INCREASING IMPLICIT LIFE SATISFACTION

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We carried out 3 studies in which methods to increase implicit life satisfaction in collectivist participants were investigated. In Study 1, participants were instructed to recall their day from a positive perspective, each day for a total of 17 days. While participants explicitly rated their lives as being less negative, this did not result in implicit life satisfaction changes in those participants. In Study 2, the participants were exposed to supraliminal priming of the concept My Life with positive valences, but the effects of this exposure on explicit and implicit life satisfaction proved not to be significant. In Study 3, an increase in implicit life satisfaction resulted from inducing moods in a fashion consistent with the collectivist cultural framework, but not with the individualist cultural framework. However, no changes in explicit life satisfaction were noted in this study.

Keywords: life satisfaction, Implicit Association Test, collectivist, individualist, cultural difference.

Recent results pointing to the possible validity of an implicit aspect of life satisfaction (LS) alongside the well-established explicit aspect of LS (Jang & Kim, 2009; Kim, 2004), raise an intriguing question. If, as defined by Jang...
and Kim (p. 185), implicit LS is the “introspectively unidentified strength of positive versus negative associations with one’s life, processed without conscious awareness”, it is logical to ask how one can maintain one’s implicit life satisfaction, considering that it may be beyond one’s conscious control. However, as the definition of implicit LS is contingent on the associative strengths between one’s life and positive and negative concepts, in addition to the fact that the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) – type measures used in some research reflect the relative strengths of underlying associations between concepts (Greenwald et al., 1998), it would appear that providing conditions that could affect the associative strengths between LS and evaluative concepts might constitute the most appropriate method for increasing implicit LS. In fact, studies in which evaluative conditioning (EC) methods, which are reported to bolster the associative strength between concepts, are utilized, can influence implicit attitudes (Karpinski & Hilton, 2001). However, EC alone may not prove sufficient to influence implicit LS since changes in implicit attitudes may be dependent on the relevance of the stimuli to the content of the already stored implicit associations (Gawronski & Bodenhausen, 2006). Thus, the concepts to which the participants are exposed may need to be specific to the participant in order for the interventions to have an impact on implicit LS. In the following report we evaluate the role of culture in relation to explicit and implicit LS, as well as the implications of these relationships for LS change.

Collectivist Notion of Well-Being and Implicit Life Satisfaction

Results of research into the relevant characteristics of collectivist and individualist cultures have revealed differences in the manner in which they regard important concepts, most notably LS (Suh, Diener, Oishi, & Triandis, 1998), implying fundamental differences in the associative structures of implicit LS across cultures. Evidence of intergroup differences in implicit associative structures has already been demonstrated by previous researchers (Lowery, Hardin, & Sinclair, 2001). This suggests that the social environments of different groups may systematically affect the implicit associations between concepts, particularly in cases in which concepts are associated with other relevant concepts. This implies that successful implicit LS change requires that culture-specific contents be incorporated into interventions.

In the case of collectivist participants, who may experience positive affect via social interactions (Levenson, Ekman, Heider, & Friesen, 1992), and may also consider social elements as equally important as personal emotions in terms of their contribution to LS judgments (Kwan, Bond, & Singelis, 1997; Suh et al., 1998), mere exposure to positive experiences may not be sufficient to effect an increase in implicit LS. Rather, as has been suggested, stimuli relevant to already stored implicit associations, in particular inclusion of the interpersonal aspects
deemed important by collectivist culture, may need to be featured to effect implicit LS change.

**COLLECTIVIST NOTION OF WELL-BEING AND EXPLICIT LIFE SATISFACTION**

In contrast to the associative nature of implicit attitudes, *explicit attitudes* are generally thought to be the consequence of evaluative judgments that arise out of one’s conscious reasoning regarding an attitude or object (Gawronski & Bodenhausen, 2006), and are defined as *one's conscious evaluation of one's perceived level of well-being* (Diener, 1984). The findings of Suh, Diener, and Fujita (1996) that explicit LS fluctuates with the experience of positive and negative life events are consistent with this definition.

Extending this concept to encompass the collectivist cultural framework, collectivists, as compared to individualists, were shown to regard both satisfaction with one’s relationships with others and social norms as being more important than personal emotions (Kwan et al., 1997; Suh et al., 1998) in determining explicit LS. This implies that the enhancement of explicit LS requires both an enhanced perception of one’s satisfaction with life domains, and with one’s relationships with others.

