

## Hypocrisy or Maturity? Culture and Context Differentiation

DAVID MATSUMOTO<sup>1\*</sup>, SEUNG HEE YOO<sup>2</sup>, JOHNNY FONTAINE<sup>3</sup> and  
56 MEMBERS OF THE MULTINATIONAL STUDY OF CULTURAL  
DISPLAY RULES

<sup>1</sup>San Francisco State University, USA

<sup>2</sup>Yale University, USA

<sup>3</sup>Ghent University, Belgium

### *Abstract*

*We introduce a new construct called Context Differentiation (CD), and describe how it functions on both the individual and cultural levels. We derive several measures of it from a multi-context measure of cultural display rules for emotional expressions obtained from 33 countries, and examine country and cultural differences on it, and relate those differences to cultural value dimensions associated with context. Findings indicated that cultures were reliably associated with measures of CD. The framework and findings provide a platform for new research in the future examining how individuals differentiate their behaviours across contexts, and how cultures facilitate that differentiation. Copyright © 2009 John Wiley & Sons, Ltd.*

Key words: culture, emotion, context, display rules

### INTRODUCTION

One conceptual problem that faces cultural and cross-cultural psychology today concerns how to incorporate personality in research and theory. Personality's effects on behaviour cannot be debated; yet, with few exceptions (Allik & McCrae, 2004; Church et al., 2008; McCrae, Terracciano, & 79 Members of the Personality Profiles of Cultures Project, 2008; Oishi, Diener, Scollon, & Biswas-Diener, 2004; Schmitt & Allik, 2005), cross-cultural studies still typically ignore personality in research, and cultural theories often do not include personality as a source of behaviour, nor account for individual differences (Matsumoto & Yoo, 2006). Clearly, culturalists need to embrace personality in integrative theoretical syntheses and empirical work in the future better than in the past.

\*Correspondence to: David Matsumoto, Department of Psychology, San Francisco State University, 1600 Holloway Avenue, San Francisco, CA 94132, USA. E-mail: dm@sfsu.edu

*Received 18 August 2008*

*Revised 8 February 2009*

*Accepted 17 February 2009*

Many issues involving personality are germane to culturalists. One of them concerns the degree to which personality and individual differences are consistent across contexts (Epstein & O'Brien, 1985; Funder, 2001; Mischel & Shoda, 1995). A typical view of personality is that it represents general dispositions that cut across and are applicable to different contexts (McCrae & Costa, 2008). An alternative view, however, suggests that contexts play a major role in personality and its expression, and that cross-context variability in behaviour is actually an integral part of an underlying personality system (Mischel & Shoda, 1995).

One reason why this issue is particularly important to culturalists is the close relationship between culture and context. We define culture as a meaning and information system transmitted across generations (Matsumoto & Juang, 2007), and one of the major functions of culture is to ascribe meaning to context—the nature of interactants, the physical setting, the events that occur—so that norms are generated that provide guidelines for how its members think, feel and act in those contexts. These norms are essential to avoid social chaos, maintain social coordination and produce efficiency in effort (Matsumoto, Yoo, Nakagawa et al., 2008). In some cultures, for instance, fathers are held in positions of high status and authority, higher than mothers; in others this is not the case, and fathers and mothers share status on a more egalitarian basis. Norms, therefore, of behaving with one's father vary greatly depending on the type of culture one was raised in, which are based on the meanings afforded to that social role (i.e. context).

Because of differences in the meaning of contexts, it is apparent that some cultures encourage large differentiations among their members' behaviours across contexts, while others discourage such differentiation. In this article, we introduce a construct called *Context Differentiation (CD)* to recast questions concerning the relative consistency or inconsistency of behaviour across context, and examine the role of culture. We propose that this construct exists on both the cultural and individual levels. On the cultural level, high context differentiating (CD) cultures encourage the differentiation of behaviour in different contexts; in these cultures, inconsistency in behaviour across contexts may be a norm. Other cultures, however, influence their members to differentiate their behaviours relatively less across contexts; in these cultures, consistency would be the norm, and they may be called low CD cultures.

On the cultural-level CD should be related to other, already established cultural value dimensions, such as those proposed by Hofstede (2001) and Schwartz (2006), especially those related to context. For instance, high CD cultures likely foster greater differences between ingroups and outgroups, drop pronouns and other parts of speech (to make verbal content more ambiguous and require context interpretations), and are less expressive overall compared to low CD cultures. These kinds of distinctions have been found in previous research, especially within the Individualism versus Collectivism framework (Hofstede, 2001; Kashima & Kashima, 1998; Kashima & Kashima, 2003; Matsumoto, Yoo, Fontaine et al., 2008; Triandis, 1995). This makes sense because context is an integral part of individualism and collectivism (e.g. ingroups and outgroups). Collectivistic cultures should foster greater differentiation across self-ingroup and outgroup relationships, leading to high CD; individualistic cultures should foster less differentiation across contexts because of the focus on the individual, leading to low CD. Thus one should predict that cultural-level CD is correlated negatively with dimensions such as Hofstede's (2001) Individualism versus Collectivism, or Schwartz's (2006) Affective or Intellectual Autonomy versus Embeddedness.

