

## Cultural Similarities and Differences in Display Rules<sup>1</sup>

David Matsumoto<sup>2</sup>

San Francisco State University

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*Two decades of cross-cultural research on the emotions have produced a wealth of information concerning cultural similarities and differences in the communication of emotion. Still, gaps in our knowledge remain. This article presents a theoretical framework that predicts cultural differences in display rules according to cultural differences in individualism–collectivism (I–C) and power distance (PD; Hofstede, 1980, 1983), and the social distinctions in-groups–outgroups and status. The model was tested using an American–Japanese comparison, where subjects in both cultures rated the appropriateness of the six universal facial expressions of emotion in eight different social situations. The findings were generally supportive of the theoretical model, and argue for the joint consideration of display rules and actual emotional behaviors in cross-cultural research.*

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The universality of facial expressions of emotion is no longer debated in psychology. Cultural differences via display rules are also well accepted, despite the fact that there has been only one cross-cultural study that has

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<sup>2</sup>Address all correspondence, including requests for reprints, to David Matsumoto, Department of Psychology, San Francisco State University, 1600 Holloway Avenue, San Francisco, California 94132.

documented their existence (Friesen, 1972; also reported in Ekman, 1972). In that study, American and Japanese individuals viewed a stressful film in two social conditions. Universality was found when members of both cultures exhibited the same facial signs of disgust, fear, and distress when alone. Cultural differences occurred when they viewed the films with an experimenter, with the Japanese smiling to *mask* their negative feelings.

Ekman (1972) and Friesen (1972) accounted for these findings through their *neurocultural theory of emotion*. This theory posits the existence of an innate Facial Affect Program, which stores the prototypical emotional expressions accounting for universality, and *cultural display rules*, which account for culture-specificity. These are learned, culturally determined rules that govern the display of emotion depending on social circumstance.

Many within-culture studies have furthered our knowledge of the social influences on the emotions. For example, developmental research has shown that display rules become differentiated with age (see reviews by Camras, 1985; Cole, 1985; Malatesta & Haviland, 1982; Michalson & Lewis, 1985; Saarni, 1985). The presence of another person has been shown to inhibit both posed and spontaneous expressions (posed: Kilbride & Yarczower, 1980; Yarczower, Kilbride, & Hill, 1979; spontaneous: Blumberg, Solomon, & Perloe, 1981; Kleck et al., 1976; Kraut, 1982; Yarczower & Daruns, 1982). Still other studies have shown that females are more expressive than males (e.g., Buck, Baron, & Barrette, 1982; Buck, Baron, Goodman, & Shapiro, 1980; Buck, Miller, & Caul, 1974; Buck, Savin, Miller, & Caul, 1972).

But despite this wealth of knowledge, to this date no study beyond Friesen's (1972) has examined spontaneous emotional behaviors cross-culturally (although Ekman and Friesen's New Guinea research did examine posed expressions), nor has any study examined display rules across cultures. Research is sorely needed to further our understanding of these most important issues.

The absence of research and theory building in this area is due in part to the lack of a conceptualization of "culture" in ways that would help us understand similarities and differences. In psychological research, culture is usually operationalized by country, equating culture with nation. Cultures are not geo-political states, however; they are socio-psychological entities. Most definitions of cultures include shared behaviors, beliefs, attitudes, and values communicated from generation to generation via language or some other means (Barnouw, 1985). Cultures transcend national borders and require researchers to use meaningful dimensions of variability rather than physical boundaries. Operationalizing culture by country is theoretically useful only when these dimensions are explicated. Below I sug-

gest that two dimensions known as *individualism* and *power distance* can be used to make meaningful predictions of cultural differences in emotional displays regardless of country.

*A Theoretical Framework for Understanding Cultural Differences in Display Rules*

*The Effects of Individualism on Emotional Displays in Ingroup and Outgroup Interactions.* *Individualism–collectivism* (I–C) has been identified by several writers as a stable dimension of cultural variability (e.g., see Hofstede, 1980, 1983; Kluckhohn & Strodtbeck, 1961; Mead, 1967; Triandis, 1972). This dimension refers to the degree to which a culture encourages individual needs, wishes, desires, and values over group and collective ones. Individualistic cultures encourage their members to become unique individuals; hierarchical power and status differences are minimized while equality, despite actual differences in social position, is emphasized. Collective cultures, however, stress the needs of a group; members identify themselves as individuals through their groups. Hierarchical differences and vertical relationships are emphasized; one's role, status, and appropriate behaviors are more clearly defined by position.

Triandis and his colleagues (Triandis, Botempo, Villareal, Asai, & Lucca, 1988) have extended our understanding of culture and society by elegantly relating I–C differences to the classic social distinction between ingroups and outgroups (see Brewer & Kramer, 1985; Messick & Mackie, 1989; Tajfel, 1982 for reviews). This distinction is a particularly important one in relation to display rules; within cultures, self-ingroup and self-outgroup relationships form the most basic distinction for display rule differences, as emotional displays differ depending on whether one is interacting with ingroup members or outgroup members.

Self-ingroup and self-outgroup relationships become even more complex between cultures because of cultural differences in the meaning of these relationships. According to Triandis et al. (1988), individualistic cultures have more ingroups, and members do not feel as attached to any single ingroup. This is because there are numerous ingroups to which members can be attached. Ingroups in collective cultures, however, are highly demanding; conformity is required, and sanctions for nonconformity exist. Collective cultures foster a greater degree of cohesion or harmony in their ingroups than do individualistic cultures.

