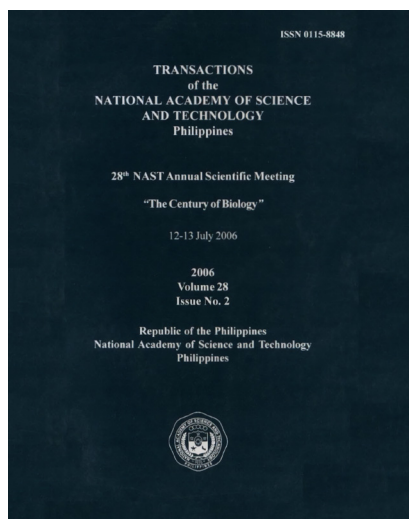


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Philippine Social Science in the Century of Biology: Engaging the Biological Dimensions of Behavioral and Social Phenomena

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**PHILIPPINE SOCIAL SCIENCE IN THE
CENTURY OF BIOLOGY ENGAGING THE
BIOLOGICAL DIMENSIONS OF BEHAVIORAL
AND SOCIAL PHENOMENA***

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Abstract

My main thesis in the paper is that Philippine social scientists need to engage the biological (i.e., genetic and neurological processes shaped by human evolution) dimensions of behavioral and social phenomenon. In developing this thesis, I first broadly clarify the so-called nature-vs.-nurture debate which pits biological explanations against social and cultural explanations, then proceed to briefly explain contemporary perspectives of evolutionary psychology that recast the nature-vs.-nurture debate. In particular, drawing from examples of recent research and theory, I attempt to show that current theorizing underscores the close interaction between biological and socio-cultural processes, and thus there is no need to construe biological knowledge as antagonistic to socio-cultural theorize. I cite some examples to show how social science theories are improved when biological factors are incorporated in the theories. I then discuss the implications to Philippine social science, and suggest that a small sector of the social science community should explore how the biological dimensions of social and behavioral phenomenon can improve our theorizing. I further suggest that there is a need to re-examine

* The ideas in this paper were culled from the proceedings of two Round Table Discussion entitled, "Biology as Destiny" sponsored by the NAST Social Sciences Division. The ideas from this paper come from many brilliant social scientists (and one honorary social scientist) who participated in these RTDs and who I acknowledge as my co-authors for this paper. They are, in alphabetical order, Eufrazio Abaya, Michael Alba, Ledivina Cariño, Gelia Castillo, Mercedes Concepcion, Antonio Contreras, Lourdes Cruz, Raul Fabella, Corazon Raymundo, Agnes Rola, and I would like to especially acknowledge the contributions of Cynthia Rose B. Bautista, Emmanuel de Dios, and Ma. Emma C. D. Liwag. Correspondence regarding this paper may be sent to the author at De La Salle University-Manila, 2401 Taft Avenue, Manila 1004. Email may be sent to bernardoa@dlsu.edu.ph.

how Philippine social scientists construe the biological nature of social beings, as this may influence and even constrain how biological knowledge is engaged in theorizing; and to consider some possible constraints within the social science research process in the country.

Keywords: Behavioral phenomenon, social phenomena. nature vs. nurture

The Nature-Vs.-Nurture Debate Is Dead! Or Is It?

Any discussion about any compelling human and social phenomenon inevitably makes reference to the so called, nature-vs.-nurture debate. The debate is particularly remarkable in discussions regarding the perceived lows and highs of Filipino achievement. Why do Filipinos generally perform poorly in mathematics and science? Why can't the Philippine develop enough scientists and engineers? Why do girls consistently out-perform their male counterparts in academic achievement in many schools all over the country? But on the other hand, why are Filipinos apparently so gifted in boxing, billiards, singing, and entertaining? At some point in the discussions of these phenomena, some will make some reference to the possibility that there is something in the "nature" of the person or persons involved. But at some point as well, others might counter this notion with arguments appealing to the effect of parenting, of peers, of media, of the church or some other social or cultural institution, and of course of the individual's own free will. So is it nature or nurture? Filipinos are most likely to say it's both and we continue living our lives, particularly as there are more pressing problems we have to attend to.

