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Cultural Similarities and Differences in the Conceptualization of Emotion

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Cross-Cultural Research

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At some Chinese restaurants in Los Angeles, one can find a peculiar item on the menu: “Chinese tamale.” Although it sounds like a Chinese adaptation of the Mexican tamale, the dish in question (*zongzi*) has been made in China for centuries. Noting the similarities in form between the two dishes, local Chinese restaurateurs latched onto “tamale” as the perfect translation for their traditional dish. Both dishes may consist of a meat filling, encased in a grain-based shell, wrapped in leaves, and cooked by steaming. However, the traditional tamale shell is made from corn that has been soaked and ground into flour, and then wrapped in corn husk or banana leaves; the *zongzi* shell is made from glutinous rice, and is often wrapped in bamboo leaves. If we look further into the meat filling, we will see that both dishes may use similar types of meat (e.g., pork) but different spices and seasonings. The Chinese tamale provides a metaphor for how experience sampling methodology (ESM) can contribute to our understanding of cross-cultural variation in psychological processes. By investigating the finer moments of everyday life in different cultures, researchers can peel back the wrappings of apparent cultural differences (and similarities) and refine their understanding of the nature and processes underlying these differences.

How has experience sampling methodology (ESM) contributed to cross-cultural research? What are the unique advantages of using ESM to study cross-cultural questions? A major premise of cross-cultural research is that the universality of psychological processes cannot be presumed but must be evaluated across different cultural contexts. By assessing the daily experiences of people within a *natural* setting, ESM enhances the ecological validity of cross-cultural studies (see Reis, Chapter 4). In addition, ESM expands how cultural differences and similarities are conceptualized. Early studies in cross-cultural psychology often relied on cross-sectional methodology, comparing two or more groups on their responses to survey

questions or experimental situations. These studies tended to examine cultural differences and similarities in group means. Because ESM involves repeated measurements within and across days, the resulting data set permits a wider range of phenomena to be examined. For example, there may be cultural differences in the extent to which momentary states *covary* with certain variables, as well as differences in the consistency of behavior across situations (*intra*-individual variation). Moreover, ESM can be combined with traditional surveys to enhance the types of mean-level comparisons that might be made between cultural groups.

Chapter Summary and Overview

We divide our review of cross-cultural applications of ESM into five main areas. First, we review studies that compare online (via ESM) and retrospective responses (via single-session surveys) and show that the two measures lead to different conclusions about cultural differences. Second, we review studies that highlight the distinction between *quantity* (i.e., how often certain events occur) and subjective *quality* (i.e., how events are experienced), and demonstrate that cultural differences may exist in either or both of these aspects. Third, we review studies that examine cultural differences in intra-psychic phenomena or within-person correlations (i.e., how psychological states covary with situational factors across cultures). These studies capture processes that may shift rapidly across contexts—such as the activation of different cultural identities and subsequent emotions. Fourth, we discuss the potential of ESM data to quantify the amount of intra-individual variation across cultures. That is, how much people's feelings and behaviors *vary overall* from situation to situation—an issue that is distinct from mean-level and correlational studies. With each of the major applications, we discuss the unique advantages of using ESM. Fifth and last, we review the challenges associated with using ESM in different cultures and directions for future research.

Global versus Online Measures in Culture and Well-Being Research

A major application of momentary assessments has been in studies of culture and subjective well-being (SWB) that combine fine-grained experience sampling data with global measures of the same experience. These studies capitalize on the possibility that global or retrospective measures are imperfect reflections of online experience that may contain memory biases. By employing ESM, such biases are reduced. However, far from pointing to the conclusion that global measures of emotion are simply not as good as experience sampling measures, these studies have helped advance theoretical formulations of global well-being (see Kim-Prieto, Diener, Tamir, Scollon, & Diener, 2005; Schwarz, Chapter 4).

Self-reports can reference a variety of time frames from the most narrow (i.e., evaluations of the here and now as captured by ESM) to the broadest (i.e., evaluations of one's life as a whole as captured in global self-reports). In other words, the distinction is one between momentary states and global traits, and self-reports fall *in between* state and trait measures. Different processes are evoked by narrow versus broad time frames, and discrepancies among the various measures have provided insight into cultural differences in SWB.

When global measures of well-being are used in cross-cultural studies, Asian respondents often report lower life satisfaction and less positive emotions than European and North Americans (for a review, see Tov & Diener, 2007). These differences concur with cultural norms regarding emotions. That is, Westerners tend to overwhelmingly favor positive affect (PA) over negative affect (NA) whereas Asians tend to ascribe value to both PA and NA (Eid & Diener, 2001). On the basis of global measures, it appears that cultural norms dictate which emotions are desirable to feel, and this in turn influences how people regulate their ongoing affective experience. However, studies that use ESM along with global reports reveal a more

complex picture of how culture shapes well-being. For instance, Oishi (2002) compared Asian Americans and European Americans on self-reports of SWB using different time frames. He found that European American and Asian American students differed neither in their daily ratings of satisfaction (Study 1) nor in their experience sampling reports of emotion (Study 2). However, when asked to retrospectively evaluate the same week, European American participants recalled the week as more satisfying than Asian American participants, a finding that Wirtz, Chiu, Diener, and Oishi (2009) replicated. Similarly, Scollon, Diener, Oishi, and Biswas-Diener (2004) found greater cultural differences in retrospective reports of emotion than in online reports, particularly for PA.

