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10 Emotion display and expression

Abstract: In psychology, researchers have attempted to connect emotion to social life because emotion is critical in maintaining and improving social relationships. There are various possible perspectives with which to approach the topic of emotion in research. In this chapter, we discuss emotion and its expressions based on the premise that certain types of emotions are akin to innate psychological and behavioral mechanisms of human beings. We explain what emotions are and how they are displayed as one way to communicate with others socially, and describe how research has been conducted on the topic. We focus on emotional expressions on the face because the face is one of the most prevalent channel of displaying emotions in our daily lives. The role of culture in displaying emotions is also thoroughly discussed based on research evidence because it is one of the best ways to understand emotional expressions of others from different cultural backgrounds.

Keywords: emotion, culture, emotion expression, display rules, ingroup advantage

1 Introduction

Emotion is critical in understanding the psychological and behavioral mechanisms of human beings; it is also highly communicative. The fact that social relationships are important in our society for a successful life, and that we often have needs for a variety of therapeutic treatments, imply that humans live with emotion and are sometimes overwhelmed by it, regardless of whether or not we are aware of it consciously. Identifying emotion and understanding how it is displayed is important because it improves the quality of our social interactions and communications. This chapter explores the nature of emotion and emotional expressions in relation to culture, and contains three sections: a definition of emotion, emotional expressions on the face, and emotional expressions and culture. We also briefly review evolutionary theory underlying emotion research and discuss how culture interacts with displaying emotions. We begin with a discussion of defining emotion.

2 Emotions

2.1 Definition of emotion

In general, emotion is defined by laypersons as “a *natural instinctive* state of mind deriving from one’s *circumstances, mood, or relationships with others*” (Oxford Eng-

lish Dictionary). This standard definition implies interesting characteristics about the nature of emotions because emotions are innate; we are born with them. Emotions are often elicited during social interactions and aid in communicating with others by sending and receiving messages through their expressions, which can vary depending on context. Of course, many people have their own definition of emotions, and there is no perfect way of defining or approaching emotions.

We define emotions as transient, bio-psych-social reactions to events that have consequences for our welfare and potentially require immediate actions (Matsumoto & Hwang 2012). Emotions are biologically residual products of our evolutionary history, providing the platform for universality in the domain of their immediate reactions (Matsumoto & Juang 2013). Emotions are tied to immediate, biological reactions in that they are elicited along with physiological responses from the central and autonomic nervous systems (Matsumoto & Hwang 2012; Matsumoto & Juang 2013). Because emotions are involved in specific mental processes from their elicitation to their regulation, they are psychologically related to mental activities. Emotions are continuously interactive with the environment and context in which they are provoked. The environment can be considered literally as a physical place (e.g., restaurant, office), but also can be infused with cultural meaning in the form of norms, expectations, and tacit agreements applicable to certain groups (e.g., weddings or funerals; see Matsumoto & Juang 2013).

Emotions are rapid information processing systems that help us act with minimal conscious deliberation (Tooby and Cosmides 2008). Survival issues such as birth, battle, death, and seduction have been present throughout our evolutionary history, and emotions have aided individuals in adapting to problems that have arisen with minimal conscious cognitive intervention. Emotions are associated with the selection of goals, attention, memory, and management of physiological reactions (Tooby & Cosmides 2008). Regardless of how emotions are defined, we know that we cannot process every single piece of information we perceive and see. If we did not have emotions, we could not make rapid decisions regarding whether to attack, defend, flee, care for others, reject food, or approach something useful. For example, think about a situation in which your friend has to rapidly avoid a car that is coming at him/her, and what your immediate behavioral reactions such as a fearful face or gripping your seat would quickly signal. This immediate reaction may be more efficient than describing the danger verbally.

Happiness or joy is another core emotion that is crucial for well-being and social relationships. A major morphological feature of genuine smiles of happiness (Duchenne smiles) involves the raising of the lip corners by the zygomatic muscle and the raising of the cheeks and formation of crow's feet around the eyes by the orbicularis oculi muscle (Frank, Ekman & Friesen 1993; Soussignan 2002). Smiling with relaxations in the muscles around the mouth and eyes often signals playfulness and affiliation/submission, just as it occurs in chimpanzees. Expressing happiness may be one of the easiest ways to reduce tension in social interactions.

Smiles often signal no opposition. Think about when you cooked your first meal for a friend and were anxious about its taste. At the moment you saw your friend's smile of enjoyment, you would not even have to ask your friend's feedback or worry about it. Are you likely to approach your neighbor who never smiles at you? Probably not, because you might instinctively know you have no signal of being accepted or affiliated with him or her.