Likewise, culture-level CD should be related to dimensions associated with status and power. Cultures that facilitate the differentiation of behaviour according to status, or that

encourage the acceptance of power differentials across relationships, are in fact encouraging greater differentiations across contexts. Thus one would predict that cultural-level CD is correlated positively with dimensions such as Hofstede's (2001) Power Distance, or Schwartz's (2006) Hierarchy versus Egalitarianism.<sup>1</sup>

And, these types of differences are not without important practical implications to intercultural relations; individuals who differentiate their behaviours greatly according to context may be considered hypocrites or chameleons in low CD cultures, but mature in high CD cultures. Thus, the construct of CD may have important theoretical, empirical and practical ramifications in cross-cultural and intercultural work.

### A measure of context differentiation based on display rules

The CD construct is also applicable on the individual level, where CD refers to the degree to which individuals differentiate their thoughts, feelings, or actions according to the specific context in which they are in. Individuals high in CD are more likely to do one thing in one context and something else in another; individuals low in CD think, act, and feel more consistently across contexts. Thus there are clearly large ranges of individual differences on it within cultures. On the individual-level, no measure currently exists that validly and reliably measures CD.<sup>2</sup> But, measures of it can be derived from those that assess behaviours, feelings or actions across different contexts, and operationalized by estimating the amount of variability across the measured context domains. We do so here, utilizing a cross-context measure of display rules.

Display rules are norms learned early in life and that govern the management and modification of emotional expressive behaviour depending on social circumstances (Ekman & Friesen, 1969). Display rules can act to moderate emotional expressions in many ways. For instance, individuals can express emotions as they feel them with no modification. But they can also amplify their expressions, displaying more than they truly feel (e.g. laughing at your boss's bad jokes); deamplify them, displaying less than they truly feel (downplaying your anger towards your children's misbehaviour); neutralize them, showing nothing when in reality something is felt (poker face); qualify them, showing emotions in combinations with other emotions or signals that comment on the original feeling (smiling at the same time showing that one is miserable); or mask them (smiling instead of showing one is miserable). Display rules, therefore, allow for a considerable range of individual and cultural variation.

Recently, Matsumoto, Yoo, Fontaine et al. (2008) used the Display Rule Assessment Inventory (DRAI) and examined the display rules from 32 countries around the world. Unlike other measures of expressivity (reviewed in Matsumoto, Yoo, Hirayama, & Petrova, 2005), the DRAI allows for an assessment of different behavioural responses in relation to multiple emotions and contexts by asking respondents to describe how they would regulate

<sup>1</sup>Many years ago Hall (1966, 1973) introduced the concept of high versus low context cultures in relation to communication style. The former were those in which much of the messages in communication are transmitted indirectly via context, as opposed to direct verbal behaviours. In the latter, much of the message in communication must be transmitted directly via words. Thus in high context cultures, much of what is communicated is not directly said, and must be inferred from the context. In low context cultures, much of what is communicated must be said, and if it isn't said, it isn't considered to be communicated. Our construct of context differentiation is different in that it refers to the *differentiation* of thoughts, feelings and actions across context, and not to differences in communication styles.

<sup>2</sup>Individual-level CD is probably related to some existing personality scales and dimensions, including self-monitoring (Snyder, 1974), flexibility or rigidity from the California Psychological Inventory (Gough, 1986) or behavioral rigidity on the Minnesota Multiphasic Personality Inventory (Hathaway & McKinley, 1943).

their displays of seven emotions in 42 situations (21 interactants in two settings—private and public). Several studies have used different versions of the DRAI cross-culturally, and have provided evidence for the DRAI's internal and temporal reliability; and content, convergent, discriminant, external and concurrent predictive validity (Matsumoto, Takeuchi, Andayani, Kouznetsova, & Krupp, 1998; Matsumoto, Yoo, Fontaine et al., 2008; Matsumoto et al., 2005).

In the current study, we reanalysed the multinational DRAI data by creating individual- and culture-level measures of context differentiation. Because of the DRAI's structure, three such measures were created.

#### *Situation differentiation*

An estimate of the variability across situations for each emotion, then pooled across emotions, comprised this measure. It represents the degree to which individuals differentiated their responses depending on the specific situations being rated, regardless of emotion. Larger variabilities reflected greater situation differentiation; smaller variabilities reflect less.