Cultural differences arise in global and retrospective measures but not online measures because the former involve reconstructive memory. As people's memories for their experiences fade (which especially occurs when evaluating broad time frames such as "last year" or "in general"), they come to rely less on the actual experience to inform their memory and more on heuristic information from sources such as cultural knowledge or beliefs to "fill in the gaps" of memory. In other words, people tend to form memories that are consistent with their self-knowledge and their cultural values (see also Oishi, Schimmack, Diener, Kim-Prieto, Scollon, & Choi, 2007) even if the memories are less than accurate. In the case of Oishi (2002) and Wirtz et al. (2009), if Asians and non-Asians hold different views about the desirability of happiness, this may have led to group differences in the retrospective reports. However, because cultural knowledge exerts a weaker influence on momentary self-reports, researchers observe little or no cultural differences in online reports of emotion.

In a direct test of this conjecture, Scollon et al. (2009) had participants complete ESM and retrospective measures targeting the same week, as well as questions about ideal affect.

Ideal affect is the extent to which people would ideally like to feel certain emotions, a measure that is strongly related to culture (Tsai et al., 2006). Ideal affect more strongly correlated with retrospective reports of emotion than with experience sampling reports of emotion, lending support to the idea that broader time frames of reporting are more strongly influenced by cultural knowledge than the short time frames captured by experience sampling.

More generally, however, ESM may have an advantage in cross-cultural research over global measures because they are potentially less susceptible to reference group effects. The reference group effect occurs when different cultural groups respond to subjective Likert scales with different comparison groups in mind (Heine, Lehman, Peng, & Greenholtz, 2002). For example, Japanese consider other Japanese when answering self-reports, whereas Americans consider other Americans, particularly members of their same ethnicity. The confounding of different reference groups with culture undermines the validity of cross-national comparisons of group means and can lead to findings such as Japanese respondents scoring higher in individualism than Americans, and Americans scoring higher than Japanese in collectivism. ESM may reduce reference group effects in at least two ways. First, in experience sampling, the respondents may compare their current states to previous states, so the referent will often be the respondents themselves. This is not to deny that social comparisons do not occur in ESM measures. However, unless social comparisons affect responses across all measurement occasions, then aggregated ESM measures should be less contaminated by reference group effects *relative* to global measures. Second, ESM can capture the occurrence of events and concrete behaviors—variables for which social comparisons are less relevant. An excellent example of this comes from Ramírez-Esparza, Mehl, Álvarez-Bermúdez, and Pennebaker (2009) who measured sociable behaviors in everyday life in two cultures. Compared with Americans,

Mexicans exhibited more sociable behaviors such as talking with others, but in trait measures of extraversion, Mexicans scored lower. In this case, only the experience sampling measures concurred with folk beliefs about Mexican culture.

Because global assessments tend to be more abstract and require the respondent to think in terms of counterfactuals, the concreteness of momentary assessments offers another advantage. For some respondents, considering and evaluating a state of affairs beyond the here and now is not only difficult but downright unnatural. For example, one item in the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) is “If I could live my life over again, I would change almost nothing.” Although to urban and Western respondents such an item may seem perfectly reasonable, one colleague of ours working in the villages of Vietnam reported that many elderly respondents did not know how to respond to the item because they could not grasp the hypothetical concept of living one’s life over again.

Locating Subtle Cultural Differences: Quantity versus Quality of Experience

Another advantage of ESM is that the repeated measurements permit two aspects of experiences to be operationalized simultaneously: their quantity (or frequency) and their subjective quality. The ability to assess both aspects can lead to a more sophisticated understanding of cultural differences. For example, suppose two cultures differ in their mean-levels of stress. ESM might reveal that people in each culture spend different amounts of time at work, and work hours may mediate cultural differences in stress. Researchers might then investigate whether differences in values or economic conditions create greater demands to work in one culture versus the other. Alternatively, people in both cultures may work the same amount but *experience* work differently—in which case other variables may be relevant such as the degree of power distance in each culture. The psychological responses that are evoked or

reinforced in a particular situation can differ across cultures. These *cultural affordances* (Kitayama, Duffy, & Uchida, 2007) can range from common social reactions (e.g., supervisors who launch tirades when mistakes are made) to public artifacts (e.g., advertisements that inspire career success). When cultural differences exist in quality but not quantity (or vice versa), researchers gain insight into the types of cultural affordances that may be operating.

