研究ノート

Scientific Stereotypes

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Cultural stereotypes are enduring lenses through which many of us understand others. Increased immigration and international travel as well as education in media literacy and critical thinking can help to erode such stereotypes. At the same time, the post-9/11 encouragement of "us versus them" attitudes reinforces stereotypes, especially the most negative ones. Given the tragic history of exoticizing others, one would anticipate that social scientists would be particularly careful to avoid doing it in their work. Instead, sweeping generalizations backed up by questionable methodology and tendentious argument appear to be on the rise. At the very least, they are not getting the scrutiny they deserve. This review examines some contemporary stereotypes in recent culturalist work on East Asia by North American researchers.

Part of the flood of culturalist argument coming out of North America includes the book *The Geography of Thought : How Culture Colors the Way the Mind Works*. The author is Richard Nisbett, head of the University of Michigan's Culture and Cognition Program and a very widely cited and highly regarded academic. [1] In his acknowledgements, Nisbett notes that many of the ideas in his book "have been shaped by discussions with colleagues in fields ranging from philosophy to physics." He then cites a list of equally well-regarded colleagues at such ranking institutions as the University of California at Los Angeles, New York University, the Chinese Academy of Sciences, Kyoto University, Rutgers University, and so on. I list these elite affiliations to show that the reader can rightfully expect that the book, even though targeted at a broad market, was ostensibly the product of a careful process of fact-checking, consideration of alternative hypotheses, and other standard tools of good academic research.

Many people have been convinced by this work. [2] Indeed, Nisbett's book has been translated in Japanese as *Ki o Miru Seiyoujin, Mori o Miru Touyoujin* ("Westerners See Trees, Easterners the Forest") and appears to have attracted even more favourable attention than the English-language original. [3] The tone of the reviews and comments suggest that many

find the book persuasive not only because it appears to be a scientific study but importantly because readers accepts the ideas it seeks to prove.

The book itself argues that westerners and Asians (especially east Asians) have different ways of thinking-hence the title's reference to the "geography of thought." We are all familiar with the stereotypes: westerners are detail-oriented whereas Asians are concerned with the context of things. [4] These stereotypes are so hoary in fact that Nisbett periodically assures the reader that the generalizations do not hold for all individuals in the West and Asia, while just as quickly asserting "the fact that there are very real differences, substantial on the average, between East Asians and people of European culture" (p. 77). Moreover, Nisbett backs up his thesis by citing an extensive list of sources that have made this claim, while ignoring the numerous criticisms of such culturalist reasoning. For example, though Hasegawa Yokyo, [5] Sugimoto Yoshio and Ross Mouer, [6] John Lie, [7] Harumi Befu, [8] and plenty of others have written extensively and devastatingly on such culturalist interpretations of Japan, none of this work is cited in Nisbett's book.

In addition to his very partial review of the literature, Nisbett draws on empirical support from studies of what he depicts as "Asian" and "Western" subjects in experimental situations. These studies were carried out with help from colleagues in Nisbett's own institution-the University of Michigan-as well as Kyoto University, Seoul National University, and China's Beijing University and the Chinese Institute of Psychology. Nisbett also makes frequent reference to other studies that appear primarily to have been conducted with graduate students in the US, Japan, China and elsewhere.

Yet one of the very basic problems with the work, from the perspective of statistical literacy and related approaches, [9] is that Nisbett's "westerners" are all American graduate students (excluding any of Asian descent). There appear to be no Europeans used in the studies, in spite of the fact that there is so much variation in perceptions and ideas distinguishing Americans from Europeans (not to mention within those regions as well). Moreover, most of the study results appear (Nisbett rarely divulges the numbers) to show only marginal differences between the American and Asian graduate students' responses to various laboratory experiments to test their perceptual and other tendencies. Yet these tendencies are discussed through the bulk of the book as though they were vast, dichotomized differences in seeing the world that have persisted over millennia.

Is this Science?