#### *Emotion differentiation*

A corollary of the above theoretical analysis is that high CD cultures should be associated with larger differentiations among emotions, as greater emotion differentiation should be one of the mechanisms by which greater context differentiation occurs. That is, another way in which individuals can differentiate among contexts is by differentiating their use of emotional expressions within a context. In any given context, some individuals may make few distinctions among emotion and display rules, treating all relatively similarly. Others may make large distinctions among the emotions, thereby differentiating their display rules and behaviours in context. Across individuals, therefore, such differences may reflect a degree of context differentiation. Thus, an estimate of the variability across emotion for each situation, and then pooled across situations, comprised this measure. This estimate represents the degree to which individuals differentiated their responses depending on the specific emotions being rated. Larger variabilities reflect greater differentiation in respondents' expressivity endorsements of the various emotions; smaller variabilities would reflect less.<sup>3</sup>

#### *Overall differentiation*

We averaged the two measures of context differentiation above to compute an overall context differentiation measure.

### **Hypotheses**

Creating new measures of CD on the individual-level based on the multinational DRAI dataset allowed us to create culture-level data on it and test the following hypotheses.

<sup>3</sup>While albeit not transparent on the surface, we contend that this measure was another of context differentiation. It represented the degree of variability in display rules across the various emotions, computed first separately for each context and then averaged across all contexts. Because different emotions have different interpersonal functions and effects, individuals should differentiate display rules within any context depending on specific emotions. Indeed, one may argue that it is the specific, differential use of display rules for emotional expression within any specific context that gives context meaning. When examined across contexts, therefore, it should be indicative of a different aspect of context differentiation.

*Hypotheses 1, 2 and 3*

Culture will moderate degrees of situation differentiation (1), emotion differentiation (2) and overall differentiation (3). On the individual level, we hypothesize significant country differences on these measures. On the country level, we hypothesize significant relationships between country means on these measures with cultural dimensions involving a differentiation of context, such as Individualism versus Collectivism, Power Distance, Affective Autonomy, Hierarchy and Embeddedness.

*Hypothesis 4*

If emotion differentiation is a mechanism by which context differentiation is achieved, as suggested above, this would suggest that emotion differentiate should mediate country and cultural differences on situation differentiation, on both the individual and cultural levels. We tested this hypothesis through covariate and mediation analyses.

## METHOD

### Participants

Participants were university students recruited by each of the collaborators in their respective countries. All participated voluntarily or in partial fulfillment of class requirements. A total of 6048 respondents in 34 countries participated initially. The sample was limited to only those who were born and raised in their respective country, which resulted in a final sample size of 5388 individuals from 33 countries on five continents (Table 1). The final sample was 61.4% female, 38.6% male; mean age = 22.38 years; 86.4% single; 8.0% Buddhist, 21.8% Catholic, 19.7% Christian, 8.7% Hindu and 18.5% Muslim. They represented 59 language groups, with 48.8% reporting proficiency in at least one other language; 91.6% self-classified themselves in the middle income range, as defined within their national context.

### Instruments

*Display rule assessment inventory*

The version of the DRAI used in this study asked participants what they should do if they felt each of seven emotions towards 21 interactants in two settings—public and private.<sup>4</sup> The emotions were anger, contempt, disgust, fear, happiness, sadness and surprise.<sup>5</sup> The 21 interactants were: Alone, father, mother, older brother, older sister, younger brother, younger sister, male close friend, female close friend, male acquaintance, female acquaintance, male student higher class year, female student higher class year, male student same class year, female student same class year, male student lower class year, female student lower class year, male older professor, female older professor, male young professor, female young professor.<sup>6</sup> The descriptions for the private and public settings

<sup>4</sup>We opted to ask respondents to report what they believed they *should* do and not what they actually do, in order to obtain a better estimate of the cultural norms of emotional display rules. It is entirely possible that ratings of the latter may produce different results, and the findings reported in this article should be interpreted with this caveat.

<sup>5</sup>No mention was made in the DRAI of facial expressions, except for the response alternatives Qualification and Masking, which describe smiling as part of the behavioural response.

<sup>6</sup>It was important to many collaborators to include age differences as a status distinction, and to include both male and female interactants because of hypothesized differences in display rules as a function of sex.

Table 1. Sample characteristics and country means on three context differentiation scores

Country	Total N	Female N	Mean age	Mean situation differentiation	Mean emotion differentiation	Mean overall differentiation
Australia	128	104	22.49	.29	.25	.27
Bangladesh	98	45	23.65	.36	.31	.33
Belgium	88	57	21.01	.30	.28	.29
Brazil	115	54	24.21	.33	.29	.31
Canada	195	104	20.01	.32	.27	.29
China	84	45	21.04	.32	.31	.32
Croatia	92	57	20.89	.31	.30	.31
Czech Republic	99	58	23.58	.28	.26	.27
Denmark	53	40	31.19	.28	.24	.26
Georgia	99	49	19.91	.34	.30	.32
Germany	115	67	23.99	.29	.27	.28
Greece	91	75	20.63	.32	.31	.31
Hong Kong	102	53	N/A	.28	.28	.28
Hungary	102	68	21.94	.31	.28	.29
India	464	225	21.98	.37	.33	.35
Indonesia	199	142	20.54	.30	.28	.29
Israel	87	47	23.47	.31	.27	.29
Italy	108	55	23.97	.29	.31	.30
Japan	377	178	20.15	.29	.28	.28
Korea	156	67	21.26	.30	.30	.30
Lebanon	26	17	20.54	.34	.29	.32
Malaysia	597	480	22.49	.30	.30	.30
Mexico	231	164	30.23	.33	.28	.30
The Netherlands	104	92	19.88	.30	.25	.28
New Zealand	90	48	19.40	.31	.27	.29
Nigeria	82	43	22.02	.33	.31	.32
Poland	162	91	26.30	.30	.29	.29
Portugal	128	57	20.24	.30	.29	.30
Russia	53	41	23.76	.33	.28	.30
Switzerland	66	46	22.18	.29	.28	.28
Turkey	221	139	20.35	.33	.28	.31
US	694	443	22.05	.29	.28	.29
Zimbabwe	82	45	23.76	.34	.30	.32

