

Who to whom and why – cultural differences and similarities in the function
of smiles

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... this is how you sweep a yard; this is how you smile to someone you don't like too much; this is how you smile to someone you don't like at all; this is how you smile to someone you like completely; this is how you set a table for tea; ... Jamaica Kincaid (1978, p.29)

The ubiquitous smile

People smile. People smile in public and in private, when they are happy and when they are distressed, during conflict and as a sign of intimacy. People smile often. Chapell (1997) counted public smiles in malls, stores, stadiums, restaurants, etc. for 15,824 children, adolescents, young adults, middle aged adults and older adults and found that across all age groups 35.3% of the men and 40.3% of the women smiled. Yet, not everyone smiles equally. Younger people smile more than older people, individuals of European descent smile more than Asians and women smile more than men, – or at least that is how the common gender stereotype describes women. The present chapter presents an analysis of the function of smiles, of the role of smiles in interpersonal perception, and on individual differences, especially cultural differences in smiling.

In Western society, smiling is a highly valued behavior. People who smile are generally perceived more positively. This effect was first reported by Thornton (1943) who found that smiling individuals tend to be rated higher in kindness, honesty and sense of humor. Numerous studies have found similar effects for other positive personality traits. For example, people who smile are perceived as more pleasant (Mueser, Grau, Sussman, & Rosen, 1984), sincere, sociable, and competent (Reis, et al. 1990), as well as more honest (Ruback, 1981). According to Deutsch, LeBaron, and Fryer (1987) smiling individuals are perceived not only as happier, but also as more

carefree, more relaxed, and more polite. Further, the frequency of smiling by an individual affects the amount of warmth perceived by others (Bayes, 1972; Lau, 1982; Deutsch et al., 1987). In addition, smiling increases ratings of attractiveness (McGinley, McGinley, & Nicholas, 1978; Mueser et al., 1984; Reis et al., 1990). Sandow (1997) found that 8 to 10-year olds draw both “nice people” and “clever people” as smiling. Smiling also elicits greater leniency towards an individual accused of an academic transgression -- even though the smiling transgressor is not judged as less guilty than the non-smiling transgressor (LaFrance & Hecht, 1995). Smiling even increases ratings of familiarity for both familiar and unfamiliar faces (Baudouin, Gilibert, Sansone, & Tiberghien, 2000). The value of smiling – not only for members of Western cultures – is also shown by the finding that French Canadians as well as recent immigrants from Asian and French speaking African countries show an in-group bias for the attribution of smiles (Beaupré & Hess, 2001). Specifically, participants read a vignette describing a protagonist in a non-emotional, non-social situation (waiting for the computer to boot up), and chose one of six facial expressions as most appropriate to the context. Members of all three groups chose smiles more frequently as the most appropriate expression for members of their in-group, whereas they chose neutral facial expressions more often as appropriate for out-group members.

Given that smiling is so highly valued it is not surprising that individuals are frequently found to smile. Yearbook studies show that people who present themselves for posterity prefer to show a smiling face. For example, a systematic study of yearbook pictures of students and staff during the period from 1968 to 1993 revealed that on average 55% of the men and 80% of the women smiled (Dodd, Russell, & Jenkins,

1999). Similar findings are reported by DeSantis and Sierra (2000) for the period from 1903 to 1999 for adults photographed for pleasant public occasions such as award ceremonies and engagement/wedding announcements as well as yearbook photos. They did not observe full smiles on photos until 1920; however, by 1970 approximately 60% of the men and 80% of the women showed a partial or complete smile. In both studies gender differences emerged: women smiled more than men. However, this gender difference in smiling is not found in very young children. Kagan et al. (1994) did not find gender differences in smiling in 4-month old American infants and Dodd et al. (1999) did not observe gender differences until Grade 4. Similar findings are reported by Otta (1998), who found no gender differences for 5-year olds based on photographs of Brazilian middle class individuals from a variety of settings.

In sum, smiling is an ubiquitous activity for both men and women. Yet, older women and men seem to smile less. Otta (1998) found that older individuals in general and men in particular smile less frequently and less intensely. Although 79% and 50.3% of women and men aged 20-40 years smiled, only 46.9% and 21.8% percent of the women and men in the 60+ years group smiled. Ura and Yatomi (1997) report a similar decrease in smiling for older Japanese women and men. They propose that when the older age group was young the display rules for smiling were different. This proposal is congruent with DeSantis and Sierra's (2000) observation that in the early years of the 20th century smiling in yearbook photos was rare, and no full smiles were found before 1920.

