictive validity in a range of domains.

In addition, Kim (2004) recently developed and introduced the ILS measure that assesses an implicit evaluation of one's life. The ILS is a variant of the IAT method that was originally intended to measure the implicit association between two contrasting bipolar concepts. The ILS was developed to measure satisfaction with life by assessing the strength of automatic associations of a theoretical category of 'my life' with evaluative attributes, good versus bad. Instead of using bipolar, comparative categories as in the original IAT test, a blank category was used in the ILS so that responses to the category 'blank' could be used as a baseline in comparison to 'my life'. A series of studies in the original article (Kim, 2004) have reported several interesting methodological features of the ILS as an implicit measure of life satisfaction. The ILS showed good internal consistency and moderate temporal stability. The study also showed that the 'blank' category did not have any psychologically meaningful influence on the ILS effect, supporting the 'my life' category as a psychologically meaningful evaluative exemplar in the ILS. It was also found that while participants could voluntarily distort their response on the explicit measures of life satisfaction by enhancing their satisfaction with life (i.e., voluntarily show a high response), however, they could not enhance their life satisfaction on the ILS (i.e., they could not voluntarily produce a high response).

## Theoretical views on ILS

An important conceptual question is to determine what ILS refers to, given the current state of implicit cognition theory. The general theory of implicit cognitions suggests that an implicit evaluation of one's life arises as a function of the positive and negative valences attached to one's life experiences. Additionally, because the IAT is theorized to

reflect long-term associations between concepts (Greenwald *et al.*, 1998), we propose that the ILS reflects the accumulated or embedded attributes and experiences of one's life (Kim, 2004; Kim, Sarason & Sarason, 2006), which we refer to as chronic in this article. While we can find no longitudinal data to directly support our theory of ILS, evidence using the formation of attitudes in experimental settings suggests that implicit cognitions could be the result of associations a person has been exposed to in their environment (Karpinski & Hilton, 2001).

The ultimate implication of this is that, because the implicit measures assess the chronic experience of life satisfaction, it may be treated as a theoretically interesting view of defining a baseline state (i.e., a set point) of life satisfaction. If this is the case, then longitudinal studies should find that, while people could experience temporary disruptions in their explicit life satisfaction, they should nevertheless regress to the level of their ILS (i.e., through adaptation), as Brickman and Campbell (1971) would argue. Providing supporting evidence for the arguments above is a key goal of this article.

It should be noted that ILS measures are not represented as being superior to explicit measures, since they are theorized to represent different facets of one's satisfaction of life. Rather, ILS is regarded as complementary to explicit satisfaction and it is hoped that understanding the ILS will facilitate a more complete understanding of the phenomenon in life satisfaction research (Kim, 2004).

## Application of the multi-method approach to life satisfaction

Using both explicit and implicit methods could also resolve issues in cross-cultural comparisons of life satisfaction. One specific difference we wish to investigate is the reliable pattern that westerners (such as European Americans and Europeans) score higher on explicit measures of life satisfaction (e.g., Diener, Suh, Smith & Shao, 1995; Suh, Diener, Oishi & Triandis, 1998) than East Asians (e.g., Chinese, Korean and Japanese). Cross-cultural psychologists have argued that by observing objective factors like income (Diener *et al.*, 1995) and subjective factors like the frequency in experience of positive and negative affect (Scollon, Diener, Oishi & Biswas-Diener, 2004), there is little to distinguish western cultures from East Asian cultures. We hypothesize that this difference arises partly, if not wholly, due to culturally specific tendencies in responses. Namely, Kitayama and Uchida (2003) showed that the cross-cultural difference in explicit self-esteem between Japanese and European Americans was because the Japanese culture does not condone the explicit expression of positive self-regard. However, an IAT-based measure could find no difference between Japanese and

European Americans (Kobayashi & Greenwald, 2003). This result shows that: (i) the IAT method would appear to bypass culture specific response tendencies in judging life satisfaction at an explicit level (Kitayama & Uchida, 2003; Kim, 2004); and (ii) the pattern of explicit life satisfaction differences is not the same as that of ILS differences. By using both explicit and implicit methods we aim to demonstrate that, while westerners may report a higher explicit life satisfaction than East Asians, possibly due to cultural differences in response tendencies, there will not be significant differences at the implicit level because a person of either culture will encounter, on average, similar frequencies of positive and negative life events. At least one previous study has shown that people of both cultures experience similar frequencies of positive and negative affect (Scollon *et al.*, 2004).

## Known group difference as a means for understanding the theoretical properties of ILS

One way to provide evidence for the validity of ILS is to replicate known group differences in life satisfaction. Following our assumption that the ILS might represent the frequency of positive versus negative life events, we would expect that those groups known to experience chronically negative life events would show lower levels of life satisfaction than an otherwise similar group. One group that is known to have experienced such circumstances is North Korean defectors (NKD). NKD have been exposed to frequent economic and political hardships as well as famine and a brutal military rule (Lim, Lee, Kim & Choi, 2006). If successful, NKD escape to an uncertain life in China. With no legal status, they face constant stress since if they are apprehended, they are unconditionally repatriated to North Korea where harsh punishment is certain. From a theoretical perspective such chronically negative experiences would result in lower ILS compared to South Koreans, who experience far greater amounts of well-being in terms of health, economic and political freedoms relative to NKD. In terms of explicit life satisfaction however, we expect that NKD would have comparable or higher levels than South Koreans due to the fact that their major life goal (i.e., successful defection to South Korea) has been accomplished. That is, a major context effect such as successful defection should have a positive effect on explicit life satisfaction scores.

## The present study

Overall, two studies are presented in this article. Study 1 investigates the psychometric properties and validity of the

ILS and investigate its properties as a research tool following up the original ILS article by Kim (2004). Specifically, we aim to show that explicit self-reporting measures are associated with context effects such as mood and social desirability but that implicit measures do not show such characteristics. We also wish to show that the implicit measure of life satisfaction will not reveal meaningful associations with the explicit measure (divergent validity), but will show associations with personality characteristics that are related to life satisfaction (convergent validity). In addition, we hope to show that the ILS is associated with how a close peer judges the participants' life satisfaction (criterion validity) and that the ILS explains a significant amount of variance over and above what explicit measures explain, showing that it captures a unique portion of the life satisfaction construct (incremental validity). Finally, to complement the current understanding of cross-cultural differences, using explicit and implicit methods will reveal that westerners have higher explicit life satisfaction, but do not have higher ILS than East Asians.

