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Birgit Koopmann-Holm and David Matsumoto

Journal of Cross-Cultural Psychology 2011 42: 355 originally published online 20 July 2010

DOI: 10.1177/0022022110362753

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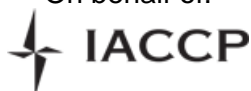
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Journal of Cross-Cultural Psychology
42(3) 355–371
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DOI: 10.1177/0022022110362753
jccp.sagepub.com



Birgit Koopmann-Holm¹
and David Matsumoto²

Abstract

Based on the CAD Triad Hypothesis (Rozin, Lowery, Imada, & Haidt, 1999), the authors hypothesized relationships between specific values and display rules for specific emotions. In particular, the authors proposed that Conservation and Self-Enhancement would be related to the display rule to express contempt, Conservation would be related to the display rule to express disgust, and Openness to Change and Self-Transcendence would be related to the display rules to express anger and sadness. To test this framework and its cross-cultural applicability, the present study examines values and emotional display rules among 106 U.S. Americans and 77 Germans. As predicted, Americans valued Conservation and Self-Enhancement more than did Germans, who valued Openness to Change and Self-Transcendence more than did Americans. These value differences were associated with differences in display rules; Americans endorsed contempt and disgust expressions more than did Germans, who endorsed anger and sadness expressions more than did Americans. Values mediated (“unpackaged”) many of these country differences in display rules. Implications of these findings are discussed.

Keywords

emotional display rules, values, Americans, Germans

Recent research has demonstrated the existence of cultural differences in both emotional display rules and values (e.g., Hofstede, 1980; Matsumoto, 1990; Matsumoto et al., 2002; Matsumoto, Takeuchi, Andayani, Kouznetsova, & Krupp, 1998; Matsumoto, Yoo, Hirayama, & Petrova, 2005; Schwartz, 1992; Schwartz & Bilsky, 1990; Schwartz & Ros, 1995) and the association between them on the cultural level (Matsumoto et al., 2008). But to date, there is no theoretical framework linking specific values with specific, discrete display rules on the individual level. In this article, we offer such a framework and use it to explain cultural differences in display rules in a U.S.-German comparison. We hypothesize that cultural differences in individual-level values exist, that they are related to display rules within cultures, and that they explain between-cultural

¹Department of Psychology, Ruprecht-Karls-University of Heidelberg, Germany, and San Francisco State University, San Francisco, California, USA

²Department of Psychology, San Francisco State University, San Francisco, California, USA

Corresponding Author:

Birgit Koopmann-Holm, Department of Psychology, Jordan Hall, Building 420, Stanford University, Stanford, CA 94305-2130.

Email: bkoopmann@stanford.edu

differences in display rules. Below we describe the nature of both display rules and values, present the theoretical framework linking them, and describe how we test our hypotheses.

Emotional Display Rules

The findings that emotional expressions can be both universal and culture-specific can be explained by the concept of emotional “display rules” (Ekman & Friesen, 1969). These are learned, culture-specific rules governing the management and control of emotional expression depending on social circumstances. Their existence was demonstrated in Friesen’s (1972) study, in which the Japanese were more likely than the American participants to mask their negative emotions in the presence of a higher status experimenter but not when alone. Ekman (1972) and Friesen (1972) assumed that those differences occurred because the Japanese might have the display rule not to express negative emotions to a higher status person. Other studies have documented differences in emotional display rules in a range of countries such as the United States, Japan, Hong Kong, South Korea, Italy, England, Russia, Costa Rica, and Canada (Argyle, Henderson, Bond, Iizuka, & Contarello, 1986; Matsumoto, 1990; Matsumoto et al., 2002; Matsumoto et al., 1998; Matsumoto et al., 2005; Safdar et al., 2009; C. W. Stephan, Stephan, Saito, & Barnett, 1998; W. Stephan, Stephan, & de Vargas, 1996) and among American ethnic groups (Matsumoto, 1993). Most recently, Matsumoto et al. (2008) examined display rules in 32 countries.

Values

Values are desirable goals that serve as guiding principles in people’s lives (Rokeach, 1973; Schwartz, 1992); they serve as general standards to guide behavior. In the past, value dimensions such as Individualism-Collectivism and Power Distance (see Hofstede, 1980, for an explanation of these cultural dimensions) have been related to display rules (Matsumoto, 1990; Matsumoto et al., 1998; Matsumoto et al., 2008). For instance, Individualism was related to endorsing disgust and sadness expressions in ingroups, whereas Collectivism was related to endorsing anger expressions to outgroup members (Matsumoto, 1990). Power Distance was associated with rating anger as more appropriate with lower status others (Matsumoto, 1990). But previous research has pointed out limitations of these dimensions, especially of Individualism-Collectivism (Matsumoto, 1999; Matsumoto et al., 2002; Matsumoto et al., 1998; Oyserman, Coon, & Kimmelmeier, 2002; C. W. Stephan et al., 1998; Triandis, 1995). For instance, data from Schwartz (1990) and Schwartz and Ros (1995) show that the Individualism-Collectivism dichotomy obscures meaningful group differences. In terms of values, the United States (a presumed individualistic culture) was more similar to East Asia (a presumed collectivist culture) than Western Europe (another presumed individualistic culture) (Schwartz & Ros, 1995).