Smiling is also in some sense a "female" activity – at least from a certain age on. In fact, one of the most clearly demonstrated gender stereotypes regards women's smiling. Women report smiling more and are considered by others to smile more (see

Briton & Hall, 1995; Fischer, 1993). Two recent meta-analyses conclude that women smile more in a variety of contexts (Hall, 1998; LaFrance & Hecht, 2000). Yet, studies that measured male and female smiling in controlled settings do not always find this difference (Brennan-Parks, Goddard, Wilson, & Kinnear, 1991; Brody & Hall, 1993; Willson and Lloyd, 1990).

Not only do women smile more, smiling individuals are perceived as more female. For example, when babies -- who generally tend to be labeled as male (Hildebrandt & Fitzgerald, 1979) -- smile, they tend to be more often identified as female (Nagy, Nemeth, & Molnar, 2000). Further, babies identified as girls are described as smiling (Burnham & Harris, 1992).

Why do women smile more than men? LaFrance and Hecht (2000) have proposed an Expressivity Demand Theory to explain the impact of social context and gender on smiling in women. This theory is based on the recognition of the existence of sex-based expressivity norms that specify which sex should be more expressive. It further takes into account situational requirements for and against smiling. A central role in this context is played by the relative power of men and women. In most contexts women have less power than men, and LaFrance and Hecht emphasize that high power individuals have more freedom to decide whether to smile or not in a given situation. According to Expressivity Demand Theory, gender differences in smiling should be most prevalent when situational demands are absent or ambiguous. A notion supported by the finding that gender differences in smiling are less often found in controlled situations with a clear situational demand.

Hall and Friedman (1999) agree that women smile more and emphasize the ambiguous nature of the link between smiling and power. Their review of the literature shows that evidence for the link between smiling and power is rather mixed. They conclude that gender differences in smiling are more pronounced when status differences were controlled.

One problem is that studies on the link between power and smiling have defined power through occupational roles that may confound role demands (i.e., ingratiation) with status (i.e., applicant). This is the case for studies that have focussed on roles such as employer versus prospective employee in a job interview (LaFrance & Hecht, 1999) or on organizational status (Hall & Friedman, 1999; Johnson, 1994). Yet, some evidence suggests that smiling may be linked more to esteem or popularity than to objective power. Thus, Cashdan (1995) found smiling linked to sociometric status (operationalized as popularity), but not to power (operationalized as toughness and leadership). Willson and Lloyd (1990) photographed 3,419 undergraduates from the University of Sussex and found no differences in spontaneous smiling between men and women, but a strong difference between art school and science school majors with the latter smiling significantly less than the former. They explain this finding by the higher esteem/prestige of science versus art school students.

The notion that smiling is not mediated by power per se but rather by a complex set of expectations linked to perceived dominance has been explored by Adams, Kleck, Hess, & Wallbott (2000). They found that men's and women's expected propensity to smile and to show anger is correlated with perceived facial dominance. That is, individuals who were rated as dominant based on their neutral facial expressions were

also expected to show anger more frequently and happiness or smiling less frequently. When neutral faces were equated for dominance this gender bias was reversed and men were expected to show less anger and to smile more compared to women. Similarly, when facial displays were equated for dominance, the bias to rate women's smiles as happier and their sadness displays as sadder, as well as men's anger display as angrier, disappeared or even reversed (Hess, Adams, & Kleck, 2001). Specifically, across three studies, women's anger displays were rated as angrier, whereas men's smiles were rated as happier. Hess et al. also found evidence for a display rule that discourages the display of anger in an anger-eliciting situation for individuals described as low dominant. However, the reverse effect suggested by LaFrance and Hecht (1999), that low dominance individuals are more obligated to smile was not supported.

In sum, these findings suggest that smiling is not strictly a feminine activity, nor is it an activity that individuals with objective low power are obliged to emit. Rather, observers expect more smiling from those individuals whom they perceive as less dominant. Given the large confound between perceptions of dominance and gender, this expectation translates often into a normative expectation for women to smile. Other aspects of the social context such as prestige or popularity may interact with this normative expectation. If display rules or social norms for smiling are indeed multiply determined, it is not surprising that actual smiling rates only sometimes vary with gender, whereas expected smiling rates are clearly higher for women (see also Fischer, 1993).

Not all smiles are equal

Interestingly, the studies reported above rarely distinguish between different types of smiles. Rather, smiles are often treated as a unitary phenomenon. Even studies on the

effect of smiling on person perception often do not distinguish between smile types. Yet, it seems likely that different smiles produce different effects on the observer and that the different functions of smiles are not served by one unitary expression. Otta, Abrosio, and Hoshino (1996) distinguished between smiles of different intensity and found linear changes in judgments of happiness, beauty, sympathy, optimism, and conciliation as a function of the intensity of the smile; but they did not investigate other smile morphologies.

