

Original Article

Asian Creativity: A Response to Satoshi Kanazawa

Geoffrey Miller, Department of Psychology, Logan Hall, 1 University of New Mexico, MSC03 2220, Albuquerque, NM 87131-1161, USA. Email: gfmiller@unm.edu.

Abstract: This article responds to Satoshi Kanazawa's thoughtful and entertaining comments about my article concerning the Asian future of evolutionary psychology. Contra Kanazawa's argument that Asian cultural traditions and/or character inhibit Asian scientific creativity, I review historical evidence of high Asian creativity, and psychometric evidence of high Asian intelligence (a cognitive trait) and openness to experience (a personality trait) – two key components of creativity. Contra Kanazawa's concern that political correctness is a bigger threat to American evolutionary psychology than religious fundamentalism, I review evidence from research funding patterns and student attitudes suggesting that fundamentalism is more harmful and pervasive. Finally, in response to Kanazawa's focus on tall buildings as indexes of national wealth and creativity, I find that 13 of the world's tallest 25 buildings are in China, Hong Kong, or Taiwan – of which 11 were built in the last decade. Asian creativity, secularism, and architectural prominence point to a bright future for Asian science.

Keywords: American Fundamentalism, creativity, individualism vs. collectivism, intelligence, Nobel prizes, openness to experience, religion, research funding, skyscrapers.

Introduction

I appreciate Satoshi Kanazawa's incisive, courageous, and wickedly funny commentary. He and I agree on several things: (1) evolutionary psychology is the most exciting intellectual enterprise in human history; (2) to promote evolutionary psychology, we should focus our energies mostly on doing good science and training good graduate students; (3) good science can only be done by a small minority of each country's population; (4) Toshio Yamagishi is the Ultraman of Japanese evolutionary psychology.

We also agree that the U.S. over-reacted to Japan's rise in the mid-1980s. Indeed, convinced by the sorts of Japan-alarmist books that Kanazawa cites, I spent much of my undergraduate energy at Columbia University (1983-1987) trying to learn Japanese (a futile two-semester debacle), living in a special-interest 'Japan

House', and taking electives on Japanese literature, cinema, and politics. Perhaps my personal over-reaction to Japan's rise undercuts my credibility on this rise-of-Asian-science issue. Nevertheless, 20 years later, Japan does have one of the world's largest economies (\$4 trillion GDP per year, compared to \$1.8 trillion for Britain, \$2.5 trillion for Germany, and \$1.6 trillion for Russia – all considered worthy rivals at various points in history). Japan has the world's leading car companies that produce the most innovative, reliable vehicles (Toyota, Honda, Nissan, Mitsubishi). It has the leading consumer electronic companies (Sony, Canon, Matsushita, Fuji, Fujitsu, NEC, Hitachi, Toshiba) that account for a large proportion of the world's new patents. Japanese creativity is awesome not just in engineering, but in graphic arts, film, anime, fiction, music, and fashion. In retrospect, Japan's rise was somewhat over-sold – given its population of 130 million, it was never really likely to overtake the economies of the U.S. (300m) or the E. U. (450m). But the populations of China (1300m) and India (1100m) are an order of magnitude larger than Japan's, so I don't think I'm over-reacting quite as naively as when I learned to roll my own Maki-zushi at age 19.

Asia's creativity

Kanazawa and I really disagree about one central point: I argued that higher Asian intelligence and population sizes will cash out into scientific dominance by the mid-21st century; whereas Kanazawa argued that intelligence and population aren't enough, because Asian character and/or cultural traditions inhibit Asian scientific creativity.

Kanazawa's Nobel prize data are accurate, but hard to extrapolate to the future. Asian-ethnicity scientists remain under-represented at this extreme threshold of scientific creativity, compared to European-ethnicity scientists. However, by his criteria, German psychology would have had nothing to worry about circa 1900. From 1901 to 1925, German-ethnicity researchers accounted for 10 out of 30 people winning Nobel prizes in physics, 10 out of 22 in chemistry, and 6 out of 23 in medicine. By contrast, in this same period (1901-1925), US-born researchers accounted for only 1 out of 30 physics prizes (Robert Millikan, 1923), 1 out of 22 chemistry prizes (Theodore Richards, 1914), and 0 out of 23 medicine prizes.