Although participants could simply *estimate* how often they experience certain types of events, such measures might misrepresent cultural differences because of the retrospection involved. Furthermore, experience sampling may detect experiences that escape ordinary awareness. People often underestimate the frequency of both PA and NA (Thomas & Diener, 1990) because they discount the many times they experienced low levels of affect. Frequency estimates may also be biased by various factors such as the amount of time to answer the question or whether the question format is open or closed (Schwarz & Oyserman, 2001). By reducing the burden of retrospection, ESM minimizes the effects of these extraneous factors.

In addition, people are occasionally inaccurate in recalling how they felt in certain situations. For example, parents often say that spending time with their children brings them the most happiness. In reality, taking care of one's own children ranks as high in NA as commuting and higher in NA than housework (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004)! Similarly, memories of vacations are often glowing (Wirtz, Kruger, Scollon, & Diener, 2003) despite frustrations of air travel, sunburn, and annoying travel companions. This underscores one of the major points of experience sampling methodology—that to develop a more accurate account of people's true experiences, we must capture them through momentary assessments.

Several studies have examined cultural differences in both the quantity and quality of experiences. These studies generally use aggregated ESM data to make comparisons between

group means. For example, the frequency of an experience might be summed for each participant and then averaged for each group. However, we will see that the quality of experience can be examined in ways other than mean comparisons.

Differences in quantity but not quality. Using ESM, Scollon et al. (2004) found that Asian respondents reported far fewer instances of pride and more instances of guilt than non-Asian respondents. These cultural differences in frequency were consistent with cultural norms. Individual pride from accomplishing one's goals or affirming some internal attribute can be "socially disengaging" because it emphasizes the separateness of the self from others (Kitayama, Mesquita, & Karasawa, 2006). In contrast, guilt is "socially engaging" as it motivates people to repair social bonds after a transgression. Accordingly, people with an interdependent orientation such as Asians consider pride less desirable and guilt more desirable than individuals with an independent orientation, and their momentary experiences reflect these values to some extent. However, all the cultural groups in Scollon et al.'s study showed similar factor loadings and factor structure of momentary emotions (i.e., pride covaried with PA and guilt covaried with NA), suggesting that the *quality* of experience was similar for both groups. In other words, although Asians experienced pride less frequently and guilt more frequently than other groups, these emotions were not experienced as any less pleasant or unpleasant.

Differences in quality but not quantity. Asakawa and Csikszentmihalyi (1998) assessed the daily activities of Asian- and European American students. Although no ethnic differences emerged in the proportion of time spent on academic activities, Asian Americans reported experiencing these activities more positively. This might lead to the question of whether Asian American families structure their homes in a way that is more conducive to studying and illustrates the potential of ESM to test and further advance theories about cultural differences.

Similarly, using event-contingent recording to assess social anxiety experiences, Lee, Okazaki, and Yoo (2006) found that Asian Americans and European Americans reported similar *numbers* of anxiety-provoking events, but that Asian Americans reported more *intense* NA in reaction to these events. Lee et al. suggested that Asian cultural norms that discourage the *expression* of NA may reduce the frequency but enhance the intensity of NA.

Differences in both quantity and quality. Using event-contingent sampling of social interactions, Wheeler, Reis, and Bond (1989) found that Hong Kong students had longer social interactions than American students. However, the Hong Kong students had fewer social interactions overall and the interactions involved fewer others compared to American students—a difference of both quantity and quality that is consistent with collectivism.

Lee and Larson (2000) found that Korean high school students not only spent more time studying than European American students, but they reported greater NA in response to studying (cf. Asakawa & Csikszentmihalyi, 1998). Korean students face an extremely competitive college admissions process (only 25% of applicants receive admission), which may foster longer hours of studying and more stress. The authors also found that NA mediated the cultural difference in overall depression reported by the students. Korean students experienced stronger NA than European American students when studying, and this difference accounted for the greater depression reported by the former group.

In summary, the above studies highlight the distinction between quantity and quality of experience that ESM designs help reveal and their potential to further investigations in cross-cultural research.

Studies of Intrapsychic Phenomena

Most of the cross-cultural studies reviewed in the previous sections have used momentary assessments in aggregated form—the repeated measures for each individual are averaged and comparisons are made on group means. However, ESM data can also yield important insights into the momentary processes operating *within* the individual (See Hamaker, Chapter 5). The researcher can examine how a person's thoughts, feelings, and behaviors *covary* with each other as well as with specific types of situations. We discuss two applications of ESM to study intrapsychic phenomena in cultural psychology. First, several researchers have examined how the *within-person* correlates of emotional well-being differ across cultures. Second, ESM has been used to examine situational fluctuations in ethnic identity and its emotional correlates. Though not strictly cross-cultural, such studies are important because they enhance the external validity of cultural priming theories.

