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The hard embodiment of culture

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Abstract

The way humans move and comport their bodies is one way they (literally) carry their culture. In pre-wired embodiments, body comportment triggers basic, evolutionarily prepared affective and cognitive reactions that subsequently prime more complex representations. Culture suffuses this process, because (1) cultural artifacts, affordances, and practices make certain body comportments more likely, (2) cultural practices, rituals, schemas, and rules promote the learning of an otherwise underspecified connection between a given body comportment and a particular basic reaction, and (3) cultural meaning systems elaborate basic affective and cognitive reactions into more complex representations. These points are illustrated with three experiments that examine how moral systems can become embodied. We also discuss totem embodiments, in which cultural practices and rituals establish connections between body comportment and complex cultural representations, without the aid of any evolutionarily prepared connection to basic affective and cognitive states. Copyright © 2009 John Wiley & Sons, Ltd.

Culture does not work through “spooky action at a distance,” in Einstein’s famous phrase. Rather, culture is in the everyday. It is in the scripts, rituals, and language of our daily life. And in the present paper, we argue that culture is embodied in the way people walk, sit, stand, eat, wash, breathe, and otherwise comport their bodies as they go through daily life. We argue that the movements of the body and the meanings assigned to them promote a way of being in the world that instantiates cultural codes, values, expectations, and ideas about one’s personal place in the world.

EMBODIMENT AND CULTURE

Over the past few decades, psychologists have shown that very basic affective or cognitive reactions can be embodied. That is, they have shown that positive (negative) feelings toward a stimulus can be induced through arm pulling (vs. pushing) or through pressing on a table from underneath (vs. on top), as these actions indicate approach (vs. avoidance) (Cacioppo, Priester, & Bernston, 1993; Chen & Bargh, 1999; cf. Markman & Brendl, 2005). They have shown (among American participants) that nodding one’s head makes one more likely to agree (Wells & Petty, 1980; see also Petty, Wells, Heesacker, Brock, & Cacioppo, 1983). They have shown that people feel more amused when they pose in a way that requires their lips to smile rather than to purse (Strack, Martin, & Stepper, 1988). And they have shown other ways that comporting our body induces some very basic affective and cognitive reactions (Brinol & Petty, 2003; Seibt, Neumann, Nussinson, & Strack, 2008; Stepper & Strack, 1993).

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Another interesting question then arises: Can embodiment go beyond relatively fundamental affective and cognitive reactions? We argue that even more complex sentiments may be embodied, in the sense that the physical movements of our body promote or pre-dispose us to adhere to certain mindsets, and these mindsets can be associated with relatively complex and nuanced judgments about the world and moral behavior.

Cultures encourage certain ways of sitting, standing, walking, eating, praying, gazing, hugging, relaxing, washing, and so on. And as Bourdieu (1977, p. 94) notes, in so doing, they are “treating the body as a memory; they entrust to it in abbreviated and practical form. . .the fundamental principles of. . .culture.” He writes:

“nothing seems more ineffable, more incommunicable, more inimitable, and therefore, more ‘precious, than the values given body, *made* body by the transubstantiation achieved by the hidden persuasion of an implicit pedagogy, capable of instilling a whole cosmology, an ethic, a metaphysic, a political philosophy, through injunctions as insignificant as ‘stand up straight’ or ‘don’t hold your knife in your left hand.’” (Bourdieu, 1977, p. 94).

Perhaps Bourdieu overstates the case. However, we do agree that much of culture is encoded in the body and perpetuated that way—hidden in plain sight by ways of talking, walking, standing, sitting, eating, and so on that often come to seem “natural” to us. These “natural” ways of being in the world are often not consciously reflected on, but they push us invisibly (and without argument) toward certain psychological mindsets and a certain outlook on the world.

Our basic view is schematically sketched out in Figure 1. In the top half of Figure 1, (1) bodily actions and comportments incline us toward (2) basic, evolutionarily prepared affective and cognitive reactions that subsequently prime (3) more complex representations. In the schematic, culture is not represented as a box in the model, because culture suffuses the model. Cultural artifacts, etiquette, models, and scripts encourage or afford certain types of bodily actions and comportments. Such actions may pre-dispose a person toward *various* basic affective and cognitive reactions; and cultural schemas, context, and rules of interpretation also shape which of these particular reactions will be evoked (If I’m holding my head in a hangdog fashion, will my reaction be one of sadness or of shame? If I’m rubbing my hands together in a hand washing motion, will this evoke thoughts about cleanliness or just indicate that I’m nervous—or cold?). And, of course, cultural ideas are crucial in elaborating basic reactions and concepts into more complex representations. (For example, such elaborations include: Extending concepts of cleanliness to concepts of moral purity and defining what such purity actually means; or extending a readiness for self-defense to ideas about honor and a syndrome of values involving reputation, family, and female chastity). We discuss the bottom half of Figure 1 later. Presently, we discuss the top schematic, fleshing out the general picture with some examples and then drawing on some recent experiments to illustrate the way culture suffuses some of the specific causal connections. The empirical studies are not evidence for the entire theoretical model, but they provide a nice starting point for “previewing” its usefulness.