Thus, by Nobel prize-counts, even in 1925, it might have seemed absurd to suggest that 20th century science would be dominated by the U.S. Many Europeans of that era did speculate on the cultural factors that seemed likely to continue inhibiting American scientific creativity into the foreseeable future: America's persistent anti-intellectualism, greedy robber-baron pragmatism, pervasive political corruption, lack of world-class universities, lack of government research funding, and lack of free speech given the domination of news media by corporate trusts and monopolies. In other words, the U.S. looked as scientifically unpromising to Germans a century ago as Asia looks to some Americans and Europeans now. Some of America's handicaps

have disappeared (we now have world-class universities and government research funding), but some persisted (we still have anti-intellectualism, greedy pragmatism, political corruption, and corporate-dominated news media), and science thrived nonetheless. Contra Kanazawa, it was never the freedom symbolized by the Statue of Liberty that sparked America's scientific dominance – the physical sciences were driven by the Cold War military-industrial complex, and the biomedical sciences were driven by privatized health care, for-profit pharmaceuticals, and the political clout of retired voters.

Nobel prizes aside, is it really true that there is an Asian 'creativity problem'? Charles Murray (2003) did a massive cross-cultural review of human creative accomplishments. He found high agreement among historians that there were at least the following numbers of truly significant figures in each domain of Asian creativity: Chinese art (N=111), Japanese art (N=81), Chinese literature (N=83), Indian literature (N=43), Japanese literature (N=85), Chinese philosophy (N=39), and Indian philosophy (N=45). Although these numbers are smaller than he found for Western art, literature, and philosophy, he admits his figures were biased by easier access to English-language histories and biographies of Western figures.

Murray's (2003) comparison of creative navigational feats is especially instructive. Italian captain Christopher Columbus 'discovered' the New World in 1492 with 90 men on 3 ships (the largest about 85 feet long) in a 7-month voyage. Chinese captain Zheng He 'discovered' Java, Sumatra, India, Sri Lanka, Arabia, and east Africa in 1433-1435 with 27,750 men on 317 ships (the largest about 444 feet long) in a two-year voyage. Ever since Joseph Needham's pioneering 7-volume work *Science and Civilization in China* (1954-2004), Western historians are gradually realizing that almost everything Europe did, China did earlier, on a larger scale, with better technology. Throughout the middle ages, many of China's and India's innovations trickled down to Europe through the Indian Ocean trade routes and the Silk Road. China's recent tendencies towards conformism and anti-intellectualism – explicit goals of Mao's 1968 Cultural Revolution – must not be mistaken for a pervasive national lack of creativity.

Asia's alleged 'creativity problem' can also be assessed from a psychometric perspective. Creativity seems to depend on the cognitive trait of general intelligence (IQ) interacting with the personality trait of 'openness to experience,' according to my reading of the creativity literature (e.g. King, Walker, and Broyles, 1996; Simonton, 1999, 2003) and my own research (Haselton and Miller, 2006; Kaufman, Kozbelt, Bromley, and Miller, in press; Shaner, Miller, and Mintz, 2004; Tal, Miller, and Swegel, 2006). This creative interplay between intelligence and openness seems true in both Western populations (Carson, Peterson, and Higgins, 2005; Dollinger, Urban, and James, 2004) and Asian populations (Chan and Chan, 1999; Zhang and Huang, 2001).

So, Asians may have higher intelligence, but do they have lower openness? McCrae (2001) reviewed cross-cultural research on the 'Big Five' personality traits,

based on a sample of 23,031 people from 26 cultures. Average openness scores were calculated for each culture, controlling for sample age and sex, with the American sample as the reference group with mean 50 and standard deviation 10 (McCrae, 2001, p. 835, Table 3). To make the figures more comparable to IQ scores, I re-normed these figures (right column of Table 1 below) to yield a U.S. openness mean of 100 and SD of 15. Here are some example mean openness scores across cultures:

Table 1: Average ‘Openness to Experience’ scores across cultures, compared to U.S. sample (from McCrae, 2001, p. 835, Table 3) (Note: First column of figures is McCrae’s own normalization, with U.S. sample standardized to mean 50 and standard deviation 10. Second column is my re-normalization to increase comparability to IQ scores, with US sample set to mean 100 and standard deviation 15.)

