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Evolution and Human Nature: Comparing Honors and Traditional Pedagogies for the New Science of the Mind

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A class on evolutionary psychology can take many forms but always involves an interdisciplinary approach because of the subject matter and topics covered. In this paper, we describe and compare three different pedagogical techniques we have used to teach the topic of evolutionary psychology; two are honors seminars and one a traditional lecture-style course.

Very roughly, evolutionary psychology is the study of the human mind as a product of evolutionary forces. Proponents argue that our understanding of the human mind should be guided by the very same biological consideration that guides our understanding of human physiology, namely, that a great many of our extant traits are in fact *solutions* to recurrent adaptive problems that confronted our hominid ancestors tens of thousands of years ago (see Buss, 2005; 2007). “Our modern skulls,” as Cosmides and Tooby (1997) note, “house a stone-age mind.”

INTERDISCIPLINARY HONORS SEMINAR

In spring 2007, one of us (KEB) offered a new honors seminar entitled “Evolutionary Psychology/Sociobiology” as a prelude for the upcoming 2009 campus-wide Evolution Learning Community <<http://library.uncw.edu/web/outreach/evolution/index.html>>. In addition, Edward O. Wilson had been invited to campus that spring as a speaker. The combination of these two campus-wide events provided an opportune time to offer the seminar. All honors seminars are limited to twenty students, and this one enrolled nineteen in majors that included psychology, biology, finance, chemistry, film studies, and education. The class was one of several that could fulfill an honors requirement for an interdisciplinary seminar. Students ranged from freshmen to senior-level.

EVOLUTION AND HUMAN NATURE

The required text for the class was *On Human Nature* by E. O. Wilson (1978/2004). Other readings included a chapter from Buss's (2005) *Evolutionary Psychology* and several review articles from the Sigma Xi's publication *American Scientist*. The first half of the class introduced background topics in ethology, genetics, psychology, and evolutionary biology and on reading *On Human Nature* together. The second half of the course included class presentations and discussion of topics from the *American Scientist* articles and from students' individual research. All students led class discussions, both as a team (*American Scientist* articles) and solo, describing at least one current empirical study from primary-source journals in the field of evolutionary psychology and facilitating class discussion of the reading.

Students reacted to readings in "Daily Paragraphs," which emphasized critical reaction to specific points in the reading for the day. For many students these paragraphs were a chance to develop perspectives far afield of their chosen majors. Even for biology and psychology majors, the assignment required that they think outside their own disciplines. Tests, one of which was take-home, were in an essay format. The final was in-class, but students were given test questions to review before the exam date so they could develop their answers. On one exam, students evaluated a recent empirical study in the field, and on both exams they analyzed why certain Gary Larson cartoons would be funny to an evolutionary psychologist.

LEARNING OBJECTIVES

Class objectives were both topical and skill-related, and they included the following: mastery of basic topics and definitions related to evolutionary psychology; appreciation of studying the same topic from different perspectives; practice with critical evaluation of scientific articles; effective presentation of topics to peers and facilitation of discussion of readings; effective short written reactions that included analyzing readings rather than just summarizing them. These objectives are common for honors-level classes (West, 2000) and emphasize student engagement with the material. Student comments, as well as grading by the instructor, indicated that the majority of students in the seminar met these objectives.

COURSE EVALUATIONS

Instead of using standardized rating scales, the course evaluations in the UNCW honors program use an open-ended format for students to give feedback to the instructor. In general, students' comments about the seminar were positive. The majority of students felt that the class met their expectations of an honors interdisciplinary seminar and that they would recommend the class to others. Two students felt that the workload and writing were excessive, so

they would not recommend the class. One student noted that s/he felt at a disadvantage not being a science major, and two felt that a textbook should be required. However, all students noted that the class made them think in new ways and consider behavior from multiple points of view; some commented that the assignments helped them develop skills important for critical evaluation, especially related to reading primary source material.

OUT-OF-CLASS OPPORTUNITIES

An important component for the class was the campus lecture by Wilson in March 2007. A couple of the students participated in the campus-wide group that was reading *The Creation*, a more recent book by Wilson (2006), to prepare for his lecture, which focused on the need for conservation. Students were invited to an informal Q-and-A session with faculty and students from across the campus before the lecture. They attended the lecture, and several attended a meal with Wilson after the lecture. Meeting the author of one of their books was an important experience for them, and they all appreciated that he is a founder of the field of evolutionary psychology.

