

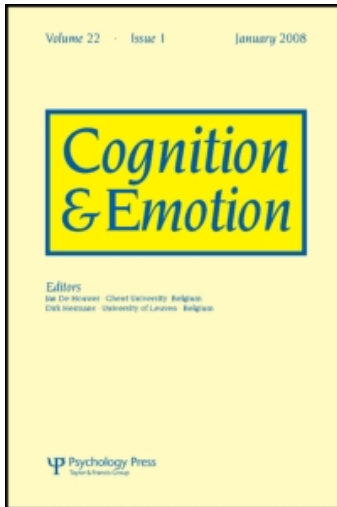
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Culture, gender, and the bipolarity of momentary affect: A critical re-examination

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COMMENTARY

Culture, gender, and the bipolarity of momentary affect: A critical re-examination

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This paper re-examines Yik's (2007) hypothesis that dialectic thinking moderates aggregated but not momentary ratings of affect. A reanalysis of Yik's (2007) correlation coefficients shows that culture is a significant moderator of the correlation between ratings of positive affect (PA) and negative affect (NA) for two of the three response formats, and for the latent correlations reported in the original article. The effect size of this difference is similar to the effect size in previous publications with aggregated measures of affect. It is concluded that Asian dialectic thinking styles moderate the correlation of both aggregated and momentary reports of PA and NA.

Keywords: Positive affect; Negative affect; Bipolarity; Independence; Culture; Dialectic thinking; Ambiguous response formats.

Bagozzi, Wong, and Yi (1999) suggested that dialectic thinking in East Asia influences how people experience opposing affects (e.g., happiness and sadness). Dialectic thinking is more accepting of the idea that opposing emotions may coexist. As a result, they should be less negatively related in dialectic East-Asian cultures than in cultures without dialectic philosophies. Bagozzi et al. (1999) provided first evidence for their hypothesis in a cross-cultural comparison of the correlation between ratings of positive affect (PA) and negative affect (NA) in East Asia and North America. Using data from a large cross-cultural study, Schimmack, Oishi, and Diener (2002) demonstrated that this effect is indeed unique to East-Asian cultures and does not generalise to other collectivistic cultures. Scollon, Diener, Oishi, and Biswas-Diener

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(2005) replicated this pattern using experience sampling methodology. The average within-subject correlation between happiness and sadness was $r = -.22$ in East-Asian samples (East-Asian Americans, Japanese) compared to a correlation of $r = -.39$ in other samples (European Americans, Hispanic Americans, East Indians). Further support for the influence of culture on the PA–NA correlation stems from a recent study that compared responses of East-Asian Canadians in different cultural contexts (Perunovic, Heller, & Rafaeli, 2007). When participants were in a Western context and spoke English, PA and NA were more negatively correlated than when they were in an Asian context and did not speak English. Thus, there is growing evidence that culture is a reliable moderator of the empirical correlation between PA and NA.

A recent study by Yik (2007) also examined the correlation between PA and NA in different cultures. In this study, participants were asked to remember an emotional moment and to report how they felt at that moment. The study included four East-Asian (2 Chinese, 1 Japanese, 1 South Korean) and four Western samples (3 North American, 1 Spanish). Participants in this study rated PA and NA with three different response formats, one ambiguous likely unipolar format (adjective list), and two ambiguous, likely bipolar formats (describes me, agree–disagree; Yik, 2007, p. 671). Yik (2007) concluded that this study did not support the hypothesis that dialectic thinking moderates the correlation between PA and NA. “In contrast to the dialectical model, I found that Aristotelian cultures did not differ significantly from Confucian ones” (p. 677). To account for the seemingly inconsistent findings between her study and previous studies, she proposed that dialectic thinking influences reports of aggregated PA and NA (e.g., in the past month), but not for reports of recent momentary experiences of affect. “In reporting emotional experiences for a recent and isolated ‘slice’ of time, however, representations of positive and negative affect are indeed bipolar opposites” (Yik, 2007, p. 678). This conclusion has led some researchers to postulate that Asian dialectic thinking moderates only the memory of affective experiences and not actual experiences of affect (e.g., Schimmack, 2008).

However, there are two problems with this line of reasoning. First, numerous studies have demonstrated that momentary experiences of PA and NA are not bipolar opposites (Hemenover & Schimmack, 2007; Larsen, McGraw, & Cacioppo, 2001; Larsen, McGraw, Mellers, & Cacioppo, 2004; Hunter, Schellenberg, & Schimmack, 2008; Schimmack, 2001, 2005; Schimmack & Colcombe, 2007). Second, this explanation fails to explain why two other studies of momentary affective experiences show weaker PA–NA correlations in an East-Asian cultural context (Perunovic et al., 2007; Scollon et al., 2005). Thus, an alternative explanation for Yik’s findings is required.