**THE CURRENT RESEARCH**

Three studies were conducted to investigate ways to influence implicit LS in collectivist participants, using methods designed to systematically test the notion that implicit LS influences the associative strength between one’s life and the collectivist-consistent concepts associated with LS. In Study 1 we tested the idea that considering positive biases about one’s life should influence explicit LS. However, such biases were not expected to influence implicit LS, as a change in perception should not affect the underlying implicit associations. In contrast to Study 1, we employed an EC procedure in Study 2 to associate the concept *My Life* with positive valences, in order to determine directly whether or not exposure to repeated word pairs would affect implicit LS. If the mere strength of association is relevant, then EC should prove effective. Finally, in Study 3 we evaluated the idea that mood manipulations consistent with collectivist cultural norms would increase the implicit LS of collectivist participants, but manipulations consistent with individualist norms would not.

**STUDY 1**

In this study we evaluated the effects of experimentally induced positive reminders on explicit and implicit LS. Participants were instructed to recall positive aspects of their day, and were provided with a chance to evaluate why they were positive. This method was selected because the recalled positive
feelings of collectivists have been found to be more closely associated with interpersonally engaged emotions than those of individualists (Kitayama, Markus, & Kurokawa, 2000). Thus, the positive reinforcement of life experiences should cause participants to experience and report greater explicit LS. However, as this does not affect the associations between experienced life events and evaluative dimensions, it was not expected to result in increased implicit LS.

**Method**

**Procedure and Sample** A total of 93 South Korean students at Ajou University (27 female, 3 who did not report gender; M age = 23.28 years, SD = 2.22) were recruited from undergraduate introductory business courses. Participants were assigned randomly either to an experimental (n = 50) or control group (n = 43). Via a pretest, explicit and implicit measures of LS were determined in the laboratory. Participants in the experimental group were then instructed to email a set of questions to the experimenters at approximately 11 p.m. for a total of 17 days. The questions were: “What is one positive feeling you had today, and why did it make you happy?” (affect), “What is one positive thought you had today, and why did it make you happy?” (cognition), and “What is one positive action you did today, and why did it make you happy?” (behavior). Each question was asked twice, making a total of six questions. In effect, the participants were induced to form a positive evaluation of their life based on their recollections. The participants were reminded to submit their responses via SMS messaging if they did not meet the deadline. The control group participants received a form that was similar, except that it lacked any mention of positivity. They were merely instructed to report the same number of affects, cognitions, and behaviors as the experimental group. In the posttest, both groups of participants completed identical measures of explicit and implicit LS as in the pretest. All of the measures and instructions were provided in Korean.

**Measures**  
**The Evaluation of My Life (EML; Kim, 2004)** This was used as an explicit parallel to the implicit measure of LS. Participants were instructed to rate their life against 10 descriptor words, which appear in the implicit measure, on a 7-point Likert scale. Positive (α = .84) and negative (α = .79) scales were separately calculated. Higher scores reflect higher levels of either positive or negative LS.

**The Implicit Life Satisfaction − Global (ILS-Global; Kim, 2004)** This is an adaptation of the IAT method (Greenwald et al., 1998). Participants categorize a series of stimuli with one of two pairs of concepts, namely, My Life + Good versus My Life + Bad, thereby producing a score that reflects their implicit LS (α = .87). Higher scores reflect higher implicit LS. The newer d-score method (Greenwald, Nosek, & Banaji, 2003) was employed in the final analysis.
RESULTS AND DISCUSSION

Effect of manipulation on explicit measures

Preliminary analyses revealed heterogeneity of variance between the control and experimental groups on the EML, and thus more appropriate nonparametric tests were used to compare experimental and control groups. The difference scores between the pre- and posttest measures were subjected to an independent sample (experiment vs. control) Mann-Whitney U test. The experimental group (Mdn = -.20, n = 48) scored significantly lower than the control group (Mdn = .00, n = 43) on the negative scale of the EML, U = 749.50, Z = 2.26, p = .02. However, we noted no differences between the experimental (Mdn = .10, n = 48) and control groups (Mdn = .00, n = 43) on the positive scale of the EML, U = 965.00, Z = .54, p = .59.

Effect of manipulation on implicit measures

The assumption of homogeneity of variance was met with the ILS-Global, rendering parametric tests appropriate. The ILS-Global was subjected to an analysis of covariance (ANCOVA), employing posttest measures as the dependent variable, condition (control vs. experimental) as the between-subjects variable, and the pretest measure as the covariate. The crucial result was the main effect of condition, but this was not significant, F(1, 90) = .26, p = .61, d = .11, indicating that there were no differences in implicit LS between the control (adj. M = .50, SE = .04) and experimental (adj. M = .53, SE = .05) groups.

