

## What Do We Do With the WEIRD Problem?

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Evolutionary psychology is the study of universal human nature, so the WEIRD problem (the observation that almost all of our empirical data come from Western, Educated, Industrialized, Rich, and Democratic societies and that individuals from such societies are often extreme outliers in their behavioral tendencies) is an existential problem for the field. I believe more attention should be directed toward solving this problem *logically* and *theoretically*, rather than empirically. I offer potential directions and pose some questions, which paradoxically suggest that the WEIRD problem may not be a problem after all.

### **Public Significance Statement**

It may not be a problem that most experiments and studies in psychology are conducted in the United States and other Western societies, as such societies may provide the ideal place to study human behavior.

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On the eve of the 30th anniversary of the publication of *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (Barkow, Cosmides, & Tooby, 1992), in my mind, there is no bigger challenge facing the field of evolutionary psychology in the next three decades than the WEIRD (Western, Educated, Industrialized, Rich, and Democratic) problem. Evolutionary psychology is the study of universal human nature; the “adapted mind” in the title of the field’s bible refers to a mind that was adapted to the conditions of the Environment of Evolutionary Adaptedness (EEA) and that is presumably shared by all members of our species (or, in some instances, all members of one sex or the other). Yet Henrich, Heine, and Norenzayan’s (2010) comprehensive re-


view of the available evidence convincingly demonstrated that WEIRD populations, which, before 2010 and the age of MTurks and other samples collected from the Internet, used to be derisively called “college sophomores from the University of Michigan,” were often extreme outliers in their behavioral tendencies in many domains. Arnett (2008) earlier expressed similar concerns. If American undergraduate students, who comprise the vast majority of experimental subjects in behavioral sciences (including evolutionary psychology), behave differently from other humans from non-WEIRD societies, what we think we know about universal human nature may not be so. Evolutionary psychology is not the study of American college sophomores; it’s the study of all humans everywhere who ever lived. Thus, it seems to me that the WEIRD problem is paramount in all of behavioral sciences, but, in particular, evolutionary psychology with its stated aim of discovering universal human nature.

Yet I have been struck since 2010 by the paucity of efforts to solve the WEIRD problem. True, more researchers in the past decade have

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attempted to collect data from non-WEIRD samples in order to build an archive of empirical data that go beyond WEIRD (Thalmayer, Toscanelli, & Arnett, 2020), and such efforts are laudable and necessary. However, as a philosophical realist, not a positivist, such a brute-force empirical approach is ultimately unsatisfactory to me. Induction does not lead to scientific progress; deduction does (Popper, 1959). I believe the true solution to the WEIRD problem must be *logical* and *theoretical*, not empirical. We must know, not just *how* WEIRD populations are different from non-WEIRD populations, but *why*. Accumulation of empirical data, no matter how extensive, can never tell us why, only how.

I have no solution to offer (but then, to my knowledge, neither does anyone else). In this brief commentary, I seek to stimulate and further encourage the effort to solve the WEIRD problem logically and theoretically, by suggesting potential future directions and posing some questions.

It seems to me that there are at least two logical and theoretical ways to solve the WEIRD problem: abstraction and explanation (figuring out why).

**Abstraction.** Even when you observe concrete differences between populations, cultures, and societies, such differences disappear if you abstract the description to a higher level. For example, French and Chinese are obviously different languages, with different words, syntactic structures, and grammatical rules. But at a higher level of abstraction, both share the deep structure of grammar (the universal grammar), which all natural human languages share (Chomsky, 1957). At this abstract level, French and Chinese are the same language; both are minor variations of the natural human language. This, incidentally, is one reason that linguistic determinism (Boroditsky, 2001; Chen, 2013) may not have direct relevance for the WEIRD problem. Similarly, people in some societies consume beef as food and worship pigs as sacred religious objects, while those in others consume pork as food and worship cows as sacred religious objects (Harris, 1974). Thus, at this concrete level, all cultures are different. However, both beef and pork are animal proteins (as are dogs, whales, and monkeys), and both pigs and cows are animate objects (as are Buddha, Allah, and Jesus). At this abstract

level, there are no exceptions and all human cultures are the same; in all human cultures, people consume animal proteins and worship animate objects (Miller & Kanazawa, 2007, pp. 37–47). This way, all the surface differences between WEIRD and non-WEIRD societies may be abstracted out. This route to universal human nature is useful when there are *qualitative*, not quantitative, differences between societies. Cows and pigs are qualitatively different, but they are the same at the abstract level.

