Priming Effects of Language On Emotion Judgments in Spanish English Bilinguals

David Matsumoto, Ana Maria Anguas-Wong and Elena Martinez

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PRIMING EFFECTS OF LANGUAGE ON EMOTION JUDGMENTS IN SPANISH–ENGLISH BILINGUALS

DAVID MATSUMOTO
ANA MARIA ANGUAS-WONG
ELENA MARTINEZ
San Francisco State University

This study examined the possibility that bilinguals judge the emotions of others differently when making those judgments in different languages and the degree to which individual differences in emotion regulation could account for such language differences. Spanish- and English-speaking Mexican bilinguals were asked to judge emotions in facial expressions in Spanish and English. Participants were more accurate in judging emotion in English but inferred greater intensity of subjective experience in the expresser in Spanish. They also had higher emotion regulation scores in Spanish. Their Spanish (but not English) emotion regulation scores completely mediated the judgment differences on emotion recognition and partially mediated the differences in the ratings of subjective experiences of others. Thus, the participants did indeed judge emotions differently as a function of language, and those differences were accounted for by their own emotion regulation processes.

Keywords: emotion; facial expressions; bilingualism; priming; judgments

Recent work highlighting a dynamic constructionist approach to culture suggests that culture may be internalized as a loose network of domain-specific knowledge structures, including categories or implicit theories (Chiu, Morris, Hong, & Menon, 2000; Y. Y. Hong, Morris, Chiu, & Benet-Martinez, 2000). This perspective views culture as situated cognition (Oyserman & Lee, in press), in which social norms, expectations, values, beliefs, attitudes, and opinions are held together in a loose but coordinated and organized network of schemas. This view suggests that individuals create different networks for different situational contexts and switch networks as they move from one context to another to access context-relevant cultural information, priming culturally appropriate responses to culturally relevant environmental cues.

An important aspect of this approach is the notion that individuals can acquire more than one cultural meaning system (and thus more than one network of schemas) and that those multiple meaning systems can coexist, even if they are somewhat contradictory. Priming studies of bilingual–bicultural individuals demonstrate that individuals can access these different meaning systems to produce different responses to a variety of cognitive tasks (Benet-Martinez, Lee, & Leu, 2006; Benet-Martinez, Leu, Lee, & Morris, 2002; Hong, Benet-Martinez, Chiu, & Morris, 2003). These studies demonstrate the process of *cultural frame*

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switching, as bilingual–bicultural individuals navigate from one cultural frame to another depending on the cultural cues activated by context.

This process may also be at work when judging the emotions of others. Our perception of the emotions of others is presumably influenced by learned rules concerning how they should be decoded called *decoding rules* (Buck, 1984). These rules are likely to be culture specific, and in the context of cross-cultural comparisons, they may be called *cultural decoding rules* (Matsumoto & Ekman, 1989). Numerous studies through the years, in fact, have shown the existence of cultural differences in both emotion recognition rates (Matsumoto, 1989, 1992) and ratings of the intensity of others' expressions (Matsumoto, 1990; Matsumoto & Ekman, 1989; Matsumoto, Kasri, & Kooken, 1999), and these differences have typically been interpreted to have occurred because of differences in cultural decoding rules.

If cultural decoding rules are a type of cultural cognition situated in a network, and if bilinguals have multiple cultural networks, then it follows that bilingual individuals may be primed to judge emotions in one cultural framework or another. And in fact, one study demonstrated this possibility. Matsumoto and Assar (1992) presented facial expressions of emotion to bilingual Indians in either Hindi or English and showed that the participants were more accurate in judging the faces in English. These findings suggested that the terms used to label emotions may be more accessible in English than in Hindi, which is an interesting finding, given that English was not the native language for these participants. This may occur because English-speaking cultures may facilitate or even require increased labeling of emotions than non-English-speaking cultures.