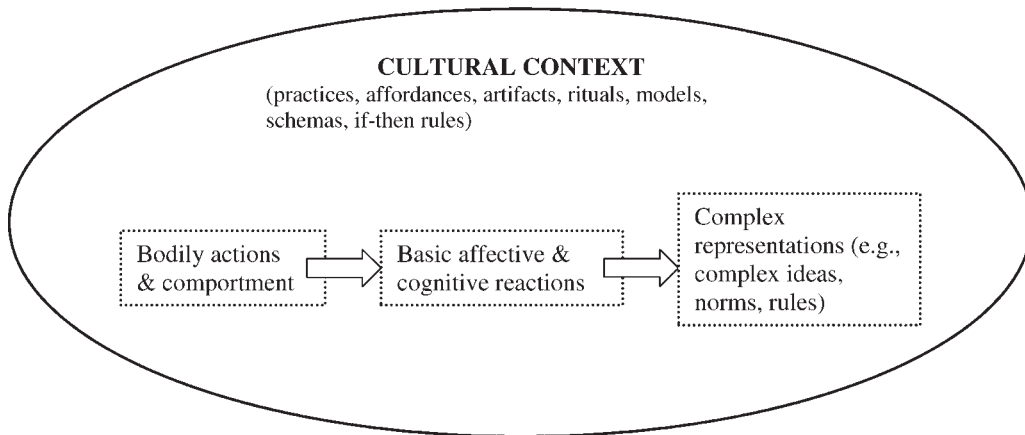
Culture Embodied: Pre-wired Embodiments

Human beings have similar bodies the world over. But they do not walk, eat, stand, relax, wash and otherwise use those bodies in the same way. Years ago, Mauss (1979) described this in terms of “techniques of the body.” These techniques of the body pre-dispose one to certain psychological states. And hence, cultures differ in how often and in what circumstances people feel certain psychological states as a function of how often and in what circumstances different techniques of the body are used.

Some examples of the way embodiments pre-dispose an organism to certain feelings include the way walking or standing with one’s head down inclines one towards feelings of submission, being “puffed up” with chest full and shoulders square inclines one towards feelings of power or dominance, moving quickly inclines one towards feelings of higher arousal (anxiety, fear, excitement, and so on); or, as Zajonc and Markus (1984) suggest, stiffening up and tightening one’s body possibly aids in inhibiting one’s emotions.

The body is thus a key element of cultural transmission, because the actor’s body manifests cultural values, models them for observers, and creates or reinforces the appropriate psychological state for the actor through processes of physiological feedback and self-perception (Bem, 1972; Stepper & Strack, 1993). Thus, there is the deferent head-down posture that women must adopt before men in cultures that stress female subordination or the same sort of posture when low caste members interact with high caste members in a caste-stratified society (see also Schubert, 2005). There is the stiffness of posture, gait, and expression that supposedly characterizes cultures that are rule-bound, formal, reserved, or

Pre-wired Embodiments



Totem Embodiments

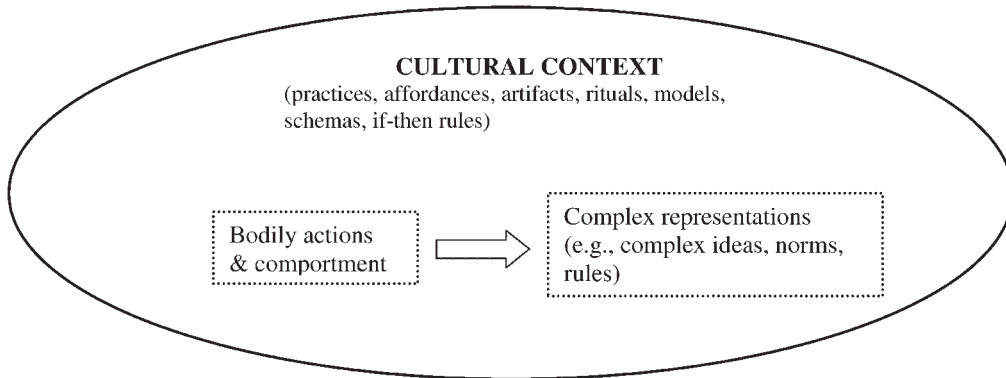


Figure 1. For pre-wired embodiments (top figure), actions of the body incline us toward basic, evolutionarily prepared affective and cognitive reactions that subsequently prime more complex representations. Also, a process of overlearning can lead to comporment directly evoking the complex representations. This is most clearly seen with totem embodiments (bottom figure), as actions of the body incline us toward overlearned complex representations that they have been associated with

stoic. There is the sway in the walk and the mellifluousness in the vocal cadence of cultures that are supposed to be more sensuous. (The Portuguese seem to have hit both cadence and gait when they describe their former colonials, Brazilians, as “talking like they samba.”) There is the swagger of males in certain macho cultures. (“Some folks look at me and see a certain swagger,” George Bush told the Republican National Convention in 2004. “In Texas, we call it walking” (Safire, 2005)).

In these examples, we believe that techniques of the body *pre-dispose* one to certain psychological states, because it is likely that the connection between the state of the body and the state of the mind is not arbitrary. More specifically, these connections seem evolutionarily prepared and should be relatively basic and universal—not simply among humans, but also among other animal species. Thus, for example, animals that get into dominance contests will arch their backs, get their fur to stand on end, and otherwise expand in order to look bigger and project their own power, whereas animals that are inclined to submit are likely to avert their gaze or look down in a gesture showing their subordination to another animal. Animals that are aroused to either approach or avoid will move faster and be more reactive to stimuli. Animals that bond do so by getting in close proximity with one another, gently touching or grooming each other, or hugging and kissing (de Waal, 1989; Harlow, 1958; Maestripieri, 1998; Orlaith, Stahl, & Aureli, 2008; Slater, Schaffner, & Aureli, 2007; see also Fiske (2004) on body contact as establishing kin-like “communal sharing” relationships). Fighting or fleeing, dominating or submitting, cementing social bonds and indicating benevolence are such fundamental problems for primates (including

humans) that it is not surprising that people come pre-wired with physiological adaptations that facilitate solving these problems. Evolution probably shaped humans so that such mind-body connections are either innate or very easily learned (see also Fiske, 2004; Konner, 2002).

When cultural styles of walking, talking, standing, sitting, greeting, and so on encourage people to comport their bodies in ways that resemble these pre-wired physiological adaptations, they are encouraging a frame of mind associated with solving the problem that these adaptations address. Thus, they encourage arousal, displays of dominance, submission, benevolence, and the like. They do this through Mauss's "techniques of the body" as well as through norms regulating such things as interpersonal distance (think about contrasting norms of personal space in northern vs. Mediterranean Europe) and through environmental artifacts and affordances that facilitate or constrain certain postures, poses, or movements (think about rigid English church pews, Scandinavian furniture, bean bags, hoop skirts, swaddling clothes, burkas, and so on).

Pre-dispositions Are Not Determinants: Culture Guides the Movement From Physiology to Mindset

Culture's role is not simply one of encouraging certain body comportments that pre-dispose us to think and feel certain ways. Cultural schemas, rules, and scripts also guide the way a bodily comportment leads to a particular mindset, among a number of different possible mindsets. The problem is that the path from comportment to even very basic affective and cognitive responses is, in many cases, underdetermined: Certain comportments and physiological actions can pre-dispose us to more than one type of cognitive or affective response. As James (1884) noted, running and fear are associated; but so are running and excitement, running and pursuit, and (now in modern times) running and simply getting exercise (all indicate an underspecified "arousal"). People tense their hand into a fist when they are angry or when they are tense or when they are trying to hold onto something tightly and not let it go (again all indicate a type of arousal). People may stand straight, upright, and hold their body tense to maintain self-control and stifle emotion (Zajonc & Markus, 1984) or they may do so to make themselves look bigger and more domineering or (in contrast) they may even do so as a sign of deference (a subordinate indicates deference to a superior by showing he or she is *not* relaxed in the superior's presence. It is the superior's role to permit the subordinate to be "at ease."). People hold their head high when they are proud, but they also do so when they are happy, or when they are simply looking for their car in a crowded parking lot. And so on.

To reiterate: This does *not* imply that running, making a fist, standing or sitting straight, or holding one's head high do not have pre-wired associations with certain ways of thinking or feeling (Schubert, 2004). It is simply that a pre-disposition is not a determinant, and the connections between a certain body posture and certain affective or cognitive responses are underspecified. Cultural schemas, rules, and practices help guide the selection of specific responses. They may do so by raising the chronic accessibility of certain schemas (in a culture of honor, honor schemas will be more salient and more likely to be evoked by certain actions and comportments) or by supplying rules that allow the person to interpret their physical state ("If my head is down and I'm thinking of how I messed up, I must be feeling shame" vs. "If my head is down and I'm thinking of how I messed up, I must be feeling sad;" see also Stepper, 1992, cited in Stepper & Strack, 1993). Further, cultural practices and scripts allow people to rehearse actions and displays of anger or happiness or dominance or shame, etc.; and so, at the physiological level, this practice may potentiate connections between certain physiological states and other physiological states. That is, a physiological action representing emotion X may potentiate other physiological actions representing X (Zajonc & Markus, 1984). For instance, cultural practices that rehearse anger may create overlearned associations between, say, clenching the fist, puffing the chest, narrowing and focusing the eyes, hardening the mouth, jutting the chin, and so on. *Practices*—the anthropological term here is quite apt— that create these overlearned associations thus allow the fist to potentiate all these other reactions that display anger, power, and domination.

Embodying Honor

Recent experiments on embodying a moral code of honor illustrate these points about the way: (1) bodily comportments can pre-dispose people toward (but not deterministically create) certain mindsets, (2) situational cues that may temporarily raise the salience of particular schemas can help channel associations such that bodily comportments evoke a specific

mindset, and (3) cultures in which a particular syndrome is quite salient are likely to have well-potentiated associations, such that certain body positions quite easily evoke mindsets associated with that cultural syndrome.

In one study, we examined the embodiment of honor beliefs with Anglo-Americans on the University of Illinois campus. Honor is not normally the dominant ideal for this group; but all Americans have some familiarity with honor's "Don't tread on me" ethos (Miller, 1993). Participants in our study were given a cover story that we were examining the effect of oxygen levels on vision (IJerman & Cohen, 2008). They would take a vision test, reading an eye chart from approximately 4 m away. To supposedly alter their oxygen level, we would have participants stand and hold a board at waist level. It would take a few minutes to have the oxygen level adjust, so we asked participants if they would mind doing a few tasks for other experimenters whom we were helping. These tasks included (a) an honor priming (vs. neutral priming) task in the form of a fill-in-the-blank exercise (which either used words such as *ins_It* and *d_fend* to prime honor or used neutral words to not prime honor) and (b) the dependent measure of honor endorsement in the form of a questionnaire which had honor items buried within a number of filler items. These honor items were taken from a scale by Rodriguez-Mosquera, Manstead, and Fischer (2002) and concerned issues such as female purity ("I believe that a woman maintains her honor by saving her virginity until she marries," "I believe that a woman violates the honor of her family by having sexual relationships with many different men"), familism ("To maintain my honor, I should be loyal to my family, no matter what the circumstances are"), and concern with reputation ("To maintain my honor, I should always be prepared to defend my reputation"). The key embodiment manipulation in this study was that the fill-in-the-blank task and the questionnaire were pinned to the top or the bottom of an easel, such that the participant had to stand (a) holding his or her head high with chin up in order to see the items or (b) bowing his or her head down in a hangdog pose to see them.

What happened when unprimed Anglos were put in the "standing tall" (head up, chin high) posture was . . . nothing. There were no differences in endorsement of honor beliefs between unprimed Anglos who had either their head up or head bowed. The poses might have just as easily meant, "I feel happy" or "I feel sad," but they did not mean anything about honor. One can, however, prime Anglo-Americans; and once primed with honor concepts, then the embodiments took effect—with greater endorsement of honor beliefs about female purity, familism, and reputation in the head-up as opposed to the head-bowed group. The primed, head-up group even showed more sensitivity to honor in reading the chart for the eye test. The last, barely readable line of the eye chart was "Q K H O N O R Z B" which, if one is sensitized to honor, probably looks like "Q K H O N O R Z B." So, whereas primed participants who had their head bowed were more likely to see something like "honob" or "ronor" or "bonor," primed participants with their chins held high were more likely to see the letters "honor" at the bottom of the chart.

We also ran the experiment with Latino participants, who belong to a culture where honor is a salient cultural theme. For this group, adopting the posture (even without the fill-in-the-blank prime) is enough—at least for Latino men. Putting Latino men in the head high, chin up position makes a major difference in how strongly they endorse honor items that women should be virgins before marriage, that loyalty to family is paramount, that reputation is important to defend, that a man's honor is stained by his wife's or girlfriend's infidelity, and so on. Priming with words is not necessary; unlike their Anglo counterparts, for Latino men, body position is enough to make them feel honor's dictates. The posture in and of itself triggered the honor mindset.

Embodying Accessible Moral Discourses of Universalism and Particularism

The cultural values carried by the body can be quite complex. That is, the relatively basic affective and cognitive reactions that a particular way of standing, sitting, walking, and so on evokes can themselves trigger quite complex representations. Consider, for example, (1) the moral codes of particularism and universalism (Trompenaars, 2003; Zurcher, 1968) and (2) the way people navigate their way through relatively complex cultural systems that contain elements of both moral codes.

Briefly and as an oversimplification, the moral code of universalism is a moral code of *rules* that apply to all people. It is strict and unbending in that the rules must be upheld and applied, and one does not make exceptions for oneself, one's friends, and one's family. It demands that one stifles one's natural sympathies to those nearest and dearest for the sake of adhering to an abstract moral code that applies to everyone.

The moral code of particularism is a moral code of *relationships* in that it emphasizes one's duties and loyalties to particular people, thus allowing relationships to override laws at times. Our sympathies and sentiments naturally go to those closest to us, and we owe our loyalties to particular people in our inner circle rather than to some abstract code of morality. Particularism is the morality exemplified in the following passage from the *Analects*:

“The Duke of She observed to Confucius: ‘In my part of the country, there is a man so honest that when his father appropriated a sheep, he bore witness to it.’

“‘The honest in my part of the country,’ replied Confucius, ‘are different from that, for a father will screen his son, and a son his father – and there is honesty in that.’”

Particularism is often assessed with questionnaire items similar to that of the scenario from the *Analects*. For example, the participant is asked about a situation in which his brother has committed a crime. Discovering that an innocent person has been accused, the participant must decide between turning in his brother vs. covering up for him. Or the participant is asked about a situation in which he works for a company and must decide between hiring his friend vs. a better-qualified applicant (Grassian, 1992). Such questions are often worded in a normative fashion, as in “Does your brother have the right to expect you to lie for him?”

In our study (Leung & Cohen, 2008), we had two measures of honesty: One involved paper-and-pencil particularism scenarios such as those above. A second involved a behavioral measure of cheating, in which participants had the opportunity to win money by cheating on a memory test (procedure similar to Leung & Cohen, 2007; adapted from Houston, 1978). Doing so would violate universalist injunctions against cheating for selfish gain.

What might embody a morality of particularism or universalism? Of the many possibilities for particularism, we chose the hug. For humans as with other primates, the hug is a gesture of bonding. It is what we give to our nearest and dearest, pulling those people close to us and creating a small circle separating those in our embrace from everyone else. We did not tell participants they were being put in a hug position. Rather, we used a cover story about memory and “blood flow in the central cavity” to explain why participants had to maintain their arms in a circular position. To help them keep this position, we gave them a large cushion to hold with both arms and instructed them to pump their arms every 5 or 10 seconds or so (similar to the way one has to squeeze a rubber ball every so often while giving blood, effectively, participants ended up hugging the large cushion).

For the embodiment of universalism, we chose a posture of rectitude, of upright character, rigidity, and self-control. Again, under the same cover story, participants were instructed to sit with their chin above a string that was of a certain height. This height was adjusted individually for each participant to force them into a stiff, upright posture of rectitude. Maintaining such a posture requires tightness and rigidity, forcing the spine to straighten and inhibiting relaxation and movement.

No cultures are *purely* particularistic or universalistic. However, some cultures are more likely to tend toward particularism while others are more likely to tend toward universalism. In the US, along with its looser and more individualistic cultural traditions, universalism tends to be the relatively more dominant ideal. In Asia, along with its tighter and more collectivistic cultural traditions, particularism tends to be the relatively more dominant ideal (see Hampden-Turner & Trompenaars, 1993; Trompenaars & Hampden-Turner, 1997).

With exposure to two different cultural traditions, Asian-Americans may have ready access to both moral worldviews. In other words, they can draw on two legitimate moral discourses to make judgments—one of particularism and one of universalism. Thus, it is especially interesting to examine how embodiments may induce “frame switching” (Hong et al., 2000) and guide them toward either more particularistic or more universalistic moral schemas. As Asian-American participants navigated their way through the ethical dilemmas of our study, the embodiments of the embrace versus the upright posture were supposed to trigger or prime different moral schemas. As expected, the hug posture (vs. the upright posture and control conditions) made particularistic norms more salient for Asian-Americans and they were more likely to say that their friend has the right to expect them to cover for him, even if this meant lying or an innocent person being blamed. And, on the other hand, the posture of straight-backed rectitude (vs. the hug and control conditions) invoked a standard that led Asian-Americans to resist the temptation to cheat on the memory test for their own selfish gain. The key to the embodiments having such effects on attitude and behavior is that Asian-Americans navigate their way through a complex cultural system that has two legitimate moral discourses that they can draw on (universalism and particularism), and the embodiments act to trigger one set of standards or the other.

Embodying Cultural Norms of Purity

The role of cultural schemas in shaping the path from basic affective or cognitive responses (2) to more complex representations (3) is also highlighted when comparing cultures that have both similarities and differences in the way they

elaborate on basic affective and cognitive reactions. Given that cultural differences do exist in the link between (2) and (3), it should be no surprise if the same body posture and comportment (1) can end up producing very different complex representations (3) for people of different cultures. The point is straightforward enough, and we flesh it out below using an example that draws on ideas about purity and contamination.

As Haidt, Rozin, and colleagues have argued, purity norms involve what is disgusting or polluting (see also fascinating work by Wheatley and Haidt (2005) and Schnall, Haidt, Clore, and Jordan (2008) on disgust as an embodied cognition). There is a basic core emotion of disgust, and its adaptive function seems to be the avoidance of contamination, which is why we try to avoid contact with things like feces, vomit, mangled body parts, rancid meat, and so on (Rozin & Fallon, 1987; Rozin, Nemeroff, Wane, & Sherrod, 1989). However, all cultures have elaborated on this basic core emotion of disgust (having to do with animals, human waste, etc.) so that disgust is now attached to contamination from contact with other people, particularly undesirable people, as if their undesirable essence might rub off onto us (Rozin, Fallon, & Augustoni-Ziskind, 1985; Rozin et al., 1989; also Fiske, 2004; Mauss, 1990, 2001). Thus, touching the clothes of a mass murderer is disgusting, because such clothes have been “contaminated” with the murderer’s essence and evil intent. The emotion of disgust is also further elaborated on to certain moral offenses that do not by themselves involve personal contact contamination. Such “socio-moral” disgust offenses include repellent acts such as “children [teasing] homeless people,” racist behaviors, and so on (Haidt, Rozin, McCauley, & Imada, 1997; Rozin, Haidt, & McCauley, 1993).

In our experiment, we had participants from different religious backgrounds (Muslims, Protestants, Jews, and Hindus) (Leung & Cohen, 2008). They rated various scenarios for how morally wrong it would be for a person to engage in certain behaviors. Some of these scenarios involved violating autonomy norms (that is, they infringed on another person’s rights or privacy). Some of these scenarios involved violating purity norms. None of the purity violations involved harm to other people. However, some purity violations were *behaviors* with a very straightforward connection to basic *contamination* and disgust issues; for these, we expected an embodiment that triggered purity concerns to have similar effects on all groups of participants. An example of this sort of violation was one in which a person had sex with a dead chicken before eating it (taken from Haidt, Koller, & Dias, 1993); other purity violations might be seen as disgusting because they involved a person holding impure *beliefs*, blaspheming or disrespecting G-d or otherwise thinking immoral thoughts. An example of this type was one in which a person cursed and said hateful things to G-d. For these items, we expected stronger embodiment effects among participants whose religion placed relatively greater emphasis on beliefs (Muslims and Protestants) as compared to those whose religion placed relatively greater emphasis on deeds (Jews and Hindus) (see, for example, Cohen, 2002, and Cohen and Rozin (2001, 2003), comparing Jews, Protestants, and Catholics on beliefs about the relative importance of faith vs. deeds).

In our experiment, under the guise of a study on hand temperature and hand–eye coordination ability, we had students perform two video game tasks, separated by a period in which they needed to warm their hands. In one condition, the experimenter demonstrated the way participants should rub their hands together to keep them warm—a movement similar to hand washing. During this “warming period,” participants were given the moral judgment task in order to help out a supposedly unrelated experimenter. (We chose the hand washing motion because the hands are likely to be particularly central for contamination concerns: They come into frequent contact with other people, are used for performing polluting tasks (including cleaning our own waste), and, importantly, bring food to our mouths.)

The expected pattern of embodiment effects was obtained. First, across religious groups, participants embodying cleaning and the removal of contamination (through movements similar to washing their hands) judged various contamination-related purity offenses to be more morally wrong, as compared to participants in the control condition who did not engage in the hand washing motions. These contamination-related purity offenses involved either physical contamination (e.g., having sex with a chicken) or its close elaborations (e.g., wearing the clothes of a child molester). The hand washing motion did not produce greater condemnation for autonomy-related offenses.

Second, purity items involving blasphemy, disrespect of G-d, or improper beliefs showed embodiment effects only for participants whose religion placed relatively greater emphasis on beliefs and not for participants whose religion placed relatively greater emphasis on deeds. That is, the hand washing movements produced greater condemnation of blasphemy and belief-related violations among Muslims, and to a lesser degree Protestants, as compared to Hindus and Jews. Thus, the hand washing may have primed purity or a desire to be rid of contamination, but cultural differences emerged because what is considered morally impure and polluting (rather than simply obnoxious or unpleasant) varies across cultures.

