



# Cultural psychology

Steven J. Heine\* and Matthew B. Ruby

Humans are a cultural species, constantly navigating a complex web of culturally bound practices, norms, and worldviews. This article provides a brief overview of the relatively young field of cultural psychology, which investigates the many ways psychology and culture interweave with one another. Highlighting the cultural nature of the human species, it draws upon research on cultural evolution, enculturation, and developmental processes. This review further summarizes a number of cultural differences in how people perceive the self, and the behavioral consequences that follow from these differences, in the domains of internal and external attribution styles, motivations for self-enhancement, approach/avoidance, primary and secondary control, as well as motivations for distinctiveness and conformity. Additionally, the review discusses research on the intersection of culture and emotion, as well as cultural differences in cognition, perception, and reasoning. © 2010 John Wiley & Sons, Ltd. *WIREs Cogn Sci* 2010 1 254–266

We are members of a highly cultural species, depending critically on cultural learning in virtually all aspects of our lives. Whether trying to woo a mate, protect our kin, forge a political alliance, or enhance our social standing—goals pursued by people in all cultures—we do so in culturally bounded ways. In all our actions, we rely on ideas, values, strategies, feelings, and goals that are shaped by our cultural experiences. To be sure, regularities exist across humans from all cultures with respect to many psychological phenomena, but at the same time there remain many pronounced differences (for a review see Norenzayan and Heine<sup>1</sup>).

Although psychologists have been studying culture at least since Wilhelm Wundt<sup>2</sup> published his ten volume work *Elements of Folk Psychology* in 1921, the study of cultural psychology has had its most impactful influence on mainstream psychology over the past 20 years. Around 1990, several seminal books and papers emerged that articulated how cultural experiences were central to, and inextricably linked with, psychological processing.<sup>3–6</sup> Since then, much empirical research has demonstrated the cultural foundation of many of the psychological phenomena that had hitherto been viewed largely as invariant across the species.

## HUMANS AS A CULTURAL SPECIES

A defining characteristic of humans is that they engage in cultural learning, acquiring information from conspecifics through social transmission.<sup>7</sup> Cultural learning is not a uniquely human characteristic, as many diverse species show evidence for cultural learning, such as rats,<sup>8</sup> pigeons,<sup>9</sup> and guppies.<sup>10</sup> In some species, such as chimpanzees<sup>11</sup> and orcas,<sup>12</sup> the degree of cultural learning is quite substantial. Although humans are not unique for engaging in cultural learning, no other species has shown the capacity to learn from conspecifics as well as humans.<sup>13</sup>

Humans are the only species that demonstrates evidence for substantial cultural evolution.<sup>14,15</sup> Cultural learning in humans is of high enough fidelity that cultural information tends to accumulate over time (a process known as the ratchet effect<sup>16</sup>), whereby cultural ideas are learned by an individual, subsequently modified, and the modified ideas are then learned by others, ad infinitum. Given open communication among individuals, this evolution tends to accelerate over time because of the growing number of ideas that can be modified or connected.<sup>17,18</sup> Thus, humans are born into vastly complex cultural worlds, with experiences that vary widely between cultures. As people are continually learning and being influenced by the shared ideas that make up those worlds, understanding human psychology means that one must also consider the kinds of cultural information that people encounter in their daily lives.

\*Correspondence to: heine@psych.ubc.ca  
University of British Columbia  
DOI: 10.1002/wcs.7

## Cross-Cultural Generalizability of Psychological Findings

The cultural nature of humans makes it challenging to draw conclusions about psychological universals. Many psychological phenomena vary significantly across cultural contexts, and emerge at different levels of universality.<sup>1</sup> On the one hand, pronounced cultural variance has been identified in such fundamental psychological phenomena as perceptions of fairness (e.g., Henrich et al.<sup>19</sup>), approach-avoidance motivations (e.g., Lee et al.<sup>20</sup>), preferences for formal reasoning (e.g., Norenzayan et al.<sup>21</sup>), and the need for high self-esteem (e.g., Heine et al.<sup>22</sup>). At the same time, there are many key psychological phenomena for which varying degrees of universality have been compellingly established, such as facial expressions of emotions (e.g., Ekman et al.<sup>23</sup>), sex differences in violence (e.g., Daly and Wilson<sup>24</sup>), several aspects of mate preferences (e.g., Buss<sup>25</sup>), and the structure of personality (e.g., McCrae et al.<sup>26</sup>).

A major obstacle for assessing universality is the limited nature of the psychological database. A recent review of all papers in the top journals in six disciplines of psychology from 2003 to 2007<sup>27</sup> found that 96% of the samples were from Western countries, with 68% coming from the US alone; further, the vast majority of samples were that of college students. Thus, psychologists cannot know whether many phenomena are universal because the database covers a restricted range of cultural contexts. Further complicating the situation, the data from American college students are frequently outliers in the context of the data from other cultures<sup>28</sup>—that is, the database not only represents a narrow slice of humanity, it is also a highly unrepresentative slice. Cultural psychology seeks to expand this database, although thus far, many of its efforts have been limited to comparisons between East Asian and North American college students.

## ENCULTURATION

People come to think in different ways across cultures, as their experiences differ in many ways from the moment they are born. For example, whereas it is most common for young American infants to sleep on a crib in a separate room from their mothers, this arrangement was not observed in any other society studied in a survey of 100 societies around the world.<sup>29</sup> In approximately two-thirds of societies infants sleep in the same bed as their mothers, and in the majority of other cases infants sleep in the same room as their mothers but on a different

bed.<sup>30,31</sup> Likewise, American mothers chat with their babies in a different way than do Japanese mothers, with American mothers being more likely to elicit ‘happy vocals’ and Japanese mothers being more likely to soothe ‘unhappy vocals’.<sup>32</sup> Similarly, Canadian mothers were shown to communicate nouns more effectively to infants, whereas Chinese mothers were more effective at communicating verbs.<sup>33</sup>

Cultural variation in the experiences of infants and children is paralleled by cultural variation in many psychological processes. One domain in which this is clearly evident is in attachment styles. Whereas the most common attachment style among Americans is the secure attachment (approximately 62% of mother–child relationships<sup>34</sup>), in Northern Germany the most commonly found attachment style is the avoidant attachment (approximately 48%<sup>35</sup>), and among children reared in Israeli kibbutzim, it is the anxious-ambivalent style that is most commonly found (approximately 50%<sup>36</sup>). Furthermore, in some cultural contexts, researchers have not been able to identify all of the three attachment styles.<sup>37,38</sup> It has even been questioned whether the assumptions underlying attachment theory (particularly the notions of dependence and autonomy) make sense in some non-western contexts.<sup>39</sup>

Because cultural information is acquired as children are socialized, it follows that cultural differences in psychological processes should become more pronounced with age and socialization. Aside from phenomena delimited by an early sensitive window for their acquisition (see Johnson and Newport;<sup>40</sup> Minoura<sup>41</sup>), adults should differ more in their ways of thinking across cultures than should children. Evidence for such trends has emerged in several domains. For example, cultural differences in the tendency to make nonlinear predictions of the future become more pronounced in magnitude with age,<sup>42</sup> as do cultural differences in social loafing.<sup>43</sup> On the other hand, cultural variation in visual illusions such as the Muller–Lyer illusion is at least as pronounced among young children as it is among older adults, suggesting that there may be an early sensitive window in which the visual system is organized with respect to these illusions.<sup>44</sup>