Culture as Moderator. ESM allows researchers to identify relations among situationally variable constructs. Culture adds another layer of complexity to the design by allowing investigators to see if the within-person relationships vary according to group membership. Thus, these studies reveal the complex ways in which cultural groups are *both* similar (e.g., in the *direction* of the within-person correlations) and different (e.g., in the *strength* of the within-person associations). For example, Kitayama et al. (2006) used daily diary methodology to examine the extent to which feelings of engagement and disengagement were associated with feelings of happiness within individuals. Although engaging positive emotions such as *friendly feelings* were associated with greater happiness at the momentary level for all participants, the effect was stronger for Japanese than for American respondents. Likewise, disengaging positive emotions such as pride were generally associated with greater happiness, but the effect was stronger for Americans than for Japanese. In a similar paradigm, Nezlek, Kafetsios, and Smith

(2008) found the relation between self-construal and emotions can differ by culture. Independent self-construal was positively associated with PA among British participants, but negatively associated with PA among Greek participants.

Moneta (2004) examined flow among American and Chinese students and found that culture moderated the construction of flow states. Whereas Flow Theory states that flow is achieved when situational challenges and skills are both high, Chinese students' flow states were characterized by greater skills than challenges. Sorrentino et al. (2008) investigated the impact of person-environment fit on flow and emotions. Specifically, when a person's style of coping with uncertainty matched that of their country, they tended to experience more active emotions such as flow as well as more PA and less NA in general.

Several studies have examined whether collectivists are sensitive to social context. Oishi et al. (2004), for instance, found that the presence of friends was associated with greater momentary PA for all cultural groups in his study, but that this effect was stronger amongst Asian samples than it was for non-Asian respondents. Likewise, the presence of strangers was associated with greater momentary NA, but again only for Asian respondents. Similarly, Nezlek et al. (2008) found that the self-esteem of Japanese was more reactive to daily events compared with North Americans.

Scollon et al. (2005) found that culture moderated the relation between PA and NA, depending on the level of analysis. Specifically, at the momentary or within-person level, PA and NA were negatively correlated for both Asians and non-Asians (albeit somewhat less negatively among Asians). However, at the between-person level, when emotion ratings for each person were aggregated across moments, PA and NA were positively correlated in Asian samples and independent in non-Asian samples. It is important to note that the between-persons

findings were based on aggregated ESM data, and not global reports of emotion—thus, the between-person differences cannot be due to implicit beliefs about emotions.

Momentary Fluctuations in Ethnic Identity. Cultural priming experiments have shown that people possess cultural knowledge that, when temporarily activated, guides perceptions and interpretations of the environment. Bicultural individuals, in particular, can rapidly switch cultural frames (Hong, Morris, Chiu, & Benet-Martínez, 2000). ESM has added to our understanding of cultural frame switching by showing that it occurs naturally and spontaneously, and by identifying moderators of this phenomenon. In essence, ESM takes the classic priming laboratory experiment and places it in its natural setting where language and the presence of family members can serve as natural cultural primes.

For example, Yip (2005) found that the presence of the Chinese language and family members activated momentary Chinese identity (e.g., how Chinese am I at the moment?) among Chinese Americans. These natural priming effects were stronger for those with a greater overall Chinese identity (e.g., how Chinese do I regard myself on average?). Momentary Chinese identity was also associated with greater situational well-being and this effect was stronger among people for whom the Chinese identity was central and regarded more positively.

Moreover, Chinese American students may experience both identities *simultaneously* (Yip, 2009). However, such experiences depend on both the situation *and* participants' overall identification with Chinese and American culture. Students with a low *American* identity tended to feel both Chinese and American in the presence of classmates. In contrast, students with low *Chinese* identity tended to feel both identities in the presence of their family. Thus, the conditions that led to the simultaneous activation differed across students.

Finally, Perunovic, Heller, and Rafaeli (2007) showed that language can evoke culture-consistent psychological responses. East Asian Canadian students in their study reported how they felt over the past two hours as well as the language they primarily spoke during the same period. When students spoke English, state NA was negatively correlated with state PA. However, when an East Asian language was spoken, NA and PA were *less* inversely correlated.

Cultural Differences in Intra-Individual Variation

Another possible application of momentary assessment data is examining cultural differences in within-person variation in feelings and behavior. For instance, Oishi et al. (2004) examined the within-person variability in emotional intensity across cultures. They predicted that the social context would have a greater effect on emotional experience for people living in an interdependent culture. Specifically, Japanese participants' emotional experiences should fluctuate across social situations more than for European Americans. Consistent with predictions, within-person standard deviations were larger for Japanese than for European Americans.