2.2 Evolutionary theory of emotion and expression

For this chapter, we understand emotions based on evolutionary theory established by Darwin (1872/1998). As a pioneer of emotion theory, Darwin's contributions have been recognized in three ways (Dewsbury 2009). First he introduced a viable mechanism for evolutionary change and natural selection, explaining the continuum of humans' involvement over time; he proposed that individual variation in heritable appearances and populations are capable of increasing exponentially. Second, he claimed that evolutionary change occurs by natural causes, and is totally explicable without any inherent purpose or predetermined direction. In other words, environmental changes such as weather, draught, or earthquake force us to develop certain or newly modified functions and features better fitting for survival. This theory of naturalism has influenced many developing disciplines, including not only psychology but also biological and natural sciences. Third, he accumulated massive amounts of supporting evidence across phylogenetic lines, such as data on beetles, barnacles, people from different cultures, etc. (Dewsbury 2009). His endeavors helped us to understand humans in relation to animals as outcomes of nature.

Of the three main contributions, Darwin's argument concerning the continuity between human and nonhuman animals has had a strong impact on understanding emotions. He posited that humans share fundamental, core properties with nonhuman primates, including emotions, despite the unique traits and characteristics that humans are born with. Thus, much of Darwin's work was about instinctive behavior ranging from the supernatural and theological to the natural. Darwin introduced the study of individual differences within species because such differences were essential for natural selection to work. Darwin believed that emotions and their expressions were functionally adaptive and biologically innate. In particular, Darwin (1872/1998) claimed in his principle of serviceable associated habits that facial expressions are the residual actions of more complete behavioral responses. For example, he suggested that humans express anger by frowning the brow and tightening the lips with teeth displayed because these actions are part of an attack response. He also believed that all humans, regardless of race or culture, possessed the ability to express emotions on their faces in similar ways. Darwin engaged in a detailed study of the muscle actions involved in emotion and concluded that the muscle actions are universal and their antecedents can be seen in the expressive

behaviors of nonhuman primates and other mammals. This analysis set the stage for the development of coding systems used in the identification of facial expressions, and these have been central to the empirical literatures.

In addition to the principle of serviceable associated habits, Darwin proposed an inhibition hypothesis that people are unable to perfectly simulate facial expressions in the absence of a genuine emotion, and are unable to completely suppress their true expressions when feeling strong emotions, resulting in emotional leakage on the face. Many of his principles and hypotheses regarding emotions were empirically tested and supported by subsequent research, and formed the foundation for recognizing a class of emotions known as “basic emotions” (see Hwang & Matsumoto 2016, for a fuller discussion).

These principles suggested by Darwin are crucial in understanding emotional messages in social interactions because unspoken messages sometimes deliver more reliable and meaningful information than words alone. All or most people pursue identifying credible information so that they can make appropriate decisions for themselves; this might be one of the reasons why people do not want to be deceived by others. Understanding emotional signals when interacting with others is useful as one way to improve the quality of social communications.

3 Emotional expressions on the face

As humans, we have many ways of sharing signs about our emotions. Facial expressions are one of the most common, but complex, communication channels in our body because our faces consist of many muscles that can produce literally thousands of different types of expressions. The emotions that have been empirically documented to be universally expressed and recognized in the face are anger, contempt, disgust, fear, happiness, sadness, and surprise, and are called basic emotions (Ekman & Friesen 1978). In expressions of those emotions, muscle contractions of the face are under the neural control of two different areas of the brain – one controlling voluntary movements and the other involuntary reactions, called the pyramidal (voluntary) and extrapyramidal tracts, respectively.

In order to understand how emotions are elicited and expressed, being aware of the inseparable relationship between basic emotions and the brain is crucial. For example, the left side of the face, controlled by the right hemisphere of the brain, appears more emotionally intense (Fernandez-Carriba, Loeches, Morcillo & Hopkins 2002; Hauser 1993). Our brain and autonomic nervous system (ANS) were found to have a close connection in the entire process of experiencing and expressing discrete emotions (Stephens, Christie & Fredman 2010). Neuroimaging studies reported that basic emotions of fear, anger, disgust, sadness, and happiness are represented in the human brain and showed reliable neural correlations with regional brain activations for each of the emotions examined (Vytal & Hamann 2010).

A recent study documented that the basic emotions are specifically represented via our body in the somatosensory system in universal categorical somatotopic maps (Nummenmaa, Glerean, Har & Hietanen 2014).

These strong connections between the elicitation process of emotions and the reactions of our brain to it indicate that emotions are biologically driven. Of course there must be numerous ways that our brain and our nervous system interact with each other in the process of elicitation, perception, and physiological reaction of emotions. However, eventually the outcomes of the emotion elicitation process are expressed via behavioral signals. The face is a fundamental and primary region in which emotions are expressed and managed in social interactions. When emotions are elicited, spontaneously produced expressions are under the neural control of the subcortical areas of the brain. When individuals attempt to control and manage their expressions or emotions, however, those impulses are likely to stem from the cortical motor strip – another mechanism or route. In the next section, we explore emotional expressions on the face as one of the outcomes of the elicitation of emotions in our bodies.