## THE SELF

Cultural psychology maintains that the process of becoming a self is contingent on people interacting with and seizing meanings from their cultural environment—a process that lends itself to considerable between-culture variation in self-concepts. The impact of cultural experiences on the self-concept can

be seen in studies that ask people to freely describe themselves using the Twenty Statements Test.<sup>45</sup> Such studies reveal that people from various individualistic cultural contexts, such as Australia, Canada, and Sweden, tend to describe themselves most commonly with statements that reflect their inner psychological characteristics, such as their attitudes, personality traits, and abilities. In contrast, people from various collectivistic cultural contexts, such as Cook Islanders, Native Americans, Puerto Ricans, Indians, Africans, and various East Asian populations, show a relatively greater tendency to describe themselves by indicating relational roles and memberships that they possess (see Heine,<sup>46</sup> for a review). Such cultural differences are already evident among kindergarten-aged children.<sup>47</sup>

These different response patterns in self-descriptions suggest at least two different ways that people might conceptualize their selves. One way is that the self can largely derive its identity from its inner attributes—a self-contained model of self which Markus and Kitayama<sup>4</sup> labeled an independent self-concept. These attributes are assumed to reflect the essence of an individual in that they are viewed as stable across situations and across the lifespan, perceived to be unique (in that no one else is expected to have the same configuration of attributes), and viewed as significant for regulating behavior. A second way people can conceptualize themselves is to view the self as largely deriving its identity from its relations with significant others—this model is termed an interdependent self-concept.<sup>4</sup> With this view of self, people recognize that their behavior is contingent upon their perceptions of other's thoughts, feelings, and actions, they attend to how their behaviors affect others, and consider their relevant roles within each social context. The interdependent self is not so much a separate and distinct entity, but is connected with a larger social unit.

This distinction in self-concepts has been related to a wide variety of different psychological processes, such as motivations for uniqueness (e.g., Kim and Markus<sup>48</sup>), agency (e.g., Morling et al.<sup>49</sup>), emotional experiences (e.g., Mesquita<sup>50</sup>), relationships (e.g., Adams<sup>51</sup>), self-enhancement (e.g., Heine et al.<sup>22</sup>), and reasoning styles (e.g., Nisbett et al.<sup>52</sup>), and presently stands as the most fruitful way for making sense of identified cultural differences in psychological processes.<sup>53</sup> Perhaps this centrality derives from the universal tension that arises from the fact that every human is ultimately a distinct individual, unique from everyone else, yet at the same time, humans are an 'ultra-social' species.<sup>14</sup> The conflict between the pursuit of individual and social goals may ultimately

prove to be the most fundamental aspect in which cultures differ in their psychology. The question of why cultures differ in the ways they prioritize individual and collective goals in the first place is an important and difficult question that the field is still exploring (for some thoughts on this matter see Nisbett<sup>54</sup>).

### Incremental versus Entity Theories of Self

A difference in the nature of the self-concept that relates to independent and interdependent self-views is the perceived fluidity of people's traits and abilities. One way to consider the self is to view it as arising from a set of relatively fixed and innate attributes. This kind of 'entity theory'<sup>55</sup> of self, particularly likely among those with independent self-concepts, reflects beliefs that the self is founded on an underlying stable essence. As people with entity theories get older, their collection of attributes is viewed to stay largely the same. A second way of conceiving of the self is to view it as being malleable, and ultimately improvable with efforts. This kind of 'incremental theory' of self, more common among people with interdependent self-concepts, reflects a belief in the key role of effort underlying one's abilities and traits. One's attributes (e.g., one's soccer-playing skill, extraversion, or intelligence) are not viewed as constant across one's life, but are perceived to reflect how hard one has worked on them.<sup>56</sup>

The theory of self that one embraces is predictive of the amount of effort one will expend on a related task. For example, people with more incremental theories have been shown to respond to failures by focusing on their efforts and the strategies that they utilized,<sup>57</sup> and by taking remedial courses.<sup>58</sup> In contrast, people with entity theories of intelligence view their intelligence as a reflection of an underlying essence that remains largely removed from the efforts that they make. Rather than increasing effort on the same task, people with entity theories tend to respond to failures more by searching for an alternative task—one that better fits with their innate talents.<sup>59</sup>

People from different cultures do appear to differ in the extent to which they embrace incremental views of self. Indeed, it appears that North Americans are less likely to view their selves as incremental compared with people from some interdependent cultural contexts, such as Mexicans and Filipinos,<sup>60,61</sup> and a number of studies have identified greater tendencies for East Asians compared with North Americans to attribute school achievement to efforts, and not to abilities (e.g., Heine et al.<sup>56</sup>; Stevenson and Stigler<sup>62</sup>).

## Multicultural Selves

If culture shapes the self, how do people from multiple cultural backgrounds conceptualize the self? There are two complementary perspectives on this. One perspective is that multicultural people have multiple self-concepts that are simultaneously accessible, and their typical thoughts and responses reflect a blending of these. Evidence for this can be seen in that Asian-Americans tend to perform intermediately on many psychological tasks compared with European-Americans and Asians in Asia (e.g., Heine and Hamamura<sup>63</sup>; Norenzayan et al.<sup>64</sup>). A second perspective is that multicultural people sequentially activate their different self-concepts, depending upon situation or primes; this perspective is known as frame-switching.<sup>65</sup> There has been much evidence that multiculturals engage in frame-switching for a variety of different kinds of psychological processes. For example, Hong et al.<sup>65</sup> primed Hong Kong Chinese with either Chinese, American, or neutral thoughts by showing them cultural icons (or neutral images), and subsequently asked them to make attributions for the behaviors of computerized images of fish. Participants primed with American icons made fewer external attributions for the fish's behavior than those primed with Chinese icons, with the attributions of those in the neutral prime condition falling in between.

To the extent that monocultural people have different knowledge structures associated with ideas such as interdependence than they do with ideas such as independence, people should not require experiences in more than one culture to frame-switch. Indeed, there have been numerous demonstrations that people with largely monocultural experiences also frame-switch in similar ways (see Kühnen et al.<sup>66</sup>; Mandel<sup>67</sup> for a meta-analysis see Oyserman and Lee<sup>68</sup>). For example, whereas much research finds that East Asians display more pronounced avoidance motivations (i.e., they seek to avoid negative objects, events, or possibilities) than Westerners (e.g., Elliot et al.<sup>69</sup>; Hamamura et al.<sup>70</sup>), priming European-Americans with interdependent thoughts led them to become more avoidant-oriented as well.<sup>20</sup> Nonetheless, multiculturals apparently do show more extreme degrees of frame-switching than do monoculturals,<sup>71</sup> suggesting a clearer demarcation in the knowledge structures of multiculturals regarding ideas such as independence and interdependence.

## MOTIVATION

People's motivations are grounded in cultural meaning systems.<sup>3,72</sup> Much research has explored how some key motivations appear differently across cultures.

## Motivations for Self-Enhancement and Self-Esteem

The motivation that has been researched the most across cultures is the motivation to *self-enhance*—the desire to view oneself positively. A great deal of research from a diverse array of methodologies reveals that Westerners have a strong need to view themselves in positive terms. The vast majority of North Americans score above the theoretical midpoint of self-esteem scales,<sup>73</sup> report unrealistically positive views of themselves,<sup>74,75</sup> and engage in various compensatory self-protective responses when confronted with threats to their self-esteem (e.g., Steele<sup>76</sup>; Tesser et al.<sup>77</sup>).