In study 2 we attempt to explore known group differences in life satisfaction between NKD and South Koreans using both explicit and implicit measures to examine our claims about the different roles of explicit and ILS. In this case, it was expected that while these North Koreans' explicit life satisfaction fluctuates, their ILS is lower than that of South Koreans because they have been exposed to more negative life experiences than the latter.

## Study 1: psychometric properties of the ILS measure

This study was designed to investigate the psychometric properties of the ILS, particularly to demonstrate the validity of the measure by using explicit, implicit and peer reporting methods. In addition, we wished to replicate known cultural differences in explicit life satisfaction in East Asians and westerners and compare them to cross-cultural differences in implicit life satisfaction. Specifically, it was expected that while westerners show higher explicit life satisfaction than East Asians, it was hypothesized that there will be no difference in implicit life satisfaction, since implicit measures are generally known to be less affected by culture-specific response artefacts and the IAT type measures do not provide an opportunity to articulate such artefacts during the task (Asendorpf *et al.*, 2002; Kim, 2004).

### Method

*Participants.* A total of 159 participants completed the study, comprising 37 European American students from the University of Illinois at Urbana-Champaign (10 men and 27

women; *M* age = 21, *SD* = 3), 64 European Australian students from Macquarie University, Sydney, Australia (17 men and 47 women; *M* age = 24, *SD* = 2) and 58 South Korean students from Chonnam National University, Gwang-Ju, South Korea (26 men and 32 women; *M* age = 25, *SD* = 4). All the participants were undergraduate students who either received a course credit or a small financial reward for their participation ($6). European Americans and European Australians were selected to represent individualistic cultures and South Koreans were selected to represent collectivistic cultures.

*Overview of procedure.* Conventional procedures that have been implemented in numerous previous investigations using the IAT (Greenwald, Nosek & Banaji, 2003) and the original ILS were used (Kim, 2004). All the participants first completed a brief questionnaire on their characteristics and then completed explicit measures of SWB as well as the ILS. They were then asked to take a copy of a battery of measures to be completed by a close peer (i.e., a close friend). The participants were instructed to return the peer reports within 1 week. Of the 159 students, 115 participants (41% of European Americans, 83% of European Australians and 90% of South Koreans) completed and returned the peer report, with an overall attrition rate of 17%.[2] Detailed information about the measures is listed below.

*Explicit measures*

1 The satisfaction with life scale (SWLS; Diener, Emmons, Larsen & Griffin, 1985) is a five-item measure rated on a seven-point scale (one – strongly agree, to seven – strongly disagree) and is a widely used measure of the cognitive aspect of life satisfaction. Higher scores indicate higher levels of life satisfaction.

2 The balanced inventory of desirable responding (BIDR; Paulhus, 1998) is a 40-item measure rated on a seven-point scale (one – not true, to seven – very true) and was used to account for self-presentational artefacts, namely impression management and self-deception in the judgment of explicit and ILS.

3 The current mood measure (CM; as used in Kim, 2004) is a 13-item measure rated on a seven-point scale (one – not at all, to seven – maximum strength) and was used to account for the effect of the participants' mood on both explicit and implicit measures of life satisfaction at the time of assessment (i.e., their momentary mood). Positive mood words such as pleasant, calm, excited, happy, affectionate, assertive, sociable, energetic, joyful and active, and negative mood words such as unpleasant, sad, irritated, worried, angry and bored were rated. Three scores were computed for this measure: (i) the positive mood score; (ii) the negative mood score; and (iii) a difference score (positive minus negative scales) to assess the balance of positive versus negative mood.

4 Evaluation of my life (EML; as used in Kim, 2004) is a 10-item measure rated on a seven-point scale (one – strongly agree, to seven – strongly disagree) and was used to assess conscious, cognitive responses to stimulus words in the ILS. It was constructed with a positive and negative scale to reflect the positive and negative associative strengths assessed by the ILS. Sample items are 'My life is beautiful' and 'My life is awful' for positive and negative scales, respectively. As well as computing separate scales for the positive and negative evaluation, the difference score was calculated so as to correspond with the ILS which produces a single score based on the difference of scores on the two combined target categories. In sum, the EML was used to reflect both conceptual and content aspects of the ILS but to assess the construct in a conscious way.

5 Positive and negative affect schedule (PANAS; Watson, Clark & Tellegen, 1988) is a 20-item measure rated on a seven-point scale (one – very slightly or not at all, to seven – extremely) and was used to assess the levels of positive affect and negative affect. The instruction given to participants specified that they should indicate how they feel in general. A difference score was calculated for analyses.

6 The life orientation test – revised (LOT-R; Scheier, Carver & Bridges, 1994) is a nine-item measure rated on a five-point scale (one – I agree a lot, to five – I disagree a lot) and was used to assess the participants' general level of optimism and pessimism. A difference score was calculated to correspond with ILS scores. The LOT-R was administered only to European Australians.

*Implicit measures*

7 Global implicit life satisfaction (Kim, 2004) is an adaptation of the IAT (Greenwald *et al.*, 1998) that taps an automatic, implicit evaluation of life satisfaction. The ILS uses the categories my life and blank along with the evaluative categories, good and bad. The ILS uses blank as one of the two categories that is adopted to provide a neutral baseline on which the associations, 'my life + good' versus 'my life + bad', could be compared. The rationale for this arrangement is that when assessing a person's implicit life satisfaction there is no valid category for a comparison with the theoretical category of my life. The category my life was shown to be psychologically meaningful while the category blank was shown to be psychologically neutral (see study 4, Kim, 2004, for a further review). A final score for the ILS is computed by subtracting the mean reaction time of 'my life + good' from 'my life + bad'. Stimuli for the categories were; my life for 'my life'; success, win, grow, meaningful, secure, peace, satisfied, wonderful, respected, valuable, happy for good and failure, lose, deteriorate, meaningless, insecure, boring, worthless,

agony, terrible for bad. There were no stimuli for the category blank, except for a white box where a stimulus would usually be presented. Across several studies (Kim, 2004) the ILS has shown to be dissociated from explicit measures and have good internal consistencies of 0.75–0.94 and the participants were shown to have limited control over their responses on this measure.