were different for each interactant so as to be as realistic as possible. For example the private setting when interacting with Father was 'at home by yourselves'; in public the setting was 'at a restaurant in plain view within earshot of others'. For Male older professor, the private setting was 'at his office in a private meeting by yourselves'; in public the setting was 'at the university cafeteria in plain view within earshot of others'.

The response alternatives were those corresponding to the theoretical modes of expression management originally described by Ekman and Friesen (1969, 1975): Show more than you feel it (Amplify), Express it as you feel it (Express), Show less than you feel it (Deamplify), Show nothing (Neutralize), Show the emotion while smiling at the same time (Qualify) and Hide your feelings by smiling (Mask). In addition the respondents were provided with an 'Other' response to choose a response not listed.

The following instructions were provided:

'On each page is a description of a situation where you are interacting with someone and feel certain emotions towards that person. Please *think of a specific person in your life* for

each of the situations and tell us what you think *you should* do by selecting one of the seven possible responses that are listed on top of the page. If you want to choose a response not listed, select “OTHER” and write in what you think you should do. If you don’t have such a person in your life indicated in the situations, please first make your best guess on what you think you should do. If you find that it is too difficult to do so, please check ‘not applicable’.

Treat each emotion and each situation separately. Do not consider them occurring in any particular order or to be connected with each other in any way. There are no right or wrong answers, nor any patterns to the answers. Don’t worry about how you have responded to a previous item or how you will respond to an item in the future. Just select a unique response for each emotion and situation on its merit. Don’t obsess over any one situation and emotion. If you have difficulty selecting an answer, make your best guess; oftentimes your first impression is best. For a definition of each emotion, please refer to page 2.’

The emotion definitions came from a standard dictionary, each accompanied by an example that came from Rosenberg and Ekman’s (1995) and Matsumoto and Ekman’s (2004) studies utilizing the same examples as stories in an emotion judgment task. All collaborators agreed on the definitions and examples for each of the seven emotions.

## Procedures

The procedures were the same in all countries. All protocols were translated into the native language of the country in which data were collected, and collaborators managed the data collection and translation-back translation process in their respective country. Participants were provided with one of eight versions of the DRAI; the versions differed in the order of the interactants being rated, in order to eliminate order effects within the instrument. Participants either completed the measure in class or took the measure home to complete and return within 1 week. Collaborators either entered their data according to a standardized format, or sent the raw data to the central research team in San Francisco for processing.

## Possible order effects

It was possible that the length of the questionnaire posed a threat to the validity of the responses. Several steps were taken to mitigate and then examine this possibility. First, the instrument was compiled in eight different versions, each differing in the order of the interactants rated; thus any effects of order would be distributed across versions. Secondly, analysis of the order effect in a full factorial ANOVA (country, gender, order, interactant, setting and emotion as factors) generated some significant effects, but none produced an effect size of any consequence (all  $\eta_p^2 < .004$ ). In comparison, effect sizes associated with the main variables reported below were considerably larger (statistical significance for the order effects were likely generated by the large sample sizes). Third, there were no differences in the amount of missing data across the various sections of the protocol. Fourth, the total amount of ‘Other’ responses selected was very small (0.66%), and there were no country differences in this amount. Thus, although the protocol was long, we are fairly confident that valid responses were obtained.

## Scoring the DRAI

*Data transformations.* The nominal DRAI data was transformed into a scalar variable based on the results of a Homogeneity Analysis via Alternating Least Squares (HOMALS)



procedure reported previously based on 31 countries' data (Matsumoto, Yoo, Fontaine et al., 2008; interested readers are referred to that report for details of the analysis). We thus recoded the nominal expressive mode responses into the following scalar values for analyses: Amplify  $\rightarrow$  .5651, Express  $\rightarrow$  .3842, Qualify  $\rightarrow$  -.1218, Deamplify  $\rightarrow$  -.1545, Mask  $\rightarrow$  -.3828, Neutralize  $\rightarrow$  -.5338. This scale represented on overall degree of expression endorsement, with higher values associated with greater endorsement. To ease in the interpretation of these scores, .5338 was added to each, resulting in a score ranging from 0 (Neutralize) to 1.0989 (Amplify).