But cultural decoding rules may affect other types of judgments differently. For example, it may be that ratings of the intensity of emotional expressions, and particularly of the expresser's internal emotional states, may be more accessible in one's native language. This may occur because bilinguals' own emotional experiences are more accessible in their native language than in a second language (Altarriba & Santiago-Rivera, 1994; Santiago-Rivera & Altarriba, 2002). This idea is commensurate with the fact that people attribute different emotions to in-groups and out-groups (Cortes, Demoulin, Rodriguez, Rodrigues, & Leyens, 2005), which may serve as a basis of ethnocentrism (Brewer, 1968; Brewer & Campbell, 1976; Levine & Campbell, 1972), and in-group heterogeneity/out-group homogeneity effects (Linville & Jones, 1980; Ostrom & Sedikides, 1992; Simon & Mummendey, 1990). If bilinguals' own emotional experiences are more accessible in their native language than in a second language, it would lead to the hypothesis that their intensity ratings may be higher when rating in their native language.

If such differences occurred, what would account for them? One variable we consider is emotion regulation, which refers to the ability to manage and modify one's emotional reactions to achieve constructive outcomes. Individuals with better emotion regulation ability should have better access to their emotions, and if so, emotion regulation can be used as a proxy to assess emotion accessibility. If emotion regulation is associated with greater emotion accessibility, we likely use it as a basis to infer the subjective experiences of others. Thus individuals with higher scores in emotion regulation (i.e., greater accessibility) should have higher intensity ratings of the emotions of others, especially in one's native language. Individuals with relatively less emotion regulation ability (i.e., less accessibility), however, should have less access to their emotions and thus not differentiate as much their intensity ratings of the emotions of others according to language. And if individual differences in emotion regulation are controlled, language differences in such ratings should be eliminated or reduced.

We tested these ideas in a Spanish–English comparison of emotion judgments in a sample of bilingual Mexicans who were shown facial expressions of emotion and made three judgments of them: an emotion recognition judgment, a rating of the intensity of the external display, and a rating of the intensity of the subjective experience of the expresser. They also completed a measure of emotion regulation that has been validated in English- and Spanish-speaking samples (Matsumoto, 2006; Matsumoto et al., 2003). We hypothesized that emotion recognition judgments would be more accurate in English but that intensity ratings would be higher in Spanish. We also hypothesized that these language differences would be mediated by individual differences in emotion regulation.

METHOD

PARTICIPANTS

The participants were 274 Mexican college students (mean age = 21.83; 28.5% male and 71.5% female). All were born and raised in Mexico, and Spanish was their native language. They were all students in the advanced English class at the Universidad Autonoma de San Luis Potosi's Department of English summer intensive course; as such, they were relatively fluent in reading, writing, and conversational everyday English. Their end-of-semester grades in the class, which reflected their general English abilities, was 8.14 on a 0-to-10 scale (range = 5.3 to 9.8), with scores in the 0-to-5 range as failing and 10 as excellent. These data provided some objective evidence about the English fluency of the sample.

EMOTION REGULATION MEASURE

The Intercultural Adjustment Potential Scale (ICAPS) was used. The ICAPS has been used successfully to predict intercultural and intracultural adjustment (Matsumoto, LeRoux, Bernhard, & Gray, 2004; Matsumoto et al., 2001, 2003). Studies have demonstrated its internal, temporal, and parallel forms' reliability and convergent, discriminant, incremental, concurrent, and future predictive validities on multiple cultural groups, including Mexicans. It included 55 items that were selected according to their empirical ability to predict intercultural adjustment (e.g., "I am usually good at dealing with emergencies"). Respondents rated each on a 7-point scale anchored 1, *strongly disagree*; 4, *neutral*; and 7, *strongly agree*. The Emotion Regulation subscale consisted of 11 items, and its score was computed by averaging the items after reverse coding negatively loading ones. Internal reliability was acceptable in Spanish (α = .71) but slightly lower in English (.61), and the results below should be interested with this caveat.

FACIAL STIMULI AND JUDGMENT TASKS

The facial stimuli were Matsumoto and Ekman's (1988) Japanese and Caucasian Facial Expressions of Emotion (JACFEE) set, which contains 56 expressions, each expressed by a different individual. There are eight examples of seven universal emotions: anger, contempt, disgust, fear, happiness, sadness, and surprise. Within each emotion, half were expressed by Asians and half by Caucasians, two males and females each. Each expression corresponded to the prototypic universal expressions described by Ekman and Friesen (1975, 1986) and as verified by their Facial Action Coding System (FACS; Ekman &

Friesen, 1978; reliability = .91). This stimulus set has reliably produced cross-cultural agreement in categorical emotion judgments under the methodological parameters described here (Biehl et al., 1997).