TRIAL SOPHOMORE-LEVEL CLASS IN PSYCHOLOGY

To support the campus-wide Evolution Learning Community that spanned 2007–2009, faculty were encouraged to develop new classes on topics related to evolution. Because of the success of the honors interdisciplinary seminar in spring 2007, one of us (KEB) proposed a trial class in psychology entitled “Evolutionary Psychology,” the purpose of which was to offer a traditional, primarily lecture-oriented overview of evolutionary psychology using the textbook *Evolutionary Psychology* by David Buss (2007), a leader in the field. The class enrolled thirty-three students, mostly junior and senior psychology majors or minors. While each student was required to complete two written critiques of empirical research on evolutionary psychology from primary-source journals, the class emphasized in-class lecture, with frequent small group interactions to facilitate discussion of controversial topics. We also read and critiqued together two primary-source articles. The three required in-class tests mostly used objective questions with some short-answer comparisons of terms.

LEARNING OBJECTIVES

The learning objectives in this class were similar in some ways to the seminar described above but did not stress critical analysis, discussion facilitation, and effective writing skills to the same degree as the seminar.

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Students were expected to master basic topics underpinning the study of evolutionary psychology and to develop an appreciation for the variety of topics studied in evolutionary psychology. They were also expected to apply what they learned about hypothesis testing and methodology in evolutionary psychology to their own evaluation of current published research in the field.

COURSE EVALUATIONS

Evaluation of these objectives was based primarily on student performance on tests, papers, and in-class participation and discussion. Student comments on the university-required Student Perceptions of Teaching instrument were mostly positive and were based on Likert-scale responses (strongly agree to strongly disagree) to a set of feedback items. Student perceptions were that the course matter was “interesting” and that the instructor was “enthusiastic” and concerned with their learning. Most felt that the concepts and objectives were clear; some suggested a different organization of topics for the syllabus although few students wrote open-ended comments.

OUT-OF-CLASS OPPORTUNITIES

An important feature of this class was the incorporation into the syllabus of a campus visit by Richard Leakey. We used the text discussion of the evolution of hominids to highlight the work of Leakey, and all students were asked to find “fun facts” about Leakey before his talk and to present them to the class. One student joined a campus reading group to prepare for Leakey’s visit by reading his work. Most class members attended Leakey’s campus-wide, sell-out lecture. I also incorporated a campus lecture on the life of Darwin by noted Darwin scholar Niles Eldredge as an optional activity in the class. Further, because David Buss was invited to the campus a few months after the class ended, students were advised about the opportunity to hear him lecture.

TEAM-TAUGHT HONORS INTERDISCIPLINARY SEMINAR

The two classes described above were taught by one professor of psychology who has graduate training in animal behavior, ethology, psychology, and sociobiology. Even with this multidisciplinary perspective, some areas of evolutionary psychology are beyond the instructor’s expertise, and thus in-depth discussion of some topics was limited. By its nature, evolutionary psychology is a complex and controversial field that encompasses many disciplines. The third approach to teaching the subject—a team-taught honors seminar—brought together scholars from biology, psychology, and philosophy,

thus exposing students to the complexity of the emerging field of evolutionary psychology. The need for collaborative teaching was driven by two forces.

First, evolutionary psychology is a synthesis of diverse research. It synthesizes, for example, core assumptions in evolutionary biology (including neurobiology and biological anthropology) and traditional cognitive psychology while drawing heavily from paleontology, cultural anthropology, and economics (viz., Game Theory). At the same time, the field makes critical philosophical assumptions about the standards of explanation and, more importantly, of theory confirmation. Moreover, little attention has been paid to the *implications* of evolutionary psychology. *If* evolutionary psychology truly explains much of human psychology, it raises a host of difficult philosophical questions: If my behavior is ultimately (and largely) the result of genes selected for thousands of years ago, to what extent do I act *freely*? To what extent can I be morally responsible for my actions? Is it unrealistic to expect humans to be anything other than selfish? Is a realm of moral facts necessary to explain our tendency to think in moral terms if we need only appeal to the biological advantages of cooperation? Hence, a thorough and critical study of evolutionary psychology requires the collaboration of biologists, psychologists, and philosophers.