**Explanation.** Another way to solve the WEIRD problem is to explain *why* WEIRD and non-WEIRD societies are different, by identifying the underlying causes of differences. Already in their commentary on the original article (Henrich et al., 2010), Baumard and Sperber (2010) identified one such cause. They pointed out that, in Henrich et al.'s (2005) study of 15 small-scale (i.e., non-WEIRD) societies, there were striking differences between the Lamalera, who made very generous offers in the Ultimatum Game, and the Tsimane and the Machigenga, who made very low offers, more typical of WEIRD subjects. Baumard and Sperber (2010) pointed out that the Lamalera were collective hunters who did not have the concept of private property, whereas the Tsimane and the Machigenga were solitary horticulturalists with a firm notion of private property (as with the westerners in the capitalist economy). So it's not the WEIRD/non-WEIRD distinction that matters for typical offers in the Ultimatum Game but the nature of the economy and property ownership that is the underlying dimension that produces the seeming difference between WEIRD and non-WEIRD subjects. Similarly, Henrich himself (Schulz, Bahrami-Rad, Beauchamp, & Henrich, 2019) adopted this strategy and recently explained some of the psychological differences between WEIRD and non-WEIRD populations in terms of the spread of the Christian church and accompanied changes in kinship structures. So, once again, it's not the WEIRD/non-WEIRD distinction but the proportion of cousin marriages that is the underlying dimension that produces the seeming difference between WEIRD and non-WEIRD populations. This way, all the differences between WEIRD and non-WEIRD societies can be explained in terms of underlying dimensions. This route to universal human nature is useful when there are *quantitative*, not qualitative, dif-

ferences between societies. People in all societies trust strangers, but at quantitatively different levels (from 0% to 100% of the time).

I will end my brief commentary with a couple questions for the future.

**Question 1.** If WEIRD and non-WEIRD populations (the latter of which presumably include our ancestors) are so different, then why does evolutionary psychology, which admittedly rely very heavily on WEIRD subjects for empirical data, work so well, both theoretically and empirically? How can we account for the remarkable empirical successes of evolutionary psychology in the last 30 years? More specifically, how does one simple insight, variously known as the Savanna Principle (Kanazawa, 2004), the evolutionary legacy hypothesis (Burnham & Johnson, 2005), or the mismatch hypothesis (Hagen & Hammerstein, 2006), explain so much contemporary human behavior? Critics of evolutionary psychology are fond of pointing out that we will never know all the details of the EEA without a time machine because many important aspects of it, such as social institutions and human behavior, leave no fossil records. That is technically correct, but unimportant, because we know some features of the EEA with absolute certainty. Just to take one example, the simple observation that our ancestors in the EEA did not have TV, movies, videos, or DVDs, which we know for sure, combined with the Savanna Principle—the human brain has difficulty comprehending and dealing with entities and situations that did not exist in the EEA—led to the prediction and discovery that the human brain will treat realistic images of characters that people see on TV as their personal friends in real life (Kanazawa, 2002). This finding in turn led to a burgeoning subfield of social psychology known as parasocial relationships or social surrogacy (Bond, 2020; Derrick, Gabriel, & Hugenberg, 2009; Gabriel, Paravati, Green, & Flomsee, 2018). Gabriel et al. (2018) explained the election of Donald J. Trump as U.S. President in terms of parasocial relationships by attributing it to the fact that millions of American voters watched him weekly on *The Apprentice* for many years. A year after Gabriel et al. (2018), an overwhelming majority of voters in Ukraine elected Volodymyr Zelensky, who played the role of the Ukrainian president on a TV show for four years, to (real) Ukrainian presidency. And there

are many other examples of empirical successes of the Savanna Principle (Li, van Vugt, & Colarelli, 2018), and the Savanna Principle is but one example of the vast empirical success of evolutionary psychology. If the WEIRD problem is so profound, how do we explain the tremendous success of evolutionary psychology? How has it succeeded so spectacularly *without* solving the WEIRD problem?

