

# The Human Behavioral Ecology of Contemporary World Issues

## Applications to Public Policy and International Development

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**Abstract** Human behavioral ecology (HBE) began as an attempt to explain human economic, reproductive, and social behavior using neodarwinian theory in concert with theory from ecology and economics, and ethnographic methods. HBE has addressed subsistence decision-making, cooperation, life history trade-offs, parental investment, mate choice, and marriage strategies among hunter-gatherers, herders, peasants, and wage earners in rural and urban settings throughout the world. Despite our rich insights into human behavior, HBE has very rarely been used as a tool to help the people with whom we work. This article introduces a special issue of *Human Nature* which explores the application of HBE to significant world issues through the design and critique of public policy and international development projects. The articles by Tucker, Shenk, Leonetti et al., and Neil were presented at the 104th annual meeting of the American Anthropological Association (AAA) in Washington, D.C., in December 2005, in the first organized session of the nascent Evolutionary Anthropology Section (EAS). We conclude this introduction by summarizing some theoretical challenges to applying HBE, and ways in which evolutionary anthropologists can contribute to solving tough world issues.

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Among the traditional missions of anthropology is to explain the behavior of unfamiliar peoples to Western audiences that might otherwise prejudicially classify them as primitive, backwards, or exotic. Despite recent divisions within our

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discipline, since the mid-twentieth century anthropologists have been united in our opposition to the discourse of social progress by which most of the world (mis)understanding human biological and cultural diversity. In 1859 Charles Darwin provided one of the most sophisticated alternatives to the discourse on progress in his classic argument that diversity and change result from variation, inheritance, and adaptation to specific environments (Darwin 1985). In the past 50 years ecological and evolutionary anthropologists have made great strides towards understanding how environments (natural and social), legacies of past selection, and current reproductive and survival goals affect biological and behavioral phenotypes and human lived experiences.

Human behavioral ecology (HBE) began as an attempt to explain human economic, reproductive, and social behavior using neo-Darwinian theory in concert with theory from ecology and economics, and ethnographic methods (Smith and Winterhalder 1992). Unlike other evolutionary approaches to behavior, such as evolutionary psychology, HBE assumes that the behavioral phenotype is highly plastic, resulting from a generalized perceptive and cognitive capacity that has been honed by natural selection. HBE has addressed subsistence decision-making, cooperation, life history trade-offs, parental investment, mate choice, and marriage strategies among hunter-gatherers, herders, peasants, and wage earners in rural and urban settings throughout the world (Winterhalder and Smith 2000). Despite our rich insights into human behavior among many misunderstood and disempowered peoples, HBE has very rarely been used as a tool to help the people with whom we work.

National governments and non-governmental organizations implement policies and projects with beneficial intentions to mitigate environmental destruction, control population increase, improve public health and social welfare, and reduce social ills, such as poverty, crime, domestic violence, and discrimination. Such policies and programs seek to change the behavior of a target population through various incentives and sanctions, based on assumptions about that target population's behavior. Initiatives seek either to prevent a particular behavior or to protect or treat a target group of people from perceived social ills. Because human behavior is the focus, effective policy needs effective behavioral theory. When projects are incommensurate with people's values, preferences, and constraints, grave damage may be done to people's lives and livelihoods, and projects fail as people refuse to participate.

This special volume of *Human Nature* explores the application of HBE to significant world issues through the design and critique of public policy and international development projects. The articles in this volume were presented at the 104th annual meeting of the American Anthropological Association (AAA) in Washington, DC, in December 2005, in the first organized session of the nascent Evolutionary Anthropology Section (EAS). *Human Nature* has agreed to devote one special guest-edited issue each year to an EAS session from the preceding AAA meeting. This is the first such issue.