So all the book's generalizations rest largely on data from several ostensibly scientific studies using graduate students. Is there anyone out there who thinks graduate students are a representative sample of any population except perhaps

fellow graduate students? I mean this as no insult to graduate students, of course, having been one myself not so many years ago. Even in America, where there is a rather high rate of students proceeding to graduate school, [10] no one would think of them as a representative sample of Americans, let alone the so-called west. But in addition, the study participants were graduate students in a few big cities and elite universities in geographically limited areas. On top of that, they were graduate students who were willing to participate in studies, meaning they were either hard up for money and/or interested in the research. In other words, the sample was emphatically not representative of the larger populations of Europe, East Asia, and America: by income, social class, ethnicity, educational level, to mention a few critical variables. And the sample appears to have been self-selected, rather than randomly chosen, which biases the results even more.

Hence, whether the study demonstrated anything has to be approached with a skeptical eye, employing the basic lessons of statistical literacy, as this is how science works. It is of course possible that the reputed differences between Asian and western ways of thinking actually exist, just as any hypothesis is possible. But in order to make a convincing demonstration that the hypothesized phenomenon exists, one needs not only unimpeachable data. One also has to employ the standard scientific methods that are used to reduce potential interference from the confirmation bias and other logical fallacies. [11] Nisbett and his colleagues appear to have made no effort to disconfirm their study. Surely, had he done so, he would have put that in the book to strengthen the argument. Without a gauntlet of skepticism and criticism guiding the design of the experiments, the selection of subjects, the interpretation of the apparently weak results, and so on, the conclusions have little credibility.

Judging from the reviews mentioned earlier, many of Nisbett's readers might regard this as too stern an approach concerning an issue on which lots of people agree. However, it is precisely common sense (as Einstein argued, "the collection of prejudices acquired by age eighteen") that is the problem. Common sense is what one agrees with, and because one agrees one is inclined to favour impressions and arguments that appear to confirm it. Rigorous scientific study only takes place when one is willing to challenge all hypotheses, and thus ready to forfeit or at least qualify one's own pet theories.

The Writing on the Wall

Culturalist reasoning often takes the form of the bland and relativistic "we're all different but equal" stereotypes we saw in Nisbett. Stereotypes are often easier to swallow when they lack hard edges. But let us look at work that puts an unpleasant twist to this common-sense notion that thinking differs in the West

and Asia. One recent case is the book *The Writing on the Wall : How Asian Orthography Curbs Creativity,* by William C. Hannas, a senior officer at the US Foreign Broadcast Information Service. The book was published in 2003 by the University of Pennsylvania Press and argues that the use of kanji prevents Asians from doing good abstract thinking. [12] This claim might seem rather inflammatory, so it is important to note that Hannas is one of America's leading experts in the Asian languages (Chinese, Japanese, Vietnamese and Korean) that he discusses. The series editor for the press, Victor Mair (himself a noted academic), [13] even argues that there is probably no "other person on the globe who knows all the relevant languages as well." Moreover, Hannas acknowledges the advice and assistance of numerous colleagues, some of whom read early drafts of the work as well as the entire manuscript and offered suggestions. Hannas also assures that reader that he himself is "acutely" uncomfortable about "making generalizations about people" (p. 102).

In short, we have what appears to be a carefully considered intellectual production by one of North America's foremost linguists, advised by advanced scholars in his field. As with Nisbett's work, we can expect that the content has been rigorously checked and at least presents a tough challenge for counter-argument.

Hannas' argument about the effect of linguistic differences relies on an old psycholinguistic claim that ideographs are not abstract like the letters of the alphabet. Moreover, using ideographs is said to lead to a more passive and less abstract way of thinking. Briefly, the East Asian writer or reader relies on rote memorization of an enormous number of symbols that he or she then uses to represent syllabic sound. This reliance on a profusion of symbols is said to impair deep, abstract thought. It is almost as though a massive wall of signs were placed between creativity and the reader or writer. By contrast, a writer or reader using an alphabet-based language such as English is forced to be creative because of the unnatural act of using a little pile of ABCs to represent phonemes (basic units of linguistically meaningful sound [14]) rather than syllables.

Genetically Handicapped ?