The participants completed the ILS using a computer and were told they would be making a series of category judgments. Their instruction was to classify stimulus words into categories (my life, blank, good and bad) for a 30-trial practice block (blocks 1, 2 and 5) followed by a 30-trial practice and 40-trial data collection block (blocks 3, 4, 6 and 7). In individual trials the participants were presented with the categories listed above and organized in the top left and top right halves of the screen. At the bottom centre of the screen a stimulus word appeared to which participants responded by indicating whether it belonged to the category on the left half or the right half of the screen by using the keyboard. After their response, a new stimulus word appeared on the bottom of the screen for the next trial. In block 1 the participants categorized the stimuli into evaluative categories good and bad. In block 2 and 5, they categorized the target categories my life and blank. In blocks 3, 4, 6 and 7, the participants categorized stimuli into a combined group of one target and one evaluative category against the remaining target and evaluative category (e.g., 'my life + bad' versus 'blank + good'). The presentation of the category order and stimuli were fully randomized across the participants. Full details are described in Kim (2004).

The score for the ILS is calculated by measuring the response latency (in msec) in categorizing the stimuli words in the correct categories. The individual response latencies were then turned into an aggregate score using the D-score method (Greenwald, Nosek & Banaji, 2003). This method was chosen because of reported improvements in psychometric properties. All response latencies from blocks 3, 4, 6 and 7 of the ILS were used. Trials with latencies greater than 10 000 msec were eliminated and subjects with more than 10% of responses lower than 300 msec were eliminated. Then, mean latency for blocks 3, 4, 5 and 6 were calculated. Differences in mean latencies in blocks 6 and 3 and blocks 7 and 4 were calculated and divided by their pooled standard deviations. The final D-score is calculated by the average of the quotients from the previous step. Full details of data treatment are available in a article by Greenwald *et al.* (2003).

*Peer reports*

**8** Participants were given a package of explicit measures to be evaluated by their close friends. All the instructions on the measures were modified, such that the peer was asked to rate how each of the items applied to the participant. The measures included EML (e.g., I think that my

friend's life is beautiful), PANAS (e.g., rate the extent to which you think your friend feels) and mood (e.g., How pleasant (or unpleasant) do you think your friend feels most days in general?) These three measures were chosen because they asked the peers only to rate the participants along a list of evaluative words. For example, item 5 on the SWLS states, 'If I could live my life over, I would change almost nothing'. Such a question could not be expected of peers who had not known the participant for their entire lives.

Participants were issued these questionnaires at the end of data collection and were asked to give the package to a close friend to complete and seal it in the envelope provided. The questionnaires were to be returned to the laboratory within a week. The average length of acquaintance between the close friend and the participant was 37 months ($SD = 29$) for the European Americans, 92 months ($SD = 87$) for the European Australians and 74 months ($SD = 61$) for the South Koreans.

All explicit, implicit and peer report measures were translated into the participants' native languages. European Americans and European Australians received their questionnaires in English and the South Korean participants received their questionnaires in Korean. Detailed statistics such as means, standard deviations and Cronbach's α of measures are shown in Table 1.

### Results and discussion

*The relationship between social desirability and temporary mood with implicit and explicit measures of life satisfaction.* Correlations between the self-deception and impression management scales of the BIDR with the SWLS, EML, PANAS, LOT-R and ILS were obtained to observe any systematic relationships between self-presentational tendencies and explicit and implicit measures of life satisfaction. The results are shown in Table 2. The general pattern of correlations was that while the explicit measures did not correlate with impression management (the tendency to deliberately inflate or mislead), it did correlate moderately with self-deception (the tendency to inflate self descriptions through unconscious biases). While participants did not try to report misleadingly about their satisfaction, self-presentational concerns nevertheless appeared to have influenced their self-reports. For the implicit measures, however, the general pattern was that the ILS did not correlate with impression management or self-deception.

Correlations between a positive and negative momentary mood and explicit and implicit measures are also shown in Table 2. As with self-presentational tendencies, explicit measures tended to correlate with a momentary mood whereas implicit measures did not. Overall, the results replicated findings in previous studies (Kim, 2004) and

**Table 1** Descriptive statistics of measures in studies 1 and 2

|  | European Americans | | | European Australians | | | South Koreans | | |
|---|---|---|---|---|---|---|---|---|---|
|  | M | SD | α | M | SD | α | M | SD | α |
| **Study 1** | | | | | | | | | |
| Explicit measures | | | | | | | | | |
| BIDR-SD | 4.15 | 0.53 | 0.78 | 3.91 | 0.64 | 0.79 | 3.69 | 0.39 | 0.70 |
| BIDR-IM | 3.59 | 0.83 | 0.64 | 3.59 | 0.80 | 0.74 | 3.75 | 0.43 | 0.60 |
| CM *D* | 1.01 | 1.52 | 0.84/0.65 | 0.91 | 1.37 | 0.84/0.72 | 1.20 | 1.40 | 0.85/0.76 |
| PANAS *D* | 17.50 | 9.14 | 0.87/0.86 | 14.23 | 9.26 | 0.87/0.87 | 8.51 | 5.88 | 0.75/0.68 |
| SWLS | 5.18 | 1.11 | 0.85 | 4.97 | 1.20 | 0.94 | 3.91 | 0.93 | 0.75 |
| EML *D* | 4.28 | 1.10 | 0.83/0.76 | 4.14 | 1.10 | 0.81/0.80 | 2.59 | 1.26 | 0.75/0.68 |
| LOT-R *D* | n/a | n/a | n/a | 17.99 | 2.26 | 0.69/0.79 | n/a | n/a | n/a |
| Peer measures | | | | | | | | | |
| CM *D* | 2.63 | 1.07 | 0.71/0.69 | 2.17 | 1.23 | 0.84/0.75 | 2.08 | 1.19 | 0.82/0.72 |
| PANAS *D* | 17.67 | 10.28 | 0.72/0.80 | 21.85 | 7.08 | 0.83/0.83 | 6.96 | 7.27 | 0.82/0.75 |
| EML *D* | 4.77 | 0.95 | 0.80/0.72 | 4.32 | 1.40 | 0.82/0.65 | 3.69 | 1.21 | 0.75/0.71 |
| Implicit measures | | | | | | | | | |
| ILS | 0.38 | 0.34 | 0.81 | 0.42 | 0.30 | 0.82 | 0.32 | 0.36 | 0.80 |