### Dependent variables

#### *Situation differentiation*

This was the within-person standard deviation computed across the various 42 interactant  $\times$  setting contexts, first separately for each of the seven emotions, and then pooled across emotions. Thus, each respondent generated one averaged score, which represented the degree to which respondents differentiated among the contexts. Higher scores represented greater situation differentiation; lower scores represented less.

#### *Emotion differentiation*

This was the within-person standard deviation computed across the seven emotions, separately for each of the 42 contexts, and then pooled across the contexts. Thus, each respondent generated one score, which represented the degree to which each respondent differentiated among the emotions. Higher scores represented greater emotion differentiation; lower scores represented less.

#### *Overall differentiation*

This was the average of the situation and emotion differentiation measures. (The pooled, within-country correlation between Situation and Emotion Differentiation was .276.) Higher scores represented greater overall differentiation; lower scores represented less.

### Cultural dimensions

Data on the Hofstede dimensions came from Hofstede's (2001) study. There are index and rank data on the original four dimensions from 50 countries and 3 regions; data on Long Term Orientation exist in 29 countries and 2 regions. Additionally, index score estimates for another 16 countries were available (those were used for China and Poland). Data were available for 28 countries in this study.<sup>7</sup>

Data on the Schwartz cultural values came from Shalom Schwartz (personal communication, 28 October 2008). Data were available for 32 countries in this study.

## RESULTS

### Hypotheses 1, 2 and 3

Two-way ANOVAs on the Situation Differentiation, Emotion Differentiation and Overall Differentiation measures using country and gender as factors produced significant country

<sup>7</sup>Hofstede (2001) reported data only for a combined mean of 'Arab countries', which were used for Lebanon. He also reported a combined mean of 'East Africa', which was used for Zimbabwe.



main effects for each,  $F(32, 5332) = 13.97$ ,  $p < .001$ ,  $\eta_p^2 = .077$ ;  $F(32, 5289) = 21.65$ ,  $p < .001$ ,  $\eta_p^2 = .116$ ;  $F(32, 5291) = 14.36$ ,  $p < .001$ ,  $\eta_p^2 = .08$ , respectively. Country-level correlations between the culture value dimensions and the country means on these measures indicated that, as predicted, Power Distance, Embeddedness and Hierarchy were positively correlated with them, while Individualism versus Collectivism, Affective Autonomy and Intellectual Autonomy were negatively correlated. To a lesser degree Egalitarianism was also negatively correlated. Interestingly, none of the other cultural dimensions were correlated with the context differentiation measures, with the exception of Mastery (Table 2).

#### Hypothesis 4: Does emotion differentiation account for cultural differences in situation differentiation?

As mentioned in the introduction, one of the ways in which cultures foster situation differentiation may be in the use of emotions in those situations; that is, emotion differentiation may be the mechanism by which situation differentiation occurs. We examined this possibility in two *post hoc* analyses, one on the individual level and the other on the cultural level. On the individual level, a one-way ANOVA on situation differentiation using country as the factor produced the main effect reported earlier,  $F(32, 5332) = 13.97$ ,  $p < .001$ ,  $\eta_p^2 = .077$ . Inclusion of emotion differentiation as a covariate reduced the country effect,  $F(32, 5330) = 9.73$ ,  $p < .001$ ,  $\eta_p^2 = .055$ , indicating some degree of partial mediation.<sup>8</sup>

On the cultural level, we computed a hierarchical regression on the situation differentiation measure, including the seven cultural values with significant associations with CD on the first step (using Stepwise inclusion criteria), and then the emotion differentiation measure on the second step. Intellectual Autonomy was the only cultural

Table 2. Country-level correlations between cultural value dimensions and the dependent measures

	Situation differentiation	Emotion differentiation	Overall differentiation
Power distance	.404*	.602**	.573**
Embeddedness	.415*	.516**	.522**
Hierarchy	.387*	.396*	.441**
Individualism versus collectivism	-.337*	-.529**	-.493**
Affective autonomy	-.291*	-.518**	-.451**
Intellectual autonomy	-.523**	-.483**	-.567**
Egalitarianism	-.196	-.311*	-.283 <sup>+</sup>
Mastery	.334*	.355*	.387*
Masculinity—femininity	-.103	.303	.105
Long versus short term orientation	.070	.340	.226
Harmony	-.089	-.085	-.098
Uncertainty avoidance	.126	.176	.172

<sup>+</sup> $p < .10$ .

\* $p < .05$ .

\*\* $p < .01$ .

<sup>8</sup>Because of the structure of the individual-level data, analysis in the change in effect size with and without a covariate in ANOVAs was the most appropriate way to test mediation.

value included on the first step,  $\beta = -.454$ ,  $p < .05$ . When emotion differentiation was included on the second step, however, the effect of Intellectual Autonomy was not significant,  $\beta = -.297$ , ns, indicating complete mediation of the effect. (Emotion Differentiation had a significant effect,  $\beta = .399$ ,  $p < .05$ .) The same results occurred when the Schwartz and Hofstede scales were analysed separately.