Generally smiles vary along two dimensions, the intensity of the activity of the Zygomaticus Major muscle that pulls the corner of the mouth up and the presence of activity of other muscles. One type of smile that has been given more prominence is the Duchenne smile. This smile combines action of the Zygomaticus Major muscle (which pulls the corners of the mouth up) and action of the Orbicularis Oculi muscle (which produces wrinkles around the corners of the eyes). The Duchenne smile has been suggested as a marker for enjoyment smiles (Duchenne, 1862/1990; Frank, Ekman, & Friesen, 1993). However, this distinction is rarely included in studies on female smiling nor those on person perception effects of smiling.

In a recent study in our laboratory, we investigated the influence of different types of smiles on the perception of personality traits. Five different smile types and a neutral expression were rated by twenty male and female French Canadians regarding a series of personality traits. The smiles consisted of a weak smile, a medium smile with and without the presence of wrinkles around the eyes, a strong smile, a miserable smile or a neutral expression. The results confirm the notion that the type of expression shown influences the attribution of personality traits. Specifically, neutral expressions, miserable smiles,

and weak smiles signaled less affiliation, dominance, and calm as well as more aggression. On the other hand, the two moderate smiles and the strong smile signaled more affiliation, and dominance as well as less aggression. Smiles with the Duchenne marker were rated as more affiliative than those without.

These findings suggest the importance of taking into account the morphological differences between smiles. Different types of smiles have not only different functions but they also give rise to different interpersonal perceptions.

The function of smiles

The influence of gender, dominance and power on expected and actual smiling is closely linked to the different functions of smiling. The smile is most commonly associated with happiness. In fact, the most general classification of smile types is one that distinguishes between “felt” smiles that signal happiness and social smiles that do not. From this perspective the strongest relationship between smiling and feeling is the relationship between smiling and happiness. But, as mentioned above, people smile in a wide variety of situations – not all of them positive. Based on this observation as well as findings from the primate literature a number of functions of smiling have been discerned.

The first is indeed the smile as a marker of happiness and hence people who smile are most often perceived as happy (e.g. Deutsch et al., 1987). These happiness judgments vary as a function of the intensity of the smile (e.g., Hess, Blairy, & Kleck, 1997; Otta et al., 1996). The notion that smiles denote happiness is supported by a number of studies that have found smiling to be correlated with self-reports of happiness (Cacioppo, Petty, Losch, & Kim, 1986; Ekman, Davidson & Friesen, 1990, Ekman, Friesen & Ancoli,

1980). However, this assumption is far from undisputed. Fridlund (1991, 1994) describes as “romanticist” a view of the smile as a sign of happiness contrasted with other types of smiles that may not denote happiness. According to his behavioral ecology view, all facial behavior serves only to signal communicative intent and is inherently unrelated to feeling states. A number of studies by Fernandez-Dols and colleagues (1996; 1997) seem to support this notion. For example, Fernandez-Dols and Ruiz-Belda (1996) found that athletes in the moment they receive a medal often do not smile – even though this is a “happy” moment. However, this type of research is problematic in so far as it is difficult to define emotions by the situation that elicits them. Appraisal theories of emotion (Frijda, 1986; Scherer, 1999) emphasize the importance of the individual appraisal for the identification of an emotion. From this perspective it becomes clear that even in “happy moments”, other appraisals may intervene. In the case of the gold medal winners such appraisals may include an appraisal of the future as threatening and a consequent feeling of anxiety now that a pinnacle has been reached, or an appraisal of the event as undeserved with a subsequent feeling of humility. Or the gold medal winners may have been unable to cope with the intensity of their feelings, making them cry instead of smile in happiness. In contrast, Hess, Banse, & Kappas (1995) showed that although participants’ level of smiling varied with the social setting – as predicted by Fridlund – it also varied with the degree to which the stimulus was perceived as amusing.

Yet, there are other reasons to be skeptical of the smile as a signal of happiness. Studies on non-human primates suggest that the human smile is equivalent to the primate silent bared-teeth display, an expression used for appeasement (Lockard, Fahrenbruch, Smith, & Morgan, 1977; Preuschoft, 1992; van Hooff, 1972). The primate equivalent of

a positive affect expression is the relaxed open-mouthed or play face. This latter expression is shown by juvenile primates while engaging in play. This expression can also be observed in human infants during play with their mothers (Dickson, Walker, & Fogel, 1997). It is generally contended (Preuschoft, 1992, van Hoof, 1972) that the play face is a homologue to the human laugh, whereas the silent bared-teeth display is a homologue to the human smile. This notion suggests that laughter but not smiles should be associated with “fun” situations and that laughter but not smiling is a sign of happiness. However, as Preuschoft and van Hoof (1997) point out, silent bared-teeth displays can also be found in primates at play. Their comparison of several primate societies and their use of silent bared-teeth displays in play situations leads them to speculate that the less strictly hierarchical a primate society is, the more likely are its members to use the silent bared-teeth display in play situations.