|  | Just defected NKD | | | Resettled NKD | | | South Koreans | | |
|---|---|---|---|---|---|---|---|---|---|
|  | M | SD | α | M | SD | α | M | SD | α |
| **Study 2** | | | | | | | | | |
| Explicit measures | | | | | | | | | |
| SWLS *D* | 5.13 | 1.04 | n/a | 4.47 | 1.25 | n/a | 4.32 | 1.06 | n/a |
| EML *D* | 5.82 | 0.85 | n/a | 2.50 | 1.92 | n/a | 2.67 | 1.58 | n/a |
| Implicit measures | | | | | | | | | |
| ILS | 0.34 | 0.36 | n/a | 0.32 | 0.32 | n/a | 0.50 | 0.32 | n/a |

Where two Cronbach αs are given, the first indicates the internal consistency for the positive and the second for the negative scale of the measure. n/a indicates statistics are unavailable.
BIDR-IM, balanced inventory of desirable responding impression management; BIDR-SD, balanced inventory of desirable responding self-deception; CM, current mood; *D*, difference score (positive – negative); LOT-R, life orientation test – revised; M, mean; NKD, North Korean defectors SD; PANAS, positive and negative affect schedule; SD, standard deviation; SWLS, satisfaction with life scale.

suggest that self-presentation and temporary context effects such as a momentary mood influenced explicit expression, whereas the ILS was not associated with such tendencies.

*Convergence and divergence of explicit and implicit measures.* Correlations between explicit and implicit measures of life satisfaction were obtained to investigate whether the two methods show convergence or divergence (see Table 2). Interestingly, the ILS correlated with the EML while it did not correlate with the SWLS.[3] However, the overall pattern of results indicated that, using *r* to z conversion, explicit measures on average showed substantial variations among them (mean $r = 0.65$ for explicit measures), but average trait variations between explicit life satisfaction measures and the ILS was 0.12. These results indicate that explicit and implicit measures represent different and apparently unrelated components of the life satisfaction construct.

*Convergent and criterion validity.* The ILS was correlated with personality variables that are known to correlate with measures of life satisfaction to examine convergent validity. Previous research has reasoned that the correlation between optimism and explicit measures of life satisfaction (e.g., Cummins & Nistico, 2002) was due to the regulatory role of optimism in maintaining life satisfaction. To apply the same test to the ILS, the optimism and pessimism scales of the LOT-R were correlated with the implicit measurements. The ILS showed theoretically meaningful correlations of $r = 0.29$ ($p = 0.03$) with optimism and of $r = -0.38$, ($p = 0.002$) with pessimism, demonstrating convergent validity.

Criterion validity was also examined by correlating the peer reports of the participants' SWB and the participants' explicit and implicit life satisfaction. The results are shown in Table 2. In almost all cases, the peer reports showed correlations with the explicit measures, suggesting that the

**Table 2** Correlations among explicit and implicit measures in study 1

|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Explicit measures |  |  |  |  |  |  |  |  |  |  |  |
| Social desirability |  |  |  |  |  |  |  |  |  |  |  |
| 1 BIDR-SD | – |  |  |  |  |  |  |  |  |  |  |
| 2 BIDR-IM | **0.35**\*\* | – |  |  |  |  |  |  |  |  |  |
| Temporary mood |  |  |  |  |  |  |  |  |  |  |  |
| 3 Positive mood | **0.07** | **0.13** | – |  |  |  |  |  |  |  |  |
| 4 Negative mood | **−0.14** | **−0.05** | **−0.29**\*\* | – |  |  |  |  |  |  |  |
| 5 PANAS *D* | **0.45**\*\* | **0.07** | **0.12** | **−0.18**\* | – |  |  |  |  |  |  |
| 6 SWLS | **0.36**\*\* | **0.16** | **0.25**\*\* | **−0.21**\*\* | 0.53\*\* | – |  |  |  |  |  |
| 7 EML *D* | **0.31**\*\* | **0.15** | **0.08** | **−0.28**\*\* | 0.63\*\* | 0.76\*\* | – |  |  |  |  |
| 8 LOT-R *D* | **−0.01** | **−0.06** | **0.05** | **0.21** | −0.04 | 0.16\*\* | 0.08 | – |  |  |  |
| Peer measures |  |  |  |  |  |  |  |  |  |  |  |
| 9 CM *D* | 0.09 | 0.004 | 0.17 | 0.08 | 0.32\*\* | 0.25\*\* | 0.28\*\* | 0.01 | – |  |  |
| 10 PANAS *D* | 0.17 | −0.08 | −0.14 | 0.06 | 0.36\*\* | 0.38\*\* | 0.54\*\* | −0.14 | 0.44\*\* | – |  |
| 11 EML *D* | −0.03 | −0.09 | −0.03 | 0.07 | 0.18\*\* | 0.18 | 0.31\*\* | −0.20 | 0.50\*\* | 0.52 | – |
| Implicit measures |  |  |  |  |  |  |  |  |  |  |  |
| 12 ILS | **0.05** | **0.05** | **0.04** | **−0.05** | 0.08 | 0.11 | 0.18\* | −0.16 | 0.22\* | 0.31 | 0.23\* |

\**p* < 0.05, \*\**p* < 0.01, two tailed.
Correlations in bold indicate the relationships between social desirability and temporary mood measures and participant responses on SWB measures.
BIDR-IM, balanced inventory of desirable responding impression management; BIDR-SD, balanced inventory of desirable responding self-deception; CM, current mood; *D*, difference score (positive – negative); EML, evaluation of my life; ILS, implicit life satisfaction; LOT-R, life orientation test – revised; PANAS, positive and negative affect schedule; SWLS, satisfaction with life scale.

way in which people explicitly perceive their own life satisfaction covaries with how others view their well-being. In addition, the ILS also showed correlations with peer reports of EML, PANAS and current mood with all correlations in the theoretically expected direction.

