Ekman, emotional expression, and the art of empirical epiphany

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Introduction

In the mid and late 1960s, Paul Ekman offered a variety of bold assertions, some seemingly more radical today than others (Ekman, 1984, 1992, 1993). Emotions are expressed in a limited number of particular facial expressions. These expressions are universal and evolved. Facial expressions of emotion are remarkably brief, typically lasting 1 to 5 s. And germane to the interests of the present article, these brief facial expressions of emotion reveal a great deal about people's lives.

In the present article I will present evidence that supports this last notion advanced by Ekman, that brief expressions of emotion reveal important things about the individual's life course. To do so I first theorize about how individual differences in emotion shape the life context. With this reasoning as backdrop, I then review four kinds of evidence that indicate that facial expression is revealing of the life that the individual has led and is likely to continue leading.

Individual differences in emotion and the shaping of the life context

People, as a function of their personality or psychological disorder, create the situations in which they act (e.g., Buss, 1987). Individuals selectively attend to certain features of complex situations, thus endowing contexts with idiosyncratic meaning. Individuals evoke responses in others, thus shaping the shared, social meaning of the situation. In these ways, individuals act with consistency across situations, thus

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expressing their underlying traits and dispositions in stable fashion. And across the life course, individuals will create certain motifs, themes, and relationship patterns that reveal the particular facets of individual identity.

Emotion is one important part of the way individuals shape their life context (e.g., Keltner, 1996; Malatesta, 1990). Individual differences in emotion lead individuals to selectively construe situations in idiosyncratic ways. Each emotion is defined by a certain appraisal theme (Keltner, Ellsworth, & Edwards, 1993; Smith & Ellsworth, 1985), which defines in part how the individual will construe any particular situation. Anxious individuals perceive more threat and risk in situations, whereas anger prone individuals perceive less risk and threat, as do cheerful individuals (Lerner & Keltner, 2001).

Individuals tend to consistently evoke different responses in others, thus shaping the emotional tenor of social interactions and relationships (for full review, see Keltner & Kring, 1998). Individuals will evoke different responses in strangers and intimates, at home and at work, as a function of their tendency to express particular emotions. For example, in one study we found that roommates and romantic partners became more similar in their emotional responses over the course of an academic year, they mutually shaped each other's emotional styles, and by implication, the emotional tone of their relationships (Anderson, Keltner, & John, 2003).

Through these selective and evocative processes, individuals create life contexts and cumulative life outcomes. Facial expression, therefore, should be particularly revealing. More specifically, facial expressions reflect different experiences (e.g., Rosenberg & Ekman, 1994), patterns of appraisal (Bonanno & Keltner, in press), and patterns of autonomic nervous system activity (Levenson, Ekman, & Friesen, 1990). In this fashion, facial expression reveals how the individual selectively interprets and reacts to important life events. Facial expression should also reveal the responses the individual evokes in others, and by implication, patterns of relating to others. Although fleeting and often beyond control, facial expressions appear to be measurable signs of the course of life, they indeed are windows into the human soul.

Expression as the register of significant life events

How might facial expressions relate to individual adjustment in response to one of life's most devastating losses—the early death of a spouse? Traditional bereavement theories offer clear predictions. These theories, based on Freudian notions of "working through" the emotional pain of loss, hypothesize that recovery depends on the expression of negative emotions, such as anger and sadness. The expression of positive emotion, from this perspective, indicates denial and impedes grief resolution. Social functional accounts of emotion, in contrast, suggest that negative emotional expression may bring about problematic outcomes, whereas positive emotional expression may facilitate the adaptive response to stress.

We pitted these contrasting hypotheses against one another in a longitudinal study of midlife conjugal bereavement (Bonanno & Keltner, 1997). Bereaved adults'

facial expressions were coded using Ekman and Friesen's Facial Action Coding System (Ekman & Friesen, 1978) as they talked for 6 min in highly moving and emotional ways about their recently deceased spouse. We related measures of participants' facial expressions of emotions to a well-validated measure of grief severity, gathered in an independent interview at 6, 14, and 25 months post loss.

Contrary to widespread assumptions, measures of participants' facial expressions of negative emotion, and in particular anger, predicted *increased* grief severity at 14 and 25 months post loss. Measures of laughter and smiling, in contrast, predicted *reduced* grief over time. Importantly, facial expressions predicted long-term adjustment independent of initial grief and the tendency to report high levels of distress. Subsequent research found that people who showed pleasurable laughter while talking about their deceased spouse were more able to dissociate from the distress of the loss, they were more able to enter into new intimate bonds, and they evoked more positive responses from strangers (Keltner & Bonanno, 1997), consistent with recent theorizing about the functions of positive emotion (Fredrickson, 1998). Still other research in this vein has found that childhood sexual abuse survivors' expressions of shame and disgust revealed whether survivors were willing to disclose their trauma, and the violence associated with the trauma (Bonanno et al., 2002). Brief expressions of emotion say a lot about the nature of trauma, and the significant events the individual has experienced.

Expression and interpersonal relationships

Facial expressions of emotion are essential elements of interactions, such as attachment processes, flirtation, status rituals, and appeasement, that are crucial to human relationships (e.g., Eibl-Eibesfeldt, 1989). Individual differences in facial expressions of emotion, therefore, should relate to different levels of adjustment in interpersonal relationships.

In studies that perhaps best illustrate the theme of this section—how expression indexes the quality of interpersonal bonds—John Gottman and Robert Levenson have studied extensively the emotional dynamics of romantic partners. In their work romantic partners visit the laboratory after having not seen each other for the past 24 h, and engage in a variety of conversations about the very substance of intimate bonds—the events of the day, issues of conflict, and so on. Two kinds of expressive style are particularly toxic to romantic bonds: partners' expressions of contempt and wives' expressions of disgust during conversations about conflict predict relationship dissatisfaction and dissolution (Gottman & Levenson, 1992; Gottman, Coan, Carrere, & Swanson, 1998).

In similarly motivated work, Gian Gonzaga and I have asked whether positive emotional behaviors predict commitment and satisfaction in romantic bonds (Gonzaga, Keltner, Londahl, & Smith, 2001). Following ethological studies of humans and nonhumans, we coded the affiliative and sexual cues displayed by romantic partners as they talked together about a recent positive event. Romantic partners' affiliative cues, which included Duchenne smiles, forward leans, head nods, and open hand

gestures, uniquely correlated with self-reports of love. Sexual cues, including lip licks, lip wipes, and tongue protrusions, uniquely correlated with self-reports of desire.

We then asked whether these facial signs predict different relationship qualities within intimate bonds. Consistent with the notion that love promotes long-term commitment, across two different samples, affiliation cues and self-reports of love gathered from one brief context (when partners were talking about a recent positive event) predicted self-reports of increased commitment and shared goals, playful teasing and constructive conflict resolution, and increased relationship satisfaction. Taken together, these findings indicate that one can judge the health and disposition of intimate relationships from brief observations of expressive behavior.

Expression and psychological disorders

Thus far we have seen that expressive behavior predicts responses to significant life events and the quality of interpersonal relationships. In light of these findings, one would expect expressive behavior to relate to psychological disorders in rather specific fashion.

Here there is more relevant evidence, and it suggests that different disorders are likely to be associated with different emotion profiles. Schizophrenia is associated with relatively normal levels of experienced emotion but reduced expressive behavior (Kring, Kerr, Smith, & Neale, 1993). Depressed individuals tend to display less positive emotion (e.g., Field, 1995). Socially anxious individuals tend to report more fear and to display anxiety like behaviors (Marcus & Wilson, 1996). Clearly, this is a fruitful line of inquiry.

In my own research I have been interested in the particular disorders associated with deficits in the self-conscious emotions. It is widely claimed that individuals who are less inclined towards self-conscious emotions, such as embarrassment, shame, or guilt, are more prone to antisocial behavior. The rationale is rather simple: self-conscious emotions motivate the adherence to social norms and restorative interactions that follow norm violations. Individuals who experience and display little self-conscious emotion, by implication, should be more inclined to violate social norms and less likely to restore social relations following norm violations (e.g., in interpersonal conflict). Variants of this hypothesis were advanced long ago by Charles Darwin and Erving Goffman and are embedded in cultural conceptions of the ''shameless'' individual.

In one test of this hypothesis regarding the regulatory function of self-conscious emotion, we coded the facial expressions, again using Ekman and Friesen's Facial Action Coding System, that young boys displayed while taking a brief interactive IQ test (Keltner, Moffitt, & Stouthamer-Loeber, 1995). We then related these measures of facial expression to teacher ratings of the boys' levels of externalizing disorder, defined by aggression and delinquent behavior, and internalizing disorder, defined by anxiety, withdrawal, and somatic complaints. The IQ test produced frequent embarrassment, anger, and fear, as the boys made intellectual mistakes in

front of an authority figure (one wonders what the effects of those emotions were on performance). Young boys who were most prone to antisocial behavior, the externalizers, displayed the least embarrassment (and the most anger), lending credence to the claim embarrassment motivates socially normative behavior. Externalizing and internalizing disorders also appear to have different emotional cores.

Expression and the course of life

Thus far we have seen that individual variation in facial expressions of emotion predict responses to significant events, the quality of interpersonal bonds, and particular psychological disorders. With the exception of the bereavement study, the studies that supported these claims were snapshot studies of an individual's life. Brief periods of expressive behavior were shown to relate to contemporaneous measures of relationship quality and psychological functioning.

I have argued, however, that facial expressions should reveal the course of an individual's life (Keltner & Kring, 1998; see also Malatesta, 1990). Facial expressions reveal how individuals selectively interpret and create situations, and evoke responses in others. In these ways, individual differences in facial expression should relate to the consistent expression of personality traits, stable relationship patterns, and cumulative life outcomes that collectively define the course of life.

To examine these issues, we conducted what seems on the surface to be an improbable study (Harker & Keltner, 2001). From women's college yearbook photos, we coded the intensity of the smile in 110 women using the Facial Action Coding System. Our coding of the smile was based on the action of the zygomatic major muscle and the orbicularis oculi muscle. We then related this measure of positive expression to measures of personality, relationships, and personal well-being gathered over the next 40 years.

Our predictions derived from recent theory, which holds that positive emotions build personal resources by fostering creative thinking, the readiness to take advantage of opportunities, the strengthening of social bonds, and the "undoing" of negative emotions. In support of these claims, positive emotional expression in the yearbook related positively to the personality traits of affiliation and competence, which reflect good interpersonal and cognitive skills respectively, and negatively with negative emotionality, in both young and middle adulthood (see Table 1). Positive emotional expression also predicted increases in competence and decreases in negative emotionality between ages 21 and 27 and again from ages 43 to 52. Over time, women who expressed more positive emotion in their yearbook pictures became more organized, mentally focused, and achievement oriented, and less susceptible to repeated and prolonged experiences of negative affect.

Turning to the quality of the spousal relationship, those women who displayed more positive emotion in their yearbook pictures were more likely to be married by age 27, less likely to have remained single into middle adulthood, and more likely to have satisfying marriages 30 years later. These findings correspond with those of researchers who have documented how momentary displays of positive emotion help

Table 1
Correlations between positive expression (positivity) and personality and life outcomes controlling for attractiveness and social desirability

	Positivity	Positivity/attractive	Positivity/social desirability
Self-report			
Negativity (21)	−.38*	−.40*	−.32*
Negativity (27)	−.21*	−.21*	−.21a
Negativity (43)	−.23*	−.23*	−.18a
Negativity (52)	−.27*	−.29*	−.28*
Affiliation (21)	.33*	.32*	.28*
Affiliation (43)	.18a	.18a	.16
Competence (27)	.19a	.20a	.16
Competence (43)	.20a	.24*	.15
Competence (52)	.29*	.31*	.26*
Life outcomes			
Married at 27	.19*	.18a	.16
Marital satisfaction (52)	.20a	.16	.18
Well-being			
Age 21	.20*	.20*	.11
Age 27	.25*	.26*	.23*
Age 43	.18a	.19*	.12
Age 52	.27*	.28*	.24*

$a = p < .10$.
* $p < .05$

married couples deal more effectively with conflict in their relationships (Gottman et al., 1998). Positive emotional expression in the yearbook also predicted high scores on measures of well-being at ages 21, 27, 43, and 52. Across young and middle adulthood, women prone to expressing positive emotions experience fewer psychological and physical difficulties, have better relations with others, and generally feel more satisfied with their lives. Importantly, almost all of these findings remained significant when we controlled for the physical attractiveness of the women and her tendency to offer socially desirable responses.

Complementary evidence has been documented in studies of the lives of anger prone individuals. Caspi, Elder, and Bem (1987) found that the tendency to express uncontrolled anger in early childhood (as assessed by parental reports of frequent, severe temper tantrums) later related to the broader trait of ill-temperedness, which showed considerable stability across the life span. Furthermore, this childhood expressive tendency predicted negative life outcomes, including lower educational attainment, lower status jobs, lower military rank, erratic work patterns, and divorce. The tendency to express intense anger creates a hostile social environment that brings about the stable expression of trait hostility and a pattern of negative life outcomes in work and family.

Taken together, these findings reveal how even the briefest observations of expressive behavior—the millisecond exposure required of photography—can reveal information about the continuity of personality and important life outcomes over the

course of a life. These studies work, I believe, because expressive behaviors such as smiles or temper tantrums, are indeed such powerful displays.

Conclusions

It is fair to say that Paul Ekman inspired many recent developments in the field of psychology, including the study of expression, emotion, culture, and evolution. In this essay I hope to have conveyed that with his theorizing about expression and his rigorous approach to capturing brief expressions, he has opened up many opportunities for the study of individual differences. This line of inquiry, which I have briefly reported upon here, is guided by Ekman's notion that emotions at their very core are social, they motivate thoughts and actions that are crucial to humans most important relationships within the context of spontaneous interactions (e.g., Ekman, 1992; Keltner & Haidt, 2001). Brief observations of expression, as a result, once thought to convey little information at all, instead tell us about the life events, relationships, disorders, and life courses that make up individual identity.

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