To date, applications of this approach have been rare although such data may be relevant for testing theories in cross-cultural psychology. For example, the construct of tightness-looseness (Gelfand, Nishii, & Raver, 2006; Triandis, 1995) refers to the strength of social norms in a society and the extent to which deviations from norms are sanctioned. In culturally tight societies (e.g. Saudi Arabia), norms are enforced more stringently than in culturally loose societies (e.g., New Zealand). Consequently, some theories of tightness-looseness (e.g., Gelfand et al., 2006) posit greater conformity and less between-person variability in tight cultures (versus loose cultures). However, such theories could be further developed by considering *within-person* variability. For example, do people in tight cultures behave more consistently when they are in

public settings (where norms are more easily enforced) than when they are in private settings? That is, one would expect less within-person variability in public settings. ESM could provide more precise measurements of *both* intra- and inter-individual variability. In contrast, retrospective self-reports of behavioral variability might be biased by cultural norms that emphasize following rules and protocol.

Challenges of Cross-Cultural Applications of ESM

Conducting ESM across cultural contexts may present unique challenges to the researcher. We discuss three of these: participant issues, deciding whether to collect data via paper or electronic devices, and measurement equivalence.

Participant issues. Although technology can make administering ambulatory assessments more convenient, ultimately getting the data, especially high quality data, requires considerable cooperation and effort on the part of participants. Certainly there are individual differences in the ability to comply with experience sampling protocols. In general, participants who are able to complete an ESM study and provide sufficient data are more motivated and conscientious than those who drop out, ignore signals, or forget their ambulatory device. Given that there are cultural differences in conscientiousness (McCrae, Terracciano, et al. 2005) and compliance, these participant issues could affect the reliability of the data for one group relative to the others. Although no ESM study has examined this issue directly, Yip (2005) noted that in her study of Asian Americans, compliance was higher compared to most ESM studies. However, individual and group differences need not pose a major problem for experience sampling cross-cultural research if researchers take the time to explain to participants the importance of the study and of responding thoughtfully. To increase participant compliance,

Conner Christensen, Barrett, Bliss-Moreau, Lebo, and Kaschub (2003) recommend investigators occasionally phone or email participants to remind them of their on-going participation.

Convenience and compliance aside, there may also be cultural differences that make some groups more reactive in general than others (See Chapter 8). For example, it is possible that individuals or groups with high social anxiety (Okazaki, 1997) may react more negatively to being signaled in the presence of others. Even if this is the case, however, problems could be circumvented by using silent devices that minimize any attention being drawn to the participant when signaled.

Paper versus electronic data collection. Electronic devices have a range of advantages: they facilitate data collection, entries can be accurately time-stamped, and participants can be required to complete their entries within a certain window of time (to prevent backfilling). However, in a cross-cultural context, the researcher must consider whether all groups are equally familiar and comfortable with using such devices. Oishi et al. (2004) employed handheld computers for their American and Japanese participants, but used paper forms and preprogrammed wrist-watches for their Indian participants because portable electronic devices were not as common in the region at the time. This confounding of method and cultural group may be undesirable given the debate regarding the quality of data collected via paper (Broderick & Stone, 2006; Green, Rafaeli, Bolger, Shrout, & Reis, 2006). On the other hand, using a novel high-tech device could increase reactivity in participants who are less experienced with technology. One solution may be to collect data via familiar devices such as participants' own mobile phones (e.g., Song, Foo, & Uy, 2008)—an increasingly viable option as mobile phone usage grows in the developing world.

Other factors might make paper diaries preferable. For example, if research is conducted in areas of high crime, electronic devices may be stolen and the data lost altogether (Tennen, Affleck, Coyne, Larsen, & DeLongis, 2006). Paper diaries could be used for *all* groups, but this would magnify the amount of data entry required. Ultimately, the goal should be to collect the highest quality data possible. The decision to use paper or electronic methods need to be assessed by each researcher and for each cultural group being studied. Either way, researchers should do their best to ensure compliance. For example, paper entries could be mailed in and time-stamped via post office (Tennen et al, 2006), though such procedures are less practical if the experience sampling frequency is high.

Measurement equivalence. Another issue in cross-cultural research is ensuring that the measures used have equivalent meaning across all groups studied. This issue applies to cross-cultural research in general rather than ESM in particular and can be dealt with on two fronts. First, researchers can minimize interpretational ambiguities from the start by making clear to participants what the items mean. For example, Oishi et al. (2004) gave participants explicit details on the meaning of *being alone* (“wherever you are there are no other people present, including strangers”) because some people (particularly collectivists) might consider themselves alone when in the presence of strangers. Item interpretation and many other problems can be reduced with a training session in which researchers walk through an entire experiencing sampling form with participants in the laboratory before beginning the study (Barrett’s Experience Sampling Program, ESP, conveniently has a training mode feature in which no data are recorded). We urge our participants to ask any clarifying questions during the training so that no ambiguities remain when they leave the lab and begin the study.