A re-examination of Yik's data revealed that no alternative explanation is needed because her empirical results actually show a significant moderator effect of Asian dialectic thinking on reports of momentary affect. To demonstrate this empirical fact, I used the observed correlations published in Table 1 (Yik, 2007, p. 672) and the latent correlations published in Table 2 (Yik, 2007, p. 675). To examine cultural variation in PA-NA correlations, I performed multi-group structural equation analyses using MPLUS4.2 (Muthén & Muthén, 2007). The baseline model had latent factors with a fixed variance of 1, and zero error variances. The correlations between the two latent factors varied freely across all eight samples. This model had zero degrees of freedom and perfectly reproduced the observed correlations. The first model constrained coefficients for samples from the same nation. The second model constrained coefficients for the four Western samples and the four East-Asian samples. The third model constrained coefficients across all eight samples. These models are nested, and the difference in chi-squares between nested models can be used to assess statistical significance. A significant effect of cultural variation between East-Asian and Western cultures is revealed by demonstrating that Model 2 fits the data less well than

TABLE 1
Significance tests of nested models with constrained parameter estimates

| | χ | <i>df</i> | $\Delta\chi$ | <i>df</i> |
|----------------------------|---------|-----------|--------------|-----------|
| <i>Adjective checklist</i> | | | | |
| Model 1 | 20.24* | 3 | | |
| Model 2 | 27.15* | 6 | 6.91 | 3 |
| Model 3 | 45.29* | 7 | 22.14* | 1 |
| <i>Agree-Disagree</i> | | | | |
| Model 1 | 20.95* | 3 | | |
| Model 2 | 41.99* | 6 | 21.04* | 3 |
| Model 3 | 43.73* | 7 | 2.26 | 1 |
| <i>Describes me</i> | | | | |
| Model 1 | 14.78* | 3 | | |
| Model 2 | 54.35* | 6 | 21.04* | 3 |
| Model 3 | 114.71* | 7 | 50.26* | 1 |
| <i>Latent</i> | | | | |
| Model 1 | 7.87* | 3 | | |
| Model 2 | 51.90* | 6 | 44.03* | 3 |
| Model 3 | 110.83* | 7 | 58.07* | 1 |

Notes: Model 1= Constrained coefficients for samples from same nation (England, China). Model 2= Constrained coefficients for Western samples and East Asian samples. Model 3= Constrained coefficients for all samples. $\Delta\chi$ = difference in chi-square between Model *n* and Model *n* - 1. No model comparisons are shown for Model 1 because fit of this model indicates the relative fit of this model to the baseline model. **p* < .05.

TABLE 2
 Parameter estimates of Model 2 (99% confidence intervals in parenthesis) with
 constrained coefficients for Western and East Asian samples

| <i>Variable</i> | <i>Western</i> | <i>East Asian</i> | <i>Effect size Q</i> |
|---------------------|------------------|-------------------|----------------------|
| Adjective checklist | -.71 (-.74 -.67) | -.62 (-.66 -.58) | 0.16 |
| Agree-Disagree | -.79 (-.82 -.77) | -.78 (-.80 -.75) | 0.05 |
| Describes me | -.82 (-.85 -.80) | -.71 (-.74 -.68) | 0.28 |
| Latent | -.92 (-.93 -.90) | -.86 (-.87 -.84) | 0.28 |

Model 1. A significant effect of dialectic thinking is revealed by showing that Model 3 fits the data less well than Model 2. (see, e.g., Schimmack, Radhakrishnan, Oishi, Dzokoto, & Ahadi, 2002, for a similar approach to examine moderator effects of culture). Table 1 shows the chi-square and the chi-square difference between nested models. Most values are statistically significant and show heterogeneity of PA-NA correlations across samples within nations and across nations. Most important, the chi-square differences between Model 3 and Model 2 revealed significant differences between East-Asian and Western samples for the adjective-checklist format, the describes-me format, and the latent factors based on all three formats between Western and East-Asian samples. Only the agree-disagree format does not show a significant moderating effect of culture. Table 2 shows the parameter estimates for Western and East-Asian cultures, and 99% confidence intervals. As predicted by the dialectic model, correlations are more negative in Western samples than in East-Asian samples. Table 2 also shows the effect size of these differences, q (Cohen, 1988). By convention, effects of .2 are small, .5 are moderate, and .8 are large. In general, the effect size is small, which is consistent with previous studies, in which effect sizes were also small to moderate. A potential exception may be the agree-disagree response format. Most respondents interpret this response format as a bipolar scale that asks them to report PA relative to NA and NA relative to PA (Schimmack, Bockenholt, & Reisenzein, 2002). Evidently, even dialectic respondents would have to respond in a bipolar manner when they are asked to rate their feelings on strictly bipolar happy-sad and sad-happy scales. Thus, a weaker effect of culture on this format is to be expected. In this regard, it is actually more surprising that even the describes-me format shows an effect of culture because it is also likely to be interpreted in a bipolar manner. However, it is unclear whether the moderating effect of culture is significantly different across response formats. Thus, it remains to be examined in future research how the nature of the response format influences cultural influences on ratings of PA and NA.