Hannas argues that East-Asian orthography is in fact responsible for an embedded, anti-creativity bias in East Asian society as a whole. He finds the bias in "the structure of the family, the low value given to freedom and personal autonomy, the predatory behaviour of the elite, paternalistic governments, a tendency towards uniformity and centralization, the use of education for social control, and a tradition of viewing change as synonymous with chaos" (p. 273). These are all standard Euro-American culturalist representations of East Asian societies, and many of these ideas are also propounded by advocates of the "Asian values" argument. [15]

But Hannas is not about to leave his conclusions there, on the shifting sands of values arguments. He is determined to make his independent variable the technical aspects of language rather than leave us with the usual circular culturalist reasoning wherein amorphous cultural values are claimed to produce various tendencies in behaviour and thought. So he argues that the language and its creativity-impairing aspects drove the development of what he depicts as a largely static sociocultural system. But even then, he's not finished. He goes on to argue that the "Sinitic metaculture" was then perpetuated through "gene-culture coevolution" (276). Being useless in this system ; indeed, being a threat to its stability, "creativity has been bred out of East Asian culture." (277). In the end, Hannas' claim rests on a genetically rooted impairment of East Asian culture with creativity as the highest casualty.

Given the deeply entrenched stereotyping of the Japanese as mere imitators, this book's argument that Asians in general suffer from a creativity deficit, so to speak, has a ready audience. [16] To underline his point on the lack of creativity, Hannas spends over the first third of his book showing that Asian societies have plenty of institutions geared to stealing American technology. He argues that these institutions reflect East Asians' "shortage of innovative talent" and "desperate attempts to assimilate the creations of others" (p. 87) rather than do their own basic research. The past few hundred years have indeed seen a massive transfer of technology from western countries to Asia. So if we were to apply the superficial approach followed in Nisbett's book-he too writes of "Westerners' success in science" (p. 134)-and other representative works of culturalism, we might well be led to conclude that there must be some correlation.

Some Fact-Checking

But in fact a little critical thinking and media literacy style fact-checking quickly show us that Hannas' argument is full of holes. First, he fails to balance his rather sensationalist account of East-Asia's stealthy transfer of technology from America with attention to comparative cases. A few examples will suffice. As the 2000 book Spooked : *Espionage in Corporate America* [17] noted, American corporations themselves employ thousands of people to spy on each other. Moreover, the rise of the United States was, according to Doron Ben-Atar of Fordham University, greatly aided by a campaign of industrial espionage targeted at the Europeans. [18] Also, in the wake of the Cold War, the CIA turned its focus very much to "economic espionage," especially against European competitors. [19] Finding these examples took only a few minutes' searching via the internet. They do not refute Hannas' argument that East Asian countries do a lot of economic espionage. What the examples show is that wholesale and organized industrial espionage is not unprecedented and that engaging in it is not prima facie evidence of a lack of creativity. Hannas should,

at the very least, have addressed this potential criticism of a point that is such a central focus of his work.

Moreover, the psycholinguistic theory Hannas uses has few adherents, which is a signal that it might lack compelling evidence. First, the theory is properly called "linguistic determinism" and-once all the jargon is scraped away-relies on a claim that "language shapes thought." The theory is rooted in the Sapir Whorf Hypothesis, [20] which for a long time had people believing such urban myths as the idea that Inuit have many words for snow and thus their minds work differently. But these ideas were shown to be very suspect by Harvard psychologist Steven Pinker in his 1994 book, *The Language Instinct*. [21]

Second, Richard Sproat, a Professor in the Department of Linguistics at the University of Illinois at Urbana-Champaign reviewed Hannas' book and highlights several inaccuracies in its technical arguments about Asian languages. [22] One problem is that East Asian languages do not all function in the same way, as Korean is partly phonemic. Nor do Asian languages match syllables and syllabary in a one to one relation, as we see with voiceless syllables in Japanese. Sproat also notes that Hannas quotes extensively from a 1988 edited volume *The Alphabet and the Brain : The Lateralization of Writing* [23] that explored the idea that western science derived at least to some extent from the Greek alphabet. But the book included several contributions that disputed the idea, and Hannas unfortunately ignores them.