The idea for this volume was generated a few years earlier during a dinner discussion at a professional meeting. The meeting was a one-of-a-kind event held in Orono, Maine, in May 2003, co-organized by Doug Bird and Rebecca Bliege Bird along with one of us (Tucker), the goal of which was to enable the junior echelon of

human behavioral ecologists to share their recent work and discuss the future of our approach. We felt strongly that in this future, theory-building is commensurate with application to world issues. To Tucker, who was investigating subsistence strategies among Mikea of southwestern Madagascar, the significance of their low frequency of food sharing (Tucker 2004) and children's unusually high foraging returns (Tucker and Young 2005) seemed vastly overshadowed by the fact that conservation organizations planned to outlaw key food production activities and potentially displace communities to establish a national park. Rende Taylor, who was investigating household decisions in rural Thailand, expressed frustration that policymakers stereotype child prostitution as an outgrowth of poverty and coercion, whereas her data demonstrate that immigrant sex work is a high-paying, high-prestige, albeit high-risk option for middleborn, well-educated daughters that optimizes a matrilineal family's investment of human capital (Rende Taylor 2005). Because human trafficking puts girls in physical danger and increases the spread of HIV and other sexually transmitted diseases, policies to halt human trafficking must understand why individuals choose to practice or tolerate this activity. We considered these situations to constitute significant world issues in need of better data and theory, and simultaneously, fascinating research topics for advancing behavioral theory. A similar discussion has occurred within biocultural human biology (Goodman and Leatherman 1998), but it has not spread to HBE.

The state of our art is not yet sufficient to provide a how-to guide for applying behavioral ecology to world issues. We endeavor simply to offer some starting points, with the hope of inspiring other evolutionary anthropologists to consider in greater depth the applied significance of their work.

Tucker explores how the new Mikea Forest National Park in southwestern Madagascar will affect the livelihood strategies of rural households. Conservation plans began with the elimination of slash-and-burn maize horticulture and the encouragement to plant manioc instead. Park planners implicitly assumed that Mikea value these activities according to their yield per unit land. Tucker uses observational data informed by optimal foraging theory and experimental time preference and covariation perception data to argue that Mikea value maize and manioc quite differently owing to dissimilar labor requirements, delay-to-reward, and perceived covariation with rainfall. Tucker also examines the value of foraging and fishing activities, and argues that future attempts to modify Mikea livelihoods should take into consideration the value to the entire portfolio.

Neill examines the trade-offs that mothers in urban Fiji face between meeting their children's daily nutritional needs and long-term investments in skills-based learning. Urban Indo-Fijian mothers with high education and wage incomes seek to bequeath this human capital to their children to increase offspring quality (survivorship and future reproductive opportunities), but this leaves little time to shop for and prepare nutritious foods. Results indicate that comparatively wealthy households rely more heavily on highly processed convenience foods instead, contributing to higher BMI among children. Highly skilled urban mothers seem able to manage food choice trade-offs through affording more costly convenience foods. Continued urbanization and wage devaluation may lead to increasing overweight as more women who may not have adequate wage income to effectively manage food choice trade-offs participate in wage labor. Neill concludes that changes to labor

policy such as a minimum wage and a limited work-week, and changes in food policy encouraging greater access to low-cost fresh foods, could ease parents' constraints and reduce the emerging health problems of overnutrition.

Leonetti, Nath, and Hemam examine family planning decisions among Khasi and Bengali in Northeast India to explore the conditions under which individuals voluntarily reduce fertility through contraceptive use. Embodied capital theory (Kaplan 1996) predicts that people should limit their reproduction so as to invest in offspring quality in environments where skills-based training has the greatest payoffs. Results indicate that both Khasi and Bengali parents use family planning when investing in children's education. Khasi, however, also use family planning when investing in children's health and strength without associated education, consistent with their greater focus on labor-intensive rice agriculture. For Bengali in the study, who are all *dalits* (former untouchables), family planning is also associated with decreased investment strategies. For Bengali, it appears risky to invest concentrated embodied capital in a small number of children who face a political economy that affords them few opportunities. Thus investment is spread thinly for most children, with a very few chosen children receiving more, even within the same family. This study demonstrates how social inequality and subsistence economy can influence reproductive strategies.