3.1 Research on facial expressions of emotion: Judgment studies

Understanding emotions matter in our social life and knowing about them as one of the main characteristics of emotions affects how to deal with them when they occur. Appropriate perception of emotional expressions is crucial in social interaction (Van Kleef, Van Doorn, Heerdink & Koning 2011) because it often determines how to react in the situation, as well as the degree of urgency. Thus, there is no doubt about the importance of the judgment of others' emotions, attested to by the many studies that have explored this topic.

For more than 45 years, much research has been conducted to document the universal recognition of basic emotions. Tomkins conducted the first study demonstrating that facial expressions were reliably judged to be associated with certain emotional states (Tomkins & McCarter 1964), and later studies showed consistent and similar findings (Ekman, Sorenson & Friesen 1969; Izard 1971). Those initial findings were criticized, however, because the evidence for universality (i.e., high levels of cross-cultural agreements in judgments) might have occurred because of the influences of mass media (e.g., TV) and shared visual input. To address these potential limitations, Ekman and colleagues conducted two studies with two visually isolated, preliterate tribes in the highlands of New Guinea (Ekman & Friesen 1971; Ekman, Sorenson & Friesen 1969). In their first study, the tribespeople could reliably recognize facial expressions of emotion (anger, disgust, fear, happiness, surprise, sadness) posed by westerners; in the second study films of the tribespeople expressing emotions were shown to Americans who had never seen New Guineans before, and the Americans were able to recognize the expressions of the New

Guineans. Thus the ability to recognize facial expressions of emotion in the earlier studies did not occur because of learning through mass media or other shared visual input as the New Guineans had had no exposure to the outside world at that time.

Many subsequent studies on the universality of facial expressions of emotion examined judgments of the same facial expressions used in the initial studies and have successfully replicated the universal recognition of emotion in the face (Matsumoto 2001; Matsumoto, Olide, Schug, Willingham & Callan 2009). Later, contempt was also identified as a universally recognized expression in various studies (Ekman & Heider 1988; Matsumoto 1992, 2005). For example, Biehl and colleagues (1997) used stimuli that validly and reliably portrayed emotional expressions, of the Japanese and Caucasian Facial Expressions of Emotion (JACFEE, Matsumoto & Ekman 1988). They demonstrated that the seven emotions were reliably identified in Hungary, Japan, Poland, Sumatra, the United States, and Vietnam. In addition, a meta-analysis of 168 datasets examining judgments of those emotions in the face and other nonverbal behaviors indicated universal emotion recognition well above chance levels (Elfenbein & Ambady 2002). Even when low intensity expressions are judged, there is strong agreement across cultures in their judgments (Matsumoto et al. 2002). Some of these studies included cross-cultural judgment studies of spontaneous expressions instead of posed ones (Matsumoto et al. 2009), which were convincing because of the ecological validity of the expressions tested.

Not only are the seven universal facial expressions reliably recognized (Elfenbein & Ambady 2002; Matsumoto 2001), but cultures are similar in other aspects of emotion judgments as well. For example, there is pancultural similarity in judgments of relative intensity among faces. That is, when comparing expressions, people of different countries agree on which is more strongly expressed (Matsumoto & Ekman 1989). There is also cross-cultural agreement in the association between perceived expression intensity and inferences about subjective experiences (Matsumoto, Kasri, and Kookan 1999), and in the secondary emotions portrayed in an expression (Biehl et al. 1997; Matsumoto & Ekman 1989).

3.2 Research on facial expressions of emotion: Production studies

The first study that documented the universal production of facial expressions of emotions was Friesen's (1972). In that study 25 American and Japanese participants watched highly stressful films (first episode: body mutilation, second episode: sinus surgery) while their spontaneous facial reactions were recorded. The coding of the spontaneous facial behaviors that occurred indicated that the American and Japanese participants displayed emotions such as disgust, fear, sadness, and anger similarly when the participants of the two groups watched the stimuli alone. Although the experimental context did not perfectly match a natural setup, the study

was worthwhile because it marshaled cross-cultural evidence for the production of emotional expressions, and the emotional stimuli were valid elicitors of the intended emotions. This study provided pioneering evidence that facial expressions of emotion were universally produced when emotions were spontaneously elicited.