Recently, however, a small sector of the Philippine social science community was provoked by their idols National Scientist Gelia Castillo, Academicians Mercedes Concepcion, Ledivina Cariño, and Raul Fabella in a roundtable discussion entitled, "Biology as Destiny" purportedly inspired by the book by psychologist Steve Pinker, 2002, entitled, "*The Blank State: The Modern Denial of Human Nature.*" The roundtable discussion, not incidentally, was being undertaken amidst the imposing backdrop of the "Century of Biology." Suddenly, it seemed the nature-vs-nurture debate was alive and maybe even quite fierce.

We are all aware of just how old this debate is in the social sciences. The debate of whether to emphasize the biological as opposed to the cultural aspects of human beings has marked the subdivisions of the discipline of anthropology. Sociologists, psychologists, anthropologists, and even political-economists who have looked at criminality, aggression, corruption, and other grave social phenomena have often taken sides in this debate. In psychology the debate has been particularly salient in theorizing about human growth and development, learning, and psychopathology, among others.

In the Century of Biology, more and more behavioral and social phenomena are being explained with reference to DNA, genes, neurons and neurotransmitters,

and neurological architecture and processes that have evolved in the same way as our other biological endowments. It seemed important for Filipino social scientists to locate and position their theories and practice in relation to these scientific discourses.

The Evolutionary Psychology of Human and Social Phenomena: What it is and What it is Not

But what are these contemporary discourses that call our attention to the nature-vs.-nurture debate yet another time? Are these contemporary discourses arguing that evolution and biology can fully account for the full diverse range of behavioral and social phenomena? Is the discourse espousing biological or neurological reductionism, and evolutionary or genetic determinism? Is it now truly “Biology is Destiny?”

A thoughtful review of the relevant scientific research literature suggests that it does seem that much of human behavior can ultimately be explained by referring to neurons, synapses, and neurotransmitters, to genetic characteristics and predispositions, and to neural processes that seemed to have evolved following the same Darwinian principles as our other biological endowments (e.g., Pinker, 2002, Chapter 1). Recent scholarship in the fields of cognitive neuroscience, behavioral genetics, and evolutionary psychology have proposed that such biological principles can explain much if not most of human behavior, including perhaps the most “social” and “personal” of phenomena such as culture (Tooby & Cosmides, 1992), social stratification (Barkow, 1992), morality (Katz, 2000), religious beliefs (Boyer, 1992), consciousness (Nesse & Lloyd, 1992), and abstract and higher order thinking (Cummins, 1998). The availability of such biologically-based explanations does not, however, mean that it is the only important explanation of human behavior. Indeed, there are many other levels of understanding human behavior (such as the cognitive-functional level, the social-cultural level, etc.), which were also just as important. Recent scholarship in the cognitive and behavioral sciences has led to theories that integrate these different levels of explanation. The new theories referred to earlier describe how evolutionary processes resulted in biological constraints that afford psychological processes that effectively exploit, adapt and respond to features of the physical environment, as well as of the various types of social interactions embedded in different cultures. We should be very clear at this point that recent biological theories of human and social phenomenon are not arguing for biological determinism. No serious neuroscientist is asserting that naturally selected genes and hardwired neurological processes solely determine all human behaviors. What these biological factors do is to predispose human beings to think about and act on reality in certain ways — ways that were adaptive in the evolution of the human species, perhaps during the Mesozoic Period. But this biological predisposition interacts with a complex set of other factors to determine behavior. Pinker (2004) suggests that behavior is multiply

determined by genes, the anatomy and architecture of the brain, the biochemical states of the brain, the person's family upbringing, how the person was treated by society, and the specific stimuli that confront the person at any given point in time. Pinker (2004), thus, wrote:

“Environmental interventions — from education and psychotherapy to historical changes in attitudes and political systems — can significantly affect human affairs. Also worth stressing is that genes and environments may interact in the statistician's sense, namely, that the effects of one can be exposed, multiplied, or reversed by the effects of the other, rather than merely summed with them.”

However, recent theories of the biological dimensions of behavior and social phenomenon underscore the need to fully appreciate the constraints that biology imposes on behavior. In his book, Pinker (2002) has argued that we should stop denying the biological nature of human and social phenomenon, and instead we should come to terms with how biology actually interacts with social structures and the human will.