Additionally, Individualism-Collectivism is a cultural dimension, and in order to “unpackage the contents of the global unspecific concept of culture into specific measurable psychological constructs” (Matsumoto, 2003, p. 190), we need to consider values on the individual level. Based on Kluckhohn’s (1951) and Rokeach’s (1973) work on values, Schwartz (1992; Schwartz & Bilsky, 1987, 1990) developed a theory and methodology for studying values. Research with close to 200 samples from 67 countries and three subnational ethnic groups provided substantial support for both the content and structure postulated by the theory (Schwartz, 1992, 2004; Schwartz & Sagiv, 1995) on both the cultural and individual levels. On the individual level, Schwartz proposed 10 value types, including power, achievement, hedonism, stimulation,

self-direction, universalism, benevolence, tradition, conformity, and security. These 10 value types form four higher order value types, namely Openness to Change, Self-Transcendence, Self-Enhancement, and Conservation. For the sake of parsimony, in this article, we focus on the higher order value types and hypothesize their association with display rules and potential in explaining cultural differences.

Relationships Between Specific Values and Emotions

Commensurate with previous research (Trierweiler, Eid, & Lischetzke, 2002), we believe emotional expressivity should be considered on an emotion-specific basis. One framework that links specific values to specific emotions is the CAD Triad Hypothesis (Rozin, Lowery, Imada, & Haidt, 1999). The values used in this hypothesis are the three moral codes (Community, Autonomy, and Divinity) proposed by Shweder, Much, Mahapatra, and Park (1997). The CAD Triad Hypothesis proposes that violations of Community (e.g., fulfilling duties, social hierarchy) elicit contempt, violations of Autonomy (e.g., individual freedom, justice) elicit anger, and violations of Divinity (e.g., protection from spiritual defilement) elicit disgust. Rozin et al. (1999) found support for their hypothesis using emotion words, recognition of facial expressions of emotion, and actual facial expressions of emotion. Because they investigated two cultures (United States and Japan) and found similar results in both samples, they suggested that the links proposed by the CAD Triad Hypothesis might be universal across cultures.

We mapped the three moral codes of Community, Autonomy, and Divinity onto Schwartz's (1992) four higher order value types based on the overlaps between the virtues of the moral codes and the contents of the value types. We aligned Community with the value types of Conservation (encompassing conformity, tradition, and security) and Self-Enhancement (encompassing power and achievement), Autonomy with the value types of Openness to Change (encompassing self-direction and stimulation) and Self-Transcendence (encompassing universalism and benevolence), and Divinity with the value type of Conservation. A detailed table of this mapping is available on request.

We propose that people who live in cultures that endorse relatively greater amounts of specific values also endorse the relatively greater expression of those emotions associated with violations of that value. For example, if a culture endorses conformity, we propose that members of that culture endorse more expressions of contempt toward those people who violate conformity. More specifically, based on the described mapping, we hypothesized the following: Conservation and Self-Enhancement would be related to the display rule to express contempt and Conservation would be related to the display rule to express disgust. Miller (1997) regards these emotions as closely related because both maintain social order and hierarchy. Additionally, we hypothesized that Openness to Change and Self-Transcendence would be related to the display rule to express anger.

Rozin et al. (1999) emphasized that the CAD triad is not the only cluster of moral emotions. Therefore, we hypothesized that Openness to Change and Self-Transcendence would be related to not only the display rule to express anger but also sadness. We made this assumption because the moral codes of Autonomy as well as the values of Openness to Change and Self-Transcendence, respectively, are threatened by a loss, injustice, frustration, or harm. A loss, injustice, frustration, or harm results in feelings of not only anger but also sadness. Ellsworth and Smith (1988) found that when a misfortune is caused by another person, anger is felt. When factors lying outside of human control are perceived as the cause of a misfortune, sadness is felt. Furthermore, Bettelheim and Rosenfeld (1992) supported this claim by pointing out that sadness and anger are two principal feelings associated with loss.

Testing the Framework: An American-German Comparison

The framework presented above not only describes relationships between values and display rules within cultures, but it can also be used to explain cross-cultural differences in display rules. To test the proposed theoretical framework and its potential cross-cultural applicability, we examined the values and emotional display rules of U.S. Americans¹ and Germans. We chose these cultures because most cross-cultural studies compare Western and Asian cultures. However, Schwartz and Ros (1995) observed large differences between Western Europe (including Germany) and the United States on culture-level values. In fact, they stated that “value differences within the West are as large as differences between Western nations and presumably collectivist East Asian nations” (p. 92). They found that the United States gave greater priority to Mastery, Hierarchy, and Embeddedness² and less to Egalitarianism, Intellectual Autonomy, and Harmony values. The opposite was found for Western Europe. These value profiles are coherent with previous research on American-German differences in value orientations and related variables (e.g., Buss & Angleitner, 1989; Crott & Baltes, 1973; McClelland, Sturr, Knapp, & Wendt, 1958; Reynolds, 1984; Schönbach, 1972).

