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Mukha Mo: A Preliminary Study on Filipino Facial Expressions

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Abstract

This study tested the universality hypothesis on facial expression judgment by applying cross-cultural agreement tests on Filipinos. The Facial Action Coding System constructed by Ekman and Friesen (1976) was used as basis for creating stimuli photos that 101 college student observers were made to identify. Contextualization for each emotion was also solicited from subjects to provide qualitative bases for their judgments. The results showed that for five of the six emotions studied, excepting fear, the majority of the observers judged the expressions as predicted. The judgment of happiness supplied the strongest evidence for universality, having the highest correctness rate and inter-observer agreement. There was also high agreement among observers and between Filipinos and other cultures about the most intense and second most intense emotion signaled by each stimulus for these five emotions. Difficulty with the recognition of fear, as well as its common association with the emotion of sadness, has been found. Such findings shall serve as baseline data for the study of facial expressions in the Philippines.

Keywords: *facial expressions, kinesics, non-verbal communication, evolution, emotions*

Accurate interpretation of facial expressions served imperative purposes for early primates' survival. Among pre-literate human ancestors, facial expressions enabled the relay of information from which one inferred states of mind, hence motives, of his peers–allowing him to react or behave accordingly (Ekman, 1997; Parr & Waller, 2006). Visual reception of another's angered face for instance, presented the displayer as a possible aggressor, allowing the observer the decision to escape (Smith, Cottrell, Gosselin, & Schyns, 2005). Likewise, an unspoken display of bared teeth implied intent to withdraw from an agonistic encounter due to its appeasing function (Dobson, 2008; Preuschoft & van Hooff, 1997). Other than a conflict-evasion utility, facial expressions also served to encourage closer-range interactions among early primates, thus facilitating bonding within groups. Such call for social cohesion served to further the evolution of facial expressions as a human system of communication (Burrows, 2008; Dobson, 2008; Parr & Maestripieri, 2003; Parr & Waller, 2006).

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At present, facial expressions continue to be a major aspect of non-verbal communication (Giddens, 2009, p. 252). The display of facial expressions is one of the lowest-cost communication systems among humans, requiring a rather small amount of energy to produce individual spontaneous signals, and is thus intuitively expected in mutually beneficial interactions (Krebs & Dawkins, 1984; Schmidt & Cohn, 2001). Distinct regions of the brain were also developed to specialize for facial expression processing: e.g., the amygdala is largely responsible for the recognition of fear and for expressions of sadness (Schmidt & Cohn, 2001); and the somatosensory and orbito-frontal cortices process the recognition of emotion blends and anger (Adolphs, 1995; Blair et al., 1999; Morris et al., 1996; Schmidt & Cohn, 2001). Such neurobiological specialization for facial expression recognition suggests that perceiving such signals present fitness advantages, more so for those with great sensitivity toward expressions made at even low levels (Schmidt & Cohn, 2001).

Verbal language may be characterized as being the most specialized and adaptive social signaling (Pinker, 1994), but the limitations of such a system as well as people's application of voluntary constraints in using language make it insufficient for successful social interaction (Schmidt & Cohn, 2001). Facial expressions thus remain as compensation for such deficit.

Contemporary studies find even further functions for facial expressions. For instance, in forensic investigations, they may improve reliability of outcomes by serving as physical indicators in deception detection (e.g., Ekman, 1997; Matsumoto, Sung-Hwang, Skinner, & Frank, 2011; Vrij, Granhag, & Porter, 2010). As identified by Vrij et al. (2010), one of the complications in lie detection is skilled deceivers' employment of countermeasures (i.e., attempts to appear and sound credible), requiring the exploration of non-verbal signals that may allow detection of liars despite such tactics; facial expressions were found to top the list of such non-verbal channels which allow leakage in deceivers' countermeasures (Matsumoto et al., 2011).

Statement of the Research Problem

In Ekman and Friesen's 1987 study on facial expression recognition, it was concluded that facial expressions for the six emotions—anger, disgust, fear, happiness, sadness, and surprise—are "both universal and culturally variable" (e.g., same forms of display shown with different display rules). This study fundamentally tackles the question: Are the six facial expressions really universal? It also deals with questions that are Filipino-specific, particularly in identification, labeling, recognition, comparison, and contextualization of facial expressions.

Objectives

This investigation was a preliminary analysis meant to derive foundational data on facial expressions of emotions in the Philippine setting. The objectives were to:

1. determine how Filipino respondents label *ligaya* (happiness), *lungkot* (sadness), *galit* (anger), *suya* (disgust), *takot* (fear) and *gulat* (surprise) facial expressions using their own words;

2. measure accuracy of the Filipino respondents in the identification of facial expressions of emotions as shown in photos in a single-choice judgment task;

3. determine perceived intensity of the six universal facial expressions of emotions as shown in each of the posed, spontaneous, and modeled photographs;

4. find out perceived secondary emotions as shown in each of the posed, spontaneous, and modeled photographs;

5. identify contexts and/or situations in which each of the six facial expressions manifest; and

6. compare Filipino results with other populations from previous studies.

Significance of the Study

Filipino facial expressions have never been a topic of scientific inquiry of peer-reviewed journal articles and social science reviews. While more studies are being done in different countries, this investigation brings forth baseline data that could be the springboard for more extensive research on the intriguing subject matter.