Collectively, these results suggest that, on both the individual and cultural levels, situation differentiation occurs because individuals and cultures make greater distinctions among emotions in the first place. That is, differentiating their use of emotional expressions is one of the ways in which individuals may learn to differentiate their behaviours in different contexts.

## DISCUSSION

These findings were not generated without limitation. Because there is no direct measure of CD, we used an ad hoc measure of it on the individual level based on the DRAI, and created culture-level measures of it using country means. Future research will need to explore the possibility of developing and validating direct measures of these constructs in the future, and test the ideas posited here. Also, the DRAI asked respondents what they *should* do, and not what they actually do, or what the typical person should do or actually does. It is entirely possible that different ratings may yield better measures of CD on the individual level. Differences in sample sizes across the various countries may have also limited the findings, as did the fact that the samples were all university students. Future research should examine the boundaries of the effects we report here with other methodologies.

Despite these limitations, the findings provide some preliminary support to the notion of the existence of the construct of CD on both the individual and cultural levels. As predicted, country differences existed on the context differentiation measures, and culture-level differences in CD were reliably associated with cultural value dimensions related to context, including Individualism versus Collectivism, Power Distance, Hierarchy versus Egalitarianism and Embeddedness versus Autonomy. As mentioned earlier, cultures that foster greater context differentiation should be associated with values associated with the differentiation of behaviours with ingroups versus outgroups or high versus low status others. Not only were these cultures associated with greater situation differentiation; they were also associated with greater differences among the emotions, suggesting that they used emotions differently across contexts, a possibility that should be explored further in the future.

These findings open the door to the possibility of future theoretical and empirical work exploring individual-level frameworks and measures of CD. To be sure, the measures we examined in this paper were based on the DRAI, and were used as proxy measures of CD because they were not designed to measure CD directly. Future work may explore the development and validation of such measures, and examine the degree to which such constructs mediate or moderate the person-situation controversy that we mentioned earlier in this paper. It is entirely possible that at least part of that controversy is based on an undercurrent of CD on the individual level.

Likewise, these findings open the door to possible considerations of new cultural dimensions based on CD. Does culture-level CD exist? If so is it independent of other dimensions such as Individualism versus Collectivism or Hierarchy versus Egalitarianism? Or does it emerge only because these other dimensions occur? And if it is independent of other cultural dimensions, how can one operationalize it? Again, the country means we

used in this paper were proxies for culture-level CD based on the DRAI, which was not designed to measure CD on either the individual or cultural levels. Future theoretical and empirical work should explore the possibilities identified here.

That CD possibly exists on the individual level and is moderated by culture raises questions about how we can understand and study personality and individual differences across cultures. Typically, studies of human behaviour are limited because they capture data in a single or limited number of contexts. The data presented here, however, suggests that data obtained in one context is not necessarily reflective of data obtained in another, and that the degree to which this may be true is different depending on culture. Concretely, this suggests that comparisons of individual difference data in a single context across cultures may not be equivalent. For example, comparing behaviour in a laboratory may facilitate expressivity in Culture A, but inhibit behaviour in Culture B. The data from such comparisons are easy to allow for inferences on the relatively greater expressivity of individuals of Culture A compared to those from B, which is the dominant view of expressivity in the field today (e.g. 'Americans and western Europeans are more expressive than East Asians'). Such interpretations, however, are potentially misguided if either culture happens to be a high CD culture. Indeed, those individuals who normally appear to be very reserved in public may in fact be some of the most expressive individuals in a different context. Thus we strongly urge for caution in drawing blanket interpretations about expressivity and individual differences that cut across different contexts until research across a wide range of contexts is actually conducted.

The findings also have implications for future theoretical conceptions of the nature of context and its relationship with personality and culture. Future work should unwrap the contents of context, and find different ways of differentiating aspects of context. A number of possibilities exist. Altman (1975), for example, differentiated between primary and secondary private settings, the former those that people feel belong to them exclusively and are central to their identities, the latter being public settings that are used with such regularity that one develops a proprietary orientation towards them. Marwell and Hage (1970) suggested the existence of three dimensions to describe the nature of role-dyads: Intimacy, Visibility and Regulation. McAuley, Bond, and Kashima (2002) obtained ratings of role-dyads in Australia and Hong Kong, and demonstrated the existence of four dimensions: Complexity, Equality, Adversarialness and Containment.

Finally, the findings presented here explain why individuals who come from high CD cultures, and/or differentiate their behaviours greatly across contexts, are seen as hypocrites or chameleons in low CD cultures. Differentiating one's behaviours across contexts are the norms in high CD cultures, but may actually be looked down on in low CD cultures. These findings also explain why people who come from low CD cultures, and/or who do not differentiate their behaviours much across contexts, may be seen as immature in high CD cultures, where the learning of the subtle and intricate meanings of context and the associated behavioural regulations that are required is a product of enculturation and a sign of maturity. Future research can examine the attitudes towards CD in various cultures, testing these ideas further. Chameleons in one culture may be mature adults in another.