Removing the “vs.” from Nature-vs.-Nurture

Recent scholarship indicates that the most powerful and fruitful lines of theorizing now seek to determine precisely how biology and social and cultural experiences interact to produce human behaviors and social phenomena. One specific area of study that has generated much new insights as well as controversies is the study of the genetic bases of human traits, such as intelligence and personality. Scientific research now indicates that *all* human behavioral traits are heritable (Turkheimer, 2000). Heritability refers to the proportion of variance in a trait that correlates with genetic difference. The rest of the variance in behavioral traits is explained by what is referred to as the shared environment and the non-shared or unique environment. Shared environment refers to the external environment that impacts on a person and his/her siblings (e.g., parents, home life, immediately community, etc.). Unique environment refers to anything in the external environment that impacts on one person but not his/her siblings (e.g. specific relationship with parents, presence of other siblings, experiences with peers, and unique experiences like getting sick or meeting an accident, etc.). The most authoritative measures indicate that the genes account for about 40-50% of the variance in many behavioral traits, while the shared environment accounts for 0-10%, and the unique environment accounts for about 50% of the variance (Bouchard, 1994; Plomin & Daniels, 1987; Rowe, 1994; Turkheimer, 2000; Turkheimer & Waldron, 2000).

Note that even if the supposed influence of the shared environment is weak, we find very compelling examples of the interaction between genes and the shared

environment. For instance, studies (e.g., Rowe, 1994; Rutter, 1997) indicate that “[c]hildren who grow up in the same home tend to resemble each other in their vulnerability to delinquency, regardless of how closely related they are” (Pinker, 2002, p. 392). Gottfredson and Hirschi’s (1990) study of adopted children in Denmark revealed that biological children of convicted criminals were more susceptible to criminal behaviors compared to biological children of law-abiding citizens — which shows the effect of genes. But this susceptibility to criminal behavior is significantly increased if the biological children of the criminals were adopted by parents who were also criminals and who lived in a large city — which shows the interactive effects of the high-crime social environment.

There are also many gratifying lines of research that show the complex interaction between social psychological phenomenon that are now known to be shaped by biological evolution and cultural environments. One social phenomenon that has been explained using evolutionary theory is social sharing. Kameda et al. (2003) have demonstrated that social sharing is an evolved human response when resources are uncertain. In cross-cultural experiments, Kameda et al. (2003) demonstrated that sharing was a more profitable and stable compared to other ways of distributing resources. However, the studies also demonstrated that cultural factors may also amplify or suppress the evolved disposition to share. For example, people in higher social class contexts are less likely to share unexpected gains, whereas those in lower social class contexts are more likely to do so.

The social phenomenon of mate selection is one of the most well researched areas in evolutionary psychology. Extensive empirical research (Buss, 1998; Buss & Schmitt, 1993; Kenrick & Keefe, 1992; Kenrick et al., 1996) has supported the evolutionary theory prediction that older men are usually attracted to younger women because they are more likely to produce more and healthier children. In contrast, younger women prefer older men because they have more power and resources to endow their children. But in some cultures like the Tiwi of Australia, it is common for young men to marry older women. This is explained by referring to the interaction between culture and evolutionary predispositions. Tiwi men have several wives and all women have to be married all the time. The richer older men marry the youngest women leaving the older widows to the poorer younger men (Kenrick et al., 2003).

These are just a few among the growing number of scientific studies revealing the intricate interaction between nature and nurture (see e.g., Moffit et al., 2006, Nettle, 2006, for more discussion). Understanding the important role of the biological nature of humans and the evolutionary bases of many social phenomena does not imply denying the important effects of social and cultural experiences. Indeed, the emergent scientific theories shown in these few examples are not just biological theories, nor are they purely social theories (see e.g., Cacioppo et al., 2000; Gottesman, 2001; Ochsner et al., 2001; Plomin & Crabbe, 2000). The emergent explanations of social phenomena truly embody the integrated processes that shape behavioral and social phenomena.

Implications for Philippines Social Science: Revising Assumptions about Human Nature in Social Science Theories

In this regard, I think that the more important ideas posed by this line of scholarship on the roles of biological constraints and socio-cultural processes in shaping human and social phenomenon relate to how Filipino behavioral and social scientists do our theorizing. And perhaps, also to how our theorizing relates to social discourses and processes, particularly those outside the academe.