This research is the very first to be conducted in the Philippines. The data collected greatly contributes to the social sciences, especially anthropology and psychology, as the topic of facial expressions is very important in understanding the biological and cultural aspects of human behavior. The face has also been a topic of interest in the field of sociology and it has been compared to a mask (Goffmann, 1955; 1967, p. 5) that alters in different social interactions. This study can be very helpful to the field of forensic and investigative sciences in the Philippines.

Studies on Facial Expressions

Charles Darwin (1872) pioneered the scientific study of facial expressions in his book, *The Expression of Emotions in Man and Animals*, and concluded that emotions have corresponding facial expressions that are universal, that is, expressed with similar facial movements across cultures by virtue of evolution. Further evidence of cross-cultural agreement in judging facial expressions was presented later by Paul Ekman and colleagues. In their classic studies on the subject, above-chance accuracy rates in recognizing emotions from facial expression photographs were discovered in both literate and pre-literate cultures (Ekman, 1972; Ekman, Sorenson, & Friesen, 1969; Izard, 1971; Tomkins, 1964). Six emotions—anger, disgust, fear, happiness, sadness, and surprise—were then concluded to exist with corresponding universal facial expressions (Table 1, Ekman & Friesen, 1987). Contempt, considered as the seventh universal facial expression, was "provided as a separate alternative" for disgust.

Table 1

Percent Agreement Calculations of Different Cultures in Facial Expression Judgment

Country	Surprise	Fear	Anger	Disgust	Sadness	Happiness
Estonia	94	91	67	71	86	90
Germany	87	86	71	61	83	93
Greece	91	74	77	77	80	93
Hong Kong	91	84	73	65	91	92
Italy	92	82	72	89	81	97
Japan	94	65	67	60	87	90
Scotland	88	86	84	79	86	98
Sumatra	78	70	70	70	91	69
Turkey	90	76	79	74	76	87
United States	92	84	81	86	92	95

Note. Source: Ekman & Friesen (1987).

The six universal facial expressions were tested in this study. Table 2 discusses the six subject emotions in terms of their external triggers and facial manifestations; their adaptive functions, some of which already mentioned earlier, are also specified. Emotion terms are in their Filipino translations.

Table 2

The Six Universal Facial Expressions of Emotions

Emotion Expression	Triggers	Manifestations[a]	Adaptive Functions[b]
***Gulat* (Surprise)**	unexpected or "misexpected" situations[c]	raised eyebrows widened eyes, dropped jaw, and parted lips	widened eyes increase visual field to see unexpected stimulus: elicits other responses for rapid movement and hypervigilance
***Takot* (Fear)**	actual and specific sources of danger[d]	raised and curved eyebrows, widened eyes, tense lower lip, lips stretched toward the back	alerts of possible threats and appeases potential aggressors, widened eyes increase visual field and speed up eye movements
***Galit* (Anger)**	stimuli that arouse negative appraisal of self and of society[e]	lowed brows, raised upper lids, and tight and tense lips	alerts of impending threat, signals dominance of expressor
***Suya* (Disgust)**	perception of something offensive in nature of food[f]; body wastes and excretions[g]	nausea and revulsion[h]; raised chin, lowered eyes toward the object of disgust, wrinkled nose, tight lip corners	warns about aversive foods, as well as distasteful ideas and behaviors; allows evasion
***Lungkot* (Sadness)**	loss, disappointment or hopelessness[i]	raised inner eyebrow corners, raised corners of upper eyelids, downward stretching of lip corners, trembling of the lips	tears handicap vision to signal appeasement and elicit sympathy from possible aggressor
***Ligaya* (Happiness)**	positive physical sensations (pleasure), exposure to novel, arousing stimuli (excitement), ending of a negative emotion (relief), enhancement of self-views[j]	lip corners drawn back and upward, mouth usually parted, teeth usually exposed, wrinkle runs down from the nose to the outer edge of lip corners, raised cheeks, crow's-feet wrinkles from outer corners of the eye	communicates a lack of threat, indicates harmonious activities may continue

[a](Ekman & Friesen, 2003). [b](Shariff & Tracy, 2011). [c](Ekman & Friesen, 2003). [d](Ekman & Friesen, 2003). [e](Tavris, 1989; Schieman, 2010). [f](Darwin, 1872). [g](Angyal, 1941). [h](Rozin & Fallon, 1987). [i](Ekman & Friesen, 2003). [i](Ekman & Friesen, 2003).

An opposing culture-specific position, however, was presented by some social scientists claiming that people's display and judgment of facial expressions depend on culture rather than on evolutionary biology (Barrett, 2011; Jack, Blais, Scheepers, Schyns, & Caldara, 2009; Jack, Caldara, & Schyns, 2011; Jack, Garrod, Yu, Caldara, & Schyns, 2012; Mesquita & Frijda, 1992; Russell, 1994). They drew such interpretation from cited cultural differences in accuracy, that is, some cultures outperforming others when it comes to correctly identifying facial expression photo-stimuli. For example, the Japanese have low in-group agreement on expressions of fear, anger, and sadness; Americans have less agreement than other races on contempt; and Vietnamese fare low on agreement regarding disgust (Biehl et al., 1997).