In other words, by fact-checking one quickly learns that the technical structure of Hannas's argument is weak and there is no good reason to conclude or even suspect that orthography drives creativity. And we can do a little thought experiment without the aid of the internet. As all Japanese students learn in their history studies at school, after the Greek and Roman eras passed in the 5th century AD European civilization spent close to a millennium-during the dark ages-in scientific backwardness. While Asian and Arab civilizations flourished, the west was dominated by alphabetically literate but very unscientifically minded scholastics and other church leaders. The long period of European stagnation, and the contrasting technical brilliance in China, seems difficult to explain by linguistic determinism.

All is in Flux, and Always Has Been

There is no disputing that over the past few hundred years, the scientific revolution in the west has driven the bulk of technological progress. But even within that stream of creation and innovation, there was borrowing from other regions (especially the Arabs and Chinese) as well as massive local flows within the west as one or another society rose to a peak. For a contemporary example, think of the dominance of American academe. Today it seems almost natural that the best minds go to America for

training. But just over a century ago, the pinnacle of academic progress was Germany. That's why the best and the brightest from Japan, as well as America, went to Germany to study in the late 1800s. It is the borrowing and the fusion of ideas in the context of mixing minds that produces creativity, not the orthography. Indeed, so many of America's most creative people-in science and technology, in business, and in the arts-are from China and elsewhere in East Asia that America has become dependent on the flow of talent. There are also serious worries about America losing its technological edge because the flow of these people is declining. [24]

But let us not leave the critique of Hannas' claims at that level only. We can also ask whether there have in fact been few significant creative contributions from modern East Asia. First, note that Hannas seeks to differentiate "radical" from "incremental" creativity, declaring that the former is marked by "knowledge breakthroughs" while the latter centres on "routine development" (p. 96). Hannas concedes that Asians-especially the Japanese-can innovate. But he argues that their scientific history is marked more by classification and concrete knowledge than the abstraction said to characterize the West. In short, Asians are represented as capable of incremental improvements but not the eureka or "aha" experience of discovery. As Hannas elaborates : "What is at issue is the ability of a people to deliberately confront objectified problems, reduce them to their core conceptual elements, and reorganize these elements to provide an abstract, unified explanation for phenomena that could not be understood in terms of the old paradigm" (p. 98).

But this division between radical and incremental creativity seems forced. In fact, most creativity is the intelligent adaptation of existing technologies or ideas. "If I have seen further," wrote Isaac Newton, echoing an awareness from centuries past, "it is by standing on the shoulders of giants." [25] Insight itself is thus incremental. Whether we define the process as radical or incremental-or perhaps some combination of the two-the Japanese have been innovating extensively in the technological, organizational and other fields for over a century and a half. Japanese statecraft and business management built an "economic miracle" based increasingly on indigenous creative adaptation rather than straight-off borrowing. Japan's enormous capacity to innovate and think outside the box was a particular surprise at the outbreak of the Pacific War. [26] It surely astonished economic rivals as Japan emerged from the ruins of American bombing in 1945 to become the world's number two economy, and it continues to dismay US automakers and many competitors today. It is thus somewhat ironic that Hannas writes that "the stepped up pace of product innovation during the last few decades has forced Japan to rely increasingly on foreign support for new ideas" (p. 97).

Let us look at Hannas' argument from

yet another angle. He defines real creativity as eureka discoveries and ignores the dearth of scientific progress in the West until the last few hundred years. So without actually saying it, he appears to be asking why Europe-and not Asia-was home to the scientific revolution. This inattention to the thrust of his own argument is surprising, given the effort he and his colleagues made in demonstrating that there is an active, abstract-thinking West and an intellectually challenged East Asia. But if one acknowledges that the real conundrum is why the scientific revolution took place in Europe, then surely one has to ask why it did not arise in other regions besides East Asia. That line of thinking brings one onto a wider terrain, one that scholars like Jared Diamond [27] and his critics have been fighting on for years. And in this broader comparative analysis one loses the room to argue linguistic issues, because so many other regions that do not use ideographs also did not have a scientific revolution.