*Incremental validity.* So far there was evidence to show that the ILS generally captures the life satisfaction construct in a different way from an explicit measure does by showing how it diverges with explicit measures and by showing criterion validity by correlating it with peer reports. But a direct indication would be to demonstrate that the ILS explains unique variance over and above what can be explained with explicit measures. A hierarchical regression with peer reports was chosen as the dependent variable (i.e., peer reports of EML, PANAS difference and mood difference) primarily to see if explicit and implicit measures uniquely contribute to the life satisfaction that is observed by others. Peer reports were important in the validity of the ILS in the following ways: (i) 'objective' reports, as provided by a peer report, indicate whether the level of well-being expressed by the participant is enduring and observable to others because peer reports should be relatively free from influences from temporary mood states or self-presentational efforts; and (ii) peer reports may potentially reflect how individuals outwardly expresses

their level of well-being both verbally and non-verbally (Lepper, 1998). In addition, Dovidio, Kawakami and Gaertner (2002) demonstrated that both explicit and implicit aspects of attitudes can be observed by others, whereas an individual alone may only be able to observe the explicit components. In this light, validation of the ILS against informant reports may provide an insight into enduring aspects of the person's well-being as well as those components that is outwardly observable to the peer, but not necessarily recognized by the individual. If this is the case, then the ILS should explain the unique variance of peer reports over and above what explicit measures alone explain.

As control variables, step 1 included the length of acquaintance between the close friend and the participant,[4] self-deception, impression management, positive and negative mood difference score as well as cultural group (coded as dummy variables), which were entered into the model. In step 2 all of the variables in step 1 were included in addition to the explicit SWB measures, SWLS, EML and the positive and negative scales of the PANAS. In step 3 all the variables from the first two steps were included as well as the ILS. The results are shown in Table 3. For peer reports of EML, after accounting for control variables and explicit measures in steps 1 and 2, the ILS entered in step 3 was significant. The results for the peer reports of PANAS and

**Table 3**  Hierarchical regression analysis for predicting peer reports using explicit and implicit life SWB in study 1

|  | Variables entered | β | $R^2$ | $\Delta R^2$ | $\Delta F$ | $P$ |
|---|---|---|---|---|---|---|
| **Peer evaluation of my life** | | | | | | |
| Step 1 | Length of acquaintance | −0.16 | | | | 0.12 |
| | Self-deception | −0.03 | | | | 0.73 |
| | Impression management | −0.04 | | | | 0.72 |
| | Current mood | −0.07 | | | | 0.48 |
| | Cultural group (European American) | 0.21 | | | | 0.05* |
| | Cultural group (European Australian) | 0.37 | | | | 0.001** |
| | Total | | 0.15 | – | – | – |
| Step 2 | EML | 0.35 | | | | 0.04* |
| | SWLS | −0.20 | | | | 0.20 |
| | PANAS positive | −0.09 | | | | 0.41 |
| | PANAS negative | 0.002 | | | | 0.98 |
| | Total | | 0.19 | 0.04 | 1.14 | 0.34 |
| Step 3 | ILS | 0.20 | | | | 0.05* |
| | Total | | 0.22 | 0.03 | 3.97 | 0.05* |
| **Peer positive and negative affect scale** | | | | | | |
| Step 1 | Length of acquaintance | 0.08 | | | | 0.31 |
| | Self-deception | 0.50 | | | | 0.56 |
| | Impression management | 0.02 | | | | 0.82 |
| | Current mood | −0.02 | | | | 0.79 |
| | Cultural group (European American) | 0.23 | | | | 0.004** |
| | Cultural group (European Australian) | 0.70 | | | | $10^{-12}$** |
| | Total | | 0.50 | – | – | – |
| Step 2 | EML | 0.27 | | | | 0.03* |
| | SWLS | −0.10 | | | | 0.40 |
| | PANAS positive affect | 0.14 | | | | 0.10 |
| | PANAS negative affect | −0.06 | | | | 0.47 |
| | Total | | 0.56 | 0.06 | 2.95 | 0.02* |
| Step 3 | ILS | 0.18 | | | | 0.02* |
| | Total | | 0.59 | 0.03 | 6.16 | 0.02* |
| **Peer daily mood** | | | | | | |
| Step 1 | Length of acquaintance | 0.06 | | | | 0.61 |
| | Self-deception | 0.06 | | | | 0.61 |
| | Impression management | −0.01 | | | | 0.96 |
| | Current mood | 0.12 | | | | 0.25 |
| | Cultural group (European American) | 0.05 | | | | 0.66 |
| | Cultural group (European Australian) | 0.01 | | | | 0.95 |
| | Total | | 0.02 | – | – | – |
| Step 2 | EML | 0.29 | | | | 0.10 |
| | SWLS | 0.03 | | | | 0.88 |
| | PANAS positive affect | 0.14 | | | | 0.22 |
| | PANAS negative affect | −0.05 | | | | 0.68 |
| | Total | | 0.11 | 0.09 | 2.36 | 0.06 |
| Step 3 | ILS | 0.26 | | | | 0.01** |
| | Total | | 0.17 | 0.06 | 6.59 | 0.01** |

*$p < 0.05$, **$p < 0.01$.
ILS, implicit life satisfaction; EML, evaluation of my life; SWLS, satisfaction with life scale; PANAS, positive and negative affect schedule.

peer reports of mood difference indicated the same pattern, showing the ILS to explain unique variance over and above explicit measures.