Yet systematic similarities in said error patterns, the extensive replication of findings showing above-chance accuracy and cross-cultural agreement in judgment (e.g., Ekman, 1993; Ekman, 2003; Ekman & Friesen, 1987), and the continuous use of the basic emotions theory in modern literature render the universal claim more accounted for (Adolphs, 2002; Banninger-Huber & Peham, 2007; Dailey et al., 2010; Elfenbein, Mandal, Ambady, Harizuka, & Kumar, 2002; Ekman, 1996; Giddens, 2009, pp. 252-254; Schmidt & Cohn, 2001; Sharrif & Tracy, 2011; Tomkins & McCarter, 1964). Findings from among pre-literate groups (Ekman & Friesen, 1987) further amplify this claim—as concurrence on emotions recognized from facial displays was shown to emerge even in cultures isolated from expectation influences of other studied cultures, implying the innateness of judgment capacities. Similarly, an experiment on children with disabilities (Eibl-Eibesfeldt, 1973) demonstrated how individuals born deaf and blind display the same facial actions expected of those who may see – likewise proving that groups untainted by popular visual and aural influences on expected emotion displays produce the same facial expressions (Giddens, 2009, pp. 252-254).

The evolution of early primates' rigid and furry face structures into naked and flexible human ones happened for survival (Elias, 1987; Giddens, 2009, p. 253). It allowed humans useful communication based merely upon the *signalling board* of the face (Giddens, 2009, p. 253) whilst unevolved ape relatives continue to need extensive use of *whole body* signalling. Without facial malleability, emotion and intention signals could not have been communicated and, in turn, appropriately reacted to. As such, a view attributing culture specificity on facial expressions with disregard for evolutionary origins is unaccounted for.

Cultural differences cited by opposing scientists, Ekman and colleagues acknowledge, may be attributed to "management techniques"—that is, senders'

modification or suppression of normally honest expressions depending on potential costs or benefits of revealing information, given a specific situation or cultural context (Ekman, 1993; Keltner & Buswell, 1997). This was apparent in a cross-cultural study which showed that Japanese subjects suppressed their facial display of negative emotions when a stranger or person of authority was present to observe them (Yuki, Maddux, & Masuda, 2007). What this explains is that such management techniques may be applied via various cultural dictations but honest expressions have universally expected facial movements and, as shown in replicated findings, have above-chance accuracy rates in agreed perception (Ekman, 2003). As similarly recognized by Elfenbein et al. (2007), emotions are by base universal. Although cultures at times differ in degree of agreement or develop their own emotional dialect variations, such variations still operate within the same universal theme.

Nonetheless, continuous evaluation of the universality hypothesis's manifestation in more cultures provides further convincing arguments in its line, as well as furthers explanations on cultural and situational differences in expression management and perception.

Methodology

Quantitative measures developed by Ekman and his colleagues were replicated to test the six emotions' universality. Qualitative approaches in investigating non-verbal communication were additionally employed to explore respondents' interpretations of emotions and derive themes in such.

The participants consisted of 101 students (25 males and 76 females) from the University of the Philippines-Diliman, who were at least 18 years old at the time of study. Such number was achieved from a two-week convenience sampling of volunteer participants. Data collection was done in Palma Hall from September 5 to 16, 2011.

Stimuli

Eighteen facial photos were used—three photos to represent each of the six basic emotions. All photos were assessed based on Ekman and Friesen's (1978) Facial Action Coding System (FACS) and grouped into modeled (six), spontaneous (six), and posed (six). FACS describes in detail specific actions produced by particular facial muscles given a triggered emotion and is the most comprehensive anatomically-based coding system used in numerous facial expression studies (Adolphs, 2002; Banninger-Huber & Peham, 2007; Cohn,

Ambadar, & Ekman, 2007; Dailey et al., 2010; Ekman, 1996; Ekman & Rosenberg, 2005, p. 267; Elfenbein et al., 2002; Schmidt & Cohn, 2001; Sharrif & Tracy, 2011; Tomkins & McCarter, 1964).

Subjects of the photos are all Filipinos (3 males; 15 females). Posed and spontaneous expressions were taken from internet sources which were considered in public domain or volunteered by their respective legal owners, while the six modeled pictures were taken by directing a Filipino model to move specific facial muscles to produce the correct expression as described in FACS. All photographs were colored and shown to the observers on a laptop monitor.

The observers were given structured, self-administered questionnaires written in Tagalog. Questionnaires also included personal information sheets for the observers' demographics and answer spaces for the judgment and observation parts of the study. The emotion-word choices in Tagalog-based Filipino were translations of a Filipino linguist, evaluated for accuracy through having a second party translate the terms back into their English versions. *Inis*, the Tagalog translation for contempt, which is considered the seventh universal, was considered as a response alternative to disgust or *suya* because of "other interest in whether contempt can be distinguished from disgust expressions" (Ekman & Friesen, 1987).

Judgment Tasks and Procedure

The first part of the test was called free labeling; respondents were shown different photos of the six facial expressions and were instructed to identify, in their own words, the emotions conveyed. The pictures were flashed for 10 seconds and the respondents were given 5 seconds to write down their answers.

The second part, known as single-choice judgment, involved 18 photos and the observers were instructed to encircle one of the six Tagalog emotion terms to record their judgment. The images were flashed for 10 seconds and the respondents were given 5 seconds to choose an answer.

The third part was intensity judgment, wherein 18 photos were shown for 30 seconds and the respondents were given 30 seconds to answer, as they were instructed to rate each of the six emotions with an 8-point scale (from 0 signifying absent, 1 as slight, 4 as moderate, and 8 indicating strong) to determine the intensity of each of the emotions in every photo.