Second, researchers can establish measurement equivalence across groups by examining factor structures. Multigroup means and covariance structure analysis could be applied in some instances where single-item ESM data are aggregated (e.g., average daily joy) as indicators of between-persons constructs (e.g., overall PA). Ideally, the same items should load onto the same factors across cultural groups. If factor loadings are uniformly higher in one group than another, spurious group differences might be produced (Chen, 2008). For example, if some emotion words are better indicators of PA in the U.S. than in China, then average PA could be underestimated in the latter. However, the issue of measurement equivalence becomes more complex as the number of groups increases, as well as when the researcher wants to evaluate whether constructs are comparable across *levels* (e.g., do state and trait PA have the same structure?). Multilevel structural equation models have been applied to cross-sectional data in which people are nested in cultures or groups (Mehta & Neale, 2005; Selig, Card, & Little, 2008) but the application of these methods to cross-cultural *ESM* data (in which repeated measures are nested within persons in different groups) are not common at the present time.

Future Directions

As researchers become more familiar with the benefits of ESM, we expect to see a greater number of cross-cultural studies that make use of these methods. Future applications of ESM should co-evolve with theoretical developments in cross-cultural psychology. Increasing use of momentary assessments can aid in theory-building by helping researchers refine *how* they think culture influences psychological processes (e.g., quantity vs quality) and expanding the type of differences that can be considered. One possible application of momentary assessments that we have not discussed is examining how cultures may differ in terms of daily or weekly *cycles* of thoughts, feelings, and behaviors (see Hasler, Mehl, Bootzin, & Vazire, 2008 for a

monocultural example). Such analyses could shed light on how everyday life and routines are structured in one society versus another. Alternative methods such as the Day Reconstruction Method (Kahneman et al., 2004) could also be employed. An open question is whether DRM and ESM methods lead to the same conclusions when both are used in cross-cultural research.

Another intriguing direction is to combine experimental manipulations with momentary assessments as illustrated by aan het Rot, Moskowitz, Pinard, and Young (2006). Participants who were randomly assigned to take tryptophan reported less quarrelsome behaviors over a 15-day period compared with a placebo group (aan het Rot, Moskowitz, Pinard, & Young, 2006). Experimental manipulations could be administered before an ESM portion and groups could be compared to see how long the effects last in one group versus another. Alternatively, the manipulation could be part of the momentary assessments such as focusing on how versus why an event happens (Strack, Schwarz, & Gschneidinger, 1985) and how this affects judgments of well-being in different cultural groups.

With an expansion in the types of phenomena that can be examined cross-culturally, comes a greater responsibility for researchers to formulate theories that go beyond testing for cultural differences to identifying the variables that mediate these differences (Matsumoto & Yoo, 2006). It is one thing to observe that Asian Americans are more likely than European Americans to remember personal events that made their parents happy, and another to be able to attribute these differences to the greater importance that Asian American students place on parental approval (Oishi et al., 2007). The latter finding contributes to the development of a theory about how values influence our memory for events. Thus, an important future direction is to not only locate group differences in momentary experiences, but to account for them with theoretically relevant mediators. Here too, momentary assessments can be informative because

differences in daily experiences (e.g., time spent with family, chronic accessibility of achievement goals) could underlie many cultural group differences. Hence, ESM can be used to measure the mediators of cultural differences (a nice example of this is the Lee and Larson [2000] study discussed earlier).

We want to emphasize, however, that ESM may not be appropriate for all research questions, and in some instances global or integrative assessments may be superior depending on the research objectives. Although we have argued that ESM helps reduce the biases associated with retrospection, there are cases when global measures predict outcomes better than momentary measures such as when trying to understand people's choices (Wirtz et al., 2003). While moment-to-moment assessments can capture the fine details of rapidly fluctuating states with high precision and accuracy, autobiographical measures—despite their inaccuracies—offer insights into how people integrate and find meaning in their experiences. Ultimately, the costs (in terms of time and complexity) need to be weighed against the benefits.

Conclusion

Not only does ESM offer a wealth of advantages to research in general, it is an especially powerful tool for cross-cultural research for several reasons. First, because culture and reconstructive memory are intimately entwined, global and retrospective measures do not always produce accurate conclusions about cross-cultural differences. Second, ESM allows researchers to capture cultural differences in the quantity and quality of experiences. Third, ESM allows researchers to examine intraindividual phenomena including processes such as ethnic identity and cross-situational consistency. Most importantly, ESM has transformed how we conceptualize cross-cultural questions. A field that once addressed primarily mean-level differences and similarities can now ask sophisticated and multi-layered questions regarding

covariance structure and dispersion. In short, if the major premise of cross-cultural research is to understand whether psychological processes are universal or culture specific, then ESM provides the fine-grained resolution to view the texture of psychological phenomena as they operate within a particular individual in a particular situation and culture at a particular time.