Yet humans also use smiles as signs of appeasement. Thus embarrassment and excuses are typical accompanied by a smile (Edelman & Iwawaki, 1987; Ekman & Keltner, 1997). As mentioned above, it has been suggested that women smile more because they have less power and hence signal submissiveness by smiling. A number of studies have suggested that higher levels of testosterone in men and women are associated with more self-esteem and – in men -- dominant behavior as well as less smiling (Cashdan, 1995; Dabbs, 1997). In fact, dominance has generally been associated with no or less smiling. In a classic study, Keating et al. (1977) found that non-smiling faces were generally rated as more dominant than smiling faces when eye-brow position was controlled for.

However, in a more recent replication, Senior, Phillips, Barnes, and David (1999) found – using the same stimuli as Keating et al. -- that smiling faces were rated as more dominant. In this context they note that political leaders frequently smile (Masters, Sullivan, Lanzetta, McHugo & Englis, 1986) and still are perceived as dominant. The notion of the existence of a dominant smile is supported by studies that show that although angry faces are rated as most dominant, smiling faces are rated as almost as dominant and more dominant than any other expression (Hess, Blairy, & Kleck, 2000; Knutson, 1996).

In sum, the two most prominent functions of smiles are as a sign of happiness and as an appeasement/dominance display. These smiles might not be necessarily the same. No study has so far attempted to distinguish between appeasement and dominance smiles. But, as mentioned above, happy smiles have been studied more extensively. Duchenne already noted in 1862 that smiles that are accompanied by the action of the Orbicularis Oculi muscle, which produces wrinkles around the corner of the eyes, seem more joyful than smiles without this marker. Ekman and colleagues conducted a series of studies to distinguish “felt” from “unfelt” or social smiles (Ekman & Friesen, 1982; Ekman, Friesen, & Ancoli, 1980; Frank et al. 1993) and confirmed Duchenne’s observation.

However, does this mean that are smiles used for appeasement or dominance displays are different from enjoyment smiles? And do the latter two differ from each other? A number of predictions can be made. Since appeasement and dominance situations are not intrinsically pleasant, we assume that they do not elicit happiness and are not typically characterized by enjoyment or Duchenne smiles. Further, dominance is more generally associated with less smiling as well as with “smaller” smiles (Dabbs,

1997). Hence we would expect dominant smiles to be weaker smiles without the affiliative Duchenne component. However, the smiles that were rated as dominant in the studies by Knutson (1996) and Hess et al. (2000) were intense Duchenne smiles, which contradicts the prediction of weak smiles for dominance situations. If the human appeasement smile is derived from the primate bared-teeth display it also should lack the Duchenne marker and be of more moderate size in contrast to the human play face that combines a smile with an open mouth (Dickson et al. 1997). Further, to the degree that an appeasement smile is contaminated by embarrassment, we may expect some elements of this latter expression. Also, it is possible that appeasement smiles contain elements of distress or worry such as a frown component producing a wry or miserable smile.

In order to test these predictions, we conducted a judgment study. The goal was to assess whether a display rule for the use of different smile types in situations of dominance, appeasement, and amusement exists.

For this study participants read a vignette that depicted an individual of the same sex in one of three contexts: dominance, appeasement, and amusement. For the dominance situation, the protagonist, who is responsible for the office machines at his/her company, smiles while admonishing an intern who is again loading a photocopier the wrong way. In the appeasement situation, the protagonist is an employee who arrives late for an important meeting and who smiles while excusing himself/herself to his/her colleagues. In the amusement situation, the protagonist is a cheerful and sociable person who is at a party and who smiles when his/her friends tell jokes. The vignette was presented in both English and French. The participants' task was nonverbal. Six

expressions were presented and the participants pointed to the expression that they felt was most appropriate to the situation.