The fourth part was qualitative and required respondents to give a sample situation or context for each provided emotion-word. No time limit was set.

Data Analysis

Data were analyzed through the R statistical software. Agreement rates were derived from the sample's answers to measure their accuracy in recognizing facial expressions when given a single-choice list of options. Kappa coefficients were also computed to measure the degree of reliability in the derived agreement rates from among observers. Frequency scores for the first and second parts were derived. Though the aim was to provide empirical analysis of data from the experiment, the study proved to require a qualitative approach in order to explain and complement the quantitative findings. Through results of Part 4, patterns in the participants' given emotion-related situations were looked at.

Results and Discussion

In part one, respondents identified emotions using their own words in the local language. Figure 1 demonstrates that all six facial expressions were labeled similarly with above-chance rates.

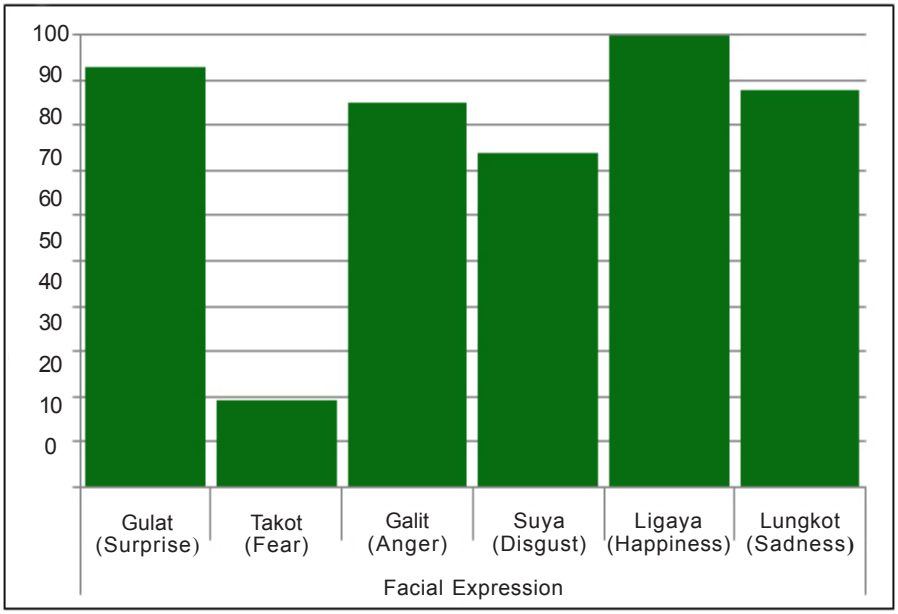

Figure 1. Free labeling results in percentage

Tagalog synonyms for happiness (*ligaya*, *saya*) were grouped together, and *inis* and *suya* were clustered for disgust. Five of the six facial expressions were consistently identified, with happiness as the most familiar (100%), followed by surprise (or *gulat*, 93%), sadness (or *lungkot*, 88%), anger (or *galit*, 85%), and disgust (74%). The facial expression of fear, or *takot* in Tagalog, was recognized only by a measly 19% of the respondents, with more people naming it as surprise (35%).

Results of Part 2 revealed a high level of agreement (99.34%) backed with high inter-rater reliability (kappa: 0.99, $p < .001$) in the correct judgment of happiness. Values for the succeeding emotions show facial display recognition with relatively lower agreement at still above-chance accuracy rates. The participants were more accurate on identifying facial displays of surprise (94% agreement; kappa: 0.89), sadness (89%; kappa: 0.80), and anger (87%; kappa: 0.78), whereas they fared with lesser accuracy on displays of disgust (78%; kappa: 0.65) and fear (28%; kappa: 0.64). Despite observed variation in the extent of agreement, what is relevant is that for five of the six emotions, the majority of observers judged the expressions as predicted. These statistics strongly support universality and cross-cultural agreement when presented with single-choice judgment tasks.

Fear, with the lowest correctness rate in judgment and with the biggest discrepancy in agreement rate compared to other cultures (see Table 3), was

Table 3

Percent Agreement Calculations of Different Cultures in Facial Expression Judgment, with Philippine Data

Country/ Culture	Surprise	Fear	Anger	Disgust	Sadness	Happiness
Estonia	94	91	67	71	86	90
Germany	87	86	71	61	83	93
Greece	91	74	77	77	80	93
Hong Kong	91	84	73	65	91	92
Italy	92	82	72	89	81	97
Japan	94	65	67	60	87	90
Scotland	88	86	84	79	86	98
Sumatra	78	70	70	70	91	69
Turkey	90	76	79	74	76	87
United States	92	84	81	86	92	95
Philippines	**94**	**28**	**87**	**78**	**89**	**99**

found to be mistaken for surprise by most respondents. Eighty-six percent answered the latter instead of correctly identifying the photographed emotion as the former.

In the third part of the study, participants were asked about their perceptions on how intensely each emotion is expressed in the stimuli photos. Happiness was correctly found as most evident, garnering the highest perceived mean intensity of 6.61, with no perceived second most apparent emotion.