Self-outgroup relationships are also different. Collective cultures emphasize greater distinctions toward outgroups because of the greater degree of harmony required in the ingroups. In individualistic cultures, this dif-

**Table I.** Predicted Cultural Differences in Display Rules as a Function of the Culture's Ingroup-Outgroup Classification and Status-Differentiation Classification

Individualism-Collectivism Differences <sup>a</sup>		
Type of emotion	Type of group	
	Ingroups	Outgroups
Positive	C > I	I > C
Negative	I > C	C > I
Power Distance Differences <sup>b</sup>		
Type of emotion	Status level	
	Higher	Lower
Positive	High PD > low PD	Low PD > high PD
Negative	Low PD > high PD	High PD > low PD

<sup>a</sup>C = collective cultures; I = individualistic cultures.

<sup>b</sup>High PD = cultures high on power distance; low PD = cultures low on power distance.

ference is not as clear; self-outgroup relationships do not differ from self-ingroup as much, and members of individualistic cultures will not distinguish, or discriminate against, outgroup members as readily as will members of collective cultures.

Cultural differences on I-C produce differences in the display of emotion as a function of ingroups and outgroups. In comparison to individualistic cultures, members of collective cultures should display more positive emotions to members of ingroups, and more negative emotions to those of outgroups. Conversely, members of individualistic cultures should display more negative emotions to ingroup members, and more positive emotions to outgroup members. These predictions are summarized in Table I.

The assumption underlying these predictions is that violation of any of these "rules" would threaten the degree of harmony or cohesion that exists in ingroup and outgroup relationships as dictated by I-C differences. For example, expression of negative emotions to ingroups by members of collective cultures would threaten harmony that is more greatly fostered in collective cultures. Similarly, expression of negative emotions to outgroups by members of individualistic cultures would tend to emphasize self-other differences, which are minimized in individualistic cultures.

*The Effects of Power Distance on Displays of Emotion in Higher- and Lower-Status Interactions.* In addition to ingroup-outgroup distinctions, another important variable to consider is status. Status is especially important in cross-cultural theorizing because the degree to which cultures minimize or emphasize status differences among members appears to be a

salient and meaningful dimension of cultural variability. In his work, Hofstede (1980, 1983) referred to this dimension as *Power Distance* (PD).<sup>3</sup>

PD is conceptually orthogonal to I-C, and refers basically to cultural differences in power, status, and hierarchical (or "vertical") relationships. Although conceptually independent, Hofstede (1980) has reported quite high (negative) correlations across cultures between these two dimensions: Cultures high on I-C score lower on PD, while cultures low on I-C score high on PD.

Despite their empirical relationship, however, it is necessary to account for status differences in predicting displays of emotion, because not all situations fall neatly into the ingroup-outgroup classification. Individuals traditionally considered to be ingroup may actually be of considerably higher (e.g., parents, teachers with whom one may be close) or lower (e.g., younger siblings, workers under one's supervision or responsibility) status than oneself. Likewise, outgroup members can also be of either higher or lower status. Thus, it is necessary to incorporate status independently of ingroups and outgroups.

Cultural differences on PD produce differences in the display of emotion as a function of status. In comparison to low-PD cultures, members of high-PD cultures will display more positive emotions to higher-status others, and more negative emotions to lower-status others. Conversely, members of low-PD cultures will display more negative emotions to higher-status others, and more positive emotions to lower-status others. These predictions are summarized in Table I (bottom).

In high-PD cultures, the display of more positive emotions to higher-status others would serve to maintain one's lower status in relation to the other, as dictated by the high PD. Conversely, the display of more negative emotion to lower-status others would serve to maintain one's higher status in relation to the other. In low-PD cultures, however, lower-status individuals can afford to display more negative emotions to higher-status others, because it is not as important to maintain status differences. Likewise, higher-status individuals can display more positive emotions to lower-status others.

The theoretical assumption underlying these hypotheses is that violation of any of these "rules" would threaten the degree of power distance

<sup>3</sup>Several sociological theorists (e.g., see Kemper, 1978) suggest that power and status are two independent constructs. In this paper, I will focus on the concept of status because it is closer in structure to the social distinctions of ingroup-outgroup, and because of its relation to Friesen's (1972) study, which operationalized status. I believe that Hofstede's (1980, 1983) PD dimension is ambiguous as to the construct to which it referred, as it did not disentangle these two concepts from each other. The independence of power and status should be incorporated in future cross-cultural theorizing.

that exists in status relationships. For example, expression of negative emotions to higher-status others by subordinates in collective cultures would threaten the actual differences in power relationships that are fostered in these cultures. Similarly, expression of negative emotions to lower-status others by members of individualistic cultures would tend to emphasize power differences, which are minimized in individualistic cultures.

### *Overview of the Present Study*

This study examined these ideas using an American–Japanese comparison. This comparison is a compelling one. These cultures differ in both expression (Ekman, 1972; Friesen, 1972) and perception (Ekman et al., 1987; Matsumoto, 1986, in press; Matsumoto & Ekman, 1989a). Studies in anthropology and sociology, beginning at least with Benedict (1946), also suggest that Japanese differ from Americans in their understanding of emotion, and the role of emotions in social interaction (e.g., DeVos, 1986; Doi, 1986; Lebra, 1976).

Hofstede's (1980, 1983) work highlights important differences between the U.S. and Japan in I–C and PD. In his study, the U.S. was ranked #1 on individualism while Japan was ranked #22 (39 countries sampled). The Japanese, however, scored higher on PD. Theoretical works by Doi (1973, 1985) and Nakane (1970) provide additional information about differences between the two cultures, in relation to both ingroup–outgroup distinctions and PD. Japan is a “vertical” society (Nakane, 1970) that emphasizes status and position differences among people. The U.S., however, is a “horizontal” society that minimizes actual or perceived status, position, or power differences among people. Ingroup–outgroup distinctions are less clear.