**Question 2.** Is the WEIRD world the best place to study human nature? In her commentary on the original article (Henrich et al., 2010), Maryanski (2010) suggested that WEIRD societies, not traditional societies or even hunter-gatherer bands characteristic of our ancestors, may be the most ideal setting to study human nature, because they are least restrictive of all human societies; humans are freest of traditional societal constraints to do what they wish in the WEIRD societies. Maryanski's suggestion turned out to be quite prophetic. Eight years after Maryanski's commentary, Stoet and Geary (2018) demonstrated that there was a positive correlation across societies between sexual inequality and the proportion of women pursuing STEM (Science, Technology, Engineering, and Mathematics); the fewer social and educational constraints women faced, the fewer women studied STEM. The typical female brain is empathizing, while the typical male brain is systematizing (Baron-Cohen, 2003). Because STEM requires extreme systematizing skills, men are naturally more interested in pursuing extremely systematizing fields like STEM than women are. More generally, women are more interested in "people" occupations while men are more interested in "things" occupations (Lippa, 1998). When women and men are freest of constraints and obstacles, as they are in WEIRD societies, they pursue what they are naturally inclined (and evolutionarily designed) to pursue. In the Soviet Union, nearly 60% of engineers were women (Barabanova, Sanger, Ziyatdinova, Sokolova, & Ivanov, 2013), because the Soviet government, in defiance of nature, forced many women to pursue engineering (Rosenthal, 1975). Obviously, the strong state planned economy of the communist Soviet Union, where citizens were not free, would not have been a good place to study human nature and what occupational interests women and men naturally have. To take another example, if one wanted to estimate the proportion of men

who are genetically and hormonally inclined to be gay, one would want a sample from San Francisco or Brighton, not Tehran or even the !Kung San (even though the latter is often thought to resemble our ancestors, certainly much more so than the urbanites in San Francisco). To the extent that there are least societal constraints on human behavior in WEIRD societies, they may present the ideal location to study true evolved human nature. “For, despite all the multiple ills of industrialized societies, WEIRD societies may be more compatible with our human nature than the high-density kinship constraints of horticultural societies or the “peasant” constraints of agrarian societies with their privileged few” (Maryanski, 2010, p. 104). In a similar vein, Christakis (2019, p. 55) recently remarked: “But ideally, if we want to identify a universal society and study bedrock, innate social features rather than the impact of environmental constraints, we should observe the emergence of a natural social organization in areas *without* severely limited natural resources.” If Maryanski and Christakis are correct, then the United States is exactly where we should study evolved human nature, and the WEIRD problem may not be a problem after all.