In sum, the present analyses of the correlation coefficients reported in Yik (2007) provides further evidence that culture moderates the correlation

between PA and NA, and that this correlation tends to be significantly less negative in East-Asian cultures than in Western cultures. Moreover, Yik's (2007) study provides additional evidence that the influence of culture is not limited to ratings of aggregated affect over longer time periods, but also influences ratings of momentary affect in a single situation.

It is inevitable that some future studies will fail to replicate the small moderating effect of culture. In this case, it is important to take the power of the study into account to avoid the fallacy of accepting a false null hypothesis on the basis of the failure to reject it. A power analysis suggests that over 300 participants are needed to have an 80% chance of detecting the moderator effect of culture in a study based on a single assessment of PA and NA (Soper, 2007). It is even more difficult to demonstrate that other factors (e.g., time frame, response format) moderate the effect of culture on the relation between PA and NA. Essentially, this hypothesis implies a three-way interaction (e.g., time frame \times culture \times valence). If more than 300 participants are needed to test the two-way interaction (culture \times valence), enormous sample sizes are needed to have reasonable power to test the three-way interaction. Fortunately, power can be increased by assessing affect repeatedly over time and by manipulating additional moderators (e.g., time frame) within subjects rather than between subjects. In my opinion, it would be valuable and informative to publish studies with adequate power that fail to show a moderating effect of dialectic culture. However, Yik's (2007) data show the predicted effect, and it would be unfortunate if future research on this topic were based on Yik's incorrect conclusions rather than on her valuable empirical contribution to this area of research.

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REFERENCES

- Bagozzi, R. P., Wong, N., & Yi, Y. J. (1999). The role of culture and gender in the relationship between positive and negative affect. *Cognition and Emotion, 13*(6), 641–672.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Hemenover, S. H., & Schimmack, U. (2007). That's disgusting!, but very amusing: Mixed feelings of amusement and disgust. *Cognition and Emotion, 21*, 1102–1113.
- Hunter, P. G., Schellenberg, E. G., & Schimmack, U. (2008). Mixed affective responses to music with conflicting cues. *Cognition and Emotion, 22*, 327–352.
- Larsen, J. T., McGraw, A. P., & Cacioppo, J. T. (2001). Can people feel happy and sad at the same time? *Journal of Personality and Social Psychology, 81*(4), 684–696.
- Larsen, J. T., McGraw, A. P., Mellers, B. A., & Cacioppo, J. T. (2004). The agony of victory and thrill of defeat: Mixed emotional reactions to disappointing wins and relieving losses. *Psychological Science, 15*(5), 325–330.

- Muthén, L. K., & Muthén, B. O. (2007). *Mplus user's guide* (4th ed.). Los Angeles: Muthén & Muthén.
- Perunovic, W. Q. E., Heller, D., & Rafaeli, E. (2007). Within-person changes in the structure of emotion: The role of cultural identification and language. *Psychological Science, 18*(7), 607–613.
- Schimmack, U. (2001). Pleasure, displeasure, and mixed feelings: Are semantic opposites mutually exclusive? *Cognition and Emotion, 15*(1), 81–97.
- Schimmack, U. (2005). Response latencies of pleasure and displeasure ratings: Further evidence for mixed feelings. *Cognition and Emotion, 19*(5), 671–691.
- Schimmack, U. (2008). The structure of subjective well-being. In M. Eid & R. J. Larsen (Eds.), *The science of subjective well-being* (pp. 97–123). New York: Guilford Press.
- Schimmack, U., Bockenholt, U., & Reizenzein, R. (2002). Response styles in affect ratings: Making a mountain out of a molehill. *Journal of Personality Assessment, 78*(3), 461–483.
- Schimmack, U., & Colcombe, S. J. (2007). Eliciting mixed feelings with the paired-picture paradigm: A tribute to Kellogg (1915). *Cognition and Emotion, 21*, 1546–1553.
- Schimmack, U., Oishi, S., & Diener, E. (2002). Cultural influences on the relation between pleasant emotions and unpleasant emotions: Asian dialectic philosophies or individualism–collectivism? *Cognition and Emotion, 16*(6), 705–719.
- Schimmack, U., Radhakrishnan, P., Oishi, S., Dzokoto, V., & Ahadi, S. (2002). Culture, personality, and subjective well-being: Integrating process models of life-satisfaction. *Journal of Personality and Social Psychology, 82*, 582–593.
- Scollon, C. N., Diener, E., Oishi, S., & Biswas-Diener, R. (2005). An experience sampling and cross-cultural investigation of the relation between pleasant and unpleasant affect. *Cognition and Emotion, 19*(1), 27–52.
- Soper, D. S. (2007) “*A-priori sample size calculator*”, *free statistics calculators* [online software]. (Available from: <http://www.danielsoper.com/statcalc>)
- Yik, M. (2007). Culture, gender, and the bipolarity of momentary affect. *Cognition and Emotion, 21*, 664–680.