

Most people are not WEIRD

To understand human psychology, behavioural scientists must stop doing most of their experiments on Westerners, argue **Joseph Henrich, Steven J. Heine and Ara Norenzayan**.

Much research on human behaviour and psychology assumes that everyone shares most fundamental cognitive and affective processes, and that findings from one population apply across the board. A growing body of evidence suggests that this is not the case.

Experimental findings from several disciplines indicate considerable variation among human populations in diverse domains, such as visual perception, analytic reasoning, fairness, cooperation, memory and the heritability of IQ^{1,2}. This is in line with what anthropologists have long suggested: that people from Western, educated, industrialized, rich and democratic (WEIRD) societies — and particularly American undergraduates — are some of the most psychologically unusual people on Earth¹.

So the fact that the vast majority of studies use WEIRD participants presents a challenge to the understanding of human psychology and behaviour. A 2008 survey of the top psychology journals found that 96% of subjects were from Western industrialized countries — which house just 12% of the world's population³. Strange, then, that research articles routinely assume that their results are broadly representative, rarely adding even a cautionary footnote on how far their findings can be generalized.

The evidence that basic cognitive and motivational processes vary across populations has become increasingly difficult to ignore. For example, many studies have shown that Americans, Canadians and western Europeans rely on analytical reasoning strategies — which separate objects from their contexts and rely on rules to explain and predict behaviour — substantially more than non-Westerners. Research also indicates that Americans use analytical thinking more than, say, Europeans. By contrast, Asians tend to reason holistically, for example by considering people's behaviour in terms of their situation¹. Yet many long-standing theories of how humans perceive, categorize and remember emphasize the centrality of analytical thought.

It is a similar story with social behaviour related to fairness and equality. Here, researchers often use one-shot economic experiments such as the ultimatum game, in which a player

decides how much of a fixed amount to offer a second player, who can then accept or reject this proposal. If the second player rejects it, neither player gets anything. Participants from industrialized societies tend to divide the money equally, and reject low offers. People from non-industrialized societies behave differently, especially in the smallest-scale non-market societies such as foragers in Africa and horticulturalists in South America, where people are neither inclined to make equal offers nor to punish those who make low offers⁴.



Recent developments in evolutionary biology, neuroscience and related fields suggest that these differences stem from the way in which populations have adapted to diverse culturally constructed environments. Amazonian groups, such as the Piraha, whose languages do not include numerals above three, are worse at distinguishing large quantities digitally than groups using extensive counting systems, but are similar in their ability to approximate quantities. This suggests the kind of counting system people grow up with influences how they think about integers¹.

Costly generalizations

Using study participants from one unusual population could have important practical consequences. For example, economists have been developing theories of decision-making incorporating insights from psychology and social science — such as how to set wages — and examining how these might translate into policy⁵. Researchers and policy-makers should recognize that populations vary considerably in the extent to which they display certain biases, patterns and preferences in economic decisions, such as those related to optimism¹. Such differences can, for example,

affect the way that experienced investors make decisions about the stock market⁶.

We offer four suggestions to help put theories of human behaviour and psychology on a firmer empirical footing. First, editors and reviewers should push researchers to support any generalizations with evidence. Second, granting agencies, reviewers and editors should give researchers credit for comparing diverse and inconvenient subject pools. Third, granting agencies should prioritize cross-disciplinary, cross-cultural research. Fourth, researchers

must strive to evaluate how their findings apply to other populations. There are several low-cost ways to approach this in the short term: one is to select a few judiciously chosen populations that provide a 'tough test' of universality in some domain, such as societies with limited counting systems for testing theories about numerical cognition^{1,2}.

A crucial longer-term goal is to establish a set of principles that researchers can use to distinguish variable from universal aspects of

psychology. Establishing such principles will remain difficult until behavioural scientists develop interdisciplinary, international research networks for long-term studies on diverse populations using an array of methods, from experimental techniques and ethnography to brain-imaging and biomarkers.

Recognizing the full extent of human diversity does not mean giving up on the quest to understand human nature. To the contrary, this recognition illuminates a journey into human nature that is more exciting, more complex, and ultimately more consequential than has previously been suspected ■

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1. Henrich, J., Heine, S. J. & Norenzayan, A. *Behav. Brain Sci.* doi:10.1017/S0140525X0999152X (2010).
2. Henrich, J., Heine, S. J. & Norenzayan, A. *Behav. Brain Sci.* doi:10.1017/S0140525X10000725 (2010).
3. Arnett, J. *Am. Psychol.* **63**, 602–614 (2008).
4. Henrich, J. *et al. Science* **327**, 1480–1484 (2010).
5. Foote, C. L., Goette, L. & Meier, S. *Policy Making Insights from Behavioral Economics* (Federal Reserve Bank of Boston, 2009).
6. Ji, L. J., Zhang, Z. Y. & Guo, T. Y. *J. Behav. Decis. Making* **21**, 399–413 (2008).