The results partially support our hypotheses. The explicit LS of participants in the experimental group was less negative than that of the control group, while implicit LS was not affected. The only post hoc explanation we can provide concerning the reduction in negative EML is that the extra attention given to positive events created a bias toward less negative reporting. This is consistent with results from previous studies in which it was indicated that positive primes can inhibit negative information reporting (Banse, 2001).

STUDY 2

Study 2 was conducted with the aim of determining whether efforts to influence the associative strengths between concepts would also influence implicit LS. The repeated presentation of word pairs in the EC procedure is believed to strengthen the association between the concepts, and thus affect implicit attitudes (Karpinski & Hilton, 2001). However, in the case of collectivists, mere exposure to positive exemplars paired with My Life may not result in implicit LS change, because if positive exemplars are not consistent with the collectivist conception of LS (i.e., lack of interpersonal elements), they may be irrelevant to the existing implicit associations. In other words, stimuli inconsistent with interpersonal components should be ineffectual in affecting implicit LS. With regard to explicit LS, we
In this study, we anticipated no changes, since repeated presentations of word pairs should not necessitate a reevaluation of explicit LS.

**Method**

**Procedure and sample** A total of 41 South Korean students at Ajou University (13 females, $M$ age = 22.41 years, $SD$ = 2.00) were recruited from undergraduate introductory business courses. After explicit and implicit LS were determined via a pretest, participants were assigned to either a positive association group ($n$ = 19), or a control group ($n$ = 22). In the positive association group, participants were instructed to memorize a series of word pairings presented on a computer as a component of a memory test, but were not informed as to the objective of the manipulation. They were exposed to 160 random pairings of the concept *My Life* and eight of the stimuli items used in the ILS: good, success, happiness, peace, respect, satisfaction, freedom, and joy. The presentations alternated with showing *My Life* or the stimuli items first. After one second of exposure, the words were occluded by a blank white rectangle. The participants pressed a key to advance to the next word pairing. This procedure closely mimics the procedure employed by Karpinski and Hilton (2001), differing only in terms of the number of word pairings (200 vs. 160). The participants in the control group were exposed to 160 pairings of the concept *My Life* and eight neutral words matched for length in Korean: ‘table’, ‘door’, ‘chair’, ‘window’, ‘calendar’, ‘clock’, ‘paper’, and ‘bookshelf’. In the posttest, identical explicit and implicit LS were completed as in the pretest. All the measures and instructions were provided in Korean, and the procedure lasted approximately 45 minutes.

**Measures** The Evaluation of My Life (EML positive $\alpha$ = .89, EML negative $\alpha$ = .86) and the Implicit Life Satisfaction–Global ($\alpha$ = .86) were used as in Study 1, with identical scoring procedures.

**Results and Discussion**

To evaluate the hypothesis that EC would not result in an increase in implicit LS, the EML and ILS–Global were each subjected to an ANCOVA, with posttest measures as the dependent variable, condition (control vs. positive association) as the between-subjects variable, and the pretest measures as the covariate. The crucial result in all analyses was the main effect of condition, which reflects differences among manipulation groups.

**Effect of manipulation on explicit measures** The results of analysis of the positive EML demonstrate that there was no main effect of condition, $F(1, 38) = 1.17, p = .29, d = .35$, indicating no difference between the controls ($adj. M = 5.15, SE = .13$) and positive association groups ($adj. M = 5.36, SE = .14$). Furthermore, analysis of the negative EML also showed no effects of condition, $F(1, 38) = .26, p = .62, d = .16$, indicating no reliable difference between controls ($adj.
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Effect of manipulation on implicit measures: Analysis of the ILS-Global scores demonstrated no reliable effect of condition \( F(1, 38) = 10.5, p = .99, d = .001 \), thus indicating no difference between controls (adj. \( M = .40, SE = .08 \)) and positive association groups (adj. \( M = .40, SE = .09 \)).

The results demonstrate that EC did not alter either implicit or explicit LS, when using stimuli insensitive to the participant’s existing implicit associations. However, the null result does not provide sufficient evidence that implicit LS cannot be increased. As previously argued, stimuli, to be effectual, should reflect the person’s existing set of implicit associations. By including both self and social/interpersonal elements in the stimuli, we sought to increase the implicit LS of the collectivist participants.