In this study, subjects viewed universal facial expressions of emotion and rated the appropriateness of displaying them in different social situations. In a second session, the same subjects viewed a larger set of facial expressions, and judged which emotion was portrayed and its intensity. The following hypotheses concerning cultural differences as a function of ingroups and outgroups were tested:

1. That the Japanese would rate negative emotions in outgroup situations more appropriate than Americans
2. That the Japanese would rate positive emotions in ingroup situations more appropriate than Americans
3. That Americans would rate negative emotions in ingroup situations more appropriate than the Japanese

4. That Americans would rate positive emotions in outgroup situations more appropriate than the Japanese.

In addition, the following hypotheses concerning cultural differences in ratings as a function of status differences were tested:

5. That Japanese would rate negative emotions with lower status people more appropriate than Americans
6. That Japanese would rate positive emotions with higher status people more appropriate than Americans
7. That Americans would rate negative emotions with higher status people more appropriate than Japanese
8. That Americans would rate positive emotions with lower status people more appropriate than Japanese.

## METHOD

### *Subjects*

Subjects were 42 Americans and 45 Japanese college undergraduates participating in partial fulfillment of class requirements. The American sample included 20 males (mean age 21.90) and 22 females (mean age 21.70). All were born and raised in the U.S., and had parents who were born in the U.S. None was of Asian descent. The Japanese sample included 23 males (mean age 21.09) and 22 females (mean age 20.18). All were born and raised in Japan, and had parents who were born in Japan. Subject gender did not produce any significant effects in the analyses to be presented; thus, no further mention of this variable will be made.

All subjects in both cultures were students at major universities in large metropolitan areas (San Francisco and Osaka), providing some degree of equivalence for social class and education. Possible age confounds were analyzed using a 2 (Culture)  $\times$  2 (Sex) ANOVA, which produced no significant effects.

### *Facial Stimuli*

The facial stimuli used in obtaining the display rule ratings included 24 posed photos of six universal emotions (anger, disgust, fear, happiness, sadness, and surprise) taken from Matsumoto and Ekman's (1989b) *Japanese and Caucasian Facial Expressions of Emotion* (JACFEE). Twelve of the photos (one male and one female for each of the six emotions) were

posed by Japanese individuals, while the other twelve were posed by Americans (Caucasians). Each poser appeared only once. All expressions in the JACFEE were coded independently by two raters, using Ekman and Friesen's (1978) Facial Action Coding System (FACS). Reliability was .91. FACS coding ensured that both the type and intensity of the facial muscle movements of all expressions corresponded to those of the universal emotions (cf. Ekman & Friesen, 1975).

In obtaining the display rule ratings, American subjects were shown the American photos, while the Japanese subjects were shown the Japanese photos (more detail presented below). This procedure confounds subject culture with poser race, and potentially limits the findings. The alternative, however, which involves the presentation of both poser races to both subject cultures, presents even more problems. The Japanese subjects would know that the Americans were foreign; American subjects, however, might or might not believe that the Japanese (or Caucasians) were foreign. Ratings would thus be confounded with beliefs concerning culture-race congruence between subject and poser. An alternative of presenting subjects in both cultures both poser races with different culture identifications (i.e., same or different) would change the nature and scope of this study, with arguably equally ambiguous results (described in more detail in the discussion).

On the other hand, there is ample evidence to suggest that the expressions were equivalent, and that the display rule ratings obtained in this study were not artifacts of differences inherent in the stimuli. First, of the 24 photos, all four photos depicting each of the six emotions had the same FACS coding, ensuring that exactly the same facial muscle configurations were being displayed. Second, subjects were instructed to focus on the expressions rather than the facial physiognomy underlying the expressions to make their ratings (see description below). Third, each of the 24 photos have been used in other judgment studies, which have reported high agreement in subjects' interpretations of the emotion portrayed (Matsumoto, 1986; Matsumoto & Ekman, 1989a). Fourth, a four-way ANOVA (Judge Culture  $\times$  Judge Gender  $\times$  Poser Race  $\times$  Poser Gender) was computed on the intensity ratings obtained in Session II (described below), separately for each of the six emotions. None of the interactions between judge culture and poser race were significant, indicating that the subjects did not perceive differential degrees of intensity in the expressions as a function of poser race. Finally, all analyses presented in the Results section below were computed once using only those subjects who perceived the expressions as the intended emotions, ensuring that the expressions were equivalent in the emotions perceived.



*Session I: Display Rules*

Display rules were measured by requesting subjects to judge the appropriateness of displaying emotions in different situations. The procedures for obtaining these data were the same for both cultures. Subjects were tested in groups, and were shown their 12 same-race photos, paired by emotion but presented one at a time, in succession. The first photo was shown for 10 seconds; the second photo was shown for the length of time subjects needed to make their ratings. The emotions were presented in this order: anger, disgust, fear, happiness, sadness, surprise.

When viewing the second photo of each emotion, subjects rated how appropriate it was for them to express that emotion in eight social situations: alone, in public, with close friends, with family members, with casual acquaintances, with people of higher status, with people of lower status, and with children. For each, subjects used a 9-point scale (0–8) labeled from *not at all* (0) through *a little* (1), *moderately* (4), and *very much* (8). Subjects were also asked to rate how frequently they displayed each expression, using a 5-point scale ranging from 0 (*never*) to 4 (*always*).

No mention of specific emotion terms was made, either during the instructions or when completing the ratings. When the subjects' ratings for one emotion were complete, they were shown the two examples of the next emotion and completed their ratings for that emotion. The process was repeated for each of the six emotions.

*Session II: Emotion Judgment Tasks*

The procedures for collecting the judgment data were the same in both cultures, and occurred approximately 2 weeks after the first session. Translation accuracy of all protocols and instructions was verified using a back-translation procedure. Subjects were tested in groups, viewing the stimuli twice. On each viewing, subjects saw a total of 99 photos. This set included the 24 photos used in the ratings of Session I, but it also included photos of other emotions posed by members of different cultures. This judgment session was part of a larger data collection procedure involving another project with different collaborators. For the purposes of this study, only the judgments of the 24 photos used in Session I were analyzed.