Many subsequent laboratory studies have provided additional, compelling evidence for the universality of facial expressions of emotion (see Hwang & Matsumoto 2016; Matsumoto, Keltner, Shiota, O'Sullivan & Frank 2008 for reviews). To be sure, examining natural, actual expressions of emotions on the face has been challenging in research because doing so requires many conditions to elicit the targeted emotions reliably. Although there may be no error-free experimental procedure in eliciting emotions, capturing emotions in various natural contexts as much as possible may be one way to observe spontaneous reactions of emotions. To this end, Matsumoto and Willingham's (2006) study was important, for it assessed expressions produced in a natural context – the Olympic Games. They examined the expressions of 84 judo athletes from 35 countries at the 2004 Athens Olympic Games, and reported that the first immediate emotional reactions on faces of winners and losers at the completion of their final medal match were consistent with the prototypical expressions of basic emotions. In particular, winners displayed Duchenne, or genuine, smiles while losers displayed sadness, disgust, anger and other negative emotions. As mentioned above, Duchenne smiles are smiles that involve not only the smiling muscle (zygomatic major), which raises the lip corners, but also the muscles surrounding the eyes (orbicularis oculi), which raise the cheeks, narrow the eyes and the eye cover fold. Many studies have shown that only these types of smiles are correlated with the experienced positive emotion genuinely (see Ekman, Davidson & Friesen 1990 for a review).

While there have been many other valuable cross-cultural studies of facial expressions of emotion (Hwang & Matsumoto 2016), the Olympic study was persuasive for several reasons. First, the results of the study were based on spontaneous expressions instead of posed expressions. Many previous studies often had to deal with variations in the basic emotions when testing posed expressions rather than ones naturally produced in an emotional context. Second, the study was derived from individuals from various countries and cultures at the Olympic games. Olympic matches can be considered as special, yet they are part of our reality and are non-experimental. Third, the context of the Olympic matches validly elicited strong emotional experiences and signals. Collectively, the findings were meaningful given that previous research findings documenting the universality of facial expressions of emotions had been mainly tested under laboratory, not field, conditions (albeit in different laboratories using different methodologies with participants from many different cultures around the world, but all converging on the same pattern of results). Thus, today there is robust evidence for the universality of seven facial expressions of emotions.

3.3 Further evidence for the universal expressions of basic emotions

One of the critical challenges to the notion of the biological innateness of emotion is that humans can learn and imitate emotional expressions by observing others. One of many sources of evidence for universality and/or biological innateness of expressions is research comparing the emotional expressions of blind and sighted individuals. Blind individuals, who are limited in observing and imitating others' behaviors compared to sighted people, are an exceptional group in which to explore the pure effect of biologically wired systems on the universality of emotions. This is especially true for studies involving congenitally blind individuals because they are expected to have limited social learning about how to produce sophisticated facial muscle movements of each emotion because they could not visually learn them from birth.

Previous studies have reported on the similarities between blind and sighted individuals in their spontaneous expressions of basic emotions on the face. For example, researchers have early on noted and measured spontaneous facial behaviors when emotions were aroused in blind children (Cole, Jenkins & Shott 1989). Galati and colleagues (2001) documented that there were no significant differences in displaying emotions on the face among congenitally blind and sighted young children. Later they (Galati, Sini, Schmidt & Tinti 2003) also reported that the emotional facial expressions of ten congenitally blind and ten sighted children (8–11 years old) were similar; the frequency of certain facial movements was higher in the blind children than in the sighted children.

The studies reviewed above, however, did not directly compare the expressions of blind individuals from different cultures, and most tested posed, not spontaneous, facial expressions in experimental contexts rather than natural, emotionally aroused contexts. These gaps were addressed by a later study of the spontaneous expressions of blind athletes at the 2004 Athens Paralympic Games. Matsumoto and Willingham (2009) examined spontaneous facial expressions of emotions of congenitally and non-congenitally blind judo athletes at these Games, which was a highly intense and emotional event for any athlete. The blind athletes, who came from 23 cultures, produced the same facial configurations of emotion documented in sighted athletes in the same emotionally evocative situations occurring in the 2004 Athens Olympic Games (see Matsumoto & Willingham 2006).

Collectively, evidence for the similarity of facial expressions of emotions between blind and sighted individuals is compelling, and suggests that facial expressions of emotion are biologically innate. Studies of congenitally blind individuals have been especially important because it is impossible for congenitally blind individuals to produce by imitation the complicated facial expressions – such an expression involves complex muscle combinations that are activated spontaneously in a fraction of a second when they experience an emotion; they would not have these automatic reactions unless they were born with the capability of experiencing

and expressing the emotions in the same way as sighted individuals. We believe that these studies provide convincing evidence for biologically based, emotional expressions. In particular, the Olympic data were from players of multi-national countries, which indicate cross-cultural similarities of the basic emotions in spontaneous reactions on faces.