## References

- Arnett, J. J. (2008). The neglected 95%: Why American psychology needs to become less American. *American Psychologist*, *63*, 602–614. <http://dx.doi.org/10.1037/0003-066X.63.7.602>
- Barabanova, S. V., Sanger, P. A., Ziyatdinova, J., Sokolova, A., & Ivanov, V. G. (2013, June). *The decline of women in Russian engineering education: Historical and societal forces at play*. Paper presented at the ASEE Annual Conference And Exposition, Atlanta, GA.
- Barkow, J., Cosmides, L., & Tooby, J. (Eds.). (1992). *The adapted mind: Evolutionary psychology and the generation of culture*. New York, NY: Oxford University Press.
- Baron-Cohen, S. (2003). *The essential difference*. London, UK: Penguin.
- Baumard, N., & Sperber, D. (2010). Weird people, yes, but also weird experiments. *Behavioral and Brain Sciences*, *33*, 84–85. <http://dx.doi.org/10.1017/S0140525X10000038>
- Bond, B. J. (2020). The development and influence of parasocial relationships with television characters: A longitudinal experimental test of prejudice reduction through parasocial contact. *Communication Research*. Advance online publication. <http://dx.doi.org/10.1177/0093650219900632>
- Boroditsky, L. (2001). Does language shape thought? Mandarin and English speakers’ conceptions of time. *Cognitive Psychology*, *43*, 1–22. <http://dx.doi.org/10.1006/cogp.2001.0748>
- Burnham, T. C., & Johnson, D. D. P. (2005). The biological and evolutionary logic of human cooperation. *Analyse & Kritik*, *27*, 113–135. <http://dx.doi.org/10.1515/auk-2005-0107>
- Chen, M. K. (2013). The effect of language on economic behavior: Evidence from savings rates, health behaviors, and retirement assets. *The American Economic Review*, *103*, 690–731. <http://dx.doi.org/10.1257/aer.103.2.690>
- Chomsky, N. (1957). *Syntactic structures*. The Hague, the Netherlands: Mouton.
- Christakis, N. A. (2019). *Blueprint: The evolutionary origins of a good society*. New York, NY: Little, Brown Spark.
- Derrick, J. L., Gabriel, S., & Hugenberg, K. (2009). Social surrogacy: How favored television programs provide the experience of belonging. *Journal of Experimental Social Psychology*, *45*, 352–362. <http://dx.doi.org/10.1016/j.jesp.2008.12.003>
- Gabriel, S., Paravati, E., Green, M. C., & Flomsbee, J. (2018). From *Apprentice* to President: The role of parasocial connection in the election of Donald Trump. *Social Psychological and Personality Science*, *9*, 299–307. <http://dx.doi.org/10.1177/1948550617722835>
- Hagen, E. H., & Hammerstein, P. (2006). Game theory and human evolution: A critique of some recent interpretations of experimental games. *Theoretical Population Biology*, *69*, 339–348. <http://dx.doi.org/10.1016/j.tpb.2005.09.005>
- Harris, M. (1974). *Cows, pigs, wars, and witches: The riddles of culture*. New York, NY: Random House.
- Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., . . . Tracer, D. (2005). “Economic man” in cross-cultural perspective: Behavioral experiments in 15 small-scale societies. *Behavioral and Brain Sciences*, *28*, 795–815. <http://dx.doi.org/10.1017/S0140525X05000142>
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, *33*, 61–83. <http://dx.doi.org/10.1017/S0140525X0999152X>
- Kanazawa, S. (2002). Bowling with our imaginary friends. *Evolution and Human Behavior*, *23*, 167–171. [http://dx.doi.org/10.1016/S1090-5138\(01\)00098-8](http://dx.doi.org/10.1016/S1090-5138(01)00098-8)
- Kanazawa, S. (2004). The Savanna Principle. *Managerial and Decision Economics*, *25*, 41–54. <http://dx.doi.org/10.1002/mde.1130>
- Li, N. P., van Vugt, M., & Colarelli, S. M. (2018). The evolutionary mismatch hypothesis: Implica-

- tions for psychological science. *Current Directions in Psychological Science*, 27, 38–44. <http://dx.doi.org/10.1177/0963721417731378>
- Lippa, R. (1998). Gender-related individual differences and the structure of vocational interests: The importance of the people-things dimension. *Journal of Personality and Social Psychology*, 74, 996–1009. <http://dx.doi.org/10.1037/0022-3514.74.4.996>
- Maryanski, A. (2010). WEIRD societies may be more compatible with human nature. *Behavioral and Brain Sciences*, 33, 103–104. <http://dx.doi.org/10.1017/S0140525X10000191>
- Miller, A. S., & Kanazawa, S. (2007). *Why beautiful people have more daughters*. New York, NY: Penguin.
- Popper, K. (1959). *The logic of scientific discovery*. London, UK: Routledge.
- Rosenthal, B. G. (1975). The role and status of women in the Soviet Union: 1917 to the present. In R. Rohrlich-Leavitt (Ed.), *Women cross-culturally: Change and challenge* (pp. 429–455). Chicago, IL: Aldine. <http://dx.doi.org/10.1515/9783110818567.433>
- Schulz, J. F., Bahrami-Rad, D., Beauchamp, J. P., & Henrich, J. (2019). The Church, intensive kinship, and global psychological variation. *Science*, 366, eaau5141. <http://dx.doi.org/10.1126/science.aau5141>
- Stoet, G., & Geary, D. C. (2018). The gender-equality paradox in science, technology, engineering, and mathematics education. *Psychological Science*, 29, 581–593. <http://dx.doi.org/10.1177/0956797617741719>
- Thalmayer, A. G., Toscanelli, C., & Arnett, J. J. (2020). The neglected 95% revisited: Is American psychology becoming less American? *American Psychologist*. Advance online publication. <http://dx.doi.org/10.1037/amp0000622>

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