The stimuli were presented one at a time, for 10 seconds each, in a random order. During the first viewing, subjects were asked to choose a single term from a list of seven (anger, contempt, disgust, fear, hap-

piness, sadness, and surprise) that best described the emotion portrayed in the photo. After all the photos were judged, subjects saw the stimuli again and were asked to judge the intensity of each expression, using a 9-point scale (0–8) labeled from *not at all* (0) through *a little* (1), *a moderate amount* (4), and *a lot* (8). The data from both judgment tasks in this session were analyzed to provide important methodological checks on the validity of the stimuli, as described above.

## RESULTS

### *Data Manipulation and Preliminary Analyses*

Each subject's ratings for *Close Friends* and *Family Members* were averaged to produce a composite "Ingroups" score; likewise, ratings for *In Public* and *Casual Acquaintances* were averaged to produce a composite "Outgroups" score. Scores for *Alone*, *Higher Status*, and *Lower Status* were used as independent categories. The data were first analyzed using combined group types, and then a second time using the original categories. Ratings for *Children* were dropped from the first analysis because it was ambiguous as to whether they should be classified as members of Ingroups or Outgroups; they were, however, included in the second analysis using the independent categories, in order to provide some comparison with the other social dimensions and some preliminary data (Table V).

As mentioned above in the Method section, it was necessary to ascertain that the subjects were perceiving the photos as the intended emotions. The percent of subjects correctly identifying each of the photos in the second judgment session was comparable to those found in previous judgment studies (average percent across all four photos for American judges: 89.88, 95.24, 91.67, 98.81, 95.24, and 91.07; for Japanese judges: 64.77, 78.98, 55.68, 98.86, 78.98, and 90.91; for anger, disgust, fear, happiness, sadness, and surprise, respectively). In order to ensure that the display rule ratings were not confounded by differences in the emotion perceived in the expressions, all analyses were computed twice, once using the entire sample, and a second time including only those subjects who correctly identified the emotions intended. This procedure further ensured that the photos were equivalent in terms of emotion portrayed. Only the comparisons that produced the same results in both analyses are reported below.

**Table II.** Three-Way ANOVA on Display Rule Ratings of Subjects from Two Cultures, on Each of Six Emotions, for Ingroup and Outgroup Situations

Effect	<i>df</i>	<i>F</i>	<i>p</i>
Culture (A)	1,82	2.59	n.s.
Emotion (B)	5,410	112.50	<.001
Group (C)	2,164	122.14	<.001
A × B	5,410	13.38	<.001
A × C	2,164	1.90	n.s.
B × C	20,1640	37.71	<.001
A × B × C	20,1640	2.18	<.01

*Cultural Differences in Display Rules Using the Composite Scores*

*Main Analyses and Planned Comparisons.* A three-way analysis of variance was computed on the subjects' display rule ratings with culture (2), group type (3), and emotion (6) as the independent variables (emotion and group type were treated as repeated measure – Table II).

The significant three-way interaction allowed an examination of American–Japanese differences separately for each group type and emotion (Table III). The results provided partial support for some of the hypotheses. The Japanese rated anger and fear to Outgroups as more appropriate than did Americans (Hypothesis 1), while the Americans rated disgust and sadness to Ingroups as more appropriate than did the Japanese (Hypothesis 3). Also, the Japanese rated anger as more appropriate to lower-status individuals than did Americans (Hypothesis 5).

There were also some unexpected findings. For example, Americans rated happiness when alone more appropriate than the Japanese, while the Japanese rated fear and surprise to both Ingroups and higher-status individuals more appropriate than Americans. It is also interesting to note that there were no differences in ratings of *Alone* for anger, disgust, sadness, fear, or surprise.

*Secondary Analyses.* A number of secondary analyses were also computed to examine the other significant effects found in the overall analyses. The culture by emotion interaction was examined by testing cultural differences on the appropriateness ratings collapsed across group type separately for each emotion (see right column, Table III). Americans rated happiness overall more appropriate than the Japanese, while the Japanese rated anger, fear, and surprise overall more appropriate than Americans.

In order to examine the main effect for group type and the emotion by group interaction, the data were first separated to allow for analyses of

Table III. Mean Display Rule Ratings by Americans and Japanese, Computed Separately for Each Group Type and Emotion (Standard Deviations in Parentheses)<sup>a</sup>

Emotion		Social situation					Total
		Alone	Ingroups	Outgroups	Higher	Lower	
Happiness	U.S.	7.05 <sup>b</sup> (2.19)	7.74 (.63)	7.58 (1.22)	7.41 <sup>b</sup> (1.12)	7.26 (1.33)	7.45 <sup>b</sup> (.92)
	JA	5.98 (2.69)	7.67 (.61)	6.93 (1.34)	6.64 (1.61)	6.93 (1.42)	6.97 (1.16)
Anger	U.S.	5.46 (3.01)	4.32 (2.67)	2.19 <sup>c</sup> (1.81)	1.26 (1.72)	1.82 <sup>c</sup> (2.12)	3.08 <sup>c</sup> (1.85)
	JA	6.38 (2.08)	5.22 (2.09)	3.51 (2.06)	1.91 (2.25)	3.11 (2.22)	4.12 (1.62)
Disgust	U.S.	5.97 (2.53)	5.21 <sup>b</sup> (2.20)	2.86 (2.03)	1.62 (1.82)	2.26 (2.09)	3.71 (1.65)
	JA	5.31 (2.69)	3.99 (2.21)	2.67 (1.87)	1.33 (1.68)	2.27 (2.10)	3.17 (1.65)
Sadness	U.S.	6.72 (1.98)	5.83 <sup>c</sup> (1.97)	3.47 (2.00)	2.21 (2.21)	2.72 (2.12)	4.32 (1.50)
	JA	6.73 (1.78)	4.57 (1.83)	3.43 (1.68)	2.13 (1.66)	2.67 (2.13)	3.93 (1.44)
Fear	U.S.	5.54 (3.01)	4.64 <sup>b</sup> (2.82)	2.87 <sup>d</sup> (2.46)	2.21 <sup>c</sup> (2.56)	2.54 (2.40)	3.62 <sup>c</sup> (2.21)
	JA	6.18 (2.48)	5.79 (1.69)	4.59 (1.82)	3.84 (1.99)	4.13 (2.11)	4.99 (1.60)
Surprise	U.S.	5.41 (2.70)	5.71 <sup>b</sup> (2.20)	3.59 <sup>d</sup> (2.25)	2.72 <sup>c</sup> (2.47)	3.29 <sup>d</sup> (2.30)	4.29 <sup>c</sup> (1.91)
	JA	6.22 (2.43)	6.59 (1.48)	5.61 (1.67)	4.40 (2.24)	5.11 (2.18)	5.73 (1.53)