Schwartz and Ros (1995) only reported differences between Americans and Western Europeans (not Germans specifically) and only on the cultural-level value types. The theoretical framework presented above, however, involves individual-level values. Therefore, the first hypothesis concerns American-German differences on the individual-level value types proposed by Schwartz (1992). Schwartz and Ros (1995) have argued that values on the cultural level can be inferred from the values individuals of that culture hold. Thus, individual-level value types should be derivable from the culture-level ones. Based on this notion and the findings on the cultural level that Americans strongly endorsed Mastery, Hierarchy, and Embeddedness, whereas Germans strongly endorsed Egalitarianism, Intellectual Autonomy, and Harmony, we hypothesized the following:

Hypothesis 1a: Americans would endorse Conservation and Self-Enhancement more than would Germans.

Hypothesis 1b: Germans would endorse Openness to Change and Self-Transcendence more than would Americans.

Because we assumed that Americans would place greater emphasis on Conservation and Self-Enhancement compared to Germans, we hypothesized that Americans would have display rules endorsing the expression of contempt and disgust more than would German display rules. Furthermore, because we assumed that Germans would place greater emphasis on Openness to Change and Self-Transcendence compared to Americans, we hypothesized that Germans would have display rules endorsing the expression of anger and sadness more than would American display rules. Thus, we hypothesized the following:

Hypothesis 2a: Americans will endorse the expression of contempt and disgust more than will Germans.

Hypothesis 2b: Germans will endorse the expression of anger and sadness more than will Americans.

Hypothesis 3a: Conservation and Self-Enhancement will positively predict emotional display rules allowing the expression of contempt.

Hypothesis 3b: Conservation will positively predict the display rule allowing the expression of disgust.

Hypothesis 3c: Openness to Change and Self-Transcendence will positively predict emotional display rules allowing the expression of anger and sadness.

Hypothesis 4: Values “unpackage” country differences in emotional display rules, that is, values function as a mediator between country and emotional display rules.

Method

Participants

The sample consisted of 106 Americans (85 female), who ranged in age from 18 to 59 years old ($M = 24.95$, $SD = 7.94$), and 77 Germans (63 female), who ranged in age from 20 to 47 years old ($M = 24.66$, $SD = 6.17$). Participants were recruited from undergraduate (mostly psychology) classes and participated in partial fulfillment of a course requirement. They were born and raised in the country they were recruited from, did not live outside their home country for more than 5 years, their native language was the official language of their home country, and they were 18 years of age or older.

The two samples differed on some demographic variables, some of which were inherent to the two countries. For instance, Germans spoke more foreign languages than did Americans, $\chi^2(2, N = 183) = 122.73$, $p < .001$, $C = .63$. However, country differences that cannot be attributed to features of the respective countries were found as well. Americans were more likely to have a Catholic or non-Christian religious background than were Germans, who were more likely to have a Protestant or no religious background, $\chi^2(3, N = 168) = 13.33$, $p < .01$, $C = .27$. The current religion for Germans was more likely Protestant than for Americans, who were more likely Catholic, non-Christian, or had no current religion at all, $\chi^2(3, N = 174) = 17.06$, $p < .01$, $C = .30$. These distributions of religions in both samples largely diverge from the distributions specified for both countries by The World Factbook (Central Intelligence Agency, 2008). Moreover, Germans more likely studied psychology than did Americans, $\chi^2(1, N = 181) = 8.96$, $p < .01$, $\Phi = .22$. In the analyses presented below, we controlled for the variables that cannot be considered aspects of the respective countries (such as religious background, current religion, and studying psychology).³

Measures

Values. The 57-item version of the Schwartz Value Survey (SVS) was used to measure value orientations (Schwartz, 1992). This measure asks respondents to indicate on a 9-point scale ranging from -1 (*opposed to my values*) to 0 (*not important*) to 7 (*of supreme importance*) how important each value is to them personally as a guiding principle in their lives. To eliminate differences in use of the response scale, each person's mean rating of all 57 values was subtracted from the single value ratings of that respective person. The overall grand mean (across both countries) of all 57 values was then added to the mean of every value type bringing scores back to the initial -1 to 7 response range.

These 57 single values form the 10 motivationally distinct types of values previously described. Several studies have shown the validity of these 10 scores (e.g., Schwartz, 1992; Schwartz et al., 2001) as well as reasonable reliabilities (Schwartz, 1992). These 10 value types form the four higher order value types of Openness to Change, Conservation, Self-Transcendence, and Self-Enhancement, on which this study focuses. The means of these four higher order types were calculated from 9 of the 10 value types⁴ using only those 44 of the 57 values that have cross-culturally consistent meanings (Schwartz & Sagiv, 1995). Internal consistencies (Cronbach's alphas) for the American sample were found to be .79 for Openness to Change, .89 for

Self-Transcendence, .87 for Conservation, and .77 for Self-Enhancement. For the German sample, they were .74, .79, .70, and .79, respectively.

Emotional display rules. The Display Rule Assessment Inventory (DRAI; Matsumoto, 2004) was used to measure emotional display rules. The version of the DRAI used in this study asked respondents to report what they believe they *should* do when experiencing each of seven emotions (anger, contempt, disgust, fear, happiness, sadness, and surprise) toward each of 12 interaction partners once in a private setting and once in a public setting by selecting one of six possible behavioral responses (show more than you feel it, express it as you feel it, show less than you feel it, show nothing, show the emotion while smiling at the same time, and hide your feelings by smiling). Participants were also given an “other” response, which they were asked to specify if their choice was not among the alternatives listed. Twenty-four situations resulted by coupling each interaction partner with a private and with a public setting. Additionally, two situations of oneself being alone in a private and a public setting were included, which yielded a total of 26 situations. Thus, 182 ratings (26 Situations \times 7 Emotions) are made by a respondent.