It could be argued that social science theory and research in other countries improved in specific ways when more scientific accounts about the genetic and neurobiological dimensions of humans and the evolutionary basis of behavioral and social phenomena were taken into consideration. In the field of economics, De Dios (2006) noted how assumptions of evolutionary psychology that relate to the human predisposition to reciprocity and cooperation can correct the limitations in the core assumptions of game-theory, particularly as they apply to non-cooperative games. Apparently, the prediction of evolutionary theory that human beings would cooperate under certain conditions of reciprocity can better explain actual data on how people behave in non-cooperative game situations (Fehr et al., 2002; Fehr & Schmidt, 1999), compared to theories that assume that humans would act on the basis of calculated, wealth-maximizing, self-interest. De Dios (2006) further notes how some traditional assumptions about the rationality of human being in economic decision making are actually false; instead, humans think and make decisions based on heuristic strategies that are proposed to be biological adaptations that server evolutionary goals (Gigerenzer & Selten, 2001; Kahneman & Tversky, 1984; Tversky & Kahneman, 1974).

In the field of psychology, theory and practice has greatly improved when scholars and professionals began acknowledging the important neurobiological constraints that underlie many problematic psychological phenomena. For example, an improved understanding of the interactions between genetic risks and environmental risks in psychopathology has resulted in more rational and effective forms of prevention and intervention for many times of psychological disorders (Gottesman, 2001; Moffitt et al., 2006; Neese, 2000; Siegert & Ward, 2002). Recent discoveries related to the continued development of the human brain during the adolescent years (Casey et al., 2000) has also helped psychologists better understand the heightened variability in cognitive development among teenagers, particularly in various areas of reasoning and decision-making (Klaczynski, 2004). More important, research in the field of adolescent cognitive development has shown how the adolescent experiences' and the activities that the teenager engages shape the brain development processes (Kuhn, 2006; Luna et al., 2004).

Similar theoretical and scholarly advancements have been achieved in specific fields such as medical anthropology and demography, where knowledge related to the biological nature of human beings are wedded with personal, social, cultural, and historical constructs.

But what about social science theorizing in the Philippines? My colleagues in sociology (Cynthia Bautista) and political science (Antonio Contreras) noted that the biological dimensions of human nature and of social life has not been problematized in the main streams or threads of social science discourse in recent and not-so-recent history (e.g., theoretical Marxism, structural functionalism, social constructivism, post-structuralism, feminism, post-colonialism, post-modernism to name a few). The various big-theories have some minor presuppositions about biology, but these suppositions are never in the foreground (perhaps with some exceptions in some subfields within anthropology, demography, and psychology).

Is there anything wrong with this? My immediate answer is no. There is so much rich insight that can be drawn from the proper and intelligent use of personal, social, political, and historical constructs and modes of analysis used by thoughtful Filipino social scientists. The lack of references to biology should not limit the useful insights that Filipino social scientists can generate. Indeed, as can be gleaned from various treatises, many of the exciting evolutionary theories of human behavior actually draw from studies of linguists, anthropologists, sociologists, psychologists, and economists who hardly think of the neurobiological dimensions of anything. And thus, I think that the Philippine social science community can grow and thrive as long as thoughtful Filipino social scientists continue to properly and intelligently use social science constructs and analysis.

However, advocates of evolutionary psychology take a very strong position that I think is worth considering. Pinker (2002) for one, argues that by ignoring or neglecting the neurobiological or evolutionary constraints in human and social phenomenon, social and behavioral scientists may be posing theories that are not properly grounded or bounded. Denying the biological constraints and/or affordances of social and cultural phenomenon is an act of gross misrepresentation, just as saying that biology is destiny is another act of gross misrepresentation. One challenge for Filipino social scientists, therefore, might be to determine how to properly engage the biological (i.e., genetic and evolutionary) theories of behavioral and social phenomena. In doing so, it would be important to avoid knee-jerk responses that take extreme and totalizing positions (e.g., that biology is destiny on the one hand or that this thread of scientific discourse has a strong underlying conservative ideological agenda). Indeed, Filipino social scientists should be mindful that totalizing theoretical positions regarding both nature and nurture have been used to justify genocide (i.e., by Hitler, Lenin, Stalin, Mao, Pol Pot). Filipino social scientists should be careful about ignoring the ethical implications of any form of scholarly discourse. Pinker (2002), noted that all core assumptions of the standard social science models carry their respective moral burdens in the same token that application of biological and evolutionary theories also entails ethical dilemmas. Thus, we should warn against unnecessarily privileging either biology or social and cultural life in our attempts to appropriate these threads of scientific and scholarly discourse in understanding and transforming the personal, social, and cultural experiences of Filipinos.