<sup>a</sup>Footnotes *a* through *c* refer to significance levels of *F* tests, comparing US and Japanese means. U.S. = American subjects; JA = Japanese subjects.

<sup>b</sup>*p* < .05.

<sup>c</sup>*p* < .01.

<sup>d</sup>*p* < .001.

Ingroup–Outgroup differences and status differences. Differences between ratings for Ingroups and Outgroups were tested separately for each emotion, collapsing across culture (top of Table IV). The display of emotion towards Ingroups was rated as more appropriate than towards Outgroups on each emotion (Table IV). This was also true when ratings were collapsed across emotion [ $F(1, 83) = 167.68, p < .001$ ].

Differences between ratings for higher- and lower-status individuals were also tested separately for each emotion collapsing across culture (bottom of Table IV). Lower-status others were rated more appropriate than

**Table IV.** Mean Display Rule Ratings for Ingroup vs. Outgroup Comparisons, and High- vs. Low-Status Comparisons, Separately for Each Emotion (Standard Deviations in Parentheses)

Group differences				
Emotion	Ingroup	Outgroup	<i>F</i> <sup>a</sup>	<i>p</i>
Anger	4.74 (2.42)	2.90 (2.03)	96.84	<.001
Disgust	4.55 (2.27)	2.76 (1.97)	91.51	<.001
Fear	5.27 (2.34)	3.81 (2.29)	71.95	<.001
Happiness	7.70 (.62)	7.18 (1.30)	20.54	<.001
Sadness	5.10 (1.97)	3.45 (1.83)	86.64	<.001
Surprise	6.14 (1.90)	4.65 (2.21)	86.19	<.001
Status differences				
Emotion	Higher	Lower	<i>F</i>	<i>p</i>
Anger	1.61 (2.03)	2.51 (2.25)	15.26	<.001
Disgust	1.46 (1.74)	2.26 (2.09)	28.10	<.001
Fear	3.08 (2.40)	3.39 (2.37)	4.02	<.05
Happiness	7.00 (1.44)	7.08 (1.38)	.47	ns
Sadness	2.17 (1.93)	2.69 (2.12)	11.21	<.001
Surprise	3.62 (2.48)	4.26 (2.40)	28.34	<.001

<sup>a</sup>All *df* are 1, 85.

higher-status others on all emotions except happiness. This difference was also found when ratings were collapsed across emotion [ $F(1, 83) = 32.59, p < .001$ ].

*Cultural Differences in Display Rules Using Original Situations*

Cultural differences in display rules were retested using the subjects' scores on the original situations without averaging. The results are very

**Table V.** Mean Display Rule Ratings by Americans and Japanese Using the Original Eight Social Categories, Computed Separately for Category and Emotion (Standard Deviations in Parentheses)<sup>a</sup>

Emotion		Social situation <sup>b</sup>							
		ALON	FAMI	FRIE	ACQU	PUBL	LOW	HIGH	CHIL
Happiness	U.S.	6.90 <sup>d</sup> (2.19)	7.76 (.66)	7.73 (.67)	7.34 (1.46)	7.56 <sup>e</sup> (1.03)	7.20 (1.33)	7.39 <sup>d</sup> (1.15)	7.74 (1.17)
	JA	5.98 (2.69)	7.64 (.80)	7.69 (.67)	7.47 (.99)	6.40 (1.91)	6.93 (1.42)	6.64 (1.61)	7.56 (.81)
Anger	U.S.	5.29 (3.01)	4.63 (2.85)	3.81 (2.82)	1.93 <sup>e</sup> (1.79)	2.51 (2.28)	1.85 <sup>e</sup> (2.12)	1.29 (1.72)	2.74 (2.57)
	JA	6.38 (2.08)	5.76 (2.06)	4.69 (2.47)	4.13 (2.19)	2.89 (2.33)	3.11 (2.22)	1.91 (2.56)	2.84 (2.50)
Disgust	U.S.	5.93 (2.53)	5.40 (2.46)	4.98 <sup>d</sup> (2.20)	2.75 <sup>c</sup> (2.00)	2.98 <sup>d</sup> (2.19)	2.33 (2.09)	1.63 (1.82)	3.85 <sup>f</sup> (2.61)
	JA	5.31 (2.69)	4.56 (2.39)	3.42 (2.33)	3.16 (2.07)	2.18 (2.10)	2.27 (2.10)	1.33 (1.68)	1.73 (1.77)
Sadness	U.S.	6.54 (1.98)	6.12 <sup>e</sup> (1.89)	5.24 <sup>d</sup> (2.21)	3.34 (2.07)	3.59 (2.33)	2.71 (2.12)	2.27 (2.21)	3.72 <sup>f</sup> (2.79)
	JA	6.73 (1.78)	4.87 (2.11)	4.27 (1.90)	3.76 (1.90)	3.11 (1.74)	2.67 (2.13)	2.13 (1.66)	1.96 (1.68)
Fear	U.S.	5.40 (3.01)	4.93 <sup>e</sup> (2.95)	4.45 <sup>d</sup> (2.80)	3.00 <sup>e</sup> (2.47)	2.85 <sup>e</sup> (2.61)	2.56 (2.40)	2.23 <sup>d</sup> (2.56)	3.49 (2.87)
	JA	6.18 (2.48)	6.11 (1.66)	5.47 (1.98)	5.13 (1.88)	4.04 (2.01)	4.13 (2.11)	3.84 (1.99)	3.60 (2.20)
Surprise	U.S.	5.35 (2.70)	5.95 (2.20)	5.33 (2.31)	3.50 <sup>e</sup> (2.16)	3.65 <sup>e</sup> (2.50)	3.28 <sup>e</sup> (2.30)	2.73 <sup>e</sup> (2.47)	5.21 (2.44)
	JA	6.22 (2.43)	6.73 (1.47)	6.44 (1.65)	6.02 (1.69)	5.20 (1.93)	5.11 (2.18)	4.40 (2.24)	5.29 (2.17)