Dimensionality of the DRAI answer categories. To transform the categorical data of the DRAI into scalar data, we examined whether the previously described scoring procedure developed by Matsumoto et al. (2005) for an earlier version of the DRAI was applicable to the version of the DRAI used in this study. The content, convergent, discriminant, external, and concurrent predictive validity as well as internal and temporal reliabilities of the scores were demonstrated (Matsumoto et al., 2005). A principal factor analysis (PFA) using multiple R^2 as communality estimate was performed as in the study by Matsumoto et al. Communality estimates ranged from .89 to .99 with a mean of .96. When five factors were extracted, 92.49% of the total variance was accounted for. After Varimax rotation, almost the same factorial structure resulted as in the study by Matsumoto et al. Factor 1 included “show nothing” and “express” (negatively) and was labeled *Express* after reversing the signs. Factor 2 included “hide by smiling” and “other” (negatively) and was labeled *Mask*. Factors 3, 4, and 5 included the single response categories “show less,” “show while smiling,” and “show more,” respectively, and were labeled *Deamplify*, *Qualify*, and *Amplify*.

Similar to the scoring procedure described by Matsumoto et al. (2005), each participant’s response to each of the DRAI items was recoded into five mode scores based on the PCA solution of this study. If a participant selected an answer category for an item that positively loaded on the expressive mode factor in question, the response was recoded into 1. If the selected answer category to an item loaded negatively on the respective factor, the response was recoded into -1 . Otherwise the response was recoded into 0. In the present investigation, only the *Express* mode score was used, as that mode is best understood and most appropriate to test the specified hypotheses. Across all ratings of the DRAI, internal consistency (Cronbach’s alpha) for the used *Express* score was calculated for the American sample as .98 and for the German sample as .97.

A definition of and example for each of the seven emotions in the DRAI preceded the section in which participants made their ratings. Additionally, because the DRAI asked participants to think of a specific person for each of the interaction partners when completing the questionnaire, questions assessing these relationships followed the DRAI ratings. For each of the 12 interaction partners, participants were asked the following questions: How long have you known him or her? How often do you interact with him or her? How close are you to him or her? How well do you know him or her? How committed are you to meeting and spending time with him or her in the future? Participants answered the first two questions in an open-response format and the last three on a 5-point scale ranging from 0 (*not at all*) to 4 (*very much*). For each interaction partner, participants also had the option to check a box if they could not answer these questions because they did not apply to them.

Demographic questionnaire. All participants completed a detailed demographic questionnaire, assessing age, ethnicity, religion, field of study, and so forth.

Procedure

All participants were given a questionnaire packet in the classroom and were asked to complete it at a convenient time and place. The questionnaire packets were identical for the groups of both countries, except for the language. Back-translation procedures were used to arrive at equivalent measures. As part of a larger project, other measures such as a self-monitoring and social desirability scale were administered. Four different versions of the DRAI existed with different orders of the situations, which were counterbalanced in each group. The order of the SVS and the DRAI was counterbalanced as well. The demographic questionnaire was always completed last.

Results

Preliminary Analyses

Comparison of the features of the interaction partners Americans and Germans thought of when completing the DRAI. The respondents' ratings of their relationships with each of the 12 interaction partners were subjected to a multivariate analysis of variance (MANOVA), with country as the independent variable. The effect for country was significant, $F(58, 124) = 4.93, p < .001, \eta^2 = .70$. Therefore, a discriminant function analysis (DA) was computed on those relationship ratings using country as the grouping variable. The latent variable underlying the function was interpreted as intimacy. Americans had a function mean of 1.29, and Germans one of -1.77 . Thus, Americans reported to be more intimate with their interactants. We controlled for this difference in the analyses reported below.

Country Differences

Values. To test Hypothesis 1—that (a) Americans would endorse Conservation and Self-Enhancement more than would Germans and that (b) Germans would endorse Openness to Change and Self-Transcendence more than would Americans—the mean importance ratings of the four higher order value types corrected for scale use were subjected to independent samples t tests with country as the independent variable. As hypothesized, Americans attributed greater importance to Conservation than did Germans (Mean for Americans = 3.87, $SD = .65$; Mean for Germans = 3.13, $SD = .57$), $t(180) = 7.93, p < .001, d = 1.18$, and to Self-Enhancement than did Germans (Mean for Americans = 3.44, $SD = .71$; Mean for Germans = 2.93, $SD = .95$), $t(133.74) = 4.00, p < .001, d = 0.69$. In contrast, as hypothesized, Germans attributed greater importance to Openness to Change than did Americans (Mean for Germans = 4.72, $SD = .72$; Mean for Americans = 4.37, $SD = .72$), $t(180) = 3.22, p < .01, d = 0.48$, and to Self-Transcendence than did Americans (Mean for Germans = 5.17, $SD = .59$; Mean for Americans = 4.78, $SD = .53$), $t(180) = 4.66, p < .001, d = 0.69$.