Surprise also had a high perceived mean intensity of 6.37. Fear was perceived in these stimuli as the secondary emotion, with a 3.38 mean intensity. Albeit in a reverse case wherein the presented stimuli contained the fear emotion, surprise was rated as more intensely evident (with a mean intensity of 5.87) rather than the actual depicted emotion. Fear was only perceived with a 4.34 mean intensity in its own stimuli photos. Fear, as similarly shown in results of the free-labeling and single-choice judgment tasks, was mistaken for surprise by the majority.

Interestingly, fear was perceived as the secondary emotion in the sadness stimuli. It had a mean intensity of 1.83 in photos depicting sadness; sadness in its stimuli photos was correctly perceived as the most intense emotion, with a 6.35 mean intensity. Contextualization given by respondents in the fourth part reinforces this result. It shows that similar and/or connected situations are perceived to stir manifestations of fear and sadness. Both emotions were associated with the occurrence of negative events. Recurrent themes identified for both were: loss of loved ones, being alone, rejection, irresolution about the future, unfortunate events, and failure. The two emotions were connected in a before-after relationship: fear was identified as the anticipation of a negative event, while sadness comes after as an effect of the negative event's occurrence.

With regard to anger, observers similarly found the emotion most evident in its stimuli photos—a mean intensity of 6.47 was agreed on. Disgust was identified as its secondary emotion with a mean of 1.87. For the disgust stimuli, respondents rated the pictures a mean intensity of 4.60—also the most intense rating—for the predicted emotion, and anger is its secondary emotion with a mean intensity of 3.32.

Kappa coefficient values (computed using the emotion scale rated as strongest) all showed above-chance accuracy rates in judgment: surprise (0.89), fear (0.53), disgust (0.54), anger (0.88), happiness (0.97), sadness (0.86). Meanwhile, overall kappa coefficient for single-judgment is 0.790 and for intensity

judgment is 0.77, which means that inter-observer agreement is statistically significant just like the previous studies concluded (see Table 4).

Table 4

Kappa Coefficients with Philippine Data

Country/Culture	Single Judgment	Intensity Judgment
Estonia	0.790	0.744
Germany	0.736	0.739
Greece	0.762	0.789
Hong Kong	0.763	0.718
Italy	0.800	0.783
Japan	0.693	0.678
Scotland	0.815	0.809
Sumatra	0.657	0.541
Turkey	0.729	0.738
United States	0.835	0.607
Philippines	**0.790**	**0.778**

These results strongly support universality and cross-cultural agreement when presented with single-choice and intensity judgment tasks. The predicted emotion being the one to gain the most intense rating is verified for all the expressions, except for fear. However, the mistakes in fear recognition are also significant, which means that there is also agreement between respondents misjudging it as surprise.

Part 4 revealed participants' prepossessed contextualizations pertaining to each emotion. As mentioned earlier, similarities in contextualization for fear and sadness were found, and that a before-after relationship may be inferred to exist between them. Participants' sample situations for fear and surprise on the other hand, reveal no notable similarities except for "watching horror films (wherein a both surprising and fearsome element surfaces)." This implies that a reason other than prepossessed knowledge or culturally-defined contextualization may be responsible for the sample's confusion between the two emotions. Results on anger confirmed a previous Philippine study done on the same emotion (Lorenzana, 2006) which found that among Filipinos,

anger is always aimed toward a person or group of people, regardless of whether it was an event or an object that actually first stirred the emotion. Disgust was usually associated with food and the senses of smell and taste, while contempt entails ill feelings toward a person. Happiness, for the sample, primarily pertained to experiences involving togetherness with loved ones, achievements, and obtaining desires.

Universality of Happiness

Of all the emotions studied, happiness was the only emotion that was correctly identified by all the participants. No secondary emotions were found in its stimuli photos, which means that facial manifestations of this emotion are particularly evident. As shown in Table 3, this emerges in most cultures: Happiness is the easiest to recognize among all facial expressions. Hampton, Purcell, Bersine, C. H. Hansen, & R. D. Hansen. (1989) have concluded in their experimental study that the ease in identifying the happiness emotion may be attributed to its higher prevalence in all social contexts (Carjaval, Vidriales, Rubio, & Martín, 2004).

Indeed, the expression of happiness serves functions too imperative in group cohesion for it not to be prevalently used and easily recognized. According to Bergstrom and Lachmann (1998), regular displays of a happy facial expression serve to convince its observers to reciprocate, thus maintaining positive fitness consequences (Schmidt & Cohn, 2001). On the contrary, failure to signal such emotion regularly may cause social difficulties. Happy facial expressions also signal altruism–and for individuals who fail to signal such attribute, embarrassment and shame may be stirred, making the expression of happiness even more regularly expected (Schmidt & Cohn, 2001). An even more apparent manifestation of the inadaptability that comes with not being able to convey altruistic information is seen among people with psychological disorders. As found by Mueser, Valentiner, and Agresta (1997), Sakamoto, Nameta, Kawasaki, Yamashita, and Shimizu (1997), and VanSwearingen, Cohn, and Bajaj-Luthra (1999), not being able to correctly express the happiness emotion was found to be a result possibly of schizophrenia, Parkinson's, depression, and facial paralysis (Schmidt & Cohn, 2001). Individuals with these disorders suffer social difficulties from the inhibition of their ability for facial displays. Such findings exhibit the importance of regular happiness expression, given the trouble spurred by its absence.