Participants completed three judgment tasks for each expression. The first was a fixed-choice emotion recognition task, in which observers selected from a list of nine alternatives the emotion term that best described the emotion portrayed. The alternatives were anger, contempt, disgust, fear, happiness, sadness, surprise, neutral, and other. Then, observers rated the intensity of the external display of the expression, and the subjective experience of the expresser, using a 9-point scale labeled *none* (0), *a little* (1), and *a lot* (8). These are the same judgment tasks used successfully in previous studies (Matsumoto et al., 1999, 2002). An example of the use of the rating scale was given, and observers were shown three expressions that were not used in this study, one at a time, and were asked to use the rating scales. Questions were answered, and the experiment started only after ascertaining that the observers understood their task.

For the main study, the stimuli were presented one at a time for 5 s (with a 5-s interstimulus blank) in a random order except with the criterion that no more than three stimuli of the same emotion, ethnicity, or sex appeared in succession. The presentations proceeded uninterrupted until all slides were judged.

DESIGN AND PROCEDURES

All protocols were drafted in English and translated into Spanish; accuracy was verified by back translation. Observers were tested in groups and completed the emotion judgment tasks and the Emotion Regulation scale twice, once in English and once in Spanish, both times separated by 2 weeks. Language was counterbalanced, so that half the participants completed the tasks in English first and Spanish second; the other half, Spanish first and English second. Within each administration, the order of the tasks was counterbalanced, so that half completed the judgment tasks first and the ICAPS second, whereas the other half did them in the opposite order. Testing in each session took approximately 1 hr.

RESULTS

EMOTION RECOGNITION

The emotion recognition data were recoded into hit (1) or miss (0) accuracy scores and averaged across the two examples of each expresser ethnicity and sex within each emotion. A five-way ANOVA was computed on them using participant sex as a between-subject factor and language, emotion, expresser ethnicity, and expresser sex as within-subject factors. The language main effect was significant, $F(1, 264) = 15.96$, $p < .001$, $\eta_p^2 = .06$, indicating that judgments in English were more accurate than in Spanish. This interpretation was qualified by a significant language by emotion interaction, $F(6, 1584) = 10.40$, $p < .001$, $\eta_p^2 = .04$. We thus computed the simple effects of language separately for each of the seven emotions. As can be seen in Table 1, judgments were more accurate in English than in Spanish for all emotions except anger. These results indicated that the emotion labels associated with the faces were more accessible in English than in Spanish. Interestingly, the correlation between students' end-of-the-semester grades in the English class and overall emotion recognition was positive and significant when judgments were made in English, $r(261) = .11$, $p < .05$, but not when judgments were made in Spanish, $r(261) = -.003$, *ns*.

TABLE 1
Results of Simple Effects Analyses of Language, Separately for Each Emotion, With and Without the Covariate

	Spanish		*English*		*Simple Effects (Without Covariate)*			*With Covariate*	
Emotion	M	SD	M	SD	F	df	η_p^2	F	η_p^2
Anger	.58	.34	.58	.28	.03	1, 273	.000	0.292	.000
Contempt	.21	.26	.26	.27	6.11	1, 273	.022	1.503	.006
Disgust	.41	.31	.57	.33	54.94	1, 273	.168	0.668	.003
Fear	.56	.34	.65	.27	15.37	1, 273	.053	0.174	.001
Happiness	.78	.37	.90	.16	22.86	1, 273	.077	0.528	.002
Sadness	.62	.36	.68	.26	7.73	1, 273	.028	0.006	.000
Surprise	.77	.37	.87	.19	15.38	1, 273	.053	1.912	.008