Study 3

In Study 3 we evaluated whether inducing mood in ways either consistent (in groups) or inconsistent (alone) with collectivist norms would influence implicit LS. To experimentally simulate the social/interpersonal experience of emotion, we sought to activate in-group processes through minimally formed groups, which have been shown to result in implicit in-group preference (Greenwald, Pickrell, & Farnham, 2002). In this study, we made no specific predictions about explicit LS, but laboratory manipulations should not make necessary a reevaluation of explicit LS.

One other possible explanation as to why no changes in implicit LS were noted in Studies 1 and 2 might involve the nature of the ILS-Global. Although the ILS evaluates the global implicit association between the concepts My Life and Good and Bad, it does not permit participants to include aspects of their life that they consider important. Allowing participants to enter their own domains should result in a measure that is more representative of their implicit associative networks. To this end, we included the ILS-Unique (Study 2, Kim, 2004), which allows participants to input self-relevant targets into the ILS task. We hypothesized that the ILS-Unique would be more responsive to manipulation, because a positive manipulation would enhance the salience of the association between the experiences important to the participant and the My Life concept. However, the ILS-Global represents an overall endorsement of the My Life concept, and may be less representative of the participant’s specific experiences in association with the My Life concept. Thus, it may be less responsive than the ILS-Unique to positive manipulation.

Method

Procedure and sample: A total of 63 South Korean students at Ajou University
(17 females, $M$ age = 23.53 years, $SD = 2.17$) were recruited from undergraduate introductory business courses. Via a pretest, participants completed the EML, the ILS-Global, and the ILS-Unique (Kim, 2004). Presentations of the ILS-Global and ILS-U were fully counterbalanced within and between subject conditions. Participants were randomly assigned to one of three conditions in order to induce positive mood in individualist-consistent or collectivist-consistent ways. Positive mood was induced via a shortened version of the Velten (1968) self-statement mood induction procedure, as used by Teasdale and Russell (1983). This procedure was selected because it allowed the manipulation to be unambiguously biased toward either individualist or collectivist LS norms. In the individualist-consistent condition ($n = 21$), participants read to themselves a set of 12 elation-inducing self-statements printed on separate cards (e.g., “I can almost feel a smile on my face”) for six minutes. In the collectivist-consistent condition group ($n = 22$), the participants read 12 elation-inducing self-statements in groups of 4-5 participants, but were instructed not to interact with any other group members. Furthermore, the word “I” was replaced with the word “We” in all of the self-statements for this group. The experimenter left the room for the duration of the manipulation (six minutes), as the mere presence of an authority figure could result in demand characteristics. This is because South Korean participants may respond in a socially desirable way in an attempt to help the experimenter save face (Fiske, 2002). Controls ($n = 20$) were instructed to “take a break for the next few minutes” (six minutes) in place of the manipulation. The participants sat alone in their cubicles and did nothing for the six minute duration, in order to allow for spontaneous changes in mood. In the posttest, participants completed identical measures of explicit and implicit LS as in the pretest, and were instructed to describe their current emotional state in their responses after the mood inductions. All the measures and instructions were provided in Korean, and the entire procedure lasted for approximately one hour.

**Measures** The Evaluation of My Life (EML positive $\alpha = .87$, EML negative $\alpha = .69$), and the Implicit Life Satisfaction-Global ($\alpha = .91$) were employed as in Study 1, using identical scoring procedures. The Implicit Life Satisfaction-Unique (Kim, 2004) ($\alpha = .83$) was included in the study because this measure was thought to reflect more accurately participants’ implicit associative network. In this version of the ILS, participants were presented with a list of 30 important life domains (Kim, 2004; Oishi & Diener, 2001), which were modified during pilot testing to make them appropriate for Korean university students. After selecting 10 important life domains, the participants further reduced their selection to the seven most important domains, which were used as stimuli for the My Life category (see Kim, 2004, for further review). The scoring procedures utilized were identical to those used for the ILS-Global.
RESULTS AND DISCUSSION

The dependent variables (positive and negative EML, and ILS-Global and ILS-Unique) were each subjected to an ANCOVA, with posttest measures used as the dependent variable, condition (control vs. individualist vs. collectivist) as the between-subjects variable, and the pretest measures as the covariate.