<sup>a</sup>Minor differences in means between this table and Table III resulted from differences in the number of subjects included in the analyses as a result of missing data. Footnotes c through f refer to the significance levels of the *F* tests comparing American and Japanese means. U.S. = American subjects; JA = Japanese subjects.

<sup>b</sup>Key: ALON = Alone; FAMI = Family; FRIE = Close Friends; ACQU = Casual Acquaintances; PUBL = In Public; LOW = People of Lower Status; HIGH = People of Higher Status; CHIL = Children.

<sup>c</sup>*p* < .10.

<sup>d</sup>*p* < .05.

<sup>e</sup>*p* < .01.

<sup>f</sup>*p* < .001.

similar to those using the composite scores (Table V). In addition to the findings reported in Table III, Americans rated happiness in *public* higher than did Japanese (Hypothesis 4).

### *Important Nonfindings*

Cultural differences in response sets, when they exist, must be controlled in order to ensure that obtained cultural differences are not a function of differences in the ways in which the cultures use the rating scales. Several findings suggest that response sets are not operative in these analyses. First, the culture main effect was not significant; if response sets were operative, cultures would differ regardless of emotion and situation. Second, the cultures did not differ on *Alone* ratings on five of the six emotions; if response sets were operative, cultural differences would most likely be apparent here. Third, the analyses produced cultural differences in both directions, which would indicate that differences in response sets did not exist.

### *Cultural Differences in Intensity Ratings*

As reported above in the Method section of the paper, a four-way ANOVA was computed on the intensity ratings obtained in the second judgment task, using judge culture (2) and judge gender (2) as between-subjects factors, and poser culture (2) and poser gender (2) as within-subject factors, separately for each emotion. The nonsignificant Judge Culture  $\times$  Poser Race interactions provided another basis by which equivalence across photos was established. The judge culture main effects of anger, sadness, and surprise, however, were significant [ $F(1, 82) = 11.15, p < .001$ ;  $F(1, 82) = 5.45, p < .05$ ; and  $F(1, 82) = 7.02, p < .01$ , respectively], each indicating that Americans gave higher intensity ratings to the photos than the Japanese. This finding replicates that reported earlier by Ekman et al. (1987) and Matsumoto and Ekman (1989a).

## DISCUSSION

The Americans rated disgust and sadness in Ingroups as more appropriate than the Japanese did (Hypothesis 3), and happiness in *public* as more appropriate than did Japanese (Hypothesis 4); the Japanese rated anger as more appropriate in Outgroups (Hypothesis 1) and with lower-status others (Hypothesis 5). Hypotheses 1, 3, and 4 were predicted on the basis of cultural differences in I-C, which were theorized to produce differences in emotional expressions that result from the degree of cohesion or harmony fostered in ingroup-outgroup relationships. Americans rated disgust and sadness to Ingroups more appropriate than Japanese because

the American culture is more tolerant of negative emotions in ingroups; they do not threaten cohesion or harmony. Americans rated happiness to Outgroups more appropriate than Japanese, because American culture does not sanction positive emotions to outgroups. Japanese rated anger to Outgroups as more appropriate than Americans, because Japanese culture fosters greater differentiation between ingroups and outgroups, which facilitates ingroup harmony.

Hypothesis 5 was predicted on the basis of cultural differences in PD, which were theorized to produce differences in emotional expressions as a function of status. Japanese allow the expression of negative emotions toward lower-status others because these maintain power distances that exist within vertical relationships, as dictated by Japanese culture. Americans discourage displays of negative emotions to lower-status others as these emphasize differences, which is contradictory to the American culture's emphasis on equality.

These findings were not produced by cultural differences in response sets, nor were they confounded by cultural differences in emotion recognition. The findings were not confounded by cultural differences in perceived intensity of the photos, nor were they affected by combining the data into social groups.

One important methodological issue that warrants discussion is the confounding of subject culture with poser race. One alternative would have been to have presented subjects with both poser races. The problem that would arise, however, would be that the Japanese subjects would be quick to discern that the Caucasian posers were not Japanese, whereas the American subjects might or might not judge the Japanese to be foreigners. One possible solution would have been to have included different conditions of information concerning the posers, such as whether the posers were of the same culture or foreign. If this were done, a fully balanced factorial design would have been necessary, since partial factorials would have left possible cultural differences undetected. In this study, however, a fully balanced factorial would not have worked, because the plausibility of foreign Caucasians in Japan has been doubtful, and because it would still have been possible that beliefs concerning American subculture differences could have confounded the American data. Also, the scope and goals of the study would have changed drastically through the addition of these various conditions, which were clearly secondary to tests of cultural differences in display rules.

A number of findings that were not predicted were also revealing. That there were no cultural differences in ratings when *alone* (with the exception of happiness) suggests the importance of display rules as social phenomena. That there were cultural differences in overall ratings of



emotion collapsed across group suggests that cultures have more general effects on specific emotions, perhaps in the social meanings attributed to emotion. That ingroup–outgroup differences were found regardless of emotion points to the import of this distinction in differentiating emotional display. The same was true for status differences (with the exception of happiness).