Universality of Surprise

It was consistently found in Parts 1, 2, and 3 of the study that Filipinos can correctly identify surprise. It is also the second most recognized facial expression next to happiness. According to Ekman and Friesen's 1987 study on the universality of facial expressions, surprise received the highest cross-cultural agreement, along with happiness and sadness, in the recognition of emotions (see Table 1). There was also complete agreement among the 10 cultures they have studied that in every expression of fear, the secondary emotion perceived was surprise.

Another study conducted by Biehl et al. (1997) confirmed the universality of surprise. The Japanese and Caucasian Facial Expressions of Emotion (JACFEE) were assessed by subjects from Western (Hungary, Poland, and the United States) and Eastern countries (Japan, Sumatra, and Vietnam). High agreement was seen across cultures in identifying emotions in the photo set. Agreement levels for happiness and surprise were also the highest and fear also registered the lowest, coinciding with this study's results and that of Matsumoto and Ekman (1989). The researchers explained that "happy and surprise expressions are relatively simple expressions," given the number of facial muscles involved and the degree of voluntary control over those muscles.

Difficulty with Fear Recognition

Matsumoto and Ekman (1989) also concluded that fear is "one of the most complex expressions, given the number of muscles innervated and the relative lack of control over the naturally antagonistic action of some of those muscles." In this study, disagreement in identifying fear emerged in experiment results. Table 3 shows how Filipino observers fared far worse than other previously studied cultures in recognizing this emotion. Furthermore, the majority of the sample had misinterpreted it as surprise. Such difficulty may be explained by the following reasons:

1. Psychological/neural behavior

The fear facial expression is a distress cue that is said to be universally displayed and recognized among human populations. However, selective impairments in identifying this facial expression have also been found in populations marked by antisocial behavior and lack of empathy. It was thus concluded that people's ability to recognize the fear facial expression and their tendencies for either prosocial or antisocial behavior are interrelated (Kropp &

Haynes, 1997; Montagne, Kessels, Frigerio, de Haan, & Perrett, 2005; Stevens, Charman, & Blair, 2001). If such rationale were to explain Filipinos' difficulty in recognizing fear, it would be inconsistent with their traditional attribution of being a collective, hence empathic, culture (Bonifacio, 1977).

Bilateral damage and lesions in the amygdala are also said to significantly affect and impair the ability to seek out and make use of the eye region of the face, causing an impaired fear perception (Adolphs, 2002). This impairment can happen to both static (Adolphs, Tranel, H. Damasio, & A.R. Damasio, 1995) and dynamic (Graham & LaBar, 2007) facial expressions. Hoffman, Papas, Chatkoff, and Kerns (2007) state that amygdala activation can also be inconsistent for facial expressions of fear or threat, and also correlates with correct identification of fear faces (Leitman et al., 2008). However, regardless of the number of researches done on this topic, there is still some inconsistency in the findings. For example, amygdala lesions can also impair recognition of emotions other than fear, and some claim that amygdala activation may not be at all specific to the emotion (Fitzgerald, Angstadt, Jelsone, Nathan, & Phan, 2006; Van der Gaag, Minderaa, & Keysers, 2007), nor to its facial expressions (Britton, Taylor, Sudheimer, & Liberzon, 2006).

Other studies suggest that although the amygdala can process fearful facial expressions in the absence of conscious perception or in the unconscious, and while there is some degree of pre-attentive processing, this depends on the context and is not necessarily more rapid than cortical processing routes (Adolphs, 2008).

2. Cultural differences

The face is the characteristic which best identifies a person. The face also symbolizes social valuation (Goffman, 1955, p. 213; Carr, 1993) and reputation (Hinton, 2005, p. 253; Ho, 1975), which is why English phrases like *save face* or *lose face* are equated to being humiliated or losing one's good standing in society. Though this concept of face originated in China (Ho, 1975), the Filipino term *mukha*, from the Malay word *mukh*, shares the same connotation and sentences like "*Anong mukha ang maihaharap ko?"* (How can I face them?) are expressed when one has been humiliated. Humans are emotionally invested in their faces (Brown & Levinson, 1978, p. 66) and faces are important to expression of emotions.

Cultures of individualism or independence emphasize the direct and explicit expression of emotions (Markus & Kitayama, 1991). In Western cultures

where people tend to have an independent self-construal, denying the expression and experience of feelings is equated with denying one's true self. By contrast, in Asian countries such as Japan, China, and Korea where people are more collectivistic and interdependent, it is more important for emotional expressions to be controlled and subdued (Jack et al., 2009). A relative absence of affect is considered crucial for maintaining harmonious relationships, such that individuals do not impose their feelings on others (Heine et al., 1999; Markus & Kitayama, 1991). Without contextual information, it may be difficult for Filipinos to read facial expressions like their fellow Eastern Asians. Because of this collective trait among Filipinos, it becomes necessary for them to sustain relationships, and in turn control their facial expressions to avoid conflict. Jack et al. (2009) found that to achieve such conflict-avoidance, Asians persistently fixate the eye region rather than distribute fixations evenly across the face—which thus delivers vague information and causes confusion.

Another reason for emotion suppression could be traced back to Filipinos' centuries-long history of oppression—under foreign colonizers and a local dictator (Constantino, 1969, pp. 27-150; 1978; Guerrero, 1970, pp. 5-33)— which imposed full authority over their social dynamics. Due to constant exposure to threats and danger, Filipinos have conditionally grown accustomed to managing the expression of fear. Evidence of this behavior is also recognized in the study conducted by Yuki et al. (2007) wherein the Japanese mask their negative emotions when conscious of someone else or an authority figure observing them.