In interdependent cultural contexts, the evidence suggests that these motivations are less pronounced. For example, Mexicans,<sup>78</sup> Native Americans,<sup>79</sup> and Fijians<sup>80</sup> score much lower on various measures of positive self-views than do Westerners. Indeed, in some cultural contexts, most notably East Asian ones, evidence for self-serving biases is particularly weak (e.g., Mezulis et al.<sup>81</sup>). A recent meta-analysis on self-enhancing motivations among Westerners and East Asians found significant cultural differences in 30 of the 31 methodologies that were used (the one exception being comparisons of self-esteem using the Implicit Associations Test (IAT),<sup>82</sup> see Falk et al.<sup>83</sup>; Kitayama and Uchida<sup>84</sup>). The average effect size for the cultural differences across all studies was  $d = 0.84$ . Furthermore, whereas the average effect size for self-enhancing motivations was large ( $d = 0.86$ ) within the Western samples, these motivations were largely absent among the East Asian samples ( $d = -0.02$ ) with Asian-Americans falling in between ( $d = 0.33$ ). Apparently, East Asians demonstrate little motivation to self-enhance.<sup>22</sup>

## Approach and Avoidance Motivations

Similar to cultural differences in self-enhancement motivations between East Asians and Westerners, there are parallel differences in approach and avoidance motivations, suggesting that self-enhancement and approach motivations might share a common basis.<sup>85,86</sup> Much research finds that, compared with Westerners, East Asians show relatively more evidence for avoidance motivation (i.e., avoiding negative events, such as not failing any courses), and relatively less evidence for approach motivation (i.e., seeking positive events, such as getting a promotion). Compared with North Americans, East Asians embrace more personal avoidance goals,<sup>69</sup> rate opportunities to lose as more significant and worthy of attention than opportunities to win,<sup>20</sup> persist more on a task

after failure and less after success,<sup>56,87</sup> and view book reviews to be more helpful if these reviews contain avoidance information.<sup>88</sup> One account for these cultural differences is that face, 'the respectability and/or deference which a person can claim for himself from others by virtue of the relative position he occupies in his social network and the degree to which he is judged to have functioned adequately in that position' (Ho<sup>89</sup> p. 883), is a critical resource in East Asian cultural contexts, and because face is more easily lost than it is gained, people habitually attend to avoidance information.<sup>85</sup>

### Agency and Control

As mentioned above, Dweck et al.<sup>90</sup> and Dweck and Leggett<sup>55</sup> discuss implicit theories that people have regarding the malleability of their selves. In addition, people also have implicit theories about the malleability of the world. One can see the world as something that is fixed and beyond one's control to change (entity theory of the world), or one can view the world as flexible and responsive to one's efforts to change (incremental theory of the world). Those who tend to see the world as malleable and their selves as stable are more likely to maintain a sense of primary control,<sup>91</sup> in which they strive to shape existing realities to fit their perceptions, goals, or wishes. In contrast, those who tend to see the world as stable and their selves as malleable are more likely to engage in secondary control strategies, in which they align themselves with existing realities, leaving the realities unchanged, but exerting control over their psychological impact.

In hierarchical collectivistic cultures, such as in East Asia, the social world remains somewhat impervious to efforts by a lone individual to change things (e.g., Chiu et al.<sup>92</sup>), and people are more likely to have a flexible and incremental view of themselves.<sup>21,56</sup> When the self is perceived as more mutable than the social world, it follows that people would be willing to adjust themselves to better fit the demands of their social worlds. In contrast, people from Western cultures tend to stress the malleability of the world relative to the self,<sup>93</sup> and the independent self is experienced as relatively immutable and consistent.<sup>56,94</sup> This view that the self is an immutable entity, working within the context of a mutable world, sustains a perception of primary control.

Much research finds that East Asians and Westerners differ in their tendencies to pursue primary and secondary control strategies.<sup>95,96</sup> For example, Morling et al.<sup>49</sup> found that Americans were better able to recall influencing situations than adjusting

ones, whereas Japanese remembered more adjusting situations than influencing ones. A variety of other studies have found comparable findings (e.g., Bond and Tornatzky<sup>97</sup>; Chang et al.<sup>98</sup>).

Cultural differences in agency are also evident in the ways that people make choices. In independent cultural contexts people are less dependent on the actions of others than they are in interdependent ones. People in interdependent contexts should, on average, be more concerned with the goals of their groups, and thus be more willing to adjust their behaviors in order to facilitate the pursuit of these goals.<sup>99</sup> Supporting this, Savani, Markus and Conner<sup>100</sup> found that East Indians were slower to make choices, were less likely to choose according to their preferences, and were less motivated to express their preferences in their choices, than were European-Americans. Iyengar and Lepper<sup>101</sup> found that Asian-American children preferred tasks that were chosen for them by in-group members or themselves, whereas European-American children only preferred tasks that they chose for themselves. Cultural variation in choice-making does not just differ between those from Eastern and Western cultural contexts—middle class Americans, specifically, seem quite unusual in their high desire for choice.<sup>102,103</sup> Further, people from American working class cultures are less protective of their choices than middle class Americans.<sup>104</sup>

### Motivations to Fit in or to Stick out

People have competing motivations to fit in with others or to stick out from a crowd. Solomon Asch<sup>105</sup> most famously documented the motivation of Americans to conform to a unanimous majority in his line-comparison studies. This conformity paradigm has been immensely influential, and it has been replicated well over 100 times in 17 different countries. A meta-analysis of these studies revealed one clear trend: although Americans show a great deal of conformity in this paradigm, people from more interdependent cultures conform even more.<sup>106</sup> Motivations to fit in appear to be stronger in cultural contexts that encourage people to maintain strong relationships with others.

In contrast to a motivation to conform, we can also consider people's motivations to stick out and to be unique. In general, it appears that people from independent cultural contexts evince a stronger motivation to be unique. For example,<sup>48</sup> found that, when considering an array of shapes, European-Americans rated the unusual shapes as more desirable than the more common ones, in contrast to the ratings of East Asians. Moreover, when given a choice

of pens, European-Americans were more likely to choose a minority-colored pen, whereas East Asians were more likely to choose a majority-colored pen. Parallel differences in pen preferences have also been observed in contrasts of middle class and working class Americans.<sup>107</sup> Likewise, advertisements targeting East Asians and working class Americans are more likely to emphasize themes of connection with others than are advertisements that target middle class Americans, which are more likely to emphasize uniqueness.<sup>48,107</sup>

## CULTURE AND EMOTION

The relation between culture and emotional experience has attracted much research interest, most of which has focused on facial expressions and people's subjective reports of their emotions. Charles Darwin was among the first scientists to propose that certain emotions, and their facial displays, are human universals.<sup>108</sup> Examining this hypothesis, Ekman and Friesen<sup>109</sup> posed a series of photos corresponding to a proposed set of 'basic emotions' (anger, disgust, fear, happiness, sadness, and surprise) to participants from Argentina, Brazil, Chile, Japan, and the US, asking them to match the expressions with emotion terms. Whereas chance performance would have been 16.7% correct, participants tended toward 80–90% accuracy, regardless of cultural background, indicating much universality in recognition of the expressions. Similar results were found with the Fore of New Guinea, who had very little exposure to Western culture, and who also judged the expressions similarly (Ekman et al.<sup>23</sup> but see Russell's<sup>110</sup> critique of the inconsistency of the findings). This evidence, combined with findings that the same facial expressions that adults make are made by very young infants,<sup>111</sup> including those who are congenitally blind (reviewed in Ekman<sup>112</sup>), demonstrates that facial expressions for the basic emotions are innate. There are proposals that the display of some other emotions, such as contempt, shame, embarrassment, pride, and interest, are universally recognized enough to justify being added to this set (e.g., Tracy and Matsumoto<sup>113</sup>).