In this regard, it might be important for Filipino social scientists to clarify their own conceptions about the role of biology or the biological nature of humans in their own theorizing. Is biology our destiny? Or does biology define the limits of human and social achievement? In our second roundtable discussion on this topic, National Scientist Gelia Castillo lamented the recent trend to use the expression, "*Pasensiya na, tao lang*" apparently as a flippant excuse for various forms of shortcomings. A social psychologist colleague reminded me that a more benign version of the expression is found in the old romantic ballad, "*Sapagkat kami ay tao lamang*" where again human nature is used as the defense for inappropriate intimate relations. It seems that in popular social discourse, there is the implicit notion that human nature is flawed and that this flawed nature may be used to justify mistakes, poor performance, even misdemeanors and transgressions. But Academician Lourdes Cruz reminded us that for the biochemist, genes define the human potential that can be fully realized in appropriate environments. Thus, the biological nature of humans is a definition of possibility, potentiality, and workability. This view resonates with the Confucian tenet on the perfectibility of all human beings, which underlies the moral notions of self-cultivation and self-improvement in Chinese or Confucian-heritage cultures.

I use these examples to illustrate how some fundamental ideas about the theoretical, social, and practical nature of human nature can have some influence on how Filipino social scientists might want to engage and appropriate biological theories, principles and concepts in social science theory and practice.

But we can raise another concern about how to go about engaging the biological dimensions of behavior and social life in Philippine social science. In our first roundtable discussion, psychologist Emy Liwag raised concern about the prospect that Filipino social scientists will just read and talk about evolutionary, biological and genetic theories of behavior and social phenomenon instead of actually doing research and theorizing about the same. She noted that there are very rare opportunities for Filipino social scientists to engage natural scientists in theoretical and scholarly discussions, much less engage in multidisciplinary research of the same level of sophistication as exemplified in the recent scholarship we have been referring to. Perhaps a greater source of concern should be the research environment within which Filipino social scientist undertake their scholarship. Most Philippine universities do not have substantial financial resources for research that would allow social scientists to undertake long-term research programs that would permit more sophisticated theorizing. Instead, university-based social scientists have to contend with short-term research grants that only allow for diminutive theoretical advancements. Alternatively, they can undertake research projects funded by national and international development agencies but doing so would require adopting the agencies' theoretical and ideological positions in the research approach. Social scientists in the Philippines will need to demonstrate extraordinary levels of creativity to thrive in these less than ideal research environments.

Conclusion

Perhaps the strongest motivation for Filipino social scientists is the desire to see change in a social order that is perceived to be unjust and backward. The work of social change or societal transformation inevitably presupposes certain theoretical propositions regarding human nature and the constitution of social life. There is a growing body of evidence pointing to neurobiological constraints and affordances to behavior and social phenomena, and some related ideas and evidence may undermine certain core assumptions of traditional models in the social and behavioral sciences. Filipino social scientists do not necessarily have to incorporate these neurobiological and evolutionary discourses in their scholarship and practice. Filipino social science can continue to make contributions to human knowledge and Philippine society by drawing from the standard constructs and methods of the traditional social sciences. But there is probably a need for a sector of the Filipino social science community to reexamine these standard social science assumptions in light of these evidences. Doing so would require engaging a strange discourse, but it could point to more fruitful line of theorizing about social and behavioral phenomenon, and might even lead to more realistic interventions for social and behavioral change. Indeed, the most exciting prospects for change would take full recognition of the biological constraints in behavior and the interventions are designed to help transcend, rise above, and even thrive amidst these constraints.

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