*Cultural differences in explicit and implicit life satisfaction.* A one-way ANOVA was conducted on the SWLS, EML and ILS to test for cross-cultural differences in explicit and ILS in the European Americans, European Australians and South Koreans. All descriptive statistics are provided in Table 1. There was a significant difference between the groups on the SWLS, $F(2, 154) = 20.17$, $p = 10^{-7}$, Cohen's effect size of $d = 0.72$. European Americans were significantly higher than South Koreans, $t(154) = 5.53$, $p = 10^{-6}$, $d = 1.24$ and European Australians were also significantly higher than South Koreans, $t(154) = 5.32$, $p = 10^{-6}$, $d = 0.99$. However, European Americans and European Australians were not significantly different, $t(154) = 0.96$, $p = 0.34$, $d = 0.18$. An identical pattern of results was obtained for the EML, with significant differences between the groups, $F(2, 148) = 34.29$, $p = 10^{-12}$, $d = 0.96$. European Americans were significantly higher than South Koreans, $t(154) = 6.81$, $p = 10^{-9}$, $d = 1.43$ and European Australians were also significantly higher than South Koreans, $t(154) = 7.22$, $p = 10^{-10}$, $d = 1.31$. European Americans and European Australians were not significantly different from each other, $t(154) = 0.57$, $p = 0.57$, $d = 0.13$.

However, unlike with the explicit measures, no such differences were found on the ILS between the groups, $F(2, 147) = 1.71$, $p = 0.19$, $d = 0.22$, suggesting that there were no reliable cultural differences among European Americans, European Australians and South Koreans.

Overall, the results obtained in study 1 suggest that the ILS shows satisfactory reliability and validity as an implicit measure of life satisfaction that is different from what explicit measures assess. More specifically, while both methods appeared to assess life satisfaction, explicit methods appeared to incorporate temporary contextual influences, such as momentary moods and self-presentational influences, such as self-deception. However, implicit measures did not appear to be associated with such context and self-presentational properties.

One other interesting result was that the ILS correlated with both peer and self-reported EML and with peer PANAS but not with self-reported PANAS and, in addition, it correlated with peer mood scores but not with self-reported mood scores. As discussed in the notes, one theoretical explanation for this is that the EML correlated with the ILS because they use the same stimulus words and they have similar characteristics in their scores (i.e., the final score for both are derived by calculating the difference between the positive and negative conscious or non-conscious automatic associations they make with their life). However, it is interesting to note the significant correlations

between the ILS and both peer PANAS and peer mood measures, but not with both self-reported PANAS and self-reported mood measures. It is possible that while peers are able to observe the participants' expressions of affective experiences, the participants themselves may have limited insight into their affective experiences in the self-reported measures (i.e., showing the introspective limit of self-reported measures). That is, informant reports may provide an insight into enduring aspects of the person's well-being as well as those components that are outwardly observable to their peers, but that are not necessarily recognized by the individual concerned. Since the ILS is theorized to represent and pick up the aspects of the construct which are difficult to articulate explicitly through self-reports, it appears that the ILS was meaningfully correlated with peer reports.

In general, the explicit and implicit measures were dissociated, replicating observations found in numerous studies. In addition, cross-cultural differences in explicit measures between East Asians and westerners were replicated in line with past research, but no such differences were found on implicit measures. One possibility is that explicit measures are affected by cultural differences in response tendencies (Kitayama & Uchida, 2003; Kim, 2004) which may systematically bias responses because they rely on the conscious recall of participants. However, because the participant is not aware of the construct being examined while responding to the ILS, such response artefacts may not have a chance to be articulated (Kim, 2004), producing a different pattern of results than that obtained with explicit measures.

## Study 2: known group differences in explicit and ILS

Study 2 was conducted to examine claims that ILS reflects the accumulated non-conscious evaluations of one's satisfaction with life and do not reflect temporary situations that may affect explicit life satisfaction. This was tested by measuring explicit and ILS of NKD, who are known to have endured difficult living conditions, as discussed in the introduction. Their pattern of explicit and ILS just after defection and after resettlement in South Korea was compared to South Koreans who share the same culture and ancestry. It was hypothesized that while recent NKD will have higher explicit life satisfaction compared to South Koreans due to the fact that they have achieved a major life goal and would have highly positive expectations about the future, they would show lower ILS compared to South Koreans due to chronic and long-term exposure to comparatively worse living conditions.

## Method

### Participants

**1** Two groups of NKD were recruited in the study. The first group ($N = 54$, 21 men and 33 women) were those who had just defected to South Korea and were at a government-sponsored settlement camp called Hanawon (i.e., they had spent less than 15 days in the camp), awaiting integration into South Korean society. These participants had never experienced normal life in South Korea. Their mean age was 33 ($SD = 7$). The second group of defectors ($N = 44$, 22 men and 23 women) were participants who had defected and had been integrated into South Korea for an average period of 18 months ($SD = 20$). Their mean age was 35 ($SD = 7.5$). Overall 97% of both NKD groups had stayed in China as a transition place for defection to Korea ($M = 45$ months, $SD = 25$).

**2** South Koreans: Two groups of South Korean participants were recruited as the comparison group for the NKD: (i) 47 adults (40 men, seven women, $M$ age $= 36$, $SD = 7$) were recruited by distributing flyers to match the ages of the NKD; and (ii) 50 South Korean university students (21 men, 29 women, $M$ age $= 26$, $SD = 3$) were also recruited.

*Procedure.* All the participants first completed the SWLS and the EML followed by the ILS. All the measures were in Korean. All participation was voluntary.

## Results and discussion

*Differences in explicit life satisfaction.* First, we compared the two South Korean groups. A $t$-test showed no significant differences on all three measures: On the ILS, undergraduate $M = 0.51$, $SD = 0.30$ versus adult $M = 0.49$, $SD = 0.34$, $t(95) = 0.21$, $p = 0.83$, $d = 0.04$; on SWLS, undergraduate $M = 4.13$, $SD = 1.07$ versus adult $M = 4.53$, $SD = 1.02$ $t(91) = 1.83$, $p = 0.07$, $d = 0.38$; on EML, undergraduate $M = 2.67$, $SD = 1.58$ versus adult $M = 3.10$, $SD = 1.64$, $t(91) = 1.32$, $p = 0.19$, $d = 0.28$. As a result, both groups were assigned half contrast coefficients to treat them as one group compared to the NKD in the analyses following.