Despite various definitions of emotions, none of us can deny their existence and importance in our lives. The issue is how we define and approach them. Based on our approach driven from Darwin's emotion theory, emotions (known as basic emotions later) and their expressions have evolved across species. Specific emotions are evolutionarily adaptive, biologically innate, and universal across humans and even non-human primates. They are primarily expressed through the face. Much empirical evidence has supported Darwin's ideas, as we discussed above. The pan-cultural recognition of emotional expressions has been supported not only via facial expressions of emotions, but also through vocal cues of the basic emotions (joy, sadness, anger, fear, disgust). Pell and colleagues, for example, reported that voices of the basic emotions were recognizable regardless of an individual's culture or linguistic ability among English, German, Arabic language groups (Pell, Monetta, Paulmann & Kotz 2009). We believe that for further evidence of universal emotions, non-face channels would be worthwhile to explore.

4 Emotional display and culture

4.1 Culture

We define (human) culture as a unique meaning and information system, shared by a group and transmitted across generations (Matsumoto 2007; Matsumoto & Juang 2013) although there are many definitions of culture depending on researchers, just like emotion. One of the major functions of culture is to maintain social order, so culture creates rules, guidelines, values, and norms concerning the regulation of emotion (Matsumoto & Juang 2013). Because emotions are primary motivators of behavior and have important social functions (Keltner & Haidt 1999), cultures create norms concerning the regulation of emotion to facilitate social coordination (Matsumoto & Hwang 2012). Cultures regulate emotions to calibrate what we become emotional about and adapt the reactions that occur when elicited. Unique human cognitive abilities including language, memory, and abstract thinking allow cultures to elaborate on human emotions by facilitating the construction of culturally based emotions and their associated meanings.

Norms provide guidelines for expected behaviors, thinking, and feelings derived from the cultural meanings ascribed to contexts, relationships, and events. They identify the range of permissible behavior that allows groups to function effectively. Cultures encourage adherence to norms and create sanctions against infractions, which aids individuals and groups in negotiating the complexity of hu-

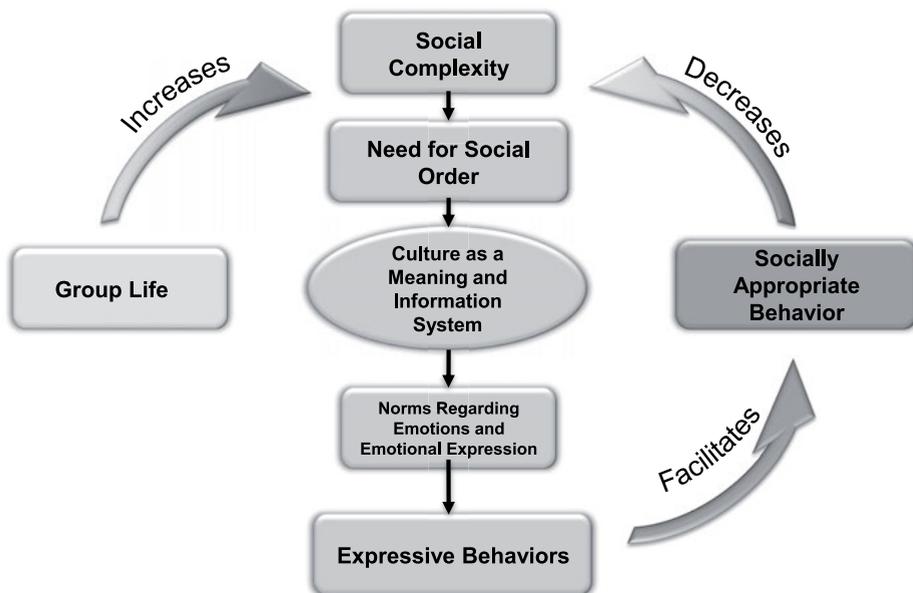


Fig. 10.1: The function of emotion and expression vis-à-vis the function of culture.
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man social life. By regulating emotions via norms, cultures ensure that behaviors follow culturally prescribed scripts, increasing social coordination and decreasing social chaos, as illustrated in Figure 10.1 (for more details see also Hwang & Matsumoto in press; Matsumoto & Juang in press).

4.2 Cultural display rules: Cultural differences in expressing emotions

Cultural display rules are cultural norms learned early in life that govern the regulation of expressive behaviors depending on social contexts. Cultural display rules help us manage the appropriateness of emotional display in social situations when there is the need to do so in a particular situation (Diefendorff & Greguras 2009; Matsumoto 1990, 1993). The rules are conventions that determine when, where, and how expressive behaviors should be conveyed (Saarni 1984) and are different across cultures, contexts, and interactants. Social contexts across different cultures have been an important factor in understanding cultural display rules in relation to facial expressions of emotions.