3. The replacement of fear with surprise

The Filipino sample's tendency to mistake fear for surprise may be related with Ekman and Friesen's (1971) findings in Papua New Guinea, where a population in the South Fore similarly could not distinguish fear from surprise. This was hypothesized to be due to the tribe's isolation from Western influences in culture, which raised questions on the link between people's exposure to foreign influences and their ability to accurately recognize and judge others' emotions through facial expressions. As suggested by Solomon, Medin, and Lynch (1999), recognition of fear in facial expressions proceeds from linking the stimuli's perceptual properties to one's pre-possessed knowledge about the emotion, to the person's lexical label for fear, and then to the perception of the emotional response that the stimulus triggers in the subject. The role of pre-possessed knowledge in fear recognition may explain such difference among literates and pre-literates in recognizing its expression (Adolphs, 2002).

Filipinos' Recognition of Anger

It is interesting that while anger translates to *galit* in the Filipino language, parallel to its language transfer is its modification in context. The Filipino *galit* is distinctive as it has always been directed at a person, that is, "a person, never a thing or event, is always the object of the anger emotion" (Lorenzana, 2006, p. 4). The idea of Filipino anger is irrespective of what—an act, event, or object—actually elicits the negative feeling; a person or persons in any case will be taken as the trigger of the anger emotion. Such concept explains results in the qualitative part of the study: All of the respondents had anger-related situations associated with a specific person or a group of people.

Furthermore, 87% of the respondents correctly recognized the anger facial expression in its prepared stimuli. This high proportion may be attributed to the cultural concept of Asians' non-confrontational anger. Filipinos usually placate and resolve angry emotions in as evasive and least aggressive means as possible (Lorenzana, 2006). Studies on emotion regulation show that conscious expression-suppression strategies may be consciously done to neutralize emotions (Goldin, McRae, Ramel, & Gross, 2008; Gross, 2002). Although assumptions to the opposite—inhibition of strong emotions can unconsciously manifest through facial expressions—are premature at the moment, the study of the possible correlation between the culturally-driven suppression of emotion and facial expression is deemed to be prospective.

Filipinos' Recognition of Disgust

The disgust facial expression was recognized with a 79% agreement rate. It is relatively lower than anger, but nonetheless highly recognizable. In Part 1 where respondents were not given a wordlist of emotions, the stimuli for disgust were often labeled with another Filipino word: *inis,* the Tagalog translation of contempt, the seventh universal emotion, which is closely related to disgust. Contempt, unlike disgust, has a tinge of condescension toward a person or an event, and is not used to refer to disliking tastes, smells, and sights.

It is also interesting to note that in Part 4, aside from the usual relation of disgust to food, such emotion was linked with disdain for repetitive tasks. Such may be attributed to the close relation between feelings of disgust (*suya*) and feelings of being fed up with or sick of something (*sawa*) in the Filipino context, as shown in their almost similar translations and interchangeable usage.

Another inference from the findings suggests that anger and disgust are two closely related emotions. This is strongly supported in Part 3 where disgust was identified as the secondary emotion to anger, and vice versa – that is, anger was secondary to disgust. This may also explain the presence of anger-disgust blend facial expression which appears to be the standard contempt facial expression.

Universality of Sadness

Similar to the performance of other cultures (see Table 3), Filipinos' recognition of sadness also had a high rate. Sadness was one of the most easily recognized emotions, which is consistent with Ekman's (1970) claim of such emotion's facial display being one of the most easily recognizable expressions. In accord to such finding is that from an experiment done by Wang and Markham (1999) on Chinese respondents similarly showing sadness as one of the emotions most accurately identified (Altarriba, Basnight, & Canary, 2003). Another explanation for the yielded high accuracy rate, one which may as well be applied to other emotions garnering the same agreement degree, is the so-called "in-group advantage," that is, the looker and portrayer being from the same cultural framework (Elfenbein & Ambady, 2002; Elfenbein et al., 2002; Matsumoto, 2002). Additional explanation for this was provided in a study conducted by Young and Hugenberg (2010), which found that accuracy in emotion identification can be affected by social category distinctions.

Ekman and Friesen (2003) found that sadness can blend with any of the emotions, but most often with anger and fear. Situations associated with fear and sadness also emerged to be similar, as found in qualitative results: loss of loved ones, being alone, rejection, uncertainty or irresolution about the future, ironic events, and failure. Ekman (1972) argued that such elicitors of emotions would most likely vary with culture—that is, cited situations may be defined by various cultural environments. Being alone is associated by Filipinos with sadness because it violates their culturally defined social expectations regarding close social ties and collectivism (Bonifacio, 1977). Fear may also be elicited by being alone when it is one's disposition during times of danger and vulnerability as it signals the absence of rescue or aid (Ernst & Cacioppo, 1999), which is why collective mourning is practised in funerals in the Philippines (Luciano,1993), where surviving family and loved ones keep each other company. As mentioned in the results, the two emotions' connection may be articulated as a before-after relationship: fear is associated with the anticipation of a bad event whereas sadness is stirred upon such event's occurrence, and this association could be culturally unique for Filipinos.

Conclusions and Recommendations

Above-chance accuracy in identifying emotions from facial expressions confirmed universality and cross-cultural agreement for Filipinos. High agreement was also found in judgments for five of the six emotions studied, with the exception of fear which had a significantly lower agreement rate. Despite observed variation in the extent of agreement, what is relevant is that for five of the six emotions, the majority of observers judged the expressions as predicted.