Shenk examines dowry in South India. Policymakers have outlawed offering and accepting dowry based on the belief that it contributes to neglect of daughters, sex-selective abortion, female infanticide, and spousal abuse. Shenk considers explanations for why the majority of families choose to practice dowry anyway. Results indicate that the size of the dowry the bride's family pays to the groom's family correlates positively with income and education of both the groom and the children born from their union even when characteristics of the bride, her parents, and her in-laws are controlled. Thus dowry can serve beneficial functions for women: it can help them attract better-educated and richer husbands, improve the chances of poorer women marrying wealthier men, and serve as a form of inheritance from parents to daughters that is invested in grandchildren. Shenk argues that banning dowry might in some cases harm the interests of women and suggests that policymakers legalize dowry, encourage dowry payments that cannot be easily alienated from women and their children, and target initiatives specifically at reducing gender discrimination against daughters and violence against women, which have many causes other than dowry.

We conclude here by summarizing some theoretical challenges to applying HBE, and ways in which evolutionary anthropologists can contribute to solving tough world issues.

## **Theoretical Challenges to Applying HBE**

### Address Culture, Sociality, and History

A common critique of evolutionary anthropology has long been that we downplay the significance of culture, sociality, and history in favor of biology and fitness (Sahlins 1976). Because culture, sociality, and history are powerful explanations for

behavioral diversity, policy recommendations based on adaptation alone may be overly simplistic.

In the past decade evolutionary anthropologists have increasingly explored culture, sociality, and history, using concepts such as cultural inheritance (Boyd and Richerson 1985), social learning (Henrich and McElreath 2003), social norms and preferences (Camerer and Fehr 2004), signaling and symbolic capital (Bliege Bird and Smith 2005), psychosocial stress (Pike and Patil 2006), and cultural consonance (Dressler and Bindon 2000). Evolutionary anthropology must continue this exploration if it is to properly elaborate simple adaptationist models.

### Address Issues of Social Inequality

Evolutionary anthropologists often research socially unequal phenomena such as prestige (Bliege Bird and Smith 2005), wealth inheritance (Mace 1998), and fairness (Henrich et al. 2004), yet HBE has not benefited from the political economy debate that has occurred in biocultural human biology and medical anthropology (Goodman and Leatherman 1998; Krieger 1999; Singer 1996; Wiley 1992). HBE is in a position both to explore the behavioral effects of inequality and to generate explanations for how inequality develops. For example, the theory of embodied capital could be applied to understanding unequal intergenerational accumulations of human capital. If parents with high embodied capital beget children with high embodied capital, those with little embodied capital will have children of less “quality” until, over generations, inequality itself becomes “embodied,” in the terms of Krieger (1999).

### Avoid Committing the Naturalistic Fallacy

Moore (1903) coined the term “naturalistic fallacy” to refer to the erroneous belief that natural processes or tendencies are morally correct. As HBE seeks explanations for behaviors of social importance, we must avoid concluding that “adaptive” behaviors are necessarily socially beneficial to society. In this introduction we have explained why some Thai girls become commercial sex workers, why some rural Malagasy chop and burn their forests, and how unequal inheritance of embodied capital could lead to social inequality. We are by no means endorsing child prostitution, deforestation, and class differentiation! Understanding why a behavior occurs is different from condoning this behavior. Racism, colonialism, eugenics, and genocide have all been justified by evolutionary theory abused in this way. This discussion has occurred in evolutionary psychology (Wilson et al. 2003), although it is largely absent in the HBE literature.

### Recognize the Limitations of Functionalist Arguments

Another frequent critique of evolutionary anthropology is that our theories constitute “just-so stories” that, although consistent with available evidence and Darwinian logic, cannot be tested against the alternative that the beneficial function is unrelated to the behavior’s origin or continuity through time (Elster 1983; Gould and Lewontin 1978). The danger of functionalist arguments in policy and project

planning is that a behavior may have consequences beyond its argued beneficial function, and a behavior's functional benefits may change over time. Shenk deals appropriately with this issue here, in her argument that dowry functions as a form of premortem inheritance. Shenk acknowledges that this does not explain the origin of dowry or even the forms it takes in other parts of India. She recommends that the positive function be maintained (children's trust funds) while policies should specifically target gender discrimination. Functionalist arguments should be reinforced with causal arguments whenever possible (Smith and Winterhalder 1992, pp. 42–43).