INTENSITY RATINGS

The intensity ratings were averaged across the two examples of each expresser ethnicity and sex within each emotion, and a six-way ANOVA was computed using participant sex as a between-subject factor and language, rating type (2), emotion, expresser ethnicity, and expresser sex as within-subject factors. The Language × Rating interaction was significant, $F(1, 180) = 23.50$, $p < .001$, $\eta_p^2 = .12$. We thus computed the simple effects of language separately for the two intensity ratings. When rating the intensity of the external displays of the faces, there were no differences according to language, $F(1, 222) = 1.45$, *ns*, $\eta_p^2 = .01$. When rating the intensity of the subjective experience of the expressers, however, the participants gave higher ratings in Spanish ($M = 5.91$, $SD = 0.93$) than in English ($M = 5.57$, $SD = 0.94$), $F(1, 222) = 30.03$, $p < .001$, $\eta_p^2 = .12$. Thus these results indicated that making ratings in Spanish made the presumed emotional experience of the expresser more accessible than making ratings in English. These results were not moderated by emotion, $F(6, 1080) = 1.03$, *ns*, $\eta_p^2 = .006$.

THE MEDIATIONAL EFFECTS OF EMOTION REGULATION

A one-way, repeated measures ANOVA on the ICAPS Emotion Regulation scores using language as the factor was significant, $F(1, 149) = 17.78$, $p < .001$, $\eta_p^2 = .11$, indicating that participants had higher emotion regulation scores in Spanish ($M = 52.12$, $SD = 9.22$) than in English ($M = 49.50$, $SD = 9.08$), suggesting that participants' emotion regulation–related information was more accessible when assessed in their native language. We then recomputed the simple effects of language on the emotion recognition data reported above, separately for each emotion, using the Spanish ICAPS Emotion Regulation score as a covariate. (We reckoned that the Spanish ICAPS score was indicative of greater emotion accessibility for these participants. The lower alphas for the English ICAPS score also argued against using it as a covariate.) None of the seven effects was significant, indicating that emotion regulation completely mediated the language differences in emotion recognition (right side, Table 1).

We also recomputed the simple effects of language on the intensity ratings of subjective experience, using Spanish ICAPS Emotion Regulation as the covariate. The effect was still significant, $F(1, 191) = 6.86$, $p < .01$, $\eta_p^2 = .04$. Comparison of the effect sizes with

(.04) and without (.12) the covariate indicated partial mediation and that a large proportion of the differences between Spanish and English in this rating was accounted for by emotion regulation. To ensure that the association between emotion regulation and the difference in the intensity ratings of subjective experience was as expected, we computed correlations between emotion regulation and the difference in intensity ratings in Spanish and English (Spanish – English). As expected, Spanish ICAPS Emotion Regulation was positively correlated with the difference in ratings of subjective experience, $r(193) = .19$, $p < .01$. Interestingly, the English ICAPS Emotion Regulation score was not correlated with this difference, $r(167) = .09$, *ns*, which highlighted the accessibility of emotion regulation when assessed in Spanish. Additionally, the correlations between overall emotion recognition and intensity ratings of other people's subjective experiences were significant and positive for both English, $r(269) = .14$, $p < .01$, and Spanish, $r(227) = .20$, $p < .001$.

DISCUSSION

This study produced several findings of note. First, Emotion Recognition scores were higher when the judgment task was in English compared to Spanish, although the observers were native Spanish speakers. This finding highlighted the greater accessibility of emotion terms in English than in Spanish when labeling others' expressions (which was directly evidenced by the significant correlation between the students' end-of-semester grades and Emotion Recognition scores in English but not Spanish). Also, ratings of the presumed subjective experience of the expressers, and ratings of emotion regulation, were higher in Spanish compared to English. This finding points to the greater accessibility of one's own emotional processes in one's native language. Finally, emotion regulation mediated the language differences in both emotion recognition and intensity ratings of subjective experience but only when it was assessed in Spanish. This makes conceptual sense if one considers the Spanish ratings to be "truer" assessments of emotion regulation skills.