To control for the demographic variables whose sample differences were not attributable to cultural features, multiple regressions on each of the four value type means corrected for scale use were performed. Country, field of study (psychology vs. other), as well as dummy variables of religious background and current religion (Catholic vs. Protestant vs. other) were entered using the stepwise method.⁵ Country was the only predictor for Self-Enhancement and Self-Transcendence. And although being Protestant negatively predicted and having a Protestant religious background positively predicted Openness to Change, being German was still a significant positive predictor above that. Furthermore, although being Catholic, Protestant, and having any other religion positively predicted Conservation, being American was still a significant positive predictor above that (specific values of these regressions available on request). To get adjusted country means of the

value types for which significant predictors other than country were found, we conducted analyses of covariance (ANCOVAs) for those value types, controlling for the additional significant predictors. Controlling for being Protestant and having a Protestant religious background, Germans still attributed greater importance to Openness to Change than did Americans (Adjusted Mean for Germans = 4.76, $SE = .08$; Adjusted Mean for Americans = 4.34, $SE = .07$), $F(1, 178) = 15.30$, $p < .001$, $d = 0.58$. Controlling for being Catholic, Protestant, and having any other religion, Americans still attributed greater importance to Conservation than did Germans (Adjusted Mean for Americans = 3.87, $SE = .06$; Adjusted Mean for Germans = 3.13, $SD = .07$), $F(1, 177) = 66.78$, $p < .001$, $d = 1.21$. These findings suggest that the value differences found were not an artifact of the country differences in demographic variables.

Display rules. To test Hypothesis 2—that (a) Americans will endorse the expression of contempt and disgust more than will Germans, while (b) Germans will endorse the expression of anger and sadness more than will Americans—an ANOVA was computed on the *Express* mode scores of all items of the DRAI using country (2) as the between-subjects factor and interaction partner (12 + alone = 13), setting (2), and emotion (7) as within-subjects factors.

The Country \times Emotion interaction was significant, $F(4.40, 796.60) = 23.04$, $p < .001$, $\eta^2 = .11$. Consequently, for each of the seven emotions separately, the marginal means of the *Express* mode scores were subjected to independent samples t tests, with country as the independent variable. As hypothesized, Americans endorsed contempt expressions more than did Germans (Mean for Americans = $-.05$, $SD = .49$; Mean for Germans = $-.38$, $SD = .34$), $t(180.83) = 5.40$, $p < .001$, $d = 0.80$, and endorsed disgust expressions more than did Germans (Mean for Americans = $-.06$, $SD = .42$; Mean for Germans = $-.48$, $SD = .35$), $t(181) = 7.14$, $p < .001$, $d = 1.06$. Germans, as predicted, endorsed anger expression more than did Americans (Mean for Germans = $.18$, $SD = .29$; Mean for Americans = $.08$, $SD = .38$), $t(180.53) = 2.02$, $p < .05$, $d = 0.30$, and endorsed sadness expressions more than did Americans (Mean for Germans = $.25$, $SD = .42$; Mean for Americans = $.11$, $SD = .41$), $t(181) = 2.16$, $p < .05$, $d = 0.32$. No significant differences were found for fear, $t(181) = 1.48$, *ns*, happiness, $t(181) = 0.46$, *ns*, and surprise, $t(180.29) = 0.55$, *ns*.

To control for intimacy with interaction partners and the demographic variables whose sample differences were not attributable to cultural features, multiple regressions on the *Express* scores of contempt, disgust, anger, and sadness were performed. The values on the intimacy discriminant function, country, field of study, as well as the dummy variables of religious background and current religion were entered using the stepwise method. Country was the only predictor for the display rules to express anger, contempt, and sadness. And although being Catholic negatively predicted the display rule to express disgust, being American was still a significant positive predictor above that (specific values of these regressions available on request). To get adjusted country means of the display rule to express disgust, we conducted an ANCOVA for this variable, controlling for being Catholic. Americans still endorsed disgust expressions more than did Germans (Adjusted Mean for Americans = $-.06$, $SE = .04$; Adjusted Mean for Germans = $-.48$, $SE = .04$), $F(1, 180) = 52.29$, $p < .001$, $d = 1.09$.

Relationships Between the Variables

Values and emotional display rules. To test Hypothesis 3—that (a) Conservation and Self-Enhancement will positively predict emotional display rules allowing the expression of contempt, (b) Conservation will positively predict the display rule allowing the expression of disgust, and (c) Openness to Change and Self-Transcendence will positively predict emotional display rules allowing the expression of anger and sadness—multiple regressions using the stepwise method were performed on the emotion-specific *Express* mode scores for contempt, disgust, anger, and

Table 1. Testing the (Partial) Correlation of Value Types on Emotional Display Rules (DR) Controlling for Other Variables Where Needed (See Text for Explanation)

Variables Predicted	Final R^2	Variables Entered	Final Beta
DR: Express contempt	.12	Intimacy	.35***
		Intimacy	.39***
DR: Express disgust	.24	Self-Enhancement	.17*
		Current Catholic Religion	-.14*
DR: Express anger	.05	Openness to Change	.23**
DR: Express sadness	.04	Openness to Change	.21**

* $p < .05$. ** $p < .01$. *** $p < .001$.

sadness that were averaged across all 26 situations of the DRAI. The independent variables were the mean scores of the four value types corrected for scale use differences.