### ACKNOWLEDGEMENTS

Authors thank Marija Drezgic, Shannon Pacoa, Janice Cheng, Aaron Estrada and Victoriya Tebeleva for their assistance in the general laboratory program. Preparation

of this report was supported in part by research contract W91WAW-08-C-0024 from the Army Research Institute.

## REFERENCES

- Altman, I. (1975). *The environment and social behavior*. Pacific Grove, CA: Brooks Cole.
- Allik, J., & McCrae, R. R. (2004). Toward a geography of personality traits. *Journal of Cross-Cultural Psychology, 35*, 13–28.
- Church, A. T., Anderson-Harumi, C. A., del Prado, A. M., Curtis, G., Tanaka-Matsumi, J., Valdez-Medina, J. L., et al. (2008). Culture, cross-role consistency, and adjustment. Testing trait and cultural psychology perspectives. *Journal of Personality and Social Psychology, 95*, 739–755.
- Ekman, P., & Friesen, W. V. (1969). The repertoire of nonverbal behavior: Categories, origins, usage, and coding. *Semiotica, 1*, 49–98.
- Ekman, P., & Friesen, W. V. (1975). *Unmasking the face; a guide to recognizing emotions from facial clues*. Englewood Cliffs, NJ: Prentice-Hall.
- Epstein, S., & O'Brien, E. J. (1985). The person-situation debate in historical and current perspective. *Psychological Bulletin, 98*, 513–537.
- Funder, D. (2001). Personality. *Annual Review of Psychology 52*, 197–221.
- Gough, H. G. (1986). *Manual for the California psychological inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Hall, E. T. (1966). *The hidden dimension*. New York: Doubleday.
- Hall, E. T. (1973). *The silent language*. New York: Anchor.
- Hathaway, S. R., & McKinley, J. C. (1943). *Manual for the Minnesota multiphasic personality inventory*. New York: Psychological Corporation.
- Hofstede, G. H. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Kashima, E. S., & Kashima, Y. (1998). Culture and language: The case of cultural dimensions and personal pronoun use. *Journal of Cross-Cultural Psychology, 29*, 461–486.
- Kashima, Y., & Kashima, E. S. (2003). Individualism, GNP, climate, and pronoun drop: Is individualism determined by affluence and climate, or does language use play a role? *Journal of Cross-Cultural Psychology, 34*, 125–134.
- Marwell, G., & Hage, J. (1970). The organization of role-relationships: A systematic description. *American Sociological Review, 35*, 884–900.
- Matsumoto, D., & Ekman, P. (2004). The relationship between expressions, labels, and descriptions of contempt. *Journal of Personality and Social Psychology, 87*, 529–540.
- Matsumoto, D., & Juang, L. (2007). *Culture and Psychology* (4th ed.). Belmont, CA: Wadsworth.
- Matsumoto, D., Takeuchi, S., Andayani, S., Kouznetsova, N., & Krupp, D. (1998). The contribution of individualism-collectivism to cross-national differences in display rules. *Asian Journal of Social Psychology, 1*, 147–165.
- Matsumoto, D., & Yoo, S. H. (2006). Toward a new generation of cross-cultural research. *Perspectives on Psychological Science, 1*, 234–250.
- Matsumoto, D., Yoo, S. H., Fontaine, J. R. J., Anguas-Wong, A. M., Arriola, M., Ataca, B., et al. (2008). Mapping expressive differences around the world: The relationship between emotional display rules Individualism vs. Collectivism. *Journal of Cross-Cultural Psychology, 39*, 55–74.
- Matsumoto, D., Yoo, S. H., Hirayama, S., & Petrova, G. (2005). Validation of an individual-level measure of display rules: The display rule assessment inventory (DRAI). *Emotion, 5*, 23–40.
- Matsumoto, D., Yoo, S. H., Nakagawa, S., Alexandre, J., Altarriba, J., Anguas-Wong, A. M., et al. (2008). Culture, emotion regulation, and adjustment. *Journal of Personality and Social Psychology, 94*, 925–937.
- McAuley, P. C., Bond, M. H., & Kashima, E. S. (2002). Toward defining situations objectively: A culture-level analysis of role dyads in Hong Kong and Australia. *Journal of Cross-Cultural Psychology, 33*, 363–379.
- McCrae, R. R., & Costa, P. T., Jr. (2008). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 159–181). New York: Guilford.