(Note also that these findings complement those of Zhong and Liljenquist (2006). They showed that a threat to one's moral purity led participants to want to physically clean themselves (a moral purity => body purity causal connection). The present findings reversed the causal direction—the hand washing motion gave body to the purity ideal, producing greater condemnation of moral purity violations (a body movement/body purity => moral purity connection)).

Overlearned Associations and Totem Embodiments

Thus far, we have traced the path from body action and comportment (1) to basic affective and cognitive reactions (2) to more complex representations (3). However, after enough practice—through either stylized rituals or the regular actions of everyday life – individuals in a culture may overlearn the associations, and it is possible for the causal chain to proceed directly from body action and comportment (1) to the more complex representations (3). This possibility may be somewhat difficult to establish with pre-wired embodiments, because the connection from step 1 to step 2 is already wired in our brains. However, the possibility may be addressed in examining *totem embodiments* (bottom half of Figure 1). Such totem embodiments have no pre-wired connection between body comportment and basic affective and cognitive reactions. Rather, totem embodiments make use of body comportments that operate at a purely symbolic level, having no inherent meaning except that which is commonly recognized within a culture. For example, crossing oneself may evoke a number of complex representations for a Christian, but the cross does not inherently evoke anything and will have little effect on a non-Christian. Some Orthodox Jews put on their right shoe first but tie their left shoe first because the right side represents mercy, an impulse that primarily needs to be strengthened, whereas the left represents judgment and primarily needs to be bound or restrained (Meir, 2006). While performing such acts may be a daily reminder for Jews of the values they hope to live up to, doing so should elicit little among those unaware of the act's significance. The same will probably be true of many body postures and acts—for example, Native American rain dances, inner city gang hand signs, Masonic lodge secret handshakes, the index and pinkie finger “salute” of heavy metal fans, Hindu and Buddhist hand gestures (known as mudras), the priestly blessing of the Jewish Kohanim (subsequently appropriated by Leonard Nimoy as a Vulcan greeting on the TV show “Star Trek”; Nimoy, 2008)—these may evoke or affirm ideals, identities, and complex representations for properly socialized group members, but have no effect on those outside the group.

The nature of totem embodiments leads to a number of logical corollaries as well as (untested) hypotheses about various differences between totem and pre-wired embodiments. For instance:

- (a) Because totem embodiments do not take advantage of any pre-wired tendencies, it should be harder for actors to facilitate an automatic association between the totem embodiment and the response it should evoke. Following general laws of learning, totem embodiments should require frequent repetition and ritual, their direct and vicarious learning not having the advantage of being “jump started” by evolutionary preparedness (Konner, 2002).
- (b) The internal, unobservable psychological states that accompany totem embodiments should be harder to learn by simply imitating another's actions. In contrast to pre-wired embodiments, it should be harder for people to learn to feel the appropriate psychological state either by simple imitation (copying the actor's movements) or simple observation (letting their “mirror neurons” do the work of simulating the actor's movements and thus simulating what the actor must be feeling internally).
- (c) The arbitrariness of totem embodiments makes them more useful as an indicator of group identity, because it is less likely that any two unrelated groups will develop the same sorts of association between certain actions and certain complex psychological states.
- (d) Because of the difficulty of learning totem embodiments and their usefulness as a marker of group identity, totem embodiments may be particularly likely to be socialized in *group* rituals—and as such, they should be particularly likely to mark and reinforce actors' feelings of identity and solidarity (see, for example, Fiske (2004) on the modes for constituting relations of kin-like solidarity).
- (e) The adaptive nature of pre-wired embodiments means they should be associated with psychological states that are significant for individual survival and reproductive fitness; totem embodiments should be far less constrained in their associations.
- (f) Totem embodiments should be more fragile over time than pre-wired embodiments. Totem embodiments should lose their meaning unless supported by the socializing forces that rigorously teach and reinforce the connection between an action and the psychological states the action is supposed to embody. This may in part explain why religions that consist of practices can be so effective in creating a complete way of life for adherents, but this complete way of life

then needs either a unifying dogma or very strong community enforcement to sustain itself and prevent dissipation (Glazer, 1988).