## Ways for Evolutionary Anthropologists to Get Involved

### Selection of Research Topic and Region

Evolutionary anthropologists have the opportunity to select topics and fieldsites that satisfy their criteria for theory building while simultaneously addressing significant social and political issues. Behavioral ecologists interested in rural subsistence decision-making and cooperation may contribute to the conservation and economic development programs that touch the majority of foragers, post-foragers, horticulturalists, and herders. In rural and urban settings, studies of parental investment theory, mate choice, and risk-taking may inform social welfare programs. In regions facing immigration and rapid social change, cultural inheritance theory could be significant for understanding changing norms and values. Since HBE often deals with economic questions, much of our research could be applied to poverty and inequality.

### Funding

Academic research can be funded by international development organizations as “baseline research,” “action research,” or “situation assessments.” Academic researchers rarely look beyond scholarly funding sources, but development agencies often seek to contract with academicians who can provide high-quality, theoretically-informed research. In such cases the development agency may finance parts or all of a research project or may compensate for the anthropologist's labor, travel, living fees, publication, printing, and dissemination costs. Such arrangements may grow into sustainable partnerships between scholars, academic departments, and international organizations for their mutual benefit.

### In-Country Advocacy and Dissemination

Once a research program is launched, there are clear opportunities to influence policy and programs at little cost. Communicate your observations and preliminary conclusions to local government officials and development workers. When passing through the capital, provide a briefing with recommendations to the national offices of multilateral development organizations, such as relevant United Nations and

World Bank units; to bilateral aid organizations, such as USAID, AusAID, or NorAid; to international NGOs; or to your embassy's labor, human rights, economic, or culture attaché. Provide them with a PowerPoint presentation or short briefing paper in jargon-free prose in electronic format so they can disseminate your findings and recommendations further.

## Publications

Regular academic publications do find their way into the hands of policy and development decision-makers (and you can facilitate this process), and contrary to popular belief, these decision-makers are often social science PhDs. However, a 30-page academic paper is more likely to have an effective impact if it includes a section implicitly dedicated to program recommendations. Such an effort will take little additional time on the part of the author, but it could make a substantial contribution to the development sector. Peer-reviewers sometimes suggest that these sections be cut for length. When peer-reviewing manuscripts, keep in mind that academics are not the only audience for our work.

Most academic researchers focus their publication efforts on peer-reviewed journals, consistent with promotion and tenure expectations, but anthropologists are encouraged to try their hand at writing for the public press as well, such as opinion pieces in national and international newspapers. The challenge of presenting a compelling social issue and recommendations in 600–1,000 words requires a different style of writing, but the results are more accessible to a general audience, more easily disseminated, more likely to influence public opinion, and more likely to attract the attention of non-academics.

## Career

Satisfying careers for the theoretically minded evolutionary anthropologist do exist outside of academia in the political or development sphere. The American Association for the Advancement of Science (AAAS) sponsors programs to transition young PhDs and mid-career professionals directly into the policy-making world, on Capitol Hill and in the State Department, USAID, the National Science Foundation, and other executive branch agencies. For those interested in international development, jobs within the United Nations agencies and international NGOs offer the opportunity to conduct fieldwork, travel, publish, and directly oversee or influence policy and foreign aid that affects the lives of many.

The divide between “academic” and “applied” is softening significantly, with an increasing number of academics learning how to contribute to the fast-paced development and policy-making world, and many applied anthropologists learning how to use the autonomy, flexibility, and benefits of their jobs to continue conducting research, publishing in academic journals, attending academic conferences, and training graduate students. The coming years may see a reduction in the obstacles facing revolutionary evolutionary anthropologists who wish to cross back and forth between the academic and applied worlds through the course of their careers.

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