Cultural display rules are important as they explain how cultures can interact with emotions that are biologically-based (uncontrollable and involuntary). The rules make it possible to understand how universal emotions can be expressed when the elicited emotional reactions need to be managed in a socially proper

manner. These rules center on the appropriateness of displaying each of the emotions in particular social circumstances. The rules are learned early and dictate how the universal emotional expressions should be modified according to the social situation. By adulthood, use of these rules is automatic, having been very well practiced.

There are multiple ways in which display rules can act to modify expressions: 1. Express *less* than actually felt (Deamplification), 2. Express *more* than actually felt (Amplification), 3. Show nothing (Neutralization), 4. Show the emotion but with another emotion to comment on it (Qualification), 5. Mask or conceal feelings by showing something else (Masking), 6. Show an emotion when they really don't feel it (Simulation). Friesen's (1972) classic cross-cultural study described earlier demonstrated the existence of display rules. In that study, American and Japanese participants viewed stressful films alone and later in the presence of an experimenter. When alone, they displayed the same expressions of disgust, anger, fear, and sadness. When with the experimenter, however, there were dramatic differences. While the Americans tended to continue to show their negative feelings, many Japanese smiled. Friesen concluded that cultural display rules were operating then, which prevented the free expression of negative emotions in the presence of another person in the Japanese culture.

A later study on display rules by Matsumoto (1990) was conducted, which was meaningful as it was the first cross-cultural study that directly measured differences between two cultures on their display rules. In the study, Americans and Japanese were shown two examples of six universal facial expressions of emotion, and rated the appropriateness of displaying each in eight social contexts. Americans rated some negative emotions in in-groups, and happiness in outgroups, as more appropriate than did the Japanese. The Japanese, however, rated some negative emotions as more appropriate to outgroup members. These findings were interpreted within an individualism v. collectivism framework; members of collectivistic cultures (e.g., Japan) tend to discourage the expression of negative emotions to their ingroup members because doing so would be potentially perceived as a threatening signal, and discourage expression of potentially bonding positive emotions to their outgroups, while there would be no such tendency for members of individualistic cultures (e.g., the U.S.).

Most recently, Hudson and Jacques (2014) reported that children (5–7 years old) were capable of regulating their negative emotions in front of parents in a disappointing gift paradigm. Age was the reliable predictor of overt effort to regulate emotions. This finding implied that in addition to cultural differences, individuals learn and acquire social rules and manners over time.

4.3 Subsequent research on display rules

Matsumoto and colleagues (Matsumoto, Takeuchi, Andayani, Kouznetsova & Krupp 1998; Matsumoto, Yoo, Hirayama & Petrova 2005) created the Display Rule

Assessment Inventory (DRAI), in which participants choose a behavioral response when they experience different emotions in different social situations. The behavioral responses were based on the six response alternatives described above. They demonstrated cultural differences in display rules and provided evidence for its internal and temporal reliability and for its content, convergent, discriminant, external, and concurrent predictive validity with personality.

Later, Matsumoto and colleagues (2008) administered a more comprehensive version of the DRAI in over 30 countries, examining universal and culture-specific aspects to display rules, and linking the cultural differences to culture-level individualism (vs. collectivism). In spite of the large potential range of scores, most countries' means on overall expression endorsement fell around the midpoint, and there was relatively small variation around this mean, suggesting a universal norm for expression regulation. Individuals of all cultures endorsed expressions toward in-groups more than toward out-groups, indicating another universal effect. Collectivistic cultures were associated with a display rule norm of less expressivity overall than individualistic cultures, suggesting that overall expressive regulation for all emotions is central to the preservation of social order in these cultures. This finding is commensurate with the behavioral findings from previous studies (Matsumoto, Willingham & Ollide 2009). Individualism was also positively associated with higher expressivity norms in general, and for positive emotions in particular. Individualistic cultures were also positively associated with (endorsement of) expressions of all emotions toward in-groups, but negatively correlated with all negative emotions and positively correlated with happiness and surprise toward out-groups. Cumulatively, these findings suggest a fairly nuanced view of the relationship between culture and expression endorsement that varies as a function of emotion, interactant, and overall expressivity endorsement levels.

The challenge of unpacking how and why display rules vary by country and group has been examined by a variety of research angles. Koopmann-Holm and Matsumoto (2011) suggested that specific values (e.g., conservation and self-enhancement) would be associated with how people apply emotional display rules for specific emotions and tested it in American and German groups. American participants who valued conservation and self-enhancement tended to endorse more contempt and disgust than did German participants; anger and sadness were endorsed by German participants, who valued more openness to change and self-transcendence than did Americans. Another study (Hwang & Matsumoto 2012) using the DRAI reported that Asian Americans and European Americans had different display rules for their emotional expressions. Asian Americans endorsed the expression of their emotions less than European Americans, but endorsed the modification of their expressions more. However, perceived relationship commitment ratings mediated the ethnic group variations on endorsed expressivity. European Americans had significantly higher scores on perceived relationship commitment than did Asian Americans toward parents, close friends, and older siblings, and these differences completely mediated ethnic differences in display rules.