As mentioned above, smile can vary with regard to both intensity of the activity of the Zygomaticus Major muscle (which pulls the corners of the mouth up) and the presence of activity of other muscles. Certain combinations tend to not occur in normal situations or are impossible to achieve. For example, intense smiles are always accompanied by wrinkles around the eye as the cheeks are pushed up. Conversely, it is almost impossible for most people to combine a weak smile with the wrinkles around the eye produced by Orbicularis Oculi activity. Based on these considerations, the expressions retained for the present experiment were ecologically valid smiles of different intensity with and without wrinkles around the eye. Specifically, we selected a strong intensity smile with wrinkles around the eyes (Duchenne smile), a medium intensity Duchenne smile, a medium intensity smile without presence of wrinkles (non Duchenne smile), and a weak smile. In addition we included a neutral expression and a miserable smile (smile with a frown). We also manipulated the ethnicity of the protagonist. Participants of European descent saw photos of a man or woman of European descent, whereas participants of Asian descent saw photos of protagonists of Asian descent. The same names (Marc and Anne) were used for both groups as these names are used by French and English speaking members of both ethnic groups in Montreal.

All participants were recruited in parks and other public locations in the city of Montreal. A total of 1,650 men and women participated in the study. Of these, 195 men and 204 women were of European descent with a mean age of 33.8 years. The mean age

of the 177 male and 189 female Asian Canadians was 29.6 years. An additional 375 men and 403 women of European descent with a mean age of 33.1 years chose expressions for a same sex actor of Asian or African descent. These data will not be discussed in the present context. Finally, data from 104 individuals who did not correspond to either of these conditions were discarded from analysis.

Insert Table 1 here

Table 1 shows the percentage of participants who selected each type of smile as a function of the type of situation and the ethnic group of the encoder for encoder-decoder pairs from the same ethnic group. No sex differences in the distribution of expressions were found and this factor was therefore dropped. For both groups, the distribution of expressions differed significantly as a function of type of situation, $X^2(10, N = 399) = 153.04, p < .001$, and $X^2(10, N = 366) = 137.90, p < .001$, for raters of European and Asian descent respectively. This difference was mainly due to the difference in smile distribution between the amusement situation and the two other situations. For the amusement situation, the strong Duchenne smile was chosen by 67.9% of the European Canadians and by 61.5% of the Asian Canadians. In contrast, this expression was chosen by only 12.4%/14.6% of the participants for the appeasement situation and by 11.3%/5.0% for the dominance situation. When both groups' choices were compared directly no difference was found.

As predicted, for both groups, the weak smile was found to be the model expression for the dominance situation. The model expression for the appeasement situation, however, was the medium Duchenne smile. This difference in distribution was

significant for Asian Canadians only, $X^2(10, N = 366) = 20.81, p = .001$. In addition, for this group, the miserable smile was selected more often for the appeasement situation (19.5%) than for the dominance situation (9.1%), suggesting that Asian Canadians consider being late as more distressing than do European Canadians. When both groups were compared directly, again no difference in distribution was found for either situation.

In sum, these findings support the notion that the different functions of smiles are served by different types of smiles. Yet, this finding is nuanced by the observation that most smiles were chosen by at least some people for all situations. Hence, while there seems to be a display rule for different smile types, and one that is shared among members of two different cultural groups, the rule is relatively liberal.

Smiles in dyadic situations. In dyadic settings, smiles signal intimacy. In general, individuals who smile at each other are perceived to have a higher level of intimacy (Burgoon et al., 1984). According to Argyle and Dean's (1965) affiliative conflict theory, smiling, proximity, and gaze behavior regulate intimacy. Thus, friends sit closer together and engage in more eye-contact and smile more than do strangers (Coutts & Schneider, 1978)

Smiles can also be used to control or mask negative affect during interactions. Ekman and Friesen (1982) describe as a false smile, a smile that is used to mask negative affect and that contains traces of the masked affect. False smiles tend to be more often non-Duchenne smiles (Ekman & Friesen, 1982; Harrigan & Taing, 1997). In general, individuals are able to distinguish between Duchenne and non-Duchenne smiles at above chance level, but overall with only a moderate success rate (Frank et al., 1993). Thus, smiling seems to be an imperfect but useful strategy to cover negative affect. This is

congruent with the finding that negative emotions are more often masked with a smile when others are present. For example, Ansfield (1997) presented very intense and less intense disgusting, tender, and amusing video segments as well as neutral segments in one of three social context conditions: in the presence of a man, a woman, or alone. He found that men smiled more than did women when presented with the disgusting segments, especially when in the presence of another man viewing the very disgusting stimuli, whereas women showed more disgust than amusement regardless of social context.