A second force driving a collaborative approach is the benefit to both student and teacher. For example, faculty at Brigham Young University participating in team-teaching formats found that “the synergy of the collaboration promotes increased teacher effectiveness and enhanced student learning,” since, according to one professor, “when it is possible to have faculty members interacting with each other in the classroom, the conversation is enhanced by their expertise and perspectives; and, as a result, faculty learn and are reinvigorated as learners and teachers by interacting with each other and with students” (Conderman & McCarty, 2003). And, as noted by Conderman and McCarty, faculty excitement inevitably radiates to students: “Overwhelmingly the students perceived the benefits of the way the course was taught. They recognized that we care a lot about teaching and learning and that we are genuinely interested in students and their learning.”

What distinguishes this pedagogical approach from other approaches is just this reliance on interdisciplinary expertise, an important principle in honors pedagogy. The full scope of evolutionary psychology cannot be gleaned from, say, evolutionary biology alone for the simple reason that evolutionary biologists may not be aware of the established theoretical commitments of cognitive psychologists—*mutatis mutandis* for psychologists, anthropologists, and so on. Without the nuanced input of these specialists, students risk missing a range of relevant details—details necessary in order to evaluate critically the explanatory success of evolutionary psychology.

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The team-taught honors seminar enrolled seventeen students in majors that included psychology, biology, management, chemistry, English, political science, communication studies, and education. Again, it was one of several courses that could fulfill the honors requirement for an interdisciplinary seminar. Students ranged from freshmen to seniors. In all, six faculty members were involved with the class—two in philosophy, three in psychology, and one in biology. The two key teachers for the entire semester were professors in philosophy and psychology, and these two faculty members attended all classes. The other four faculty members were responsible for two lectures each and assigned readings for the material they covered. While these professors were invited to attend all class meetings, demands of the semester were such that they attended at most one or two other class meetings. All readings were in a course packet, either electronic or hard copy, and no specific textbook was assigned. Classes were a combination of lecture and discussion, and students were encouraged to participate actively in the discussion each day.

LEARNING OBJECTIVES

The aim of the honors team-taught seminar, stated broadly, was to introduce students to the emerging field of evolutionary psychology and to explore the implications for moral theory. Not only would students study the theory itself, they would also explore the hypotheses it generates about human nature. Students would also evaluate criticisms of evolutionary psychology. Finally, students would explore hypotheses within the field of evolutionary psychology about the origin of the human moral sense and how they bear on the nature of right and wrong.

COURSE EVALUATIONS

Student feedback about the class was quite positive overall. Students felt that they learned a good deal about the complexity of evolutionary psychology and the evolution of morality in particular. They also appreciated the interdisciplinary nature of the seminar. A majority of students felt that the team-teaching approach was very effective and that the four additional guest lecturers added an important dimension to the class. However, three students commented that having a two-professor team-taught class was effective, but having six was too many. One student noted that “meeting the requirements of *one* professor is hard enough.”

OUT-OF-CLASS OPPORTUNITIES

To complement the material in the course, students were encouraged to participate in the campus-wide Evolution Learning Community events that

were in full swing during the semester. The highlight was the interdisciplinary “Darwin’s Legacy Conference” that featured student research presentations and four keynote speakers: David Buss, Peter Carruthers, Kevin Padian, and David Mindell (see the conference website at <http://library.uncw.edu/web/outreach/evolution/conference>). Most relevant to the honors class were the public lectures by Buss and Carruthers. To offer students a chance to meet these speakers, we invited them to a luncheon on the day of the lectures. In addition, one of the students was an active participant in the campus-wide reading group that discussed books by each of the speakers before they came to campus.

COMPARISONS

All three classes shared some features that enhanced presentation of the material. Students and faculty valued the interdisciplinary nature of the topic. Students commented on the positive experience of learning “outside the box” and thinking from multiple angles about a subject unfamiliar to them. Faculty in the team-taught seminar commented on how much they learned from each other.

However, as expected, it was clear that the honors seminars afforded the opportunity to delve much more deeply into the subject matter than the traditionally-formatted class. The traditional class offered a survey of the topics in evolutionary psychology while the seminars stressed more criticism of the field and presentations of current research. Also, while students in the traditional class used a current textbook, the students in the seminar read a collection of essays, publications, and text chapters, thus experiencing many different authors and viewpoints. Further, in one of the seminars, students were able to read and discuss the Pulitzer Prize-winning book *On Human Nature* and meet the author. Finally, the team of instructors, possible only in the honors seminar format and not the traditional class, added a special learning dimension.