Additionally, the values on the intimacy discriminant function, field of study, as well as the dummy variables of religious background and current religion were entered as control variables using the stepwise method (all entered in one step, Table 1). The regressions were run for both countries combined, because a procedure equivalent to the Chow test (Chow, 1960) for equal sets of regression coefficients across groups revealed that country did not function as a moderator in the relationship between value types and display rules.⁶

As can be seen from Table 1, Self-Enhancement positively predicted the display rule of expressing disgust over and above intimacy and being Catholic (as current religion). Openness to Change positively predicted the display rules of expressing anger and sadness. The display rule of expressing contempt was only positively predicted by intimacy, not by a value type. Only when intimacy was removed from the analysis, Self-Enhancement emerged as a significant predictor for the display rule about contempt, $\beta = .20$, $t(177) = 2.79$, $p < .05$. Conservation did not emerge as a significant predictor, neither for contempt nor disgust. When removing Openness to Change from the analysis, for both anger and sadness, Conservation (but not Self-Transcendence) emerged as a significant negative predictor, $\beta = -.18$, $t(178) = -2.44$, $p < .05$, for anger, and $\beta = -.18$, $t(178) = -2.42$, $p < .05$, for sadness (specific values of these regressions available on request). Thus, Hypothesis 3 was partly supported. Openness to Change (but not Self-Transcendence) predicted the display rules allowing the expression of anger and sadness. However, only Self-Enhancement (not Conservation) predicted the display rule to express disgust. The display rule to express contempt was only predicted by Self-Enhancement when not controlling for intimacy.

Values as mediator between country and emotional display rules? To test whether values mediated the relationship between country and emotional display rules (Hypothesis 4), hierarchical multiple regressions were performed on the Express scores of the DRAI for contempt, disgust, anger, and sadness. Country, the values on the intimacy discriminant function, field of study, as well as the dummy variables of religious background and current religion were entered on the first step. The scores on the four value types corrected for scale use were entered on the second. Stepwise criteria were used on both steps.

The addition of the value types accounted for a significant amount of additional variance for all variables predicted except for the display rule to express contempt, which was only predicted by being American (see Table 2). Even when removing intimacy from the analyses, the display rule to express contempt was not predicted by a value type over and above country. However, the display rule to express disgust was positively predicted by Self-Enhancement (in addition to the positive predictor of being American and the negative predictor having a Catholic current

Table 2. Results of Hierarchical Regressions and Mediation Tests (t_{B1-B2}) of Value Types in the Relationship Between Country and Emotional Display Rules (DR)

Variables Predicted	R^2		ΔR^2	$B_{country}$		t_{B1-B2}
	1st Step	2nd Step		1st Step	2nd Step	
DR: Express contempt	.12***	Nothing entered				
DR: Express disgust	.23***	.25***	.02*	.0034***	.0031***	2.14*
DR: Express anger	.02*	.06**	.04**	-.0009*	-.0006	-2.80**
DR: Express sadness	.03*	.06**	.03*	-.0012*	-.0009	-2.40*

* $p < .05$. ** $p < .01$. *** $p < .001$.

religion). The display rules to express anger and sadness were positively predicted by Openness to Change. While being German was a positive predictor for both variables on the first step, it was no longer significant on the second after Openness to Change was entered (see Table 2; more specific values available on request).

The regression coefficients for country decreased in the analyses regarding the display rules for disgust, anger, and sadness after the values were entered. The differences in the coefficients for country from the first to the second step were tested using the difference in coefficients test by Freedman and Schatzkin (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Those tests were highly statistically significant (see Table 2), indicating mediation. This and the finding that for disgust, the regression coefficient of country was still significant on the second step suggests that Self-Enhancement partially mediates the relationship between country and the display rule for disgust. The regression coefficients of country were no longer significant on the second step for anger and sadness, which suggests that Openness to Change values completely mediate the country differences regarding the display rules for anger and sadness.

Discussion

The findings supported Hypothesis 1, indicating that Americans attributed greater importance to Conservation and Self-Enhancement than did Germans, who in turn placed greater emphasis on Openness to Change and Self-Transcendence than did Americans.⁷ These results still held after controlling for demographic variables whose sample differences were not attributable to cultural features. This was the first test of whether American-German value differences on the cultural level hold on the individual level. The individual-level differences we found make sense based on previous American-German comparisons on the cultural level (Hofstede, 2001; Schwartz & Ros, 1995). Also, they are in line with other American-German individual-level comparisons (Buss & Angleitner, 1989; Crott & Baltes, 1973; Lewin, 1936; McClelland et al., 1958; McGranahan & Wayne, 1948; Pedersen & Ray, 1990; Reynolds, 1984; Schönbach, 1972). Furthermore, the effect sizes (Cohen's d) for the reported American-German differences in values ranged from 0.48 to 1.21, supporting what Schwartz and Ros (1995) have pointed out, that "the differences within so-called 'Western culture' are substantial even from the perspective of a contrast with the presumably most prototypical collectivist cultures" (p. 117). Despite this, the view in the field persists that value differences within the West are rather small. The findings from this study hopefully will raise awareness for the "substantial" differences *within* Western cultures.

Interestingly, horizontal and vertical individualism/collectivism (Singelis, Triandis, Bhawuk, & Gelfand, 1995; Triandis, 1995) has been used in previous studies to differentiate within Western cultures (e.g., Nelson & Shavitt, 2002). By comparing Western "individualistic" cultures on

the horizontal versus vertical dimension, one only differentiates between status (Self-Enhancement and Self-Transcendence), not Openness to Change and Conservation. However, as our study suggests, the two latter value types seem to be important for differentiating within the West as well. As Schwartz and Ros (1995) already noted, this poses a challenge to the widely used individualism-collectivism dimension.