Another use of smiles in dyadic situations is the reduction of conflict. Ikuta (1999) observed couples in role-played and real conflict situations and found more smiles in conflict discourse situations compared with non-conflict situations. Further, more smiles were found in real problem situations than in role-play situations. In this context the smiles served to invite partners to follow cooperative strategies more than did neutral facial expressions. Rounsaville, Weissman, Prusoff and Herceg-Baron (1979) also found that distressed marital couples who tended not to improve their relationships were those who smiled less during interactions.

In a study in our laboratory we assessed facial expressivity in same sex and mixed sex dyads while one interaction partner related a happiness or anger-eliciting event. In female-female dyads and mixed-sex dyads we observed a tendency by the listener to show a facial expression congruent with the topic (i.e., a smile when listening to a happy event and a frown when listening to an anger event). However, in male-male dyads both listener and speaker tended to smile more when relating an anger event than when

relating a happy event (Hess, Murard, Bourgeois, & Cheung, 2001). This finding was explained as an effort to reduce the tension in the dyad caused by the anger narrative.

In sum, smiling seems to be a useful strategy to conceal negative emotions and to reduce tension and conflict. Interestingly, the use of smiles to cover negative affect is more pronounced for men. It is possible that this use of smiles served to project an unaffected or “macho” stance when faced with certain negative stimuli. However, this use of smiles may have a cost. For example, Cohen (1998) notes that societies, such as the southern states of the US, with strong social rules for smiling and politeness in the face of aggression tend to have higher homicide rates. The author attributes this to an explosive release of aggression for which the appropriate expression had been stifled, precluding a timely conflict resolution.

Cultural differences and similarities

Do people from different countries or of different ethnicity smile differently? What do we mean by cultural differences in smiling? One answer is that cultures differ with regard to how people smile, that is, the types of smiles they tend to show. Another possible cultural difference concerns when people smile, that is, the cultural display rules that govern the appropriateness of smiling in different situations. In this context, we might consider both differences in the frequency of smiles, as well as culture specific gender differences in smiling.

Considering the influence of culture on emotion displays in general, two lines of thinking can be distinguished. On one hand, it is maintained that both emotion eliciting events and emotional feeling states and accompanying expressive displays are basically comparable across cultures (Wallbott & Scherer, 1986). This point of view concedes that

the social norms regarding the adequate display of emotions in specific situations may differ (Ekman, Sorenson & Friesen, 1969; Kupperbusch et al., 1998; Wundt, 1903). Based on this view we may expect that facial displays can be universally recognized and observed. At the same time we can expect that the frequency with which these displays are shown and the specific situations where they occur may vary. This point of view finds support in studies suggesting universal recognition of facial expressions (Ekman & Friesen, 1971; Ekman et al., 1969). Further support for the universality of emotion displays not only across different human cultural groups but also between human and non-human primates comes from studies on cross species emotion communication. For example, Itakura (1994) found that chimpanzees react differentially to different human expressions. Conversely, human children's ability to interpret monkey vocalizations of aggression, fear, dominance, positive emotions, and submission develops simultaneously with their ability to interpret human emotional behavior (Linnankoski, Laasko, Aulanko, & Leinonen, 1994).

This view is contrasted by a view that considers emotions as uniquely socially constructed and mediated by cultural knowledge. According to this view, cultures differ in how they define emotion eliciting events as well as regarding the significance of displaying a specific emotion in a specific context (see Kitayama & Markus, 1994; Wierzbicka, 1994, 1995). This perspective divorces emotions and their display from a biological evolutionary basis, leading us to expect large variations in smiling behavior across cultures.

To some degree, support can be found for both notions or rather for a middle ground between these extremes. In general, the evidence tends towards overall similarity

in the experience and expression of emotions across cultures, but with subtle – yet not unimportant -- differences at the same time. A good example is a study by Scherer (1997a, b) on the appraisals underlying different emotions conducted in 37 countries on different continents. Scherer found a sizable degree of similarities in appraisal profiles across countries, but also some notable exceptions, especially as related to the issue of Agency (who caused the event and why) and Justice.

Similarly, Chiasson, Dubé, and Blondin (1996) found the factors that contribute to happiness, to be largely comparable across four cultural groups from the United States, El Salvador, and Canada (English and French Canadians). However, religious values and sociopolitical conditions were most important to Salvadorians, whereas the North American participants emphasized hedonic factors and personal sources of power. A more pronounced cultural difference emerged in a study by Kitayama, Marcus, Kurokawa, and Negishi (1993, cited in Matsumoto, 1996). They studied the feelings that were associated with experiencing a generic positive emotional state. For Japanese students such a generic positive state was associated predominantly with social engaged feelings (e.g., friendly feelings), whereas for US American students a generic positive state was associated with social disengaged feelings (e.g., pride). Thus, on the level of feeling states similarities are strong but some important differences can be found. In the following we will consider evidence for cultural differences and similarities in the frequency of smiling, the perception of smiling individuals and the display rules for smiling.