4.4 Cultural decoding rules: Cultural differences in perceiving emotions

As discussed above, culture interacts with the ways emotions are expressed in certain social contexts. Similarly, culture influences how individuals perceive emotions in others (also known as cultural decoding rules; Buck 1980; Matsumoto & Ekman 1989). For instance, Americans are better at recognizing negative emotions such as anger, disgust, fear, and sadness than Japanese; however, cultural differences do not appear in happiness recognition (Matsumoto 1989, 1992). In two-country comparisons, individualism and collectivism has been used to explain the differences in judgments of emotions because people of individualistic cultures have a tendency to recognize some facial expressions better than others (Matsumoto 1990; Schimmack 1996).

Studies examining cultural similarities and differences in inferences about emotional expressions have suggested an interesting approach in understanding cultural variations in perception of emotional expressions. Matsumoto, Kasri, and Kooken (1999) asked American and Japanese observers to rate how strongly expressions were displayed and how strongly the expresser was actually feeling the emotion. Americans rated external display more intensely than did the Japanese. In contrast, Japanese rated internal experience more intensely than did the Americans. Within-culture analyses indicated no significant differences between the two ratings for the Japanese. Significant differences were found, however, for the Americans, who consistently rated external display more intensely than subjective experience. These results help us to understand general assumptions and premises about Western vs. non-Western cultures in showing and decoding emotions: although American-Japanese differences in judgments and expressions could have occurred because the Japanese suppressed their intensity ratings, these findings indicated that in fact it was the Americans who exaggerated their external display ratings relative to subjective experience, not the Japanese who suppressed.

4.5 A possible ingroup advantage in perceiving emotions

A concept that has been discussed in the literature of the last decade has concerned a possible ingroup advantage in perceiving emotion, which refers to individuals likely to be more accurate in recognizing expression of emotions by someone from the same culture as them than by someone from another culture (Matsumoto & Hwang 2011). Elfenbein and Ambady (2002) were the first to propose the existence of an ingroup advantage, reporting data that suggested that individuals more accurately recognize emotional expressions produced by members of their own culture than those produced by a different culture. Matsumoto (2002) raised questions concerning the scientific methodologies required to adequately test the ingroup hypothesis, including the need for balanced designs and equivalent stimuli. Using

JACFEE described earlier, Matsumoto (2002) reported no evidence for an ingroup effect.

Elfenbein and Ambady (2002) suggested that ingroup effects should not occur with posed expressions that were rendered equivalent across expressor ethnicities (such as those in the JACFEE), and instead argued for the existence of “cultural dialects” in emotional expressions that presumably facilitated ingroup perceiver effects. In their meta-analysis, Elfenbein and Ambady (2002) insisted that cultural *specificity* of emotional experiences and expressions was likened to cultural differences in linguistic expressions, cultural learning of emotional behavior, culture specific information processing systems, and so on. They suggested that, when expressing emotions, people of different cultures displayed them slightly differently, using culture-specific “dialects.” Evidence for cultural dialects has been reported among American, Japanese, and Indian observers and expressors in their follow-up study (Elfenbein et al. 2002), and among Asian American and Chinese observers who judged Caucasian and Chinese expressions (Elfenbein & Ambady 2003).

One of the reasons why different findings related to the ingroup hypothesis have been found is in the methodology used to test for ingroup effects (Matsumoto 2002, 2007). Matsumoto (2002, 2007) noted that, first, conducting studies with balanced experimental designs is critical in the group comparisons. In a two-culture design, for example, observers of cultures A and B should judge expression of members of both cultures A and B. An unbalanced design cannot possibly test the ingroup hypothesis; the results from judges of cultures A and B observing expressions displayed by members of only of one culture (e.g., culture A) cannot rule out the possibility that members of culture B may have the same tendency to judge emotions as those of group A. His second comment concerned the necessity for stimulus equivalence. It is important that balanced studies test stimuli that are equivalent across the cultural groups in terms of expressors’ physical signaling properties on emotions; testing group differences on expressions that differ between groups of expressors renders conclusions concerning ingroup effects due to cultural dialects inconclusive. Even if culture-specific dialects in spontaneously produced expressions exist (note, however, that to date no such evidence exists), expressions with the same characteristics in all expressor cultures need to be used in tests of the ingroup hypothesis. To date, the documented evidence concerning the ingroup hypothesis has not met these critical methodological requirements.