Secondary emotions identified by the Filipino sample for each emotion also coincided with those recognized by foreign samples studied in classic research. The universal nature of facial expressions is shown to hold strongest evidence when close similarities in recognition continue to emerge despite context and linguistics-related differences in people's linking of emotion concepts to their names (Adolphs, 2002; Ekman, 1994; Weirzbicka, 1999). Such close similarities were found in quantitative results showing recognition of primary and secondary emotions that is similar to that of other cultures.

A finding that may be emphasized by culture-specificity supporters is how Filipinos fared badly in the recognition of fear (see Table 3). It was confused with surprise as well as significantly linked with sadness—an association supported by the two emotions' similar contextualization in the qualitative results. To be noted therefore is that although the recognition of fear posed notable difficulty, such is explained by cross-culturally similar and previously-cited neural, cultural (i.e., Ekman's "management techniques," Asians' collectivism), and systematic error (i.e., replacement with surprise) grounds which are also found to hold in other cultures (e.g., Asians, South Fore).

As stated in the discussion of facial signaling difficulties, being unable to recognize emotions in facial expressions of other cultures brings such drastic and deeply damaging social consequences that it is difficult to imagine rigid cultural-specificity that disallows universal commonalities in facial expression recognition (Schmidt & Cohn, 2001; Van Swearingen et al., 1999). With facial expressions continuing to play imperative roles in universal human phylogeny as they did in the long collective prehistory of primate sociality, it is unlikely that their recognition as a collective/cross-culturally similar system of signals would disappear completely (Schmidt & Cohn, 2001).

Collected findings have limited generalizability due to the study's small sample size. To be comprehensive, a similar study on a national level is recommended so as to accommodate wider ranges of various Philippine ethno-

linguistic groups, as well as to feature each one's approaches to identifying facial expressions. A study that co-features out-group (i.e., non-Filipino) subjects may also be conducted for cross-cultural comparativeness.

There is likewise a need to closely examine Filipinos' mistaken discernment of fear as surprise—why it happens for such population and what factors contribute to its emergence among Filipinos. Neurobiological studies on the subject may further shed light on this confusion—previous studies by Celani, Battacchi, and Arcidiacono (1999), Ellis and Young (1998, p.72), and Young, Newcombe, de Haan, Small, and Hay (1998) found evidence for the existence of separate neurobiological mechanisms for facial expression recognition and how the damage of each contributes to the loss of such recognition abilities (Schmidt & Cohn, 2001). Cases of autism and traumatic brain injury are associated with reduced responsiveness to anger, for example (Poljac, Montagne, & de Haan, 2011). Evidence as such supports the affective value of social stimuli on neurobiological mechanisms and their abilities (Adolphs, 1999; Brothers, Ring, & Kling, 1990; Schmidt & Cohn, 2001). A study on Filipinos' social stimuli and such factors' relationship to their ability to recognize facial displays may explain the study's findings implying confusion about certain emotions.

Contempt as *inis*, eliciting a related but different facial expression—that of disgust— should also be explored. Can Filipinos distinguish the differences between *suya* and *inis*? Do Filipinos see contempt the way other populations do? Is contempt really universal?

There is also a need to investigate further the relationship between sadness and fear. Though Ekman and Friesen (2003) claimed that sadness usually blends with fear (also anger), there has been no documentation on a population that associates the two, with a distinctive before and after relationship, except for the Filipino respondents in this study.

Correlations between aspects beyond underlying physical variations in face signals and the observers' ability to accurately recognize them may also be explored. Further factors that may be related to such judgment capacities would be the observers' sex (Briton & Hall, 1995; Chapell, 1997; Schmidt & Cohn, 2001), age (Chapell, 1997), and cultural backgrounds (Ekman, 1973; Kupperbusch et al., 1999; Schmidt & Cohn, 2001). Sexual differences in facial display and recognition of emotion, in particular, is currently of interest– for instance, evidence was found recently that women specialize in happiness expressions and that men fare better in recognizing anger expressions (Schmidt & Cohn, 2001); women were also found to possess different muscular structures

specialized for their more frequent smiling (Chapell, 1997; Schmidt & Cohn, 2001). Lastly, and similarly important in the scope of judgment aspects, would be individualized factors such as the sociality of the situation wherein the judgment takes place (Fridlund, 1994; Friedman & Miller-Herringer, 1991; Jakobs, Manstead, & Fischer, 1999; Schmidt & Cohn, 2001; Yuki et al., 2007) and the degree by which the stimuli can elicit judgment and reaction in the observer (Cohn & Tronick, 1983).

Only upon establishment of such foundational studies and their replication can functional ones then be commenced. Applications of findings about facial expression judgment and display on deception detection (Ekman, 1997; Fridlund, 1997; Vrij et al., 2010), character impression and judgment (Sullivan & Masters, 1991, p. 188; Schmidt & Cohn, 2001), facial displays' effects on speech appraisal (Ekman, 1979; Bavelas & Chovil, 1997, p. 334; Burling, 1993; Massaro, 1998; Schmidt, 2000; Schmidt & Cohn, 2001), Filipino-specific emotion and behavior such as *hiya* (Enriquez, 1976) and further applications may henceforth be explored.

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