These findings contribute to a growing body of knowledge on the priming effects of language on the accessibility of various cognitive judgment tasks in bilinguals (Benet-Martinez et al., 2002, 2006; Hong et al., 2003) and is commensurate with a dynamic, constructionist view of cognitive approaches to culture (Chiu et al., 2000; Hong et al., 2000). They replicate previous findings demonstrating the greater accessibility of emotion labels in English (Matsumoto & Assar, 1992) and provide a platform to interpret cross-cultural differences in emotion recognition accuracy levels (Matsumoto, 1989; Russell, 1991) by using an unpacking mediator variable (Matsumoto & Yoo, 2006). The findings also demonstrate the greater accessibility of emotion-related processes in the self in one's native language, which has implications for social cognition. Lack of such access to knowledge of the emotions of others may serve as a basis for ethnocentrism and in-group favoritism; improving such access may be a key to fostering mutual cross-cultural understanding.

The findings were not generated without limitation, perhaps the largest of which is the possibility that emotional experiences of the participants are indeed more intense when in Spanish than in English. If this were the case, then the differences we observed concerning emotion regulation and the ratings of subjective experience of others may not necessarily be an accessibility issue per se but reflect a reality about the actual experiences. Future studies will need to examine this possibility.

REFERENCES

Altarriba, J., & Santiago-Rivera, A. L. (1994). Current perspectives on using linguistic and cultural factors in counseling the bilingual Spanish-speaking client. *Professional Psychology: Research and Practice*, *25*, 388-397.

Benet-Martinez, V., Lee, F., & Leu, J. (2006). Biculturalism and cognitive complexity: Expertise in cultural representations. *Journal of Cross-Cultural Psychology*, *37*(4), 386-407.

Benet-Martinez, V., Leu, J., Lee, F., & Morris, M. (2002). Negotiating biculturalism: Cultural frame-switching in biculturals with "oppositional" vs. "compatible" cultural identities. *Journal of Cross-Cultural Psychology*, *33*, 492-516.

Biehl, M., Matsumoto, D., Ekman, P., Hearn, V., Heider, K., Kudoh, T., et al. (1997). Matsumoto and Ekman's Japanese and Caucasian Facial Expressions of Emotion (JACFEE): Reliability data and cross-national differences. *Journal of Nonverbal Behavior*, *21*, 3-21.

Brewer, M. B. (1968). Determinants of social distance among East African tribal groups. *Journal of Personality and Social Psychology*, *10*, 279-289.

Brewer, M. B., & Campbell, D. T. (1976). *Ethnocentrism and intergroup attitudes: East African evidence*. Beverly Hills, CA: Sage.

Buck, R. W. (1984). *The communication of emotion*. New York: Guilford.

Chiu, C.-Y., Morris, M. W., Hong, Y.-Y., & Menon, T. (2000). Motivated cultural cognition: The impact of implicit cultural theories on dispositional attribution varies as a function of need for closure. *Journal of Personality*, *78*(2), 247-259.

Cortes, B. P., Demoulin, S., Rodriguez, R. T., Rodrigues, A. P., & Leyens, J.-P. (2005). Infrahumanization or familiarity? Attribution of uniquely human emotions to the self, the ingroup, and the outgroup. *Personality and Social Psychology Bulletin*, *31*(2), 243-253.

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 system: Investigator's guide*. Palo Alto, CA: Consulting Psychologists.

Ekman, P., & Friesen, W. V. (1986). A new pan-cultural facial expression of emotion. *Motivation and Emotion*, *10*(2), 159-168.

Hong, Y.-Y., Benet-Martinez, V., Chiu, C.-Y., & Morris, M. W. (2003). Boundaries of cultural influence: Construct activation as a mechanism for cultural differences in social perception. *Journal of Cross-Cultural Psychology*, *34*(4), 453-464.

Hong, Y. Y., Morris, M., Chiu, C.-Y., & Benet-Martinez, V. (2000). Multicultural minds: A dynamic constructivist approach to culture and cognition. *American Psychologist*, *55*, 709-720.

Levine, R. L., & Campbell, D. T. (1972). *Ethnocentrism*. New York: Wiley.

Linville, P. W., & Jones, E. E. (1980). Polarized appraisals of out-group members. *Journal of Personality and Social Psychology*, *38*, 689-703.