Serious consideration needs to be given to the exact type of social differentiation necessary to predict differences in emotional display accurately. In this study, two distinctions were used—ingroups–outgroups and status. Both distinctions are directly related to stable cultural dimensions of I–C and PD, which allow for predictions of cultural differences. These distinctions are commonly used differentiators of social differences; thus, they “make sense.” However, it is not clear whether or not these distinctions are the most useful; it is possible that other social descriptors (e.g., closeness, familiarity, etc.) can account for more variance in emotional behaviors. An additional problem in cross-cultural work is that different cultures may attribute different meanings to these descriptors, which is very likely true for the two distinctions used in this study. Finally, regardless of the social distinction made, future research needs to incorporate multiple assessments of each distinction, rather than relying on single measurements.

Serious consideration also needs to be given to the social meanings of emotion, and how these meanings may differ across cultures. This study delineated emotions theoretically on a positive–negative dimension; while there was only one positive emotion (happiness), there were several negative emotions, and no attempt was made to differentiate among them. Because all emotions did not produce the same findings, future research and theory needs to specify more precisely the social roles of emotion. For example, happiness may be considered an “integrating” emotion (Kemper, 1984); that is, this emotion may serve to foster integration and cohesion among interactants. If so, one might predict how this integrating emotion, as well as others, may be used differently in individualistic and collective cultures; reliance would be on the social role of emotion rather than the specific emotion itself. Hypotheses would be tested on specific emotions as operations of the prescribed social meanings.

An important question concerns exactly what type of social meaning to ascribe to the emotions. Kemper (1984) offers a distinction between “integrating” and “differentiating” emotions, which closes some of the gap between theory and research. Other writers such as Collins (1984), Cross and Markus (1990), Levy (1984), and Triandis (1972) have all mentioned other ways in which emotions can be understood socially. A detailed treatise of each of these, and others, is beyond the scope of this article;

the major point to be made at this time is that a more detailed specification of the social meaning of emotion will result in a more complex theory that may account for the specific pattern of results better than the one presented in this study.

The findings of this study also suggest differences between display rules and actual emotional expression. The Japanese subjects in this study reported that they would be more likely than Americans to express negative emotions to Outgroups; the Japanese subjects in Friesen's (1972) study of spontaneous emotional expressions, however, smiled to mask their negative feelings in the presence of the experimenter. I suggest that this discrepancy occurs because display rules are *values* concerning the appropriateness of emotional display that are communicated from one generation to the next. Appropriate emotional behaviors are also communicated, but through observation. The appropriateness of emotional behaviors is judged against the shared consensus of display rule attitudes in combination with common knowledge concerning actual behaviors. This view suggests that it is important now more than ever to study spontaneous emotional expressions cross-culturally, particularly in relation to display rule attitudes in the same subjects.

The findings also suggest a more complex definition of display rules. In this study, display rules were defined simply as the degree of appropriateness of expressing emotions. Display rules, however, need to incorporate not only a dimension of expression appropriateness but also an evaluation of a behavioral response relative to appropriateness. Although the Japanese did rate anger more appropriate than the Americans, it was still one of the lowest ratings for the Japanese (along with disgust and sadness). If the subjects were asked to tell us what they would show on their face if they actually felt those emotions (behavioral response), different results might have been obtained.

This study was not conducted without limitations concerning sampling, the degree of equivalence in cross-cultural meaning of the situations rated, and even the degree of equivalence between the two cultures associated with research in general. These limitations warrant serious consideration in cross-cultural research on the emotions. On one level, they imply that the differences observed reflect not so much differences in display rules, but rather intrinsic differences in the meaning of various contexts and situations. At another level, however, it is difficult to disentangle these effects from one another; theoretically, display rules are most likely so strongly associated with contexts and situations that a definition of one without the other is meaningless in a cross-cultural context.