COMPLEXITIES OF EMBODIMENT

The question of how totem and pre-wired embodiments may differ is just one of a series of questions. The area is ripe for exploring issues such as:

- (1) In the experiments and examples we described, embodiments of a certain posture led to behavior and expressions of attitudes consistent with that posture. However, as one reviewer pointed out, embodiments may sometimes act less like primes that orient one toward the appropriate behavior and more like Medieval indulgences that pre-excuse inappropriate behavior. That is, the embodiments allow a person to feel a certain way or perceive themselves a certain way, thereby enabling or excusing contrary actions (Monin & Miller, 2001). Thus a person who adopts a stance of righteousness or rectitude may feel less guilty after transgressions (or may even allow himself to commit transgressions) because he already feels righteous due to his moral “pose.” A number of hypotheses can be developed such as: Actions that create a psychological state conducive to *performing* actions of type X lead to more of type X behavior. On the other hand, actions that create a psychological state that resembles an *endstate* of having performed an action of type X should lead to less type X behavior. Thus, an embodied action conducive to acting in a righteous or altruistic manner may lead to more of such behavior, whereas an embodied action that creates feelings of self-satisfaction or a settled sense of one’s own righteousness may lead to less altruistic behavior. An analogy may be made to eating: Embodying hunger should lead to more eating; embodying satiety should lead to less.
- (2) Relatedly, psychologists have found that word primes can lead to both assimilation and contrast effects. It would not be surprising if embodied actions could also produce assimilation or contrast effects. In this paper, we have focused on effects that might be termed assimilative. However, one might hypothesize: To the extent that an action raises the salience of an ideal that the person believes they either cannot meet or do not want to meet, the effect may be to produce contrastive behavior (Cheng, Lee, & Benet-Martinez, 2006; Dijksterhuis et al., 1998; Herr, Sherman, & Fazio, 1983; Leung & Cohen, 2007; Likowski et al., 2008; Mussweiler, 2006; Schubert & Hafner, 2003).
- (3) In the present paper, we have focused on what might be called *hard* embodiment—that is, the way ideals, values, action tendencies, and so on are embodied in the way we actually move and comport our physical bodies. This can be contrasted with *soft* embodiment in which our mental imagery or our mental models of the way our bodies move through time and space instantiate an understanding of our (literal and figurative) place in the world (e.g., Boroditsky & Ramscar, 2002; Freud, 1905/2003; McGlone & Harding, 1998; Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005, drawing on Barsalou, 1999; Zajonc & Markus, 1984). For example, in looking at the mental imagery and mental models of Euro-Americans in social situations, we found that Euro-Americans tend to remember such situations from their own first person perspective, mentally model these situations from an egocentric point of view, and embody their own motion through time and space when imagining events. In contrast, Asian Americans in social situations tended to remember situations with imagery from another person’s (presumed) point of view, mentally model situations from their friends’ perspective, and embody their friends’ motion through time and space (rather than their own) when imagining events. Such mental imagery is consistent with (1) a cultural imperative for Asian-Americans to consider how they look to other people and harmonize with them and (2) a cultural imperative for Euro-Americans to figure out what they want and go out and get it (Boroditsky & Ramscar, 2002; Cohen & Gunz, 2002; Cohen, Hoshino-Browne, & Leung, 2007; Leung & Cohen, 2007; McGlone & Harding, 1998).

An obvious question here is: If hard embodiments are learned to some significant extent by imitation and observation, how are soft embodiments socialized? We cannot observe and imitate others’ mental processes. So do we learn culturally appropriate ways of mentally modeling the world by listening to people talk and making inferences about their imagery? By having others directly tell us to mentally model the world a certain way? Or are soft embodiments learned through behaviors because the norms, rituals, and etiquette of everyday interaction force us to mentally model the world from a certain perspective—as an example, such norms, rituals, and etiquette might require that we always give directions in terms of the *other person’s* left or right rather than our own, position the object so that the other person can easily see it/use it, always give the object to the other person’s dominant hand, tell people we are “coming” to where they are rather than “going” to where they are, and so on)? (Wu & Keysar, 2007).

CONCLUSION

Studying soft embodiment represents something of a compromise position between hard embodiment and psychology's usual approach to studying culture. That is, it's *about* the body, but it's still comfortably "*in the head*"—focusing primarily on mental representations rather than on the actual physical comportment of the body. Psychologists typically ask questions such as: "How does culture that's 'out there' get 'in the head?'" However, one of the crucial elements that a psychology from the neck up misses is the way our physical bodies create, instantiate, model, and transmit our attitudes, emotions, and values. The anthropological emphasis on practice, ritual, and what people actually do with their bodies captures this in a way that a psychology of the head does not. What is needed is neither a disembodied social psychology nor a decapitated cultural anthropology but rather a social-cultural psychology that integrates both. These approaches can be studied not in terms of complements, but in terms of integrations. It is the conjoint product of the body's actions and the mind's representations that create both the pre-wired and totem embodiments of encultured human beings.

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