CONCLUSIONS

Interdisciplinary courses are not uncommon in interdisciplinary curricula; many honors seminars are interdisciplinary and, when possible, team-taught. A course like evolutionary psychology, which relies on details from multiple disciplines, especially benefits from team-teaching and high-level discussion of the type that can be offered in smaller honors seminars. While both single-instructor and team-taught models are effective approaches to this interdisciplinary topic, team-teaching—if affordable—is a preferable approach for several reasons.

First, in the field of evolutionary psychology the risk is high of misrepresenting or misunderstanding details outside one's area of expertise. It is unlikely that a professor can be familiar with the fundamentals and recent developments in evolutionary biology, cognitive psychology, cognitive ethology, biological anthropology, philosophical psychology, psycholinguistics, and moral philosophy, to name just a few relevant fields. Without this familiarity, students receive a distorted portrait of what evolutionary psychology comprises. A seminar format with multiple instructors reduces this distortion.

Second, evolutionary psychology sometimes takes radical stands on controversial subjects. One example that we discussed in the team-taught honors interdisciplinary seminar was the claim that rape is a conditional mating strategy among most male humans (see Thornhill, n.d.). When passions are raised on such subjects, so are the chances that the view will be misunderstood (see discussion in DeWaal, 2002; Estep & Bruce, 1981); misunderstandings can be dangerous when the subjects are as inflammatory as rape or jealousy or murder. Evolutionary psychology may well prove to be mistaken, but it should not be dismissed out of hand for reasons that have nothing to do with what the view claims (cf. Geher, 2006). Students in the seminar read and discussed each of these references as we presented this point. In a team-taught seminar, instructors are able to present, explain, and, if needed, defuse emotional reactions to the arguments; they also provide checks and balances for each other.

Team-teaching has a third virtue of increasing the odds that different learning styles will be accommodated (see discussion related to differing learning styles among honors students in Rinn, 2008). Different faculty members inevitably present their research in the style they find most comfortable, and teaching styles are not identical. Student evaluations of the course reflect an appreciation of this phenomenon. Approaches to the material stay fresh and somewhat unpredictable. Of course, not all students appreciate unpredictability. Team-teaching carries the risk of complicating student expectations, putting an extra burden on teachers to coordinate their expectations for students. They might need, for instance, to standardize assessments and homework assignments or to designate one faculty member to grade all the assignments. Given the benefits of team-teaching, however, these extra burdens seem well worth bearing.

Perhaps the major challenges to team-teaching are the administrative costs and concerns. For example, if two faculty members teach a course and both are compensated, the increased cost must be both available and justified. Our campus policies do allow both faculty members to be fully compensated. However, in the team-taught interdisciplinary seminar described above, we had the advantage that the second full-time faculty member was the

honors director, who elected to teach the class as an unpaid overload. The other full-time faculty member taught the honors seminar as part of his expected departmental teaching load and had additionally been awarded a small, competitive, university-wide teaching stipend for the summer to develop the multi-instructor component of the class. The four faculty members who taught for two lectures each received a pizza lunch and a complimentary book. In most cases, team-teaching is an expensive and challenging administrative concern. For example, current budget reductions at our university may make our policy more difficult, and the same is probably true for honors program at other institutions. A different model is to have the team members split one stipend; this model, however, undervalues the full level of commitment required for team-teaching. Another possibility is working with department chairs to “bank” teaching overloads or to offer other types of workload compensation (e.g., decreased advising or committee service).

Despite the challenges, interdisciplinary and team-taught approaches to evolutionary psychology can and do exist on college campuses. One example is the ambitious model at SUNY-Binghamton (see Wilson, 2007; EvoS, n.d.), where the teaching and discussion of evolution are incorporated across the campus in many different disciplines at once in a unified university curriculum. Since that level of ambition is not practicable at all institutions, we hope that the team-taught, interdisciplinary honors seminar that we have described here, including its benefits over two more standard courses, might provide an example of how to create communication across the disciplines on a complex topic such as evolutionary psychology.

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CLASS WEBSITES

- Honors Interdisciplinary Seminar—Evolutionary Psychology/Sociobiology: <<http://people.uncw.edu/bruce/hon%20210/hon%20210%20index.htm>>.
- Regular Lecture Class—Evolutionary Psychology: <<http://people.uncw.edu/bruce/psy%20292/292syllabus.htm>>.
- Honors Team Taught Interdisciplinary Seminar—Mind, Morals and Evolution: <<http://people.uncw.edu/bruce/hon%20210/mme.htm>>.

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