While Ekman and colleagues have argued that the capacity to produce and recognize particular facial expressions is identical across cultures, cultural variation is anticipated in the form of 'display rules'.<sup>114</sup> Display rules are the culturally specific rules that govern when, how intensely, and what facial expressions are appropriate in a given situation. A number of studies and ethnographic accounts provide evidence that cultures differ in the degree to which emotions are expressed. For example, in response to recalled situations in which participants

report feeling the same amount of happiness, Hmong Americans are less likely to smile than are European-Americans.<sup>115</sup> This notion of display rules suggests that even though people in different cultures vary considerably in how strongly they express certain emotions, it is possible that they are experiencing the same underlying feelings.

Cultural differences in display rules raise the question of whether people differ in their emotional experiences across cultures. One study found that Americans reported feeling their emotions longer and more intensely than the Japanese did.<sup>116</sup> Similarly, in a diary study Japanese participants were about three times as likely as Americans to report that they had not been feeling any emotions when prompted.<sup>47,117,118</sup> These studies suggest that the cultural display rules governing the relative deamplifying and masking of emotions in Japan might be leading them to experience fewer and less intense emotions compared with Americans.

## COGNITION AND PERCEPTION

Although many psychologists view research in cognition and perception as targeting the most basic and fundamental psychological processes, cross-cultural research in these domains reveals striking evidence for cultural variation. The largest research program targeting cross-cultural comparisons of cognition and perception has been the one conducted by Richard Nisbett and his colleagues.<sup>52,54</sup> They investigated whether a variety of cognitive and perceptual tasks glossed under the labels of analytic and holistic thinking varied across cultural contexts, particularly between North American and East Asian cultures. Analytic thinking involves a focus on objects, which are perceived as existing independently from their contexts, and are understood in terms of their underlying attributes. These attributes are further used as a basis to categorize objects, and a set of fixed abstract rules are used for predicting and explaining the behavior of them. In contrast, holistic thinking involves an orientation to the context as a whole. An associative way of thinking, people attend to the relations among objects, and among the objects and the surrounding context. These relations are used to explain and predict the behavior of objects. Further, in holistic thinking there is an emphasis on knowledge that is gained through experience, rather than the application of fixed abstract rules. Dozens of studies have demonstrated how cultures vary in these two ways of thinking (for a review see Norenzayan et al.<sup>119</sup>). In general, analytic thinking is especially common in Western cultures, whereas

holistic thinking is more normative in the rest of the world, particularly in East Asia.

### Attention to Objects and Fields

A variety of different experimental paradigms have revealed that Americans and other Westerners attend less to the background (i.e., are more field independent) than do people from other non-western societies, with the likely exception of migratory foragers. The first evidence for this cultural difference came from comparisons of Rorschach ink blots, where European-Americans were found to be more likely than Chinese-Americans to focus their responses on a fraction of the card, rather than considering the entire image.<sup>120</sup> Considerably later, using evidence derived mostly from the Rod and Frame Test and the Embedded Figures Test, Witkin and Berry<sup>121</sup> summarized a wide range of evidence from migratory and sedentary foraging populations (Arctic, Australia, and Africa), sedentary agriculturalists, and industrialized Westerners, and found that only the Westerners and migratory foragers appeared at the field independent end of the spectrum. Norenzayan<sup>122</sup> found that Canadians showed less field-dependent processing on the Group Embedded Figures Test than Chinese, who in turn were less field-dependent than Arabs.

Further evidence for a greater attention to objects can be seen in studies where people were asked whether they have seen a focal object before in scenes in which the background has been switched. East Asians' recall for the objects is worse than it is for Americans if the background has been replaced with a new one,<sup>123</sup> indicating that they are attending to the field. Moreover, there appears to be distinct neural activation associated with these different attentional styles across cultures. In the Framed Line Test,<sup>124</sup> Westerners tend to do better on absolute judgments, whereas East Asians are superior on relative judgments. When asked to make absolute judgments (the more difficult task for East Asians), Asian-Americans showed greater activation in regions of the left inferior parietal lobule and the right precentral gyrus—regions that are associated with attentional control. In contrast, European-American participants showed greater activation in these same regions when they were asked to make relative judgments (the more difficult task for Westerners<sup>125</sup>). That is, people from both cultural groups showed increased attentional control when engaged in tasks not preferred in their respective cultures.

### Explaining the Behavior of Others

Given the above cultural differences in attention, one might expect that Westerners would be inclined to

explain events with reference to properties of the object, whereas non-westerners would be inclined to explain the same events with reference to interactions between the object and the field. A number of classic studies, initially conducted exclusively with Western participants, found that when asked to explain the behavior of others, people tend to largely attend to the person's disposition as a means for explaining the behavior, even when there are compelling situational constraints available<sup>126</sup>—a tendency robust enough to be termed the 'fundamental attribution error'.<sup>127</sup> Much research in non-western cultures, however, reveals a different pattern. Geertz<sup>128</sup> described how Balinese do not tend to conceive of people's behaviors in terms of underlying dispositions, but see it as emerging out of the roles that they have. Shweder and Bourne<sup>129</sup> found that Indians tended to eschew trait explanations of others' behaviors in favor of explaining their behaviors in descriptive terms. Building upon this, Miller<sup>130</sup> found that Indians showed evidence for a reverse fundamental attribution error, or a tendency to favor situational information over personality accounts. More recently, several studies conducted with East Asians and Americans reveal that whereas Americans attend largely to dispositions, regardless of how compelling the situational information may be,<sup>131</sup> East Asians are more likely to infer that behaviors are strongly controlled by the situation than are Americans,<sup>21</sup> who are more likely to attend to situational information,<sup>132,133</sup> and are less likely to use trait adjectives when describing someone's behaviors.<sup>134</sup>

### Reasoning Styles

Westerners are more likely to group objects based on categories and rules, whereas people from many other cultural groups are more likely to group objects according to similarity or functional relationships. For example, Ji, Zhang, and Nisbett<sup>135</sup> found that Chinese were more likely to group together objects that shared functional (e.g., pencil–notebook) or contextual (e.g., sky–sunshine) relationships. Americans were more likely to group objects together if they belonged to the same category defined by a simple rule (e.g., notebook–magazine). Similarly, Norenzayan et al.<sup>64</sup> found that Chinese were more likely to group objects that shared a strong family resemblance, whereas Americans were more likely to group the same objects if they could be categorized on the basis of a deterministic rule. Norenzayan et al.<sup>136</sup> examined classification among the Mapuche and Sangu subsistence farmers in Chile and Tanzania, respectively, and found that their classification resembled the Chinese pattern, although it was more exaggerated toward holistic reasoning.

As discussed earlier, there are also pronounced cultural differences in how people reason about contradiction. A holistic orientation suggests that everything is perceived to be fundamentally connected and in flux, which suggests that real contradiction might not be possible. The Aristotelian law of contradiction, in which 'A' cannot equal 'not A' is not as compelling if 'A' is connected with 'not A', and if 'A' and 'not A' are always changing. This 'naïve dialecticism', more common among East Asians, is associated with a greater tolerance for contradiction compared with Westerners across a variety of tasks (see Peng and Nisbett<sup>137</sup>). The fluid and contradictory nature of East Asian beliefs also arises in predictions of future changes. Whereas Westerners tend to make linear future predictions for change (e.g., if the stock market has been dropping over the past year it will probably continue to drop next year), East Asian future predictions are considerably more nonlinear.<sup>138</sup> This less linear view of the future may be a result of East Asians perceiving events as having a broader net of consequences compared with Westerners.<sup>139</sup>

## CONCLUSION

Humans are a cultural species and a rich understanding of how humans' minds operate would be facilitated by a psychological science that is attentive to people's cultural experiences. Research in cultural psychology has grown substantially in the past two decades, revealing that many key psychological processes, some of which were hitherto viewed as psychological universals, manifest in distinct ways across cultures. Built on a foundation of theoretical advances (particularly, ideas of the mutual constitution of culture and psyche, and the distinction between independent and interdependent selves) and having benefited from the application of rigorous experimental methods, the study of culture and psychology appears more firmly established than at any previous time in history. However, a limitation of the current cross-cultural database is that it largely consists of studies comparing means on self-report scales across

cultures. Such comparisons are often compromised by a variety of methodological concerns (e.g., Chen and Stevenson<sup>140</sup>; Heine et al.<sup>141</sup>). Moreover, self-report measures are often assessing what people think that they do, or are comfortable articulating, rather than what they really do.<sup>142</sup> Behavioral methods hold a number of advantages over self-report measures in cross-cultural studies, although they can be more difficult to conduct and to ensure equivalence across cultures. Another serious shortcoming of the cultural psychological database thus far is that a large portion of it consists of comparisons of North American and East Asian college students. While there have been good theoretical and methodological reasons to build on the differences identified between these groups, much of the world remains largely unexplored territory. In particular, the role of culture in psychological functioning should become especially evident when small-scale societies are studied, which profoundly differ from the industrialized West in terms of daily activities. Much excellent and influential work has already been conducted with such groups (e.g., Atran et al.<sup>143</sup>; Henrich et al.<sup>19</sup>; Levinson<sup>144</sup>; Segall et al.<sup>145</sup>), some of it to make arguments for psychological universals (e.g., Barrett and Behne,<sup>146</sup>; Ekman,<sup>23</sup>; Levenson et al.<sup>147</sup>).

Attention to other cultural samples will likely uncover psychological phenomena that are less familiar to Western psychologists. For example, the notion of 'face' is far more elaborated and takes on different meanings within East Asia than in the West, leading to specific, testable psychological predictions (e.g., Chang and Holt,<sup>148</sup>; Heine,<sup>85</sup>; Ting-Toomey<sup>149</sup>). Likewise, a type of dialectical thinking that emphasizes constant change and tolerates apparent contradiction (distinct from the Hegelian dialectic) probably would not have been investigated among Westerners, had it not been first identified among Chinese (e.g., Peng and Nisbett<sup>137</sup>). It is very likely that there are many more such examples in other cultural contexts (e.g., *simpatía* in Hispanic contexts<sup>150</sup>), and these phenomena would stand to greatly advance our understanding of cultural variation and the universality of psychological processes.

## REFERENCES

1. Norenzayan A, Heine SJ. Psychological universals: what are they and how can we know? *Psychol Bull* 2005, 131:763–784.
2. Wundt W. *Elements of Folk Psychology*. London: Allen & Unwin; 1921.
3. Bruner J. *Acts of Meaning*. Cambridge, MA: Harvard University Press; 1990.
4. Markus HR, Kitayama S. Culture and the self: Implications for cognition, emotion, and motivation. *Psychol Rev* 1991, 98:224–253.

5. Stigler JW, Shweder RA, Herdt G. *Cultural Psychology: Essays on Comparative Human Development*. Cambridge: Cambridge University Press; 1990.
6. Triandis HC. The self and social behavior in differing cultural contexts. *Psychol Rev* 1989, 96:506–520.
7. Richerson PJ, Boyd R. *Not by Genes Alone*. Chicago, IL: University of Chicago Press; 2005.
8. Galef BG Jr. Imitation in animals; history, definition, and interpretation of data from the psychological laboratory. In: Zentall TR, Galef BG Jr, eds. *Social Learning: Psychological and Biological Perspectives*. Hillsdale, NJ: Lawrence Erlbaum Associates; 1988, 3–29.
9. Lefebvre L, Giraldeau LA. Cultural transmission in pigeons is affected by the number of tutors and bystanders present. *Anim Behav* 1994, 47:331–337.
10. Lachlan RF, Crooks L, Laland KN. Who follows whom? Shoaling preferences and social learning of foraging information in guppies. *Anim Behav* 1998, 56:181–190.
11. Whiten A, Goodall J, McGrew WC, Nishida T, Reynolds V, et al. Cultures in chimpanzees. *Nature* 1999, 399:682–685.
12. Whitehead H. Cultural selection and genetic diversity in matrilineal whales. *Science* 1998, 282:1708–1711.
13. Herrmann E, Call J, Hernandez-Lloreda MV, Hare B, Tomasello M. Humans have evolved specialized skills of social cognition: The cultural intelligence hypothesis. *Science* 2007, 317:1360–1366.
14. Boyd R, Richerson PJ. Why culture is common, but cultural evolution is rare. *Proc Br Acad* 1996, 88:77–93.
15. Tomasello M. *The Cultural Origins of Human Cognition*. Cambridge, MA: Harvard University Press; 1999.
16. Tomasello M, Kruger AC, Ratner HH. Cultural learning. *Behav Brain Sci* 1993, 16:495–552.
17. Henrich J. Demography and cultural evolution: why adaptive cultural processes produced maladaptive losses in Tasmania. *Am Antiq* 2004, 69:197–214.
18. Nolan P, Lenski G. *Human Societies: An Introduction to Macrosociology*. Boulder, CO: Paradigm; 2004.
19. Henrich J, Boyd R, Bowles S, Camerer C, Fehr E, et al. ‘Economic Man’ in cross-cultural perspective: behavioral experiments in 15 small-scale societies. *Behav Brain Sci* 2005, 28:795–855.
20. Lee AY, Aaker JL, Gardner WL. The pleasures and pains of distinct self-construals: the role of interdependence in regulatory focus. *J Pers Soc Psychol* 2000, 78:1122–1134.
21. Norenzayan A, Choi I, Nisbett RE. Cultural similarities and differences in social inference: Evidence from behavioral predictions and lay theories of behavior. *Pers Soc Psychol Bull* 2002a, 28:109–120.
22. Heine SJ, Lehman DR, Markus HR, Kitayama S. Is there a universal need for positive self-regard? *Psychol Rev* 1999, 106:766–794.
23. Ekman P, Sorenson ER, Friesen W. Pancultural elements in facial displays of emotion. *Science* 1969, 164:86–88.
24. Daly M, Wilson M. *Homicide*. New York: Aldine de Gruyter; 1988.
25. Buss DM. Sex differences in human mate preferences: evolutionary hypotheses tested in 37 cultures. *Behav Brain Sci* 1989, 12:1–49.
26. McCrae RR, Terraciano A, and 78 members of the Personality Profiles of Cultures Project. Universal features of personality traits from the observer’s perspective: data from 50 cultures. *J Pers Soc Psychol* 2005, 88:547–561.
27. Arnett J. The neglected 95%: why American psychology needs to become less American. *Am Psychol* 2008, 63(7):602–614.
28. Henrich J, Heine SJ, Norenzayan A. The weirdest people in the world. *Behav Brain Sci*. In press.
29. Burton R, Whiting J. The absent father and cross-sex identity. *Merrill Palmer Q* 1961, 7:85–95.
30. Whiting JWM. The effects of climate on certain cultural practices. In: Goodenough WH, ed. *Explorations in Cultural Anthropology: Essays in Honor of George Peter Murdock*. New York: McGraw-Hill; 1964, 511–544.
31. Shweder RA, Jensen LA, Goldstein WM. Who sleeps by whom revisited: a method for extracting the moral goods implicit in practice. In: Goodnow JJ, et al. eds. *Cultural Practices as Contexts for Development. New Directions in Child Development*, 67. San Francisco, CA: Jossey Bass; 1995, 21–39.
32. Caudill W, Weinstein H. Maternal care and infant behavior in Japan and America. *Psychiatry* 1969, 32:12–43.
33. Lavin TA, Hall DG, Waxman SR. East and West: a role for culture in the acquisition of nouns and verbs. In: Hirsh-Pasek K, Golinkoff RM, eds. *Action Meets Word: How Children Learn Verbs*. New York: Oxford University Press; 2006, 525–543.
34. Campos JJ, Barrett KC, Lamb ME, Goldsmith HH, Stenberg C. Socioemotional development. In: Haith MM, Campos JJ, eds. *Handbook of Child Psychology: Infancy and Psychobiology*, Vol. 2. New York: John Wiley & Sons; 1983, 783–915.
35. Grossmann K, Grossmann KE, Spangler S, Suess G, Unzner L. Maternal sensitivity and newborn attachment orientation responses as related to quality of attachment in northern Germany. In: Bretherton I, Waters E, eds. *Growing Points of Attachment Theory and Research: Monographs of the Society*

- of Research in Child Development, Chicago: University Of Chicago Press; 1985, 50 (1–2 Serial No. 209, 233–256).
36. Sagi A, Lamb ME, Lewkowicz KS, Shoham R, Dvir R, Estes D. Security of infant-mother, -father, and metapelet attachments among kibbutz reared Israeli children. In: Bretherton I, Waters E, eds. *Growing Point in Attachment Theory. Monographs of the Society for Research in Child Development*, 50 (1–2 Serial No. 209), Chicago: University Of Chicago Press; 1985, 257–275.
  37. Miyake K. Temperament, mother-infant interaction, and early development. *Jap J Res Emot* 1993, 1:48–55.
  38. True MM, Pisani L, Oumar F. Infant-mother attachment among the Dogon of Mali. *Child Dev* 2001, 72:1451–1466.
  39. Rothbaum F, Weisz J, Pott M, Miyake K, Morelli G. Attachment and culture: security in the United States and Japan. *Am Psychol* 2000, 55:1093–1104.
  40. Johnson J, Newport EL. Critical period effects in second language learning: the influence of maturational state on the acquisition of English as a second language. *Cognit Psychol* 1989, 21:60–99.
  41. Minoura Y. A sensitive period for the incorporation of a cultural meaning system: a study of Japanese children growing up in the United States. *Ethos* 1992, 20:304–339.
  42. Ji L. The leopard cannot change his spots, or can he? Culture and the development of lay theories of change. *Pers Soc Psychol Bull* 2008, 34:613–622.
  43. Gabrenya WK, Wang Y, Latane B. Social loafing on an optimizing task: cross-cultural differences among Chinese and Americans. *J Cross Cult Psychol* 1985, 16:223–242.
  44. McCauley RN, Henrich J. Susceptibility to the Muller-Lyer Illusion, theory-neutral observation, and the diachronic penetrability of the visual input system. *Philos Psychol* 2006, 19:1–23.
  45. Kuhn MH, McPartland T. An empirical investigation of self-attitudes. *Am Sociol Rev* 1954, 19:68–76.
  46. Heine SJ. *Cultural Psychology*. New York: W. W. Norton; 2008.
  47. Wang Q. The emergence of cultural self-constructs: autobiographical memory and self-description in European American and Chinese children. *Dev Psychol* 2004, 40:3–15.
  48. Kim HS, Markus HR. Deviance or uniqueness, harmony or conformity? A cultural analysis. *J Pers Soc Psychol* 1999, 77:785–800.
  49. Morling B, Kitayama S, Miyamoto Y. Cultural practices emphasize influence in the United States and adjustment in Japan. *Pers Soc Psychol Bull* 2002, 28:311–323.
  50. Mesquita B. Emotions in collectivist and individualist contexts. *J Pers Soc Psychol* 2001, 80:68–74.
  51. Adams G. The cultural grounding of personal relationship: Enemyship in West African worlds. *J Pers Soc Psychol* 2005, 88:948–968.
  52. Nisbett RE, Peng K, Choi I, Norenzayan A. Culture and systems of thought: Holistic vs. analytic cognition. *Psychol Rev* 2001, 108:291–310.
  53. Oyserman D, Coon HM, Kimmelmeier M. Rethinking individualism and collectivism: evaluation of theoretical assumptions and meta-analyses. *Psychol Bull* 2002, 128:3–72.
  54. Nisbett RE. *The Geography of Thought*. New York: Free Press; 2003.
  55. Dweck CS, Leggett EL. A social-cognitive approach to motivation and personality. *Psychol Rev* 1988, 95:256–273.
  56. Heine SJ, Kitayama S, Lehman DR, Takata T, Ide E, et al. Divergent consequences of success and failure in Japan and North America: An investigation of self-improving motivations and malleable selves. *J Pers Soc Psychol* 2001, 81:599–615.
  57. Henderson V, Dweck CS. Motivation and achievement. In: Feldman SS, Elliott GR, eds. *At the Threshold: The Developing Adolescent*. Cambridge, MA: Harvard University Press; 1990, 308–329.
  58. Hong Y, Chiu C, Dweck CS, Lin DM, Wan W. Implicit theories, attributions, and coping: a meaning system approach. *J Pers Soc Psychol* 1999, 77:588–599.
  59. Heyman GD, Dweck CS. Children's thinking about traits: Implications for judgments of the self and others. *Child Dev* 1998, 69:391–403.
  60. Church AT, Katigbak MS, Ortiz FA, Del Prado AM, Vargas-Flores JJ, et al. Investigating implicit trait theories across cultures. *J Cross Cult Psychol* 2005, 36:476–496.
  61. Lockhart KL, Nakashima N, Inagaki K, Keil FC. From ugly duckling to swan? Japanese and American beliefs about the stability and origins of traits. *Cogn Dev* 2008, 23:155–179.
  62. Stevenson HW, Stigler JW. *The Learning Gap: Why Our Schools are Failing and What We Can Learn from Japanese and Chinese Education*. New York: Summit Books; 1992.
  63. Heine SJ, Hamamura T. In search of East Asian self-enhancement. *Pers Soc Psychol Rev* 2007, 11:1–24.
  64. Norenzayan A, Smith EE, Kim B, Nisbett RE. Cultural preferences for formal versus intuitive reasoning. *Cogn Sci* 2002, 26:653–684.
  65. Hong Y, Morris MW, Chiu C, Benet-Martinez V. Multicultural minds: a dynamic constructivist approach to culture and cognition. *Am Psychol* 2000, 55:705–720.