Hypothesis 2 was also supported; Americans endorsed the expression of contempt and disgust more than did Germans, who in turn endorsed the expression of anger and sadness more than did Americans. These results held after controlling for demographic variables⁸ and are in line with previous characterizations of customs/rules in these countries (Clackworthy, 1996; Devereux, Bronfenbrenner, & Suci, 1962; Friday, 1989; Hall & Hall, 1990; Krueger, 1996; Oetzel et al., 2001; Sommers & Kosmitzki, 1988). Our findings suggest that it can be useful to differentiate between these different emotions, even though it can be argued that contempt, anger, and disgust are similar in that they can be regarded as powerful emotions (Safdar et al., 2009).

The finding that American display rules allowed the expression of anger and sadness less than did German display rules is coherent with what Matsumoto, Kasri, and Kooken (1999) stated regarding the importance of self-concerns in the American culture. Anger and sadness are emotions through which one indicates to other people that one experiences a misfortune (Keltner, Ellsworth, & Edwards, 1993). Thus, expressions of anger and sadness might indicate a wish for support. For instance, Zeman and Garber (1996) showed the expectation of social support to be an important reason for the expression of sadness and anger in young children. The importance of self-concerns in the American culture would contradict the expectation to receive social support through the expression of anger or sadness. Germans, however, attribute more importance to the well-being of others (mirrored in the emphasis of Self-Transcendence) and might therefore provide more social support to others (Florian, Mikulincer, & Hirschberger, 1999). That would make display rules to express anger and sadness more "effective" in Germany compared to the United States. This could explain why Germans endorsed anger and sadness expressions more than did Americans.

Additionally, anger and sadness are emotions that make people vulnerable. By showing anger, individuals reveal what bothers them personally. And the expression of sadness conveys weakness (Fernández, Carrera, Sánchez, Paez, & Candia, 2000; Tiedens, 2001; Tiedens, Ellsworth, & Mesquita, 2000). Showing such vulnerability would contradict the values of Self-Enhancement, which Americans endorsed more than did Germans. Furthermore, the expression and perception of anger may be viewed as threatening the social order (Fernández et al., 2000). Because Americans valued Conservation (including social order) more than did Germans, it makes sense that the expression of anger seems to be more restricted in the United States than in Germany.

In contrast, contempt and disgust are emotions through which people can place themselves above others (Miller, 1997). This is in line with Self-Enhancement values, which Americans endorsed more than did Germans. Thus, it makes sense that American display rules were found to allow the expressions of contempt and disgust more compared to German display rules. This finding is in line with previous research on attitudes toward different emotions. Izard (1971) found that for Germans, disgust/contempt was the emotion that they understood the least, whereas for Americans, anger/rage, shame/humiliation, and fear/terror were the least understood emotions. One can argue that people understand the least those emotions that they are allowed to express the least.

Hypothesis 3 was partly supported. The finding that not Conservation but Self-Enhancement predicted the display rule to express disgust is surprising, because according to the CAD Triad Hypothesis, Divinity (which falls under Conservation) is associated with disgust. In the present investigation, this association was not supported. A possible explanation could be that the two samples studied were relatively unreligious. More than 40% of the participants had no current

religion. Thus, the principle of Divinity was probably not important to many of the participants in the present investigation, and therefore, it is not surprising that disgust was not associated with a violation of Divinity. Rather, in the samples of the present study, expressing disgust was associated with valuing power and achievement. It could be argued that for less religious people, power and achievement become the purpose in life, replacing religion, and violations of those values are therefore related to disgust. Future studies should investigate the role of religiousness in the relationship between values and disgust.

Only when intimacy with interaction partners was removed from the possible predictors did Self-Enhancement emerge as a predictor for the display rule to express contempt. This could be due to the confounding of being American (and thus valuing Self-Enhancement more) and intimacy with interaction partners. Self-Enhancement might very well predict the display rule to express contempt, but we might have eliminated variance associated with being American by controlling for intimacy. Rozin et al. (1999) have also reported that the word *contempt* was not consistently matched to Community violations, whereas they did find a substantial mapping between the contempt expression and Community violations. Future research should address this discrepancy between the lexical term and the expression of contempt.

It is noteworthy that the endorsement of anger and sadness expressions seems to be related only to Openness to Change and not Self-Transcendence. At first, this seems to contradict the assumption put forth earlier that anger and sadness expressions might be more accepted in a self-transcendent society. However, it could be that an endorsement of anger and sadness expressions is not related to how much an individual values Self-Transcendence but rather how much the society the individual lives in values it and responds to these expressions. Thus, maybe display rules allowing anger and sadness expressions are only related to Self-Transcendence on the cultural level.