Country	If US = mean 50, SD 10	If US = mean 100, SD 15
U.S.A.	50.0	100.0
Europe		
Germany	56.7	110.1
Netherlands	55.7	108.6
France	54.1	106.2
Italy	52.6	103.9
Belgium	51.8	102.7
Norway	51.5	102.3
Russia	49.1	98.7
Spain	48.0	97.0
Asia		
Philippines	51.8	102.7
Japan	51.7	102.6
South Korea	51.4	102.1
India	51.4	102.1
Taiwan	50.2	100.3

Country	If US = mean 50, SD 10	If US = mean 100, SD 15
Indonesia	49.9	99.9
Hong Kong	49.2	98.8
Malaysia	46.6	94.9

If Asians truly showed a ‘creativity problem’, we might expect their average openness scores to be much lower than those of Americans. Instead, they are quite similar. Some Asian countries show slightly higher average openness than the U.S. (Philippines, Japan, South Korea, India, Taiwan); others show slightly lower average openness (Indonesia, Hong Kong, Malaysia). In no case does the Asian mean differ by more than 1/5 of a standard deviation from the U.S. sample. Compared to the U.S. average (set to 100.0), the mean openness of the huge new Asian powers is very similar – 102.1 for India, and about 99.6 for China (estimated by averaging the Taiwan Chinese and Hong Kong Chinese figures). If U.S. science can prosper with openness levels about half a standard deviation lower than those of northern Europe (see Table 1), Asian science probably can too.

Kanazawa is right that current Asian teaching styles often emphasize rote learning and analytical reasoning rather than self-expressive creativity (Niu and Sternberg, 2003). Some have also argued that Asian cultures are deeply ‘collectivist’ and therefore less individually creative than Western ‘individualist’ cultures (Ng, 2003). However, recent meta-analyses of individualism/collectivism have seriously challenged such stereotypes of Asia as a whole: only contemporary communist China seems significantly more ‘collectivist’ in orientation than the U.S. (e.g. Oyserman, Coon, and Kellelmeier, 2002). Research also suggests that Asian students’ socialized conformity is fairly easy to overcome with explicit instructions to “Be creative” (Chen et al., 2005), or instructions that emphasize the group benefits of creativity (Goncalo and Staw, 2006) – both of which are prominent themes in graduate science education.

This evidence of Asia’s creative potential – in addition to its intellectual potential, massive population, and growing economy – makes me optimistic about its future as a center for evolutionary psychology.

America’s Fundamentalism

Kanazawa thinks I worry too much about American religious Fundamentalism, and not enough about American political correctness. My concern is that Fundamentalists can do a lot more than refuse to pump our gas. They can elect politicians who marginalize high school science education, who try to eliminate behavioral sciences funding from both NIH and NSF, who make American sex research nearly impossible, and who prioritize costly, atheoretical Big Science

initiatives (e.g. some strands of human genomics and cognitive neuroscience) over cheap, consistent real science initiatives such as evolutionary psychology.

Judging from America's science funding patterns, Fundamentalists have already won their 'culture war' against secular humanism. The U.S. federal government currently (fiscal year 2006) spends \$128 billion per year on research, including \$75 billion on military defense research and \$29 bn on physical health research, versus \$6 bn on general science, only a tiny fraction of which goes to psychology. For example, NSF allocates each year just \$80 million to Behavioral and Cognitive Sciences, compared to \$319m for Polar Research, \$246m for Materials Research, and \$94m for Plant Genome Research. In other words, America's science funding is almost entirely Survivalist in orientation: it concerns aggressive military interventions against avoidable external physical threats (e.g. other countries, terror cells, and polar bears, apparently) that arise mostly through diplomatic failures, and aggressive medical interventions against avoidable internal physical threats (diseases) that arise mostly through lifestyle failures. Americans support science largely so they can, with impunity, exploit foreigners, eat cows, and avoid physical exertion. These funding priorities make sense if the only thing you care about is short-term personal and national survival until the imminent Rapture, when Jesus re-appears and rescues the faithful from post-Enlightenment atheism. These priorities make absolutely no sense if you care about the long-term peace, prosperity, and happiness of humanity.