66. Kühnen U, Hannover B, Schubert B. The semantic-procedural interface model of the self: the role of self-knowledge for context-dependent versus context-independent modes of thinking. *J Pers Soc Psychol* 2001, 80:397–409.
67. Mandel N. Shifting selves and decision making: the effects of self construal priming on consumer risk taking. *J Consum Res* 2003, 30:30–40.
68. Oyserman D, Lee SWS. Does culture influence what and how we think: effects of priming individualism and collectivism. *Psychol Bull* 2008, 134:311–342.
69. Elliot AJ, Chirkov VI, Kim Y, Sheldon KM. A cross-cultural analysis of avoidance (relative to approach) personal goals. *Psychol Sci* 2001, 12:505–510.
70. Hamamura T, Meijer Z, Heine SJ, Kamaya K, Hori I. Approach-avoidance motivations and information processing: a cross-cultural analysis. *Pers Soc Psychol Bull* 35:454–462. In press.
71. Gardner WL, Gabriel S, Dean KK. The individual as “melting pot”: the flexibility of bicultural self-construals. *Curr Psychol Cogn* 2004, 22:181–201.
72. Shweder RA. Cultural psychology: what is it? In: Stigler JW, Shweder RA, Herdt G, eds. *Cultural Psychology: Essays on Comparative Human Development* Cambridge: Cambridge University Press; 1990, 1–43.
73. Baumeister RF, Tice DM, Hutton DG. Self-presentational motivations and personality differences in self-esteem. *J Pers* 1989, 57:547–579.
74. Greenwald AG. The totalitarian ego: fabrication and revision of personal history. *Am Psychol* 1980, 35:603–618.
75. Taylor SE, Brown JD. Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin* 1988, 103:193–210.
76. Steele CM. The psychology of self-affirmation: sustaining the integrity of the self. In: Berkowitz L, ed. *Advances in Experimental Social Psychology*, Vol. 21. San Diego, CA: Academic Press; 1988, 261–302.
77. Tesser A, Crepez N, Beach SRH, Cornell D, Collins JC. Confluence of self-esteem regulation mechanisms: on integrating the self-zoo. *Pers Soc Psychol Bull* 2000, 26:1476–1489.
78. Tropp LR, Wright SC. Evaluations and perceptions of self, ingroup, and outgroup: comparisons between Mexican-American and European-American children. *Self Identity* 2003, 2:203–221.
79. Fryberg SA, Markus HR. On being American Indian: current and possible selves. *Self Identity* 2003, 2:325–344.
80. Rennie LJ, Dunne MN. Gender, ethnicity, and student’s perception about science and science-related careers in Fiji. *Sci Educ* 1994, 78:285–300.
81. Mezulis AH, Abramson LY, Hyde JS, Hankin BL. Is there a universal positive bias in attributions?: a meta-analytic review of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychol Bull* 2004, 130:711–747.
82. Greenwald AG, Farnham SD. Using the implicit association test to measure self-esteem and self-concept. *J Pers Soc Psychol* 2000, 79:1022–1038.
83. Falk CF, Heine SJ, Yuki M, Takemura K. Why do Westerners self-enhance more than East Asians? *Eur J Pers* 2009, 23:183–209.
84. Kitayama S, Uchida Y. Explicit self-criticism and implicit self-regard: evaluating self and friend in two cultures. *J Exp Soc Psychol* 2003, 39:476–482.
85. Heine SJ. Constructing good selves in Japan and North America. In: Sorrentino RM, Cohen D, Olson JM, Zanna MP, eds. *Culture and Social Behavior: The Tenth Ontario Symposium*. Hillsdale, NJ: Lawrence Erlbaum; 2005, 95–116.
86. Higgins ET. Culture and personality: variability across universal motives as the missing link. *Soc Pers Psychol Compass* 2008, 2:608–634.
87. Oishi S, Diener E. Culture and well-being: the cycle of action, evaluation, and decision. *Pers Soc Psychol Bull* 2003, 29:939–949.
88. Hamamura T, Meijer Z, Heine SJ, Kamaya K, Hori I. Approach-avoidance motivations and information processing: A cross-cultural analysis. *Pers Soc Psychol Bull* 2009, 35(4):454–462.
89. Ho DY. On the concept of face. *Am J Econ Sociol* 1976, 81:867–884.
90. Dweck CS, Hong Y, Chiu C. Implicit theories: Individual differences in the likelihood and meaning of dispositional inference. *Pers Soc Psychol Bull* 1993, 19:644–656.
91. Rothbaum F, Weisz JR, Snyder SS. Changing the world and changing the self: a two-process model of perceived control. *J Pers Soc Psychol* 1982, 42:5–37.
92. Chiu C, Dweck CS, Tong JU, Fu JH. Implicit theories and conceptions of morality. *J Pers Soc Psychol* 1997, 73:923–940.
93. Su SK, Chiu C-Y, Hong Y-Y, Leung K, Peng K, Morris MW. Self organization and social organization: American and Chinese constructions. In: Tyler TR, Kramer R, John O, eds. *The Psychology of the Social Self*. Mahwah, NJ: Lawrence Erlbaum; 1999, 193–222.
94. Suh EM. Culture, identity consistency, and subjective well-being. *J Pers Soc Psychol* 2002, 83:1378–1391.
95. Morling B, Evered S. Secondary control reviewed and defined. *Psychol Bull* 2006, 132:269–296.
96. Weisz JR, Rothbaum FM, Blackburn TC. Standing out and standing in: the psychology of control in America and Japan. *Am Psychol* 1984, 39:955–969.
97. Bond MH, Tornatzky LG. Locus of control in students from Japan and the United States: dimensions and levels of response. *Psychologia* 1973, 16:209–213.