Finally, regarding Hypothesis 4, the country differences in emotional display rules for disgust, anger, and sadness were mediated by values. Specifically, Openness to Change mediated the relationship between country and the display rules to express anger and sadness. And Self-Enhancement (not Conservation) partially mediated the relationship between country and the display rule to express disgust (which could again be due to the fact that our samples were not very religious). The display rule to express contempt was neither mediated nor predicted by a value type over and above country. Thus, the American-German differences in Openness to Change seem to be precisely what brings about the country differences in the display rules to express anger and sadness. The American-German differences in Self-Enhancement seem to be partly the reason for the reported country differences in the display rule to express disgust. However, the American-German differences in the display rule to express contempt seem not to be attributed to differences in the value types measured. Maybe we would find a mediator if we used a picture of a contemptuous expression instead of the word in assessing the display rule about contempt (see above). Or maybe other value dimensions are necessary. Answering these questions should be an undertaking of future research.

The present findings underline the importance of testing emotion-specific hypotheses in cross-cultural research on display rules. If the *Express* scores had not been analyzed separately for each emotion, the differences between Americans and Germans would have been obscured. This supports the notion by Trierweiler et al. (2002) that emotional expressivity is a multidimensional construct that considers the expression of each individual emotion separately. Future studies should examine cultural differences in the other mode scores resulting from the DRAI as well.

Interestingly, country did not moderate the relationships between values and display rules. This suggests that for Americans and Germans, the associations between particular values and emotions are similar. This finding is in line with the suggestion by Rozin et al. (1999) that the

links proposed by the CAD Triad Hypothesis might be universal across cultures. Future research studying samples from other countries should further examine this suggestion.

The present research was not conducted without limitations. One of the major limitations of this study concerns the fact that all of the variables were measured with questionnaires. Hence, these variables share method variance, which most likely influenced the relationships found. Another limitation concerns the correlational nature of this study and the relatively small sample sizes of Americans and Germans for such type of study. No causal inferences can be made. Thus, we do not know whether values influence display rules or the other way around. Additionally, the exclusive use of university students in the present investigation restricts the generalizability of the findings. Furthermore, the limitations of the DRAI have been discussed elsewhere (Matsumoto et al., 2005), and the results based on the DRAI should be interpreted with these limitations in mind. Finally, country differences can emerge because of many influences. Although we tried to assess as many variables as possible in the present study (demographics and intimacy with interaction partners) and controlled for them where necessary, there are some variables we did not assess. For instance, we did not examine personality and whether personality can mediate some of the cross-cultural differences found. For instance, Matsumoto (2006) reported that cultural differences in emotion regulation can be mediated by personality traits. Future studies should investigate whether cultural differences in display rules can be mediated by personality as well.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

Funding

The author(s) received no financial support for the research and/or authorship of this article.

Notes

1. To simplify the language, in the remainder of this article, "U.S. Americans" will be referred to as "Americans."
2. Schwartz and Ros (1995) have actually used the term *Conservatism* instead of *Embeddedness* in the article being cited here, but they now refer to it as *Embeddedness*.
3. We were not controlling for variables that can be considered aspects of the respective countries, because those might be aspects that contribute to the cultural differences in which we were interested.
4. Hedonism was excluded since this value belongs to Self-Enhancement as well as Openness to Change.
5. The multicollinearity among the control variables as well as the multicollinearity of the control variables with the independent variable (country) is noted. Because of those types of multicollinearity, instead of analyses of covariance (ANCOVAs), we opted for *t* tests followed by regressions using the stepwise method instead of the enter method. If the enter method was used, the importance of variables that make strong joint contributions to explaining the criterion variable but that do not make a strong unique contribution (which is the case for multicollinearity) would be underestimated. The inability to achieve a significant effect for a control variable justified excluding that variable as a needed control, and conversely, a significant effect of a control variable required its inclusion. Also, the stepwise method was used to examine whether country would be a predictor of value types in the most parsimonious model.
6. The interactions of country with each of the four value types were added on a second step for the multiple regressions described above. Enter criteria were used on both steps. Adding the Country \times Value interactions did not result in a significant *R*-squared change for any of the four emotion-specific models, suggesting that country did not function as a moderator in the relationship between value types and display rules (specific values of these analyses available on request).

7. Interestingly, like Germans, Americans endorsed Openness to Change and Self-Transcendence more than Conservation and Self-Enhancement. It would be interesting to examine whether this finding replicates in a different sample or whether it is specific to our American sample, which consisted of students from a very liberal school in the United States (San Francisco State University).
8. The finding that a current Catholic religion *negatively* predicted the display rule to express disgust is somewhat surprising. According to the CAD Triad Hypothesis (Rozin et al., 1999), disgust is associated with Divinity. Thus, a *positive* association between any religion and the expression of disgust would be expected. That a negative relationship was found might be due to the fact that the Catholic Church (compared to Protestantism and other religions) places a great emphasis on the confession of sins. Therefore, Catholic people might be continuously reminded of their own impurities, which might lead them to have the display rule *not* to express disgust to others.

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Bios

Birgit Koopmann-Holm received her Diploma in Psychology from the University of Heidelberg, Germany. From 2002 to 2003, she was a Fulbright Scholar at San Francisco State University. Currently, she is a PhD candidate in psychology at Stanford University. Her research interests include cultural differences in emotion valuation and avoidance as well as how differences in these aspects of emotion relate to specific cultural values and behavioral outcomes.

David Matsumoto received his BA from the University of Michigan in 1981 with High Honors in Psychology and Japanese and his MA (1983) and PhD (1986) in psychology from the University of California at Berkeley. He is currently Professor of Psychology and Director of the Culture and Emotion Research Laboratory at San Francisco State University, where he has been since 1989.