

This paper was selected for publication in the AAA's *Anthropology News* as part of the "Rethinking Race and Human Variation" special editions of February and March 2006. The special editions were sponsored by the *Understanding Race and Human Variation* project and funded by the Ford Foundation. The *Understanding Race and Human Variation* project is a multi-year public education effort funded by the National Science Foundation and the Ford Foundation. This paper represents the views of the author and not that of the AAA or the *Understanding Race and Human Variation* project.

## **CHANGING STUDENTS' UNDERSTANDING OF RACE**

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### **Introduction**

Racism takes many forms in American society today, not the least of which are racial profiling of African American males as potential criminals and associating Middle Easterners with terrorism. Physical characteristics define distinct racial boundaries for most people in the US although biological science does not support dividing the human species into different races.

A college course dealing with this subject is particularly appropriate in an urban setting such as St Louis since the city has been designated as one of the most highly segregated locations in the US. None of the seven community colleges or eight large universities in the metropolitan St Louis area regularly offered a course in human diversity prior to 2002. As biological anthropologists, we thought it important to develop and institute a curriculum on the biology of human variation.

In the 2002 academic year we launched a team-taught seminar entitled "Human Diversity and Concepts of Race" for honors college students at the University of Missouri–St Louis. The student demand for a seat in this course was overwhelming; a seminar that is usually limited to 15 students was expanded to accommodate 36. Subsequently, we have offered the class at least once per year in both the honors college and department of anthropology. A total of 133 students have now completed the course.

## **Learning Through Inquiry**

We developed the class around an inquiry-based learning model because we believed it would advance understanding of complex issues pertaining to human diversity. Shymansky and colleagues in the early 1980s and Von Secker and Lissitz in 1999 found that inquiry-based learning fostered student achievement and active learning in the sciences. The positive effects of this learning model were enhanced through hands-on involvement in scientific investigations by small groups of students, along with student discussions about their own findings. The caveats associated with building a course around an inquiry-based learning model, however, include heavy investment of time and energy to achieve successful learning results; in addition faculty using inquiry-based learning strategies must have solid knowledge of the content they are presenting.

By using hands-on laboratory experiences to teach about human diversity (rather than studying only social or political constructs) students were able to discover for themselves the lack of biological support for human racial categorization. Labs traced physical evolution in fossil human ancestors, examined Mendelian genetics, took skull and post-cranial measurements, evaluated ethnic markers as a way to identify human skeletal remains, mapped blood types and human populations, investigated relationships between skin color and environmental adaptations, and identified pseudoscience about race on the internet.

Groups of three or four students were also required to conduct research on a topic related to racial perceptions. Each group was responