Cognitive and Cultural Views of Emotions

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Introduction

HCI's historical and intellectual roots lie in cognitive science and the central underlying philosophical claim of cognitivism, that the mind can be understood and modeled in computational terms. This perspective has underwritten an extensive empirical and theoretical program exploring the operation of the human cognitive system from a representational and information-processing perspective, couched in terms of symbol manipulation, storage and processing.

More recently, though, a number of researchers, drawing on varying traditions and with different evidence to offer, have begun to articulate an argument that traditional approaches to cognitive interpretations of human behavior neglect a critical consideration, which is the role of emotion in those tasks typically considered "cognitive." This critique has taken a number of forms.

In a series of books, neurologist Antonio Damasio (1995; 2000; 2003) has argued strongly and eloquently that the treatment of emotions in discussion about reason and human behavior is deeply inadequate. He has famously referred to the severing of cognition from the body and the endocrine system as "Descartes' Error" and argued for an embodied, and hence emotional, reading of reason. Using a range of examples and case studies, in particular, of individuals with brain injuries resulting in a diminished capacity to experience emotion, he points to the critical role that emotion plays in practical human reasoning and in the effective working of rational decision-making. Unless one can feel frustration, he has argued, there is no pressure for a decision process to come to an end in those cases where a compromise between alternative courses of action must be struck; more broadly, emotion is centrally implicated in cognitive reasoning processes.

Rosalind Picard (2000) has similarly argued that emotion is a crucial element in our experience of and interaction with the world, and has gone on to demonstrate the role that it can play in interaction with information systems. Her model of "affective computing" is a broad one, encompassing not only computational responses to, but also computational influences upon the emotions of a system's users. An emotional competence on the part of computer systems, she argues, makes interaction more efficient and effective, mimicking aspects of how humans interact in the everyday world. Emotion, here, becomes a step along the way to creating "intelligent" systems which can effectively simulate human behavior (Suchman, 2004).

Don Norman (2004) is perhaps the most prominent and influential advocate of emotions as a key component of people's experience of each other, of the world, and hence of the physical objects around us. Norman, whose studies of design have been hugely influential, has extended his approach to incorporate emotion as a central component, noting that the experience of "everyday things" is conditioned not simply by practical or "logical" concerns but also by aesthetic and emotional ones. Proceeding from empirical observations of the relationship between aesthetic and

performative aspects of interaction with objects and technologies, Norman builds up a compelling case for the importance of emotion as a component of cognition.

Finally, a range of researchers, working especially but not solely in the design arena, have also appealed, although more loosely, to a concentration on the emotional aspects of interaction as a corrective to the conventional focus on efficiency as the appropriate measure of system effectiveness. This reflects, in part, a transition for interactive systems as they moved out of traditional office environments and become important components not only in entertainment settings but also settings such as the home that are organized around quite different value systems (Bell and Kaye, 2002). Amongst these we would point to Gaver's call to attend to the "ludic" properties of interaction (Gaver, 2002) a recent special issue of interactions on "funology" exploring how to make systems engaging and enjoyable as well as useful (Wright, 2004), and McCarthy and Wright's (2004) exploration of the role of aesthetics in interaction and their turn to the philosophies of Dewey and Bakhtin as a means to understand it.

In this paper, we want to look at this recent reformulation of the problems of cognition and interaction as part of a longer-term set of debates about the nature of human activity and the means by which it can be captured, modeled, augmented and supported by interactive systems. The turn to emotion, essentially, echoes similar arguments that have been made for many years to look "beyond the cognitive" and understand aspects of the social and cultural organization of interaction and human behavior. However, we would argue, there is a critical difference between the turn to emotions and the "turn to the social" in HCI, which is that, while the social and cultural approaches attempt to deconstruct (demolish?) conventional approaches to cognition (and in particular the fundamental cognitivist computational claim on mind), the recent exploration of the role of emotions leaves cognitivism intact, and in fact depends on traditional cognitivism as the base on top of which "emotional" understandings are to be built. Emotion, in this model, is a dual of cognition, but it is nonetheless the same sort of phenomenon – an internal, individual, objective phenomenon which operates in concert with and in the context of traditional cognitive behavior. However, for this reason, emerging understandings of emotion are subject to the same critiques that have been leveled at purely cognitive approaches in the past – that is, their failure to account for and adequately incorporate an understanding of everyday action as situated in social and cultural contexts that give them meaning.

In making this argument, we will draw, in particular, on two accounts of emotion as a component of descriptions of human activity. The first is Catherine Lutz's (1986; 1988) ethnographic study of the cultural production of emotions on Ifaluk, a Micronesian atoll; the second is a recent paper by Lucy Suchman (2004) exploring aspects of the ways in which personhood has been delineated in the domain of artificial intelligence. Through these, we want to discuss, first, the nature of a social critique of current literature on emotions in much the same terms as the critique of pure cognitivism, and, second, the ways in which models of human action are constructed and defined.

A Social Account of Emotions

Emotion is, both in everyday language and in the more formalized discourse of academia, such as in the examples cited above, a dual of cognition and rationality. As such, it is embedded in a series of rhetorical distinctions. Cognition is cold, but emotion is hot; cognition is controlled, but emotion is wild and uncontrollable; cognition is precise, but emotion is vague; cognition is of the head, but emotion is of the body; cognition is objective but emotion is subjective; cognition is masculine, but emotion is feminine. (We will return later to an exploration of the significance of these dualities.)

So firmly are these hierarchical oppositions entrenched in everyday life and discourse that it becomes difficult or impossible to escape them; indeed, the terms "cognition" and "rationality" exclude by their very definition those aspects of human experience and behavior that we would

normally describe through the use of emotion or related terms. This is, of course, precisely the problem that Damasio, Picard, Norman and others set out to resolve. However, rather than discussing the ways in which emotion and cognition might be contrasted, we may find it easier to begin by exploring ways in which they are similar.

In particular, what we want to focus on here is the inherently private nature of both cognition and emotion in traditional construals. Both are conceived of as essentially internal, private experiences, as biopsychological events that occur entirely within the body. At the same time, ironically, as emotion is thought of as being "beyond" cognition, or encouraging us to think more broadly about the relevant aspects of interaction, the idea of emotion is subject to the same constraints as are traditionally placed upon ideas of cognition. It is instructive, for example, to look at two figures (figures 1a and 1b.) Figure 1a is taken from Card et al.'s (1983) classic HCI text, *The Psychology of Human-Computer Interaction*; it shows a schematic overview of their "Model Human Processor," a quintessential expression of the computational basis of cognition. Figure 1b is taken from Norman's (2004) *Emotion and Design* and shows an overview of Norman's three-level model of emotion. What is interesting to note about these two images is that cognition and emotion are located. In both cases, they are contained within the boundaries of the body – caught between eye and hand. Like cognition, emotion is an internal, thoroughly individual phenomenon.

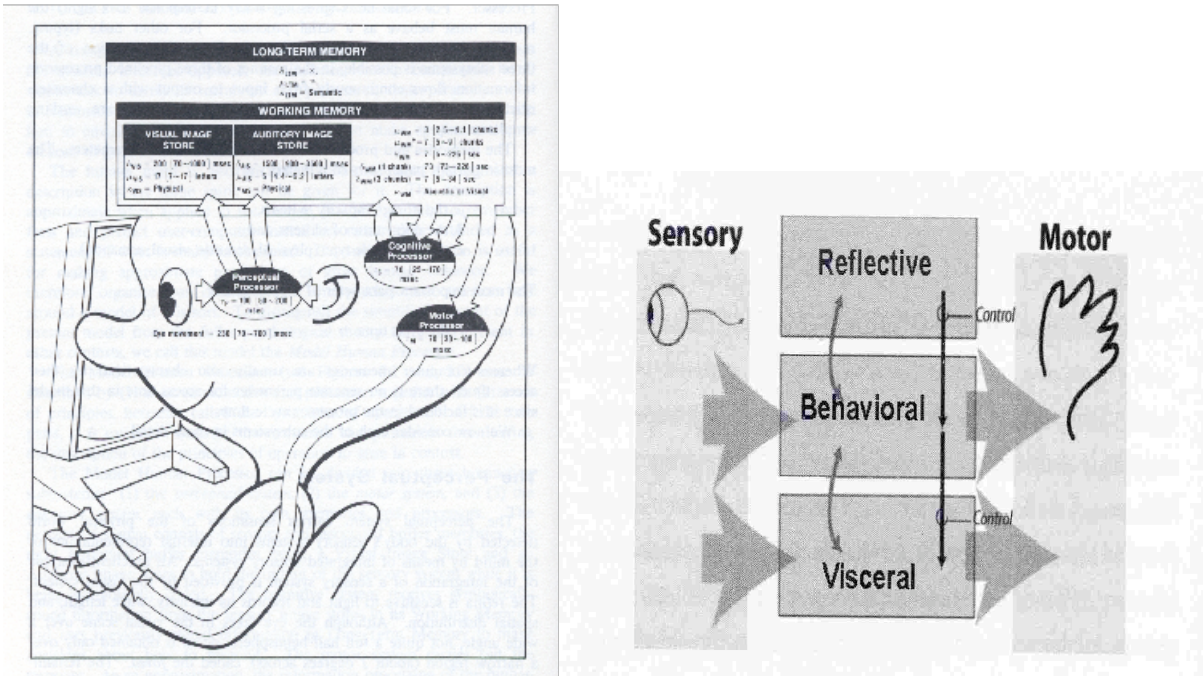

Figure 1: (a) the model human processor (Card et al., 1983) (b) Norman's three-level model of emotion (Norman 2004)

However, these readings of cognition and rationality have been subject to a continued critique that cognition is relevant and meaningful as a category only in how it is demonstrated and used in the course of everyday interaction. Writers such as Schutz (1943) and Garfinkel (1967) have drawn on a range of empirical material to show that rationality is a witnessable feature of social settings rather than a pure, logical form; the mutual recognition and demonstration of rational behaviour is a property of social interaction. In order to understand rationality, then, we must look at the way in which it emerges and is put to work in everyday settings. This is, essentially, an argument about the conceptual categories of cognition and rationality – that they are linguistic terms whose meaning emerges from socially shared practice (Wittgenstein, 1953), and so when

we describe the properties of the brain in terms of rationality and cognition, we are in fact re-inscribing features of our social life into our model of mental operation, rather than uncovering features that exist within the phenomena themselves. The idea of rationality – and our interpretation of everyday events as being rational – has a social origin.

Similarly, Catherine Lutz's study of emotion as an aspect of everyday life on the south Pacific atoll Ifaluk – and in particular the comparison between emotion on Ifaluk and emotion in Western culture – demonstrates the strong cultural component in the construction of emotion and emotionality. Lutz differentiates here between biological and physiological aspects of feeling, and emotion, which is the culturally grounded set of meanings that both inspires those feelings and provides a basis for their interpretation. Emotion, she argues, is part of cultural and social life. It has social value and social meaning. To experience a feeling as, say, anger, love, happiness, lust, or frustration, one must be grounded in a cultural context that makes anger, love, happiness, lust, or frustration meaningful (and in turn determines a response to that emotion – whether it is something to be proud of, ashamed of, etc.)

One example is the concept of *song* as detailed by Lutz from her ethnographic investigations. *Song* is, loosely, anger. In a Western context, anger is a negative emotion, one that is largely antisocial. *Song*, though, is used rather differently. Lutz translates *song* as "justifiable anger," and notes that its use is, in fact, pro-social; rather than tearing at the social fabric, the cultural use of *song* is cohesive.

The justifiable anger of *song* is provoked by a failure to uphold social mores and responsibilities. Taking more than one's fair share at a communal meal, shirking responsibilities in group work, failing to pay appropriate respects to elders or others in whom one stands in a subordinate social relationship, acting inappropriately in social settings, breaking the dignified silence of daily life; these are all actions that might provoke *song*, justifiable anger, on the part of others. Given the strong social shaping to the conditions under which *song* might be provoked, there is similarly a strong social pressure not to provoke *song* in others. Children are frequently told not to act in particular ways because to do so would make others *song*; similarly, the reluctance to provoke *song* in others is often cited as a justification for particular acts. *Song* is something to be guarded against, and the way in which it is guarded against is by acting in accordance with appropriate cultural conventions.

Song, then, is culturally grounded in two ways. Firstly, the experience of *song* stems from a cultural embedding; it is a response to culturally meaningful events, a personal experience of the violation of norms and expectations which can be understood only with respect to the patterns of cultural interpretation that give social actions meaning. To experience *song*, then, is to be grounded in the cultural patterns that make *song* an appropriate response to have. Secondly, it plays a role in supporting and reinforcing those cultural experiences; the concept of *song* is used to mark behaviors as appropriate or not, as acceptable or not, and so to impose some normative structure on everyday life. Most interestingly, then, *song* has a quite different connotation than anger does in our own culture, due to its pro-social nature; *song* is used to reinforce social structures, patterns and expectations. Critically, though, this is not to say that Western conceptions of anger, while clearly not pro-social, are not culturally situated; they also require an appeal to cultural understandings of the settings within which anger is a culturally appropriate response. That is, the identification of a particular setting (or its associated endocrine reactions) as related to anger (rather than frustration or angst or hatred or disappointment) is every bit as culturally determined as song. Neither *song* nor anger is primary, natural, or inherent; they are both cultural products.

It is important to recognize that this is not simply a problem of translation. A simple reading of this example might suggest that "anger" is simply a poor translation of *song* – that the boundaries

between one emotion and another on Ifaluk are different between the boundaries that we are familiar with, and so we might need a more nuanced vocabulary in order to translate or express them. This is certainly true, but it misses the point of Lutz's analysis. What Lutz shows is not simply that emotions on Ifaluk are different than in Illinois, but that emotion and emotions are culturally constructed categories. What constitutes an emotion at all – why something is classed as an emotion rather than as a stomach-ache, for example – is a cultural question.

What is more, emotional life then becomes a site for cultural production and a stage upon which cultural dramas are played. Geertz's studies of Javanese life and, for examples, emotional displays at funerals, suggest ways in which not just the management and display but the experience of emotions is a means by which cultural narratives are enacted (Geertz, 1957). Similarly, emotions such as ethnic or national pride can scarcely be separated from cultural traditions of identity. Or again, writing of the Ilongot (a tribal people of the Northern Philippines), Rosaldo (1983) discusses the feeling of shame not as a curb on potentially antisocial behavior, but rather as an aspect of the ways in which individual autonomy is defined and negotiated. For the Ingolot whom she studied, part of the process of being an individual is refusing to allow others to shame you, which in turn means that it is a way in which issues of equality, kinship relations, and social responsibility are manifest. Similar issues are at work in Western traditions and the embedding of emotion within a series of rhetorical oppositions listed earlier (hot/cold, head/body, etc), perhaps most significantly the gender association of dispassionate rationality as male and irrational and uncontrollable emotion as female.

Broadly, then, what we take from these investigations is the fundamental principle that an emotion cannot be seen purely as an internal, individual, and private phenomenon; not only is the experience of emotion mediated by cultural and social situations, but is also used to enact and sustain those settings. As summarized by Schieffelin (1983:181), "the experience, justification, and meaning of affect are not separable from either the role affect plays in the expressive order of interaction, or from the implications of the cultural scenarios in which it participates."

Sociality, Rationality and Irrationality

Given that, as we have observed, emotion is often seen and rhetorically positioned as a dual of rational or deliberative and logical aspects of cognitive behavior, we might help place our other remarks in more context by exploring some aspects of rationality from the same perspective as we have been exploring emotion. In particular, we turn to investigations by Alfred Schutz (1943) and Harold Garfinkel (1967) that explore the socially situated nature of rationality.

Schutz's work blended aspects of Weber's sociology (and in particular a concern the problems of inter-subjectivity) with the phenomenology of Edmund Husserl. Schutz's central insight is to see the that Husserl's articulation of the "lifeworld" – the assumption of the "natural attitude" by which we encounter and understand the everyday world around us – applies also to our encounters with the social world rather than simply the physical world that had been the primary focus of Husserl's attention.

Schutz (1943) discusses the notion of rational action as it has come to play a role in social scientific theorizing. In particular, as he notes, in economic and social science analysis, rationality is seen as the underlying property of human action (albeit one that might be obscured by other social concerns or by emotion, for example.) By rationality here is meant a number of things, as Schutz details; rationality implies logic, deliberation, planning, assessment of needs and interests, etc. The underlying notion of rationality is drawn from formal reasoning and mathematical modeling of costs and benefits.

However, Schutz observes a fundamental difference between the social scientist taking an analytic perspective on the social world, and the perspective of the participant going about

everyday life. Essentially, he suggests that the notion of abstract rationality by which the scientist explains the action of the social actor is a projection of a form of reasoning quite different from that by which the social actor encounters the everyday world. In going about everyday life, the social actor is not, in general, deliberative in that formal rational sense. Social actors act in what Heidegger would call a state of "thrownness"; they operate in everyday life on the basis of a set of practical assumptions about the operation of the world, the behavior of others, and so on, rather than on an exhaustive elaboration of possible courses of actions and their consequences. Schutz observes, "Our knowledge in daily life is not without hypotheses, inductions, and predications, but they all have the character of the approximate and the typical. The ideal of every-day knowledge is not certainty, nor even probability in a mathematical sense, but just likelihood" (Schutz, 1943:137.) Fundamentally, he observes, since everyday action is not based on the operation of "probability in a mathematical sense," then using such formal models to describe human action is to ascribe an inappropriately scientific character to everyday action.

In one sense, Schutz's observation anticipates Simon's (1955) later contribution of the concept of "bounded rationality"; that is, the notion that deliberative rationality in organizational and individual behavior is inherently limited, and that planning future activity is inevitably, then, a process of "satisficing" rather than optimizing. Schutz, however, takes one critical further step. Rationality is not only bounded, but involves the projection of likelihoods and assumptions about the regularity of events in the everyday world. Rationality, then, depends critically on these regularities and assumptions, because they are the foundations of rational behavior, and these regularities and assumptions are, themselves, products of the social world in which we operate. The accumulations of social and cultural meanings through the iterated, collective action of members of society provide to social actors the means to understand and make sense of everyday social life, and, therefore, to understand, predict, and operate in the social world. In other words, the very practice of rationality – what it means to be acting rationally, and how others might understand and interpret actions as being rational – is a product of the social world. Rationality, then, is not the foundation of social action, but its consequence. The assessment that a line of action is rational, or that someone is behaving rationally, is a social assessment, because the nature of rationality is itself social.

Schutz's phenomenological investigations were a significant influence on Harold Garfinkel in the studies through which he developed the ethnomethodological perspective on social action – a perspective that has come to play an important role in Human-Computer Interaction through the work of Lucy Suchman (1987) and others. This is perhaps most clearly seen in Garfinkel's (1967) study of juror deliberations. Garfinkel's detailed study of the deliberations of juries in determining verdicts provides an empirical demonstration of Schutz's position on rationality. For Garfinkel, the central issue of rationality is not how rational decision-making underlies the deliberations of juries; instead, Garfinkel draws attention to the procedures by which jury members demonstrate that their positions are rational. Rationality, he argues, is a witnessable property of these activities; it is a way in which jury members demonstrate and agree upon the social appropriateness of their activities. This is quite different from the traditional idea that rationality is a fundamental or essential feature of action: as he notes, "The procedure of deciding, before the actual occasion of the choice the conditions under which one, among a set of possible courses of action will be elected, is one definition of a rational strategy. It is worth noting that this rational property of the decision-making process in managing everyday affairs is conspicuous by its absence." (Garfinkel, 1967:114).

What these studies suggest, then, is a fundamentally social origin for our models of rationality. The relevance of these studies for the topic at hand lies in the inherent duality of rationally and irrationality, especially with respect to the concept of emotion. Fundamentally, the concern is this: if rationality is not *obscured* by social processes but rather the *outcome* of social processes,

then irrationality must have an equally social origin. And if emotion is firmly tied to the irrational "alternative" to deliberative, formal rational cognitive processes, then emotion itself – its limits, its boundaries, and its expression – must also rely on these social processes in the way in which it manifests itself as a part of everyday social settings.

In other words, the argument that we have been putting forward here for emotion, and our use of Lutz's ethnographic work to demonstrate the social and cultural constitution of emotions in everyday life, should not be an unfamiliar or strange one for human-computer interaction since it is largely the same critique that has been directed towards traditional approaches to cognitivism – that is, the ascription of some essentialist basis to what is, in fact, a socially-produced phenomenon.

Discussion

The cognitive view of emotions is a biological one. It draws on an evolutionary argument, suggesting that the evolution of emotion anticipates the evolution of complex brain structures, and contributes, then, to the development of higher cognitive functions, such as language, and thereof our appreciation for humor, art, music, and logic. Despite that, human brain has still innate basic circuits that are responsible for "animal reactions," as they represent direct and unmediated connections between sensors and muscles. Emotion is "raw," "primitive," and "animal"; it mediates and obscures the rationality underlying everyday action (Loewensein et al., 2001).

In arguing instead for a cultural and social interpretation of emotion, we are proposing that emotion cannot be located purely within the body; it is embedded within cultural and social structures that make it meaningful. This is not to deny that biophysiological processes are one of the range of elements that we draw upon in formulating emotional behavior, but rather draws attention to the ways in which formulating these *as* emotions is a cultural and social process. Heartache and stomach-ache may both have a physiological character, but the determination of one as an emotion and the other as a medical condition is a cultural act. We distinguish between biophysiological events and the interpretations that we place on them.

Norman (2004) draws upon this evolutionary approach in his three-level model. It incorporates at the same time functional and evolutionary aspects of the brain (i.e. each element in the model reflects both a particular (cognitive) function in the brain and a level of complexity and development due to the evolution of the human brain). Norman calls them "three levels of processing": visceral, behavioral, and reflective. Visceral level is the most primitive element in the brain, responsible for automated (pre-wired) response to external events. Behavioral level is a higher evolutionary level at which external events are cognitively mediated by well-learned and routine operations, for example, synchronized operations of changing gears while driving an automobile. The highest evolutionary level is the reflective level at which through the aid of language humans are able to interpret events, create concepts, and generalize.

This separation is not the same as the distinction that we draw here between biophysiological events and social interpretations. For Norman, visceral experience leads directly and universally to emotional response. Even at these levels, though, we would argue that social mediation takes place; Becker's (1953) account of the process of "becoming a marijuana user," for example, involves learning to experience the effects that the drug has one one's body as being, first, associated with the use of the drug and, second, pleasurable. One's response here to basic physiological effects is a socially grounded one.

The importance of this evolutionary perspective is that it situates emotions within a broader concern of the nature of human experience and the creation of machines that can respond to and simulate aspects of this experience. Suchman (2004) explores the recent interest in emotional

aspects of interaction between people and computational systems as part of the larger tradition of making computer systems "human-like." In particular, she points to embodiment, emotion, and sociality as three ways in which technologists have attempted to go beyond earlier models of human-like system as purely formal reasoning systems. By discussing attempts on the part of technologists to develop human-like systems, her goal is to explore the ways in which the boundaries between humans and non-humans are drawn. In particular, she is motivated by Marilyn Strathern's (1992; 1999) consideration of the problems of "personhood." Drawing on her earlier studies of Melanesian personhood, Strathern describes the Western idea of "the free-standing, self-contained individual" as "a folk model," in which "because society is likened to an environment ... it is possible for Euro-Americans to think of individual persons as relating not to other persons but to society as such, and to think of relations as after the fact of the individual's personhood rather than integral to it" (Strathern, 1992: 124-125). From this perspective, then, Suchman argues that the reduction of personhood to a collection of technological features – modules for embodiment, emotion, sociality, etc. – misses the mark by neglecting the interactional constitution of personhood. Even more interesting, though, is her observation of the role that this interactional constitution of personhood plays within the AI community itself, in the designer's interaction with the objects of their research. For Strathern, "the 'person' is not a pre-existing entity, but an object of the regard of others, and an objectification of the relations that constitute her" (Suchman, 2004:10). Similarly, in a number of the cases that Suchman provides, what is notable is that even the faux personhood exhibited by these research systems is not a feature of the systems in themselves, but again lies in their role as an object of regard of others. The simulation of human behavior that these systems achieve is a hybrid production of technology and trained "user." While Suchman's argument is directed towards a quite different set of concerns than our own, her analysis provides compelling support for our position that the notion of emotion and emotionality being developed within AI and HCI as a complement to rationality is, itself, hostage to prior models of rationality and cognition.

Conclusions

Our goal here is not to argue against the increasing attention being turned to questions of emotion and its role in human-computer interaction; we believe that this is an important expansion of the analytic perspective underlying the design of interactive systems. However, we also believe that there is a further opportunity to be exploited here, which is the opportunity to expand not only the range of topics that we see as relevant to HCI, but also the range of approaches to these topics. An individual reading of emotion is, we believe, too narrow to be truly productive; rather, we need to understand how emotion arises as a social and cultural product. Norman is fundamentally concerned with, for example, the aesthetic aspect of the experience of artifacts, but a consideration of aesthetics that adopts a model of emotions as individual and private is inherently restricted. The diversity of responses to the conceptual art and "readymades" of Marcel Duchamp, to the paintings of abstract expressionists such as Mark Rothko or Jackson Pollock, or to the compositions of John Cage illustrate that ones emotional response to works of art is not purely a passive aesthetic experience but is conditioned by one's relationship to broader cultural and social traditions such as, in these cases, conceptual critiques of modernism (Gell, 1998).

So, we heartily applaud the turn towards emotion in HCI, and want to take it further by critically exploring the role that emotion plays as an aspect of action and interaction. Boellstorff and Lindquist (2004) cite Rosaldo (1984): "Feelings are not substances to be discovered in our blood but social practices organized by stories that we both enact and tell." The production and interpretation of emotion – of national pride, justifiable anger, or shame – is social and cultural in origin. If emotion is to be productively incorporated into the analytic and design practice of human-computer interaction, then it must be as a social and cultural product.

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