Effect of manipulation on explicit life satisfaction  Explicit LS was not influenced by the manipulations. The main effect of condition was nonsignificant for both positive EML, $F(2, 59) = 2.79, p = .07, d = .43$, indicating no differences between the control ($adj. M = 4.13, SE = .11$), individualist-consistent ($adj. M = 4.49, SE = .11$), and collectivist-consistent manipulations ($adj. M = 4.33, SE = .11$), and negative EML $F(2, 59) = .20, p = .82, d = .12$, indicating no differences between control ($adj. M = 2.10, SE = .12$), individualist-consistent ($adj. M = 2.01, SE = .12$), and collectivist-consistent manipulations ($adj. M = 2.10, SE = .11$).

Effect of manipulation on implicit life satisfaction  We detected no significant main effect of condition for the ILS-Global, $F(2, 57) = .78, p = .47, d = .23$, reflecting no differences between the control ($adj. M = .50, SE = .07$), individualist ($adj. M = .43, SE = .07$), and collectivist-consistent manipulations ($adj. M = .55, SE = .07$). However, for the ILS-Unique, the main effect of condition was significant, $F(2, 57) = 5.10, p = .01, d = .60$. Planned contrasts demonstrated that the collectivist-consistent manipulation ($adj. M = .84, SE = .06$) resulted in higher implicit LS than in controls ($adj. M = .57, SE = .06$), $t(57) = 3.13, p = .003, d = .83$. Furthermore, this group also reported higher implicit LS than the individualist-consistent manipulation ($adj. M = .67, SE = .06$), $t(57) = 2.04, p = .05, d = .54$. However, we detected no difference between the control and individualist-consistent manipulation, $t(57) = 1.14, p = .26, d = .30$.

Explicit measures were not influenced by manipulation across both collectivist-consistent and individualist-consistent manipulations. In contrast, the ILS-Unique measure showed a response to the collectivist-consistent manipulation, but did not evidence such a response in the individualist-consistent manipulations. This supports our argument that manipulations may or may not affect implicit LS, depending on the degree of relevance of the manipulation to the individual’s implicit associative network.

GENERAL DISCUSSION

SUMMARY OF RESULTS AND IMPLICATIONS  In Study 1, a biased summary of daily experiences resulted in a less negative explicit LS, but there was no change in implicit LS because such bias did not influence the association between the My Life concept and positive valences. In Study 2, EC resulted in no explicit or implicit LS changes, as it incorporated no important cultural elements in the manipulation. With the inclusion of social/
interpersonal and independent elements in the manipulation conducted in Study 3, an increase in implicit LS was noted, but there were no changes in explicit LS. The results of Study 3 reinforce the notion that changes in implicit LS depend on the effects of the implicit associative networks of the participants.

**What does the ILS assess?**

One interesting observation from the results of Study 3 is that the effect of manipulation was noted on the ILS-Unique, but not on the ILS-Global. One possible explanation is that the ILS-Unique measure is more representative of one’s own implicit associations regarding one’s life, and as a result, is more susceptible to influence than the ILS-Global, which is designed to measure the general associative strengths between *My Life* and positive and negative valences. Consistent with the notion that the stimuli presented in the IAT method results in the measurement of different sets of associations, past researchers have shown that the IAT effect can be eliminated or reversed by selectively choosing the stimuli presented to the participant (e.g., Govan & Williams, 2004). This suggests that the ILS-Global, which evaluates the association between *My Life* and the evaluative concepts of Good and Bad, is a function of the frequency with which these concepts are paired in their environment (Karpinski & Hilton, 2001). In contrast, the ILS-Unique, which evaluates the association between *My Life* plus the participant-selected life domains, and evaluative concepts, can reflect the extent to which a participant’s own experiences are positive or negative. In summary, these two measures may evaluate two distinct, although related, concepts.

Therefore, one limitation of Studies 1 and 2 relates to the exclusive use of the ILS-Global measure. Although we did not foresee this limitation, there are reasons to doubt that change would have been detected by the ILS-Unique if it had been included in Studies 1 and 2. As the manipulations employed in Studies 1 and 2 did not target the culture-relevant stimuli for implicit LS, we believe these manipulations would have been ineffectual in the change of implicit LS.

**Directions for Future Research and Implications**

When considering the theoretically stable definition of the implicit LS construct, it is clear that the observed increase in implicit LS is more likely to be a temporary effect than a long-term change. Translating these changes to a stable influence would be the next logical step. Additionally, in future studies, it should be acknowledged that the associative structures of implicit attitudes may differ across cultures, because the underlying associative structures may differ. That is, someone’s culture may profoundly affect the manner in which an individual implicitly encodes his or her life experiences, and this should be taken into account when designing studies on these topics.
REFERENCES