Are there cross-cultural differences in the frequency smiling? Although a number of studies have reported cultural differences in the frequency smiling, in general the

similarities were again found to be more prominent. Several studies report differences between members of various Asian countries and individuals of European descent in the observed frequency of smiling. Asian infants tend to smile less than European American infants (Fogel, Toda, Kawai, 1988; Kagan, Kearly, & Zelazo, 1978). This finding was nuanced by Camras et al. (1998). They distinguished explicitly between Duchenne and non-Duchenne smiles and found that American and Japanese infants produced more Duchenne smiles, but not more non-Duchenne smiles during the baseline periods of their experiment than did Chinese infants. This finding suggests a lower level of spontaneous expression of positive affect for the Chinese infants. However, when comparing American, Irish and Chinese infants on a different set of tasks, Kagan et al. (1994) found no differences in smiling frequency between American and Chinese infants. Overall, the findings on smiling in infants suggest more similarities than differences.

Are smiling individuals perceived differently in different cultures? Regarding person perception, two studies included smiling behavior as part of a more complex indicator of nonverbal behavior. McCroskey, Richmond, Sallinen, and Fayer (1995) compared the perception of nonverbal immediacy behaviors of teachers, which include smiles, across 139 Australian, 151 Finnish, 431 Puerto Rican, and 365 US college students. They found a cultural difference for the appreciation of touch. However for smiling, as well as for having vocal variety, a relaxed body position, and eye contact with the students, no differences emerged. In all cases, these behaviors contributed to teachers receiving higher student evaluation. Bernieri and Gills (1995) found that the implicit rules that were used by Greek and American participants to judge the positivity of an

interaction, and the role of smiling in the interactions, were “remarkably similar and ... are imperfect.”

Although we did not find studies that directly compared the effect of smiling on interpersonal judgments, Lau (1982) reports for Chinese students in Hong Kong, effects similar to those observed for European and European American participants. Smiling individuals were rated as significantly more intelligent, good, bright, nice, and pleasant. We calculated effect sizes for the effect of smiling on ratings of interpersonal attraction (Friendly-unfriendly), intelligence, and affective attraction (good-bad) and compared them to similar trait categories reported by Deutsch et al. (1987) and Reis et al. (1990). In all three cases, effects were in the same direction, but effect sizes were larger for the American samples than for the Chinese sample. This difference was significant for interpersonal attraction and affective attraction. However, this result must be interpreted cautiously because only roughly equivalent categories could be constructed.

Is smiling subject to culturally different display rules? In general, studies on emotion norms in different cultures have focused on the individualism versus collectivism dimension (see also, Markus & Kitayama, 1991; Triandis, 1994). In this context, it has been suggested that collectivist cultures should endorse emotion displays that foster group harmony (e.g., Matsumoto, 1991), whereas individualistic cultures are more open to expressions of conflict (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988).

Argyle (1986) asked participants to rate for each of 22 types of social relationships (e.g., living together, work colleague, repairmen) to what degree each of 32 rules of proper behavior (e.g., “Should not use swearwords in the presence of the other

person”) were important to observe. Strong similarities in rules for maintaining relationships across Hong Kong, Japan, Italy, and Britain were found. Yet, Japanese subjects endorsed rules for restraining emotional expressiveness (e.g., “Should not show anger in front of the other person”) for a larger number of relationship types than did members of Western cultures. Italian subjects on the other hand, tended to endorse rules prescribing emotional expressiveness for a larger number of relationships. In their meta-analysis on sex differences in smiling – which can be, at least partially, explained by differences in normative social rules for smiling in men and women – LaFrance and Hecht (2000) found reliable, albeit smaller than for European Americans, sex differences for Asian and African American populations, suggesting a common gender specific display rule for these three groups.

Display rules more specifically related to smiles have most often been studied by comparing Asian individuals (representative of members of a collectivist culture) with US Americans (representative of members of an individualistic culture). Matsumoto (1990) conducted a study designed to test differences in display rules based on the difference between US Americans and Japanese on Hofstede’s individualism-collectivism and power distance dimensions. He found that American participants consider the display of happiness in public as more appropriate than do Japanese. In contrast, Nagashima and Schellenberg (1997) compared the rated tendency to smile at a professor versus a student in three types of social situations. Overall the pattern of results was the same for both US and Japanese groups, students rated themselves as more likely to smile towards the professor than towards the fellow student. However, their question did not assess the intensity of the intended smile.