The Role of Institutions

A comparative look at the institutional level also shows no evident support for the argument that East Asians are genetically or even linguistically hindered from being creative. Note the case of academe, where there appears to be a clear gap between East Asia and America (the usual proxy for "the West"). International comparative rankings of academic institutions invariably and overwhelmingly favour America's, based on various reasonable assessments of quality. [28] Yet here again, a wider comparative perspective proves to be instructive. This is because a similar weakness vis-a-vis America is true for European centres of learning. Before the rise of Naziism and the onset of the Second World War, many of Europe's universities were top-ranked, nurturing such creative genius as Einstein, European institutions lost their creative dominance in the course of war and technological transformations throughout the 20th century. Surely no one would argue that European languages or heredity began to inhibit creativity in the region's academe.

The key factor instead appears to be a meso-level environmental phenomenon. Hannas does discuss environment, per se, but depicts it as the broad social context, supported by linguistic factors, that inhibits or fosters creative thought. There may indeed be distinctive macro-level cultural differences between the regions, and perhaps they help explain the relative incidence of eureka experiences around the world and over time. Yet a more potent causal element in the present would seem to be the fact that basic, cutting-edge research (as opposed to product innovation) takes place in publicly funded institutions, and particularly the American research university.

In this respect, we have something akin to an unintended but very interesting experiment going on before our eyes. This is because the dominance of the American academic institution appears

to be eroding. There are a number of reasons for this trend, many of them having little to do with Asia. One factor is found in recent declines in US funding for basic research. [29] But longer-range causes include the fact that Asian students increasingly get advanced degrees and increasingly get them in their home countries. Moreover, they have ample opportunities to remain there and pursue cutting-edge research afterwards. [30] East Asian academic and research institutions are thus rapidly increasing their presence at the front ranks in a variety of technical fields. [31] What is still largely missing in East Asia is the enormous synergies of mixing the best minds from within the region and without, the key to Europe's past dominance and that of America in the present. If and when political tensions within East Asia are resolved enough to allow full-scale cooperation, the diverse and creative fruits of it are likely to be a big surprise for both Nisbett and Hannas.

[1] Nisbett's home page lists his impressive academic affiliations and honours : http://www-personal.umich.edu/~nisbett/

[2] Very supportive reviews in English can be found at http://edrev.asu.edu/reviews/rev294.htm http://www.mindspring.com/~kimall/Reviews/geothought.html The reviews in Japanese are, if anything, even more favourable, as one can see for example from a slew of comments at the Japanese Amazon bookseller's website : http://www.amazon.co.jp/exec/obidos/ASIN/4478910189/250-4536284-7809858

[3] A May 8, 2005 google search in English using the name "Nisbett" produced 919 hits whereas a search using the Japanese title and Nisbett's name in katakana returned 1700 hits.

[4] The book's first chapter can be examined at the following New York Times site: http://www.nytimes.com/2003/04/20/books/chapters/0420-1st-nisbe.html Also, a brief description can be found at the University of Michigan campus newspaper's site: http://www.umich.edu/news/MT/_includes/books.html#geography

[5] See his 1998 study of "Linguistic Systems and Social Models : A Case Study from Japanese" : http://ist-socrates.berkeley.edu/~hasegawa/Social_Models/SocialModel.html

[6] Among their many cogent critiques of culturalist representations of Japan are the 1990 book *Images of Japanese Society: A Study in the Social Construction of Reality* (Kegan Paul International, 1990).