98. Chang WC, Chua WL, Toh Y. The concept of psychological control in the Asian context. In: Leung K, Kim U, Yamaguchi S, Kashima Y, eds. *Progress in Asian Social Psychology*. Singapore: John Wiley & Sons; 1997, 95–117.
99. Lee GR, Stone LH. Mate-selection systems and criteria: variation according to family structure. *J Marriage Fam* 1980, 42:319–326.
100. Savani K, Markus HR, Conner AL. Let your preference be your guide? Preferences and choices are more tightly linked for North Americans than for Indians. *J Pers Soc Psychol* 2008, 95(4):861–876.
101. Iyengar SS, Lepper MR. Rethinking the value of choice: a cultural perspective on intrinsic motivation. *J Pers Soc Psychol* 1999, 76:349–366.
102. Schwartz B. *The Paradox of Choice: Why More is Less*. New York: Harper-Collins; 2004.
103. Rozin P, Fischler C, Shields C, Masson E. Attitudes towards large numbers of choices in the food domain: a cross-cultural study of five countries in Europe and the USA. *Appetite* 2006, 46:304–308.
104. Snibbe AC, Markus HR. You can't always get what you want: social class, agency, and choice. *J Pers Soc Psychol* 2005, 88:703–720.
105. Asch S. Studies of independence and conformity. A minority of one against a unanimous majority. *Psychol Monogr* 1956, 70(9):416–416.
106. Bond R, Smith PB. Culture and conformity: a meta-analysis of studies using Asch's (1952b, 1956) line judgment task. *Psychol Bull* 1996, 119:111–137.
107. Stephens NM, Markus HR, Townsend SSM. Choice as an act of meaning: the case of social class. *J Pers Soc Psychol* 2007, 93:814–830.
108. Darwin C. *The Expression of Emotions in Man and Animals*. Chicago: University of Chicago Press; 1872/1965.
109. Ekman P, Friesen WV. Constants across cultures in the face and emotion. *J Pers Soc Psychol* 1971, 17:124–129.
110. Russell JA. Is there universal recognition of emotion from facial expression? A review of the cross-cultural studies. *Psychol Bull* 1994, 115:102–141.
111. Izard CE. Innate and universal facial expressions: Evidence from developmental and cross-cultural research. *Psychol Bull* 1994, 115:288–299.
112. Ekman P. Universal facial expressions in emotion. *Stud Psychol (Bratisl)* 1973, 15:140–147.
113. Tracy JL, Matsumoto D. The spontaneous display of pride and shame: evidence for biologically innate nonverbal displays. *Proc Natl Acad Sci U S A* 2008, 105:11655–11660.
114. Ekman P, Friesen WV. The repertoire of nonverbal behavior: Categories, origins, usage, and coding. *Semiotica* 1969, 1:49–98.
115. Tsai JL, Chentsova-Dutton Y, Freire-Bebeau L, Przyminus DE. Emotional expression and physiology in European-Americans and Hmong Americans. *Emotion* 2002, 2:380–397.
116. Matsumoto D, Kudoh T, Scherer K, Wallbott H. Antecedents of and reactions to emotions in the United States and Japan. *J Cross Cult Psychol* 1988, 19:267–286.
117. Kitayama S, Markus HR, Kurokawa M. Culture, emotion, and well-being: good feelings in Japan and the United States. *Cogn Emot* 2000, 14:93–124.
118. Mesquita B, Karasawa M. Different emotional lives. *Cogn Emot* 2002, 17:127–141.
119. Norenzayan A, Choi I, Peng K. Perception and cognition. In: Kitayama S, Cohen D, eds. *Handbook of Cultural Psychology*. New York, NY: Guilford Press; 2007, 569–594.
120. Abel TM, Hsu FI. Some aspects of personality of Chinese as revealed by the Rorschach Test. *J Proj Tech* 1949, 13:285–301.
121. Witkin HA, Berry JW. Psychological differentiation in cross-cultural perspective. *J Cross Cult Psychol* 1975, 6:4–87.
122. Norenzayan A. *Middle Eastern cognition in cross-cultural context*. University of British Columbia; 2008. Unpublished manuscript.
123. Masuda T, Nisbett RE. Attending holistically vs. analytically: comparing the context sensitivity of Japanese and Americans. *J Pers Soc Psychol* 2001, 81:922–934.
124. Kitayama S, Duffy S, Kawamura T, Larsen JT. Perceiving an object and its context in different cultures: a cultural look at new look. *Psychol Sci* 2003, 14:201–206.
125. Hedden T, Ketay S, Aron A, Markus HR, Gabrieli JDE. Cultural influences on neural substrates of attentional control. *Psychol Sci* 2008, 19:12–17.
126. Jones EE, Harris VA. The attribution of attitudes. *J Exp Soc Psychol* 1967, 3:1–24.
127. Ross LD, Amabile TM, Steinmetz JL. Social roles, social control, and biases in social-perception processes. *J Pers Soc Psychol* 1977, 35:485–494.
128. Geertz C. On the nature of anthropological understanding. *Am Sci* 1975, 63:4–53.
129. Shweder RA, Bourne EJ. Does the concept of the person vary cross-culturally? In: Marsella AJ, White GM, eds. *Cultural Conceptions of Mental Health and Therapy*. New York, NY: Kluwer; 1982.
130. Miller JG. Culture and the development of everyday social explanation. *J Pers Soc Psychol* 1984, 46:961–978.
131. Gilbert DT, Malone PS. The correspondence bias. *Psychol Bull* 1995, 117:21–38.

132. Morris M, Peng K. Culture and cause: American and Chinese attributions for social and physical events. *J Pers Soc Psychol* 1994, 67:949–971.
133. Miyamoto Y, Kitayama S. Cultural variation in correspondence bias: the critical role of attitude diagnosticity of socially constrained behavior. *J Pers Soc Psychol* 2002, 83:1239–1248.
134. Maass A, Karasawa M, Politi F, Suga S. Do verbs and adjectives play different roles in different cultures? A cross-linguistic analysis of person representation. *J Pers Soc Psychol* 2006, 90:734–750.
135. Ji LJ, Zhang Z, Nisbett RE. Is it culture or is it language? Examination of language effects in cross-cultural research on categorization. *J Pers Soc Psychol* 2004, 87:57–65.
136. Norenzayan A, Henrich J, McElreath R. *More Chinese than the Chinese*. 2008. Unpublished raw data.
137. Peng K, Nisbett RE. Culture, dialectics, and reasoning about contradiction. *Am Psychol* 1999, 54:741–754.
138. Ji LJ, Nisbett RE, Su Y. Culture, change, and prediction. *Psychol Sci* 2001, 12:450–456.
139. Maddux WW, Yuki M. The “Ripple effect”: cultural differences in perceptions of the consequences of events. *Pers Soc Psychol Bull* 2006, 32:669–683.
140. Chen C, Lee S-Y, Stevenson HW. Response style and cross-cultural comparisons of rating scales among East Asian and North American students. *Psychol Sci* 1995, 6:170–175.
141. Heine SJ, Lehman DR, Peng K, Greenholtz J. What’s wrong with cross-cultural comparisons of subjective Likert scales? *J Pers Soc Psychol* 2002, 82(6):903–918.
142. Nisbett RE, Wilson TD. Telling more than we can know: Verbal reports on mental processes. *Psychol Rev* 1977, 84:231–259.
143. Atran S, Medin DL, Ross NO. The cultural mind: Environmental decision making and cultural modeling within and across populations. *Psychol Rev* 2005, 112:744–776.
144. Levinson SC. Language and cognition: the cognitive consequences of spatial description in Guugu Yimithirr. *J Linguist Anthropol* 1997, 7:98–131.
145. Segall MH, Campbell DT, Herskiovits MJ. Cultural differences in the perception of geometric illusions. *Science* 1963, 193:769–771.
146. Barrett HC, Behne T. Children’s understanding of death as the cessation of agency: a test using sleep versus death. *Cognition* 2005, 96:93–108.
147. Levenson RW, Ekman P, Heider K, Friesen WV. Emotion and autonomic nervous system activity in the Minangkabau of West Sumatra. *J Pers Soc Psychol* 1992, 62:972–988.
148. Chang H-C, Holt GR. A Chinese perspective on face as inter-relational concern. In: Ting-Toomey S, ed. *The Challenge of Facework: Cross-cultural and Interpersonal Issues*. Albany, NY: SUNY Press; 1994, 95–132.
149. Ting-Toomey S, ed. *The Challenge of Facework: Cross-cultural and Interpersonal Issues*. Albany: State University of New York Press; 1994.
150. Triandis HC, Marin G, Lisansky J, Betancourt H. Simpatia as a cultural script of Hispanics. *J Pers Soc Psychol* 1984, 47:1363–1375.