The study on the type of smile judged to be most appropriate for appeasement, dominance, and amusement situations reported above, also included a sample of Asian Canadians. Based on the notion suggested by Matsumoto (1990) that Asians tend to be less expressive, we predicted that Asian immigrants would choose less intense smiles as appropriate for the happiness situation than European Canadians. However, the results show that the selection of the different smile types by members of both groups was largely comparable. Specifically, no difference in the intensity of the chosen expression was found. However, as only three levels of intensity were presented, more subtle preferences could not have been detected.

In a second study we assessed display rules for smiling by asking people to whom they would feel most comfortable smiling, and what intensity the smile should have. We based our predictions on the notion that members of collectivist cultures would feel more comfortable in smiling towards in-group members, whereas for members of individualist cultures we should not find this preference (Matsumoto, 1990).

For this, 30 individuals of European descent and 30 individuals of Asian descent (50% men and 50% women) were shown a Duchenne smile by a member of the same sex and of their own ethnic group. In previous studies these groups had been found to differ markedly in their individualistic versus collectivist orientation. The participants were asked to select the individuals out of a list containing a total of 19 individuals that they would feel most comfortable in showing this expression to. Following each selection, the participants were asked to indicate the intensity at which it is appropriate to display the smile according to the category of individual they selected. For this, participants could select one photo out of a total of 5 photos that varied in intensities of 20, 40, 60, 80 and

100% of the smile that they had initially seen. The list of 19 individuals was regrouped into 5 categories: family (e.g., parents, brothers and sisters, grand parents, etc.), close others (e.g., close friends and intimate others), colleagues, acquaintances (e.g. doctor, cleaners, landlord), strangers and alone. Chi-square tests revealed no statistically significant relationship between the ethnic group of the participants and the categories of individuals selected. Essentially, similar percentages of members of both groups selected the categories close others (43.3% vs 41.1%), family (20.0% vs 28.9%), colleagues (5.6% vs 4.4%), acquaintances (20.0% vs 18.9%), strangers (5.6% vs 4.4%) and alone (5.6% vs 2.2%). These findings again underline the similarities between different groups regarding the display of a smile, even though these groups are clearly different with regard to the cultural values they hold.

Yet at the same time, chi-square tests revealed that participants of Asian and European descent preferred different intensities of smiles, $\chi^2(5, N = 180) = 17.15, p = .002$. More specifically, 37.8% of the Asian Canadians selected a smile of either 20%, 40% or 60% intensity, whereas European Canadians clearly preferred smiles of 80% or 100% intensity (87.7%).

In sum, the results from our two experiments and those reported above, converge to suggest that there are few cultural differences in the display rules for smiling, the frequency of smiling or the perception of smiling individuals. Members of the two groups most often studied and contrasted, Asians and North Americans, tend to smile frequently, their smiles lead to a more positive evaluation and women smile more than men. Although the effect sizes for the latter two effects are smaller for the Asian samples, the overall picture is rather similar. Thus the short answer to the question of

whether there are cultural differences in smiling, is no. However, it is important to pay attention to the differences that were found. There is evidence that members of Asian cultures may smile somewhat less and more importantly smile less intensely and this difference may lead to miscommunications of intent in a variety of social situations.

Future directions

The review of the literature presented above shows the relative dearth of cross-cultural studies on smiling. One reason may well be the difficulty of conducting cross-cultural studies on emotions. These difficulties include the proper translation of emotion words – something that is not unproblematic even when considering only Indo-European languages and increasingly problematic when other language groups are involved. Another issue may be the general neglect of the positive emotions in emotion research. Only recently have there been calls to study positive emotions and to create a "Positive Psychology" that studies these emotions more in depth. In such a context the study of the smile and its functions – as a signal of happiness and other states should attract more attention including a larger interest in cross-cultural studies on this issue. In fact, given the ubiquitous nature of the smile and its many important social functions it deserves a more concerted research effort.

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Table 1. Choice of appropriate expression as a function of situation and culture

	European North Americans			Asian immigrants		
	Appeasement	Dominance	Happiness	Appeasement	Dominance	Happiness
Neutral expression	1.5	1.5	0.0	2.4	6.6	0.0
Weak smile	18.2	30.8	3.0	16.3	33.9	8.2
Medium Duchenne smile	35.0	26.3	18.7	26.0	22.3	15.6
Medium non-Duchenne smile	24.8	18.8	10.4	21.1	23.1	23.3
Intense Duchenne smile	12.4	11.3	67.9	14.6	5.0	61.5
Miserable smile	8.0	11.3	0.0	19.5	9.1	2.5