- McCrae, R. R., Terracciano, A., & 79 Members of the Personality Profiles of Cultures Project. (2008). Personality profiles of cultures: Aggregate personality traits. *Journal of Personality and Social Psychology*, 89, 407–425.
- Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, 102, 246–268.
- Oishi, S., Diener, E., Scollon C. N., & Biswas-Diener R. (2004). Cross-situational consistency of affective experiences across cultures. *Journal of Personality and Social Psychology*, 86, 460–472.
- Rosenberg, E. L., & Ekman, P. (1995). Conceptual and methodological issues in the judgment of facial expressions of emotion. *Motivation & Emotion*, 19, 111–138.
- Schmitt D. P., & Allik, J. (2005). Simultaneous administration of the Rosenberg Self-Esteem Scale in 53 nations: Exploring the universal and culture-specific features of global self-esteem. *Journal of Personality and Social Psychology*, 89, 623–642.
- Schwartz, S. H. (2006). Value orientations: Measurement, antecedents and consequences across nations. In R. Jowell, C. Roberts, R. Fitzgerald, & G. Eva (Eds.), *Measuring attitudes cross-nationally: Lessons from the European social survey* (pp 161–193). London: Sage.
- Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology*, 30, 526–537.
- Triandis, H. C. (1995). *New directions in social psychology: Individualism and collectivism*. Boulder, CO: Westview Press.

## Appendix

The 56 coauthors of this article, in alphabetical order by last name, are:

- Jose Alexandre, Unicapital, Brazil;  
 Jeanette Altarriba, University at Albany, State University of New York, USA;  
 Ana Maria Anguas-Wong, San Francisco State University, USA;  
 Monica Arriola, University de Fribourg, Switzerland;  
 Bilge Ataca, Bogazici University, Turkey;  
 Lisa M. Bauer, Pepperdine University, USA;  
 Michael Harris Bond, Chinese University of Hong Kong, China;  
 Hale Bolak Boratav, Istanbul Bilgi University, Turkey;  
 Seger M. Breugelmans, Tilburg University, Netherlands;  
 Rosa Cabecinhas, Universidade do Minho, Portugal;  
 Jeeyoung Chae, Korea Culture and Tourism Policy Institute, Korea;  
 Anna Laura Comunian, University of Padua, Italy;  
 Dawn N. DeGere, University of Washington, USA;  
 Luciana de Melo Garcia Bley, San Francisco State University, USA;  
 Achmad Djunaedi, University of Padjadjaran, Indonesia;  
 Hung Kit Fok, Chinese University of Hong Kong, China;  
 Wolfgang Friedlmeier, Grand Valley State University, USA;  
 Márta Fülöp, Hungarian Academy of Sciences, Hungary;  
 Fabiano Melo Garcia, Open English School, Brazil;  
 Anjali Ghosh, Indian Statistical Institute, India;  
 Juliana V. Granskaya, St. Petersburg State University, Russia;  
 Hans Groenvynck, Ghent University, Belgium;  
 Elvair Grossi, Fundacao de Santo Andre, Brazil;  
 Charles Harb, American University of Beirut, Lebanon;  
 Fatimah Haron, HELP University College, Malaysia;  
 Renuka Joshi, D.A.V. (PG) College, India;

Hisako Kakai, Aoyama Gakuin University, Japan;  
Emiko Kashima, La Trobe University, Australia;  
Waheeda Khan, Jamia Millia Islamia (Central University), India;  
Jenny Kurman, University of Haifa, Israel;  
Catherine T. Kwantes, University of Windsor, Canada;  
Shamsul H. Mahmud, University of Dhaka, Bangladesh;  
Mario Mandaric, Ministry of Defense, Croatia;  
Andrew Mogaji, University of Lagos, Nigeria;  
George Nizharadze, Institute of Psychology Georgian Academy of Science, Georgia;  
Joseph O.T. Odusanya, HELP University College, Malaysia;  
Feggy Ostrosky-Solis, National University Mexico, Mexico;  
Ananda Kumar Palaniappan, University of Malaya, Malaysia;  
Dona Papastylanou, Democritus University of Thrace, Greece;  
Saba Safdar, University of Guelph, Canada;  
Kusdwiratri Setiono, University of Padjadjaran, Indonesia;  
Eri Shigemasu, Yamanashi Gakuin University, Japan;  
Roomana N. Siddiqui, Aligarh Muslim University, India;  
Theodore M. Singelis, California State University Chico, USA;  
Poláčková Šolcová Iva, Charles University of Prague, Czech Republic;  
Erika Spieß, Ludwig-Maximilians-University Munich, Germany;  
Stanislaw Sterkowicz, Academy of Physical Education, Poland;  
Diane Sunar, Istanbul Bilgi University, Turkey;  
Piotr Szarota, Polish Academy of Sciences, Poland;  
Berta Vishnivetz, The National School for Social Workers, Denmark;  
Neharika Vohra, Indian Institute of Management, India;  
Colleen Ward, Victoria University of Wellington, New Zealand;  
Sowan Wong, Brunel University, United Kingdom;  
Rongxian Wu, Suzhou University, China;  
Samar Zebian, American University of Beirut, Lebanon;  
Alfred Zengeya, Bindura University of Science Education, Zimbabwe.

Copyright of European Journal of Personality is the property of John Wiley & Sons Ltd. 1996 and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.