Kanazawa is more concerned about the baleful influence of post-modernists, gender feminists, and Marxists. I don't see that influence so much here at the University of New Mexico. In a sample of 198 undergraduates who took my evolutionary psychology or human sexuality classes, about 65% believe in God, 62% believe in life after death, 60% classify themselves as Christians, 50% agree that 'religion is important in my life', and 45% pray regularly. By contrast, only 7% classify themselves as politically 'far left', only 1% are gay or lesbian, and fewer than 5% have had any academic exposure to feminism whatsoever. We also have more active Christians than post-modernists among the tenured psychology faculty.

I will worry about post-modernists and gender feminists when their research actually receives significant government support – when a National Institute for the Denial of Sex Differences actually gets the \$1.7bn that NIH spends on 'biodefense' research, in reaction to a few envelopes of anthrax. I will worry about their influence when feminists Susan Faludi and Germaine Greer start out-selling Fundamentalist Tim LaHaye (whose *Left Behind* series about the Rapture has sold 65m books so far in the U.S.). Until that day, American Fundamentalism is our biggest problem in evolutionary psychology, and Asian creativity is our best solution.

Skyscrapers and statues

Kanazawa wants to talk about tall buildings as an index of national prominence, wealth, and creativity. OK, let's talk about tall buildings. Kanazawa is

wrong that Muslims can't build impressive structures. The Burj Dubai will be at least 2,300 feet tall: 2,000 feet taller than the Statue of Liberty (151 feet), 1,000 feet taller than the World Trade Center towers (1,368 feet), and 500 feet taller than the Freedom Tower (1,776 feet, under construction on the World Trade Center site). The Middle East is making a clear symbolic claim of Muslim superiority over the corrupt Judaeo-Christian capitalism of New York.

Table 2: World's 25 tallest buildings, completed or under construction, as of June 2006 (from <http://architecture.about.com/library/bltall.htm>)

Rank	Location	Building	Height (feet)	Year built
1	Dubai	Burj Dubai	2,313	2008?
2	USA: New York	Freedom Tower	1,776	2011?
3	China: Taipei, Taiwan	Taipei 101	1,667	2004
4	China: Shanghai	Shanghai World Financial Center	1,670	2007?
5	China: Hong Kong	Union Square Phase 7	1,555	2007?
6	Malaysia: Kuala Lumpur	Petronas Tower 1	1,483	1998
7	Malaysia: Kuala Lumpur	Petronas Tower 2	1,483	1998
8	USA: Chicago	Sears Tower	1,451	1974
9	China: Shanghai	Jin Mao Building	1,381	1999
10	China: Hong Kong	Two International Financial Center	1,362	2003
11	China: Guangzhou	Sky Central Plaza	1,283	1996
12	China: Shenzhen	Shun Hing Square	1,260	1996
13	USA: New York	Empire State Building	1,250	1931
14	China: Hong Kong	Central Plaza	1,227	1992
15	China: Hong Kong	Bank of China	1,209	1989
16	USA: New York	Bank of America	1,200	2008?
17	Dubai	Emirates Tower One	1,165	1999
18	China: Kaohsiung, Taiwan	Tuntex Sky Tower	1,140	1997
19	USA: Chicago	Aon Centre	1,136	1973
20	China: Hong Kong	The Center	1,135	1998
21	USA: Chicago	John Hancock Center	1,127	1969
22	China: Shanghai	Shimao International Plaza	1,093	2005
23	China: Wuhan	Wuhan ISB	1,087	2006

Rank	Location	Building	Height (feet)	Year built
24	N. Korea: Pyongyang	Ryugyong Hotel	1,083	1995
25	Australia: Gold Coast	Q1	1,058	2005

More importantly, China is building like crazy. Table 2 lists the 25 tallest buildings in the world, completed or under construction, as of June 2006. China (including Hong Kong and Taiwan) has 13, more than half of them. Of these, 11 were built in the last decade (since 1996). The rest of Asia has 3 of the world's 25 tallest buildings. The U.S. has 6, Dubai has 2, Australia has 1, Europe has none. China also has 5 more sky-scrapers taller than the Empire State Building in proposal stages.