Matsumoto, D. (1989). Cultural influences on the perception of emotion. *Journal of Cross-Cultural Psychology*, *20*(1), 92-105.

Matsumoto, D. (1990). Cultural similarities and differences in display rules. *Motivation and Emotion*, *14*(3), 195-214.

Matsumoto, D. (1992). American-Japanese cultural differences in the recognition of universal facial expressions. *Journal of Cross-Cultural Psychology*, *23*(1), 72-84.

Matsumoto, D. (2006). Are cultural differences in emotion regulation mediated by personality traits? *Journal of Cross-Cultural Psychology*, *37*(4), 421-437.

Matsumoto, D., & Assar, M. (1992). The effects of language on judgments of universal facial expressions of emotion. *Journal of Nonverbal Behavior*, *16*(2), 85-99.

Matsumoto, D., Consolacion, T., Yamada, H., Suzuki, R., Franklin, B., Paul, S., et al. (2002). American-Japanese cultural differences in judgments of emotional expressions of different intensities. *Cognition and Emotion*, *16*(6), 721-747.

Matsumoto, D., & Ekman, P. (1988). *Japanese and Caucasian Facial Expressions of Emotion and Neutral Faces (JACFEE and JACNeuF)*. Available from http://www.paulekman.com

Matsumoto, D., & Ekman, P. (1989). American-Japanese cultural differences in intensity ratings of facial expressions of emotion. *Motivation and Emotion*, *13*(2), 143-157.

Matsumoto, D., Kasri, F., & Kooken, K. (1999). American-Japanese cultural differences in judgments of expression intensity and subjective experience. *Cognition and Emotion*, *13*, 201-218.

Matsumoto, D., LeRoux, J. A., Bernhard, R., & Gray, H. (2004). Personality and behavioral correlates of intercultural adjustment potential. *International Journal of Intercultural Relations*, *28*(3/4), 281-309.

Matsumoto, D., LeRoux, J. A., Iwamoto, M., Choi, J. W., Rogers, D., Tatani, H., et al. (2003). The robustness of the Intercultural Adjustment Potential Scale (ICAPS). *International Journal of Intercultural Relations*, *27*, 543-562.

Matsumoto, D., LeRoux, J. A., Ratzlaff, C., Tatani, H., Uchida, H., Kim, C., et al. (2001). Development and validation of a measure of intercultural adjustment potential in Japanese sojourners: The Intercultural Adjustment Potential Scale (ICAPS). *International Journal of Intercultural Relations*, *25*, 483-510.

Matsumoto, D., & Yoo, S. H. (2006). Toward a new generation of cross-cultural research. *Perspectives on Psychological Science*, *1*(3), 234-250.

Ostrom, T. M., & Sedikides, C. (1992). Out-group homogeneity effects in natural and minimal groups. *Psychological Bulletin*, *112*(3), 536-552.

Oyserman, D., & Lee, S. W.-S. (in press). Priming "culture": Culture as situated cognition. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology*. New York: Guilford.

Russell, J. A. (1991). Culture and the categorization of emotions. *Psychological Bulletin*, *110*, 426-450.

Santiago-Rivera, A. L., & Altarriba, J. (2002). The role of language in therapy with the Spanish-English bilingual client. *Professional Psychology: Research and Practice*, *33*, 30-38.

Simon, B., & Mummendey, A. (1990). Perceptions of relative group size and group homogeneity: We are the majority and they are all the same. *European Journal of Social Psychology*, *20*(4), 351-356.

David Matsumoto is currently a professor of psychology and director of the Culture and Emotion Research Laboratory at San Francisco State University, where he has been since 1989.

Ana Maria Anguas-Wong received her PhD in psychology from the National Autonomous University of Mexico in 2000. From 2000 to 2003, she was a professor at San Luis Potosi State University, Mexico. In 2004, she moved to the United States; since then, she has taught at San Francisco State several times and is currently working at Berkeley City College. Her research has included the development of culture-relevant measures of subjective well-being and cross-cultural comparisons of emotional expressions and display rules. She is also interested in emotions in applied settings.

Elena Martinez is a graduate student in the School of Social Work at San Francisco State University.