The only study to date that has tested the ingroup hypothesis using spontaneously produced expressions by expressors of different cultures, and thus inclusive of possible expressions that differ according to cultural dialects, is that by Matsumoto, Ollide, and Willingham (2009). This study tested spontaneous expressions of emotions in which certain contexts triggered the targeted emotions (happiness, sadness, etc.) captured in a real setting (the Olympic Games). One can imagine how intense emotional reactions and displays could be aroused among players in

Olympic matches. The researchers reported no evidence of an ingroup advantage in judging emotions from these spontaneously produced expressions.

In contrast to Matsumoto et al. (2009), Elfenbein and Ambady (2002) used posed expressions of emotions that were produced by recollections of expressors' previous emotional experiences of the targeted emotions, and reported an ingroup advantage in emotion recognition. But, as explained above, we believe that the results from posed expressions cannot provide evidence for an ingroup effect occurring because of cultural dialects in spontaneous expressions of emotion. To be sure, we do not believe that spontaneous emotional expressions are the only type of expressions that occur or that exist in reality because in social interactions we often exchange intentional expressions of emotions that can be interpretable and understood only among particular group members. However, those mimed/simulated expressions do not necessarily represent how people of different cultures recognize others' spontaneously produced expressions in their own groups. Elfenbein (2007) argued that a theoretical approach should be discussed first as the more important part of the debate before the methodological argument about the underlying empirical research. But this might be a dangerous proposition as theory should be supported, or validated, by empirical data reflecting reality. Unfortunately, a lack of understanding the details of methodological issues and concerns, and the phenomenon of hasty generalization, often contaminate the value of research findings.

Thus, the ingroup advantage in judging emotions may occur only when people pose emotions intentionally and voluntarily, but not when emotions are expressed spontaneously. If this conclusion is valid, many subsequent studies and their findings make more sense. A recent study on voice cues of positive emotions (triumph, relief, amusement, sensual pleasure, etc.) produced by expressors of different countries found that Dutch participants did not particularly identify their own group members' vocal cues better, compared to ones from England, even though Dutch participants did slight better in the judgment accuracy in their own group in comparison to when they judged voice cues expressed by Namibian sounds (Sauter 2013). Another finding reported by the same study was that the participants were not able to identify their own group's vocal cues better than other group members' emotional vocalizations. The researchers concluded that the ability to judge whether sounds (emotional vocalization) were produced by in- or out-group individuals did not predict the advantage displayed for recognizing in-group vocalizations. These findings re-emphasized the importance of the methodological issues related to the points raised by Matsumoto (2002, 2007); first, although Elfenbein and colleagues claimed that cultural/emotional dialects exist and influence the judgments of in- vs. outgroup members' emotions, the study by Sauter (2013) showed that (at least) for certain types of emotions, the emotional dialect hypothesis does not take into account why accuracy levels on vocal cues was not affected by culture. Second, the stimuli used for the examinations of the emotional dialect

were not derived by the spontaneous expressions. When methodological approaches are different, comparing findings prematurely may render conclusions invalid. (It is also interesting to note that ingroup effects have not been reported for gender, either.)

5 Conclusion

Emotions (basic emotions) and their expressions are evolved across species and are adaptive, biologically innate, and universal (Darwin 1872/1998). Research studies have supported this idea with empirical findings as reviewed above. As humans, sharing certain similarities and base lines for survival is reasonable and has been functional since human history had begun. Understanding emotional signals on the face that are applicable across cultures, ethnicities, and gender is beneficial in our daily lives and social interactions. However, we do not argue that all humans are exactly the same and that there is no difference and variation in displaying emotions at all.

Human culture functions in an important role in moderating the universal facial signals of emotions once they are experienced and expressed. Culture is an essential guideline for people to socially modify their facial reactions in order to smooth social interactions for social coordination. Culture more heavily influences learned expressions such as those associated with speech illustration or emblematic information. Also, the effect of context should not be neglected. Universal behavioral reactions and culturally specific management of those reactions occur in specific contexts.

Understanding and analyzing why people have emotions and display them in certain ways often provide us with crucial information that could not be conveyed via words. To utilize the valuable contribution of emotion and its expression in our daily life, future research will need to continue to expand cross-cultural studies on the expressions of emotions on the face along with other nonverbal channels, while addressing important methodological issues and concerns. Being aware of and understanding variations in underlying psychological traits and behavioral reactions is meaningful when it is derived from valid scientific evidence. As we have learned via the argument on the ingroup hypothesis, sometimes we do not measure what we set out to test and easily rely on the outcome without understanding the detailed process. Improving the quality of research as all researchers have been doing is crucial in cross-cultural research on emotion, which is directly applicable to real life in inter-cultural interactions.

6 References

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