A one-way ANOVA was conducted for each of the explicit life satisfaction measures, the SWLS and EML. All descriptive statistics are given in Table 1 and Figure 1 shows the results graphically. In all of the analyses the independent variable was the type of Koreans (combined South Koreans, recently defecting North Koreans and resettled North Koreans). The one-way ANOVA for the SWLS indicated a significant difference for the type of Korean, $F(3187) = 7.48$, $p = 10^{-4}$, $d = 0.40$. Planned comparisons of the three groups (combined South Koreans, recently defect-
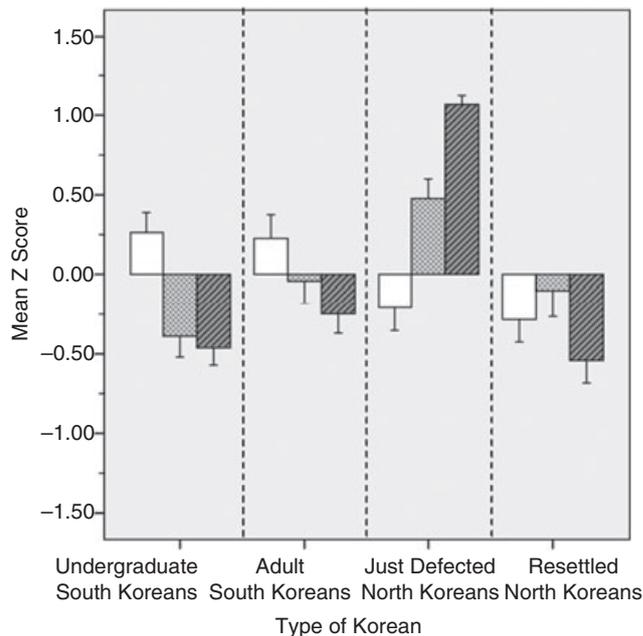


**Figure 1** Pattern of explicit and (□) implicit life satisfaction (ILS) for South Koreans and North Korean defectors. Z-transformed scores of the (▨) satisfaction with life scale (SWLS) (▨) Evaluations of my life scale (EML) and the ILS of each group of Koreans were obtained to facilitate comparison. Error bars indicate ± 1 standard error of the mean ILS effect, SWLS and EML.

ing North Koreans and resettled North Koreans) further showed that just defected NKD had significantly higher scores than the South Koreans, $t(187) = 4.24$, $p = 10^{-4}$, $d = 0.62$ and resettled NKD, $t(187) = 2.98$, $p = 0.03$, $d = 0.44$. In contrast, the resettled NKD and South Koreans were not significantly different from each other, $t(187) = -0.67$, $p = 0.50$, $d = 0.10$.

An analysis performed on the EML yielded an identical pattern of results. There was a significant difference for the type of Korean, $F(3145) = 53.56$, $p = 10^{-24}$, $d = 1.07$. Planned comparisons showed that recently defecting NKD had significantly higher scores than South Koreans, $t(187) = 11.24$, $p = 10^{-22}$, $d = 1.64$ and resettled NKD, $t(187) = 10.72$, $p = 10^{-20}$, $d = 1.57$. In contrast, resettled NKD and South Koreans were not significantly different from each other, $t(187) = 1.38$, $p = 0.54$, $d = 0.20$.

*Differences in implicit life satisfaction.* Results obtained with the ILS yielded a very different pattern. The one-way ANOVA revealed a significant difference for the type of Korean, $F(3, 191) = 4.07$, $p = 0.01$, $d = 0.29$, as in EML and SWLS. However, planned comparisons showed that the South Koreans were significantly higher on the ILS than both recently defecting NKD, $t(191) = 2.72$, $p = 0.01$,

$d = 0.39$ and resettled NKD, $t(191) = 2.96$, $p = 0.003$, $d = 0.43$. Interestingly, unlike on the explicit measures, there was no difference between recently defecting and resettled NKD, $t(191) = 0.38$, $p = 0.71$, $d = 0.05$ on the ILS. Overall, both explicit life satisfaction measures produced an identical pattern, which reflects the conscious experiences of the NKD throughout their defection and resettlement in South Korea. We can surmise from the results that NKD who have just defected to South Korea are likely to be experiencing very salient positive life events (i.e., successful defection to a country with greater political freedom and economic wealth), as reflected in their significantly higher explicit life satisfaction compared to South Koreans and resettled NKD. However, as they spent more time in South Korean society after being released from the resettlement camp, the positive effect of defection may have diminished as they became integrated into an unfamiliar society. On the other hand, the ILS indicated a higher life satisfaction for South Koreans who were theorized to not have experienced such chronically negative life experiences, compared to the two groups of North Korean defectors.

## General discussion

In study 1 the results showed that while the ILS showed a pattern of diverging relationships with explicit measures of life satisfaction, it showed good internal consistency and demonstrated convergent, criterion and incremental validity. Overall, the pattern of the data indicates that while there may be differences in explicit responses to the data, the implicit, or the chronically experienced levels of life satisfaction are not different across collectivist and individualist cultures. Also in study 1, the ILS did not correlate with self-presentational tendencies (i.e., self-deception), supporting the idea that implicit cognitions are indicative of spontaneous or uncontrolled behaviour (Asendorpf *et al.*, 2002; Dovidio *et al.*, 2002).

Study 2 demonstrated that the ILS was able to discriminate between South and North Koreans. The latter were known to have experienced chronically negative life experiences compared with people with the same ancestry and culture. The most plausible interpretation of this result is that differences in ILS indicates differences in the associative strength of positive versus negative experiences throughout a person's life. A plausible argument is that having lived for a long time in a relatively hostile environment like North Korea and later having an extremely difficult life in China as refugees reduces these individuals' opportunities to encounter positive experiences, relative to citizens of South Korea. In addition, the difference in ILS persisted despite prolonged periods in South Korea (i.e., among the resettled NKD). The likely explanation for this is that since ILS is theorized to reflect the long-term asso-

ciations between concepts, spending a relatively short period of time (in proportion to their age and life experiences overall) in a relatively less hostile environment may not provide a sufficient condition to overcome a chronic experience of negative life events.