[7] Lie's 2001 book on *Multiethnic Japan* persuasively challenged stereotypes of Japanese homogeneity: http://www.hup.harvard.edu/catalog/LIEMUL.html

[8] Befu's 2001 *Hegemony of Homogeneity* is a strong critique of Japanese intellectuals' role in producing and disseminating culturalist stereotypes : http://www.asianstudiesbooks.com/1876843055.htm

[9] Some of the most recent book-length work on "statistical literacy" can be found at the "StatLit" site : http://www.statlit.org/Useful articles on how to integrate the approach in teaching and research are at: http://www.statlit.org/Articles.htm

[10] The US had just under 2 million graduate students in 2001 http://nces.ed.gov//programs/digest/d03/tables/dt190.asp

[11] A handy on-line guide can be found at The Skeptic's Dictionary : http://skepdic.com/contents.html For its entry on "confirmation bias," see : http://skepdic.com/confirmbias.html

[12] A sample chapter is available on-line at : http://www.pinyin.info/readings/writing_on_the_wall.html

[13] Professor Mair's biopage is at : http://ccat.sas.upenn.edu/ceas/bios_mair.html

[14] For example, one phoneme differentiates "cat" from "rat" : see http://en.wikipedia.org/wiki/Phoneme

[15] http://www.unu.edu/unupress/asian-values.html

[16] Not a few East Asians write on this topic, though none apparently use Hannas's linguistic and "gene-culture coevolution" approach. See for example, Professor Ng Aik Kwang, *Why Asians Are Less Creative than Westerners* (Prentice Hall, 2001) http://www.selectbooks.com.sg/titles/26870.htm

[17] The book is by Adam L. Penenberg and Marc Barry and published by Perseus Books : http://www.penenberg.com/book_spooked.html

[18] See Ben-Atar's book, *Trade Secrets : Intellectual Piracy and the Origins of American Power* (Yale University Press, 2004). An article ("A US Technology Double Standard ?") by the same author on the subject can be accessed on-line : http://www.theglobalist.com/DBWeb/StoryId.aspx?StoryId=4222

[19] On this, see Richard Dreyfuss, "Help Wanted : spying on allies," in the May/June 1995 *Mother Jones* : http://www.motherjones.com/news/outfront/1995/05/dreyfuss.html

[20] http://en.wikipedia.org/wiki/Sapir-Whorf_Hypothesis

[21] On Professor Pinker and his work, see http://pinker.wjh.harvard.edu/about/index.html and http://ase.tufts.edu/cogstud/papers/jackpink.htm

[22] Professor Sproat's review is available at : http://catarina.ai.uiuc.edu/L403C/hannas.pdf

[23] The book was edited by Derrick de Kerckhove and Charles J. Lumsden, and published by Springer-Verlag.

[24] A recent and well-argued book on these issues is George Mason University Professor Richard Florida's *The Flight of the Creative Class* (HarperBusiness, 2005). On Florida's work, see http://www.creativeclass.org/ http://www.salon.com/books/int/2005/04/21/florida/index_np.html

[25] On this see Robert K. Merton, *On the Shoulders of Giants: The Post-Italianate Edition* (University of Chicago Press, 1993).

[26] Some surprises included the best torpedoes (the Long Lance), the best fighter aircraft (the Zero) and some of the most innovative tactics. On some of these items, see the remarks in James J. Martin, "A Good War it Wasn't", *Journal of Historical Review,* Vol 10 No 1 1990 : http://www.ihr.org/jhr/v10/v10p-59_Martin.html

[27] See Diamond's Guns, *Germs and Steel : The Fate of Human Societies* (WW Norton, 1997). A concise outline of his fascinating argument can be found at: http://en.wikipedia.org/wiki/Guns,_Germs_and_Steel

[28] One recent comparative study by Shanghai Jiao Tong University's Institute of Higher Education placed only 5 East Asian universities (all Japanese) among the world's top 100: http://ed.sjtu.edu.cn/rank/2004/top500(1-100).htm

[29] On this, see for example Peter N Spotts "Pulling the Plug on Science" *Christian Science Monitor,* April 14, 2005.

[30] A recent and very worried report on these trends from the Task Force on the Future of American Innovation can be downloaded at : http://www.futureofinnovation.org/

See also Diana Hicks, "Trends in Asian R &D," a paper presented to the American Chemical Society Presidential Event, March 13, 2005.[31] See, for example, the rapid advance of the University of Tokyo and Chinese institutions in pharmacology and chemistry : http://www.sciencewatch.com/may-june2004/sw_may-june2004_page1.htm