## REFERENCES

- Barnouw, V. (1985). *Culture and personality*. Chicago: Dorsey Press.
- Benedict, R. (1946). *The crysanthemum and the sword*. Boston: Houghton Mifflin.
- Blumberg, S. H., Solomon, G. E., & Perloe, S. I. (1981). *Display rules and the facial communication of emotion*. Unpublished manuscript, Haverford College.
- Brewer, M. B., & Kramer, R. M. (1985). The psychology of intergroup attitudes and behavior. *Annual Review of Psychology*, 36, 219-243.
- Buck, R., Baron, R., & Barette, D. (1982). The temporal organization of spontaneous non-verbal expression: A segmentation analysis. *Journal of Personality and Social Psychology*, 42, 506-517.
- Buck, R., Baron, R., Goodman, N., & Shapiro, N. (1980). The unitization of spontaneous nonverbal behavior in the study of emotion communication. *Journal of Personality and Social Psychology*, 39, 522-529.
- Buck, R., Miller, R. E., & Caul, W. F. (1974). Sex, personality and physiological variables in the communication of emotion via facial expression. *Journal of Personality and Social Psychology*, 30, 587-596.
- Buck, R., Savin, V. J., Miller, R. E., & Caul, W. F. (1972). Communication of affect through facial expressions in humans. *Journal of Personality and Social Psychology*, 23, 362-371.
- Camras, L. (1985). Socialization of affect communication. In M. Lewis and C. Saarni (Eds.), *The socialization of emotions*. New York: Plenum Press.
- Cole, P. M. (1985). Display rules and the socialization of affective displays. In G. Zivin (Ed.), *The development of expressive behavior*. New York: Academic Press.
- Collins, R. (1984). The role of emotion in social structure. In K. Scherer and P. Ekman (Eds.), *Approaches to emotion*. New York: Erlbaum.
- Cross, S. E., & Markus, H. R. (1990). The willful self. *Personality and Social Psychology Bulletin*, 16, 726-742.
- Devos, G. (1986). The relation of guilt towards parents to achievement and arranged marriage among the Japanese. In T. S. Lebra and W. P. Lebra (Eds.), *Japanese culture and behavior*. Honolulu: University of Hawaii Press.
- Doi, T. (1973). *The anatomy of dependence*. Tokyo: Kodansha.
- Doi, T. (1985). *The anatomy of self*. Tokyo: Kodansha.
- Doi, T. (1986). *Amae*: A key concept for understanding Japanese personality structure. In T. S. Lebra and W. P. Lebra (Eds.), *Japanese culture and behavior*. Honolulu: University of Hawaii Press.
- Ekman, P. (1972). Universals and cultural differences in facial expressions of emotion. In J. Cole (Ed.), *Nebraska Symposium of Motivation, 1971* (Vol. 19). Lincoln: University of Nebraska Press.
- Ekman, P., & Friesen, W. V. (1975). *Unmasking the face: A guide to recognizing emotions from facial clues*. Englewood Cliffs, NJ: Prentice-Hall.
- Ekman, P., & Friesen, W. V. (1978). *Facial Action Coding Systems (FACS): A technique for the measurement of facial action*. Palo Alto, CA: Consulting Psychologists Press.
- Ekman, P., Friesen, W. V., O'Sullivan, M., Chan, A., Diacoyanni Tziartzia, I., Heider, K., Karuse, R., LeCompte, W., Pitcairn, T., Ricci-Bitti, P., Scherer, K., Tomita, M., & Tzavaras, A. (1987). Universals and cultural differences in the judgments of facial expressions of emotion. *Journal of Personality and Social Psychology*, 53, 712-717.
- Friesen, W. V. (1972). *Cultural differences in facial expressions in a social situation: An experimental test of the concept of display rules*. Unpublished doctoral dissertation, University of California, San Francisco.
- Hofstede, G. (1980). *Culture's consequences*. Beverly Hills: Sage.
- Hofstede, G. (1983). Dimensions of national cultures in fifty countries and three regions. In J. Deregowski, S. Dziurawiec, & R. Annis (Eds.), *Expiscations in crosscultural psychology*. Lisse: Swets & Zeitlinger.
- Kemper, T. (1978). *A social interactional theory of emotions*. New York: Wiley.

- Kemper, T. (1984). Power, status, and emotions: A sociological contribution to a psychophysiological domain. In K. Scherer and P. Ekman (Eds.), *Approaches to emotion*. New York: Erlbaum.
- Kilbride, J. E., & Yarczower, M. (1980). Recognition and imitation of facial expressions: A cross-cultural comparison between Zambia and the United States. *Journal of Cross-Cultural Psychology, 11*, 281-296.
- Kleck, R. E., Vaughan, R. C., Cartwright-Smith, J., Vaughan, K. B., Colby, C., & Lanzetta, J. (1976). Effects of being observed in expressive, subjective, and physiological reactions to painful stimuli. *Journal of Personality and Social Psychology, 34*, 1211-1218.
- Kluckhohn, F., & Strodtbeck, F. (1961). *Variations in value orientations*. Evanston, IL: Row, Peterson.
- Kraut, R. E. (1982). Social presence, facial feedback, and emotion. *Journal of Personality and Social Psychology, 42*, 853-863.
- Lebra, T. S. (1976). *Japanese patterns of behavior*. Honolulu: University of Hawaii Press.
- Levy, R. I. (1984). The emotions in comparative perspective. In K. Scherer and P. Ekman (Eds.), *Approaches to emotion*. New York: Erlbaum.
- Malatesta, C. Z., & Haviland, J. M. (1982). Learning display rules: The socialization of emotion expression in infancy. *Child Development, 53*, 991-1003.
- Matsumoto, D. (1986). *Cross-cultural communication of emotion*. Unpublished doctoral dissertation, University of California, Berkeley.
- Matsumoto, D. (in press). American-Japanese cultural differences in the recognition of universal facial expressions of emotion. *Journal of Cross-Cultural Psychology*.
- Matsumoto, D., & Ekman, P. (1989a). American-Japanese cultural differences in judgments of facial expressions of emotion. *Motivation and Emotion, 13*, 143-157.
- Matsumoto, D., & Ekman, P. (1989b). *Japanese and Caucasian Facial Expressions of Emotion (JACFEE)*. Slides available from David Matsumoto, San Francisco State University, Department of Psychology, 1600 Holloway Avenue, San Francisco, CA 94132.
- Mead, M. (1967). *Cooperation and competition among primitive people*. Boston: Beacon.
- Messick, D. M., & Mackie, D. M. (1989). Intergroup relations. *Annual Review of Psychology, 40*, 45-81.
- Michalson, L., & Lewis, M. (1985). What do children know about emotions, and when do they know it? In M. Lewis and C. Saarni (Eds.), *The socialization of emotions*. New York: Plenum Press.
- Nakane, C. (1970). *Japanese society*. Berkeley: University of California Press.
- Saarni, C. (1985). Indirect processes in affect socialization. In M. Lewis and C. Saarni (Eds.), *The socialization of emotions*. New York: Plenum Press.
- Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology, 33*, 139.
- Triandis, H. C. (1972). *The analysis of subjective culture*. New York: Wiley.
- Triandis, H. C., Botempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross-cultural perspectives on self-in-group relationships. *Journal of Personality and Social Psychology, 54*, 323-338.
- Yarczower, M., & Daruns, I. (1982). Social inhibition of spontaneous facial expressions in children. *Journal of Personality and Social Psychology, 43*, 831-837.
- Yarczower, M., Kilbride, J. E., & Hill, L. A. (1979). Imitation and inhibition of facial expressions. *Developmental Psychology, 15*, 453-454.