### What does the ILS measure?

There is evidence that personal dispositions influenced ILS, since the ILS correlated with both optimism and pessimism. In addition, the NKD did not show any increase in their ILS despite the fact that they had been exposed to an environment that does not have any of the negative circumstances they faced in North Korea.

Given that previous research examining the fluctuating pattern of SWB in lottery winners and patients with acquired spinal cord injuries (Brickman, Coates & Janoff-Bulman, 1978) supports the idea of a personal set point of SWB (Brickman & Campbell, 1971), using the implicit measure as a basis for determining an individual's set point of SWB appears conceptually plausible.

There is also evidence that a person's psychosocial environment could also influence ILS since the data suggest that the negative circumstances in North Korea caused the NKD to have lower life satisfaction than South Koreans. Thus, individuals' psychosocial environment could act as a chronic influence that regulates their encounters with positive and negative life events. It is easy to imagine two hypothetical countries, all other things being equal, differing in the amount of leisure time if there were differences in the laws that regulate the maximum number of working hours in a week. Thus, it can be speculated that psychosocial environments that can regulate the relative frequency of positive and negative life events may be able to influence implicit life satisfaction independently of personal dispositions which regulate the relative frequency of positive and negative life events.

In sum, ILS is likely the result of both dispositional and environmental influences. On a theoretical note, since ILS is defined as being an accumulation of associations between the concept of 'my life' and a positive or negative valence, measuring ILS on its own does not reveal how the associations were made in the first place. Whether personal dispositions or the psychosocial environment is a stronger predictor of ILS remains an intriguing question for future research.

### Cross-cultural differences in explicit and implicit life satisfaction

One critical clarification needs to be made about the use of the term 'culture'. This term is primarily used to describe the shared beliefs, values, habits and behaviour of a certain group of people (Triandis, 1995). However, a somewhat

different conceptualization of culture may be needed, because the data suggest that at least two aspects of culture need to be taken into account when considering explicit and implicit SWB. First, a person's culture could lead them to possess certain underlying mechanisms that are used to arrive at an explicit judgment of SWB at a particular moment in time. It is easy to imagine that the same input (related to SWB) processed by different mechanisms could produce reliably different outputs. Second, ILS could be influenced by how individuals' environment regulates the frequency of their positive and negative evaluations, but this mechanism could be unrelated to the mechanisms that influence explicit SWB. In sum, future studies may need to consider which level of cross-cultural differences causes what outcomes in explicit and ILS and also for what reason.

### Limitations and directions for future research

The limitation of our methods is that, while we claim that ILS represents chronic experiences and represents an individual's set point for life satisfaction, the cross-sectional methods used in this article cannot fully support our hypotheses. Nevertheless, it is suggested that future research incorporate implicit measures to complement and facilitate greater understanding of the life satisfaction construct. Furthermore, future research should incorporate considerations at the individual, cultural and sociological levels – one potentially interesting question is whether the set point is something that one is born with (i.e., a personality trait) or relies entirely upon cultural or social experiences, or their interaction.

In addition, other investigators have found that global reports (such as the SWLS and EML) might not necessarily assess the objective experiences (such as the income, marital status and level of education) of an individual's life (Schwarz, Kahneman & Xu, 2009) and that tracking such objective experiences produces a different pattern of well-being to that obtained using global reports. Whether the ILS, which discriminated between groups known to have and have not been exposed to negative experiences, corresponds to such objective circumstances remains as a research question that could reveal the role of ILS in human functioning.

Overall, it has been maintained that self-reported and implicit aspects of one's life satisfaction show different properties to each other. One valid question might be, Which is a better or a more accurate representation of one's life satisfaction? We propose that both represent different facets of one's happiness. They are complementary components in our overall happiness, play somewhat different roles and are expressed differently. Explicit happiness, while being subject to temporary and social desirability influences, provides an understanding of the person's subjective and con-

scious experience of well-being. Implicit measures, on the other hand, do not appear to provide information about the subjective contents or reflect short-term momentary life experiences, but provide measures of the accumulated attributes of an individual's life experiences.

In conclusion, understanding and exploring only the consciously or subjectively accessible component of SWB may not give a full account of human happiness. How people see their level of happiness depends on the context of their current situation and the cultural influences that shape the way in which they think. However, they may unknowingly accumulate an implicit evaluation of happiness that reflects their life experiences over a longer term. We hope that future exploration provides a fuller picture of the two faces of human happiness, particularly how our everyday life experiences play a role in shaping not only our explicit, but also our implicit happiness.

## Acknowledgements

## Notes

1. This definition of ILS has been updated from Kim's original definition to be consistent with the most recent conceptualization of implicit cognitions, namely, that they represent the associative strengths between concepts.
2. There were no differences among those students who returned the peer report measures versus those who did not return them on any of the measured variables.
3. It is suspected that the ILS and the EML share conceptually similar aspects of the life satisfaction construct (i.e., traits), since they share the same stimuli and this may account for the significant, but weak relationship between the measures. In contrast, the SWLS, which also assesses the life satisfaction construct, is not correlated with the ILS since the portion of the life satisfaction explained by the SWLS may not be the same as that explained by the EML and the ILS. That is, it appears that similarities in both the construct and the stimuli used resulted in the significant correlation between the EML and ILS, but not the SWLS and ILS. Overall, even if no confirmatory explanation can be given with current data, it is an interesting correlation in that the two measures have different modes of

assessment (i.e., explicit self-reported versus indirect implicit measure) with the same trait concept (life satisfaction).

4. There was no correlation between length of acquaintance and peer reports and the ILS. However, since there is a possibility that the length of acquaintance may moderate the relationship between self reports, peer reports and the ILS, this variable was included in the analyses in order to not obscure the results.

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