What do tall buildings have to do with the future of evolutionary psychology? They are salient symbolic expressions of a country's cultural ambitions, and of its current engineering and economic prowess. I was astonished at the proliferation of Chinese sky-scrapers, just as I have been excited by the rise of Asian science, apparent in any recent issue of *Nature* or *Science* magazine. If you don't believe my abstract estimates about Asia's future population, wealth, intelligence, openness, and creativity, there's a more concrete way to appreciate Asia's prospects. Just fly to Hong Kong, Taipei, or Shanghai, and have a look around. (If you can't afford the flight, just do some google image searches on "Taipei 101" and "Shanghai WFC".) You will be dizzied by the pace of Asian construction, and what it foreshadows about the likely future of Asian science.

Received 27 June, 2006; Accepted 27 June, 2006.

References

- Carson, S. H., Peterson, J. B. and Higgins, D. M. (2005). Reliability, validity, and factor structure of the creative achievement questionnaire. *Creativity Research Journal*, 17(1), 37-50.
- Chan, D. W. and Chan, L. K. (1999). Implicit theories of creativity: Teachers' perception of student characteristics in Hong Kong. *Creativity Research Journal*, 12(3), 185-195.
- Chen, C. S., Kasof, J., Himsel, A., Dmitrieva, J., Dong, Q. and Xue, G. (2005). Effects of explicit instruction to "be creative" across domains and cultures. *Journal of Creative Behavior*, 39(2), 89-110.
- Dollinger, S. J., Urban, K. K. and James, T. A. (2004). Creativity and openness: Further validation of two creative product measures. *Creativity Research Journal*, 16(1), 35-47.
- Goncalo, J. A. and Staw, B. M. (2006). Individualism-collectivism and group creativity. *Organizational Behavior and Human Decision Processes*, 100(1), 96-109.

- Haselton, M. and Miller, G. F. (2006). Women's fertility across the cycle increases the short-term attractiveness of creative intelligence compared to wealth. *Human Nature*, 17(1), 50-73.
- Kanazawa, S. (2006). It ain't gonna be like that. *Evolutionary Psychology*, 4, 120-128.
- Kaufman, S. B., Kozbelt, A., Bromley, M. L. and Miller, G. F. (in press). The role of creativity and humor in mate selection. For G. Geher and G. Miller (Eds.), *Mating intelligence*. Mahwah, NJ: Erlbaum.
- King, L. A., Walker, L. M. and Broyles, S. J. (1996). Creativity and the five-factor model. *J. of Research in Personality*, 30(2), 189-203.
- McCrae, R. (2001). Trait psychology and culture: Exploring intercultural comparisons. *Journal of Personality*, 69(6), 819-846.
- Miller, G. F. (2006). The Asian future of evolutionary psychology. *Evolutionary Psychology*, 4, 107-119.
- Murray, C. (2003). *Human accomplishment: The pursuit of excellence in the arts and sciences, 800 B.C. to 1950*. New York: HarperCollins.
- Ng, A. K. (2003). A cultural model of creative and conforming behavior. *Creativity Research Journal*, 15(2-3), 223-233.
- Niu, W. H. and Sternberg, R. J. (2003). Societal and school influences on student creativity: The case of China. *Psychology in the Schools*, 40(1), 103-114.
- Oyserman, D., Coon, H. M. and Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, 128(1), 3-72.
- Shaner, A., Miller, G. F. and Mintz, J. (2004). Schizophrenia as one extreme of a sexually selected fitness indicator. *Schizophrenia Research*, 70(1), 101-109.
- Simonton, D. K. (1999). Creativity as blind variation and selective retention: Is the creative process Darwinian? *Psychological Inquiry*, 10(4), 309-328.
- Simonton, D. K. (2003). Scientific creativity as constrained stochastic behavior: The integration of product, person, and process perspectives. *Psychological Bulletin*, 129(4), 475-494.
- Tal, I., Miller, G. F. and Swegel, P. (2006). A psychometric validation of mating intelligence: Verbal creativity, general intelligence, personality, psychopathology, and sexual history. Talk presented at the Human Behavior and Evolution Society annual conference, Philadelphia, PA, June 2006.
- Zhang, L. F. and Huang, J. F. (2001). Thinking styles and the five-factor model of personality. *European Journal of Personality*, 15(6), 465-476.