References

- aan het Rot, M., Moskowitz, D. S., Pinard, G., Young, S. N. (2006). Social behaviour and mood in everyday life: The effects of tryptophan in quarrelsome individuals. *Journal of Psychiatry & Neuroscience, 31*, 253-262.
- Asakawa, K., & Csikszentmihalyi, M. (1998). The quality of experience of Asian American adolescents in academic activities: An exploration of educational achievement. *Journal of Research on Adolescence, 8*, 241-262.
- Broderick, J. E., & Stone, A. A. (2006). Paper and electronic diaries: Too early for conclusions on compliance rates and their effects—Comment on Green, Rafaeli, Bolger, Shrout, and Reis (2006). *Psychological Methods, 11*, 106-111.
- Chen, F. F. (2008). What happens if we compare chopsticks with forks? The impact of making inappropriate comparisons in cross-cultural research. *Journal of Personality and Social Psychology, 95*, 1005-1018.
- Conner Christensen, T., Barrett, L., Bliss-Moreau, E., Lebo, K., & Kaschub, C. (2003). A practical guide to experience-sampling procedures. *Journal of Happiness Studies, 4*, 53-78.
- Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the experience sampling method. *Journal of Nervous and Mental Disease, 175*, 526–537.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49*, 71-75.
- Eid, M., & Diener, E. (2001). Norms for experiencing emotions in different cultures: Inter- and intranational differences. *Journal of Personality and Social Psychology, 81*, 869–885.

- Gelfand, M. J., Nishii, L. H., & Raver, J. L. (2006). On the nature and importance of cultural tightness-looseness. *Journal of Applied Psychology, 91*, 1225-1244.
- Green, A. S., Rafaeli, E., Bolger, N., Shrout, P. E., & Reis, H. T. (2006). Paper or plastic? Data equivalence in paper and electronic diaries. *Psychological Methods, 11*, 87-105.
- Hasler, B. P., Mehl, M. R., Bootzin, R. R., & Vazire, S. (2008). Preliminary evidence of diurnal rhythms in everyday behaviors associated with positive affect. *Journal of Research in Personality, 42*, 1537-1546.
- Hong, Y., Morris, M., Chiu, C-y., & Benet, V. (2000). Multicultural minds: A dynamic constructivist approach to culture and cognition. *American Psychologist, 55*, 709-720.
- Kahneman, D., Krueger, A. B., Schkade, D., Schwarz, N., & Stone, A. A. (2004). A survey method for characterizing daily life experience: The Day Reconstruction Method (DRM). *Science, 306*, 1776-1780.
- Kim-Prieto, C., Diener, E., Tamir, M., Scollon, C. N., & Diener, M. (2005). Integrating the diverse definitions of happiness: A time-sequential framework of subjective well-being. *Journal of Happiness Studies, 6*, 261-300.
- Kitayama, S., Duffy, S., & Uchida, Y. (2007). Self as a cultural mode of being. In S. Kitayama & D. Cohen (Eds.), *Handbook of Cultural Psychology* (pp. 136-174). New York, NY: Guilford Press.
- Kitayama, S., Mesquita, B., & Karasawa, M. (2006). Cultural affordances and emotional experience: Socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology, 91*, 890-903.

- Lee, M. R., Okazaki, S., & Yoo, H. C. (2006). Frequency and intensity of social anxiety in Asian Americans and European Americans. *Cultural Diversity and Ethnic Minority Psychology, 12*, 291-305.
- Lee, M., & Larson, R. (2000). The Korean 'examination hell': Long hours of studying, distress, and depression. *Journal of Youth and Adolescence, 29*, 249-271.
- Matsumoto, D., & Yoo, S. H. (2006). Toward a new generation of cross-cultural research. *Perspectives on Psychological Science, 1*, 234-250.
- McCrae, R. R., Terracciano, A., & 79 Members of the Personality Profiles of Cultures Project. (2005). Personality profiles of cultures: Aggregate personality traits. *Journal of Personality and Social Psychology, 89*, 407-425.
- Mehta, P. D., & Neale, M. C. (2005). People are variables too: Multilevel structural equations modeling. *Psychological Methods, 10*, 259-284.
- Moneta, G. (2004). The flow model of intrinsic motivation in chinese: Cultural and personal moderators. *Journal of Happiness Studies, 5*, 181-217.
- Nezlek, J., Kafetsios, K., & Smith, C. (2008). Emotions in everyday social encounters: Correspondence between culture and self-construal. *Journal of Cross-Cultural Psychology, 39*, 366-372.
- Nezlek, J., Sorrentino, R., Yasunaga, S., Otsubo, Y., Allen, M., Kouhara, Shuper, P. A. (2008). Cross-cultural differences in reactions to daily events as indicators of cross-cultural differences in self-construction and affect. *Journal of Cross-Cultural Psychology, 39*, 685-702.
- Oishi, S. (2002). Experiencing and remembering of well-being: A cross-cultural analysis. *Personality and Social Psychology Bulletin, 28*, 1398-1406.

- Oishi, S., Diener, E., Napa Scollon, C., & Biswas-Diener, R. (2004). Cross-situational consistency of affective experiences across cultures. *Journal of Personality and Social Psychology, 86*, 460-472.
- Oishi, S., Schimmack, U., Diener, E., Kim-Prieto, C., Scollon, C., & Choi, D. (2007). The value-congruence model of memory for emotional experiences: An explanation for cultural differences in emotional self-reports. *Journal of Personality and Social Psychology, 93*, 897-905.
- Okazaki, S. (1997). Sources of ethnic differences between Asian American and White American college students on measures of depression and social anxiety. *Journal of Abnormal Psychology, 106*, 52-60.
- Perunovic, W., Heller, D., & Rafaeli, E. (2007). Within-person changes in the structure of emotion: The role of cultural identification and language. *Psychological Science, 18*, 607-613.
- Ramírez-Esparza, N., Mehl, M., Álvarez-Bermúdez, J., & Pennebaker, J. (2009). Are Mexicans more or less sociable than Americans? Insights from a naturalistic observation study. *Journal of Research in Personality, 43*, 1-7.
- Schwarz, N., & Oyserman, D. (2001). Asking questions about behavior: Cognition, communication, and questionnaire construction. *American Journal of Evaluation, 22*, 127-160.
- Scollon, C. N., Diener, E., Oishi, S., & Biswas-Diener, R. (2004). Emotions across cultures and methods. *Journal of Cross-Cultural Psychology, 35*, 304-326.

- 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 emotion. *Cognition and Emotion, 19*, 27-52.
- Scollon, C. N., Howard, A. H., Caldwell, A. E., & Ito, S. (2009). The role of ideal affect in the experience and memory of emotions. *Journal of Happiness Studies, 10*, 257-269.
- Selig, J. P., Card, N. A., & Little, T. D. (2008). Latent variable structural equation modeling in cross-cultural research: Multigroup and multilevel approaches. In F. J. R. van de Vijver, D. A. van Hemert, & Y. H. Poortinga (Eds.), *Multilevel analysis of individuals and cultures* (pp. 93-119). New York, NY: Lawrence Erlbaum.
- Song, Z., Foo, M.-D., & Uy, M. (2008). Mood spillover and crossover among dual-earner couples: A cell phone event sampling study. *Journal of Applied Psychology, 93*, 443-452.
- Sorrentino, R., Nezlek, J., Yasunaga, S., Kouhara, S., Otsubo, Y., & Shuper, P. (2008). Uncertainty orientation and affective experiences: Individual differences within and across cultures. *Journal of Cross-Cultural Psychology, 39*, 129-146.
- Strack, F., Schwarz, N., & Gschneidinger, E. (1985). Happiness and reminiscing: The role of time perspective, affect, and mode of thinking. *Journal of Personality and Social Psychology, 49*, 1460-1469.
- Tennen, H., Affleck, G., Coyne, J. C., Larsen, R. J., & DeLongis, A. (2006). Paper and plastic in daily diary research: Comment on Green, Rafaeli, Bolger, Shrout, and Reis (2006). *Psychological Methods, 11*, 112-118.

- Thomas, D. L., & Diener, E. (1990). Memory accuracy in the recall of emotions. *Journal of Personality and Social Psychology*, *59*, 291-297.
- Tov, W., & Diener, E. (2007). Culture and subjective well-being. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 691-713). New York, NY: Guilford.
- Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology*, *90*, 288-307.
- Wheeler, L., Reis, H., & Bond, M. (1989). Collectivism-individualism in everyday social life: The middle kingdom and the melting pot. *Journal of Personality and Social Psychology*, *57*, 79-86.
- Wirtz, D., Chiu, C., Diener, E., & Oishi, S. (2009). What constitutes a good life? Cultural differences in the role of positive and negative affect in subjective well-being. *Journal of Personality*, *77*, 1167-1196.
- Wirtz, D., Kruger, J., Scollon, C. N., & Diener, E. (2003). What to do on spring break? The role of predicted, on-line, and remembered experience in future choice. *Psychological Science*, *14*, 520-524.
- Yip, T. (2005). Sources of situational variation in ethnic identity and psychological well-being: A Palm Pilot study of Chinese American students. *Personality and Social Psychology Bulletin*, *31*, 1603-1616.
- Yip, T. (2009). Simultaneously salient Chinese and American identities: An experience sampling study of self-complexity, context, and positive mood among Chinese young adults. *Cultural Diversity and Ethnic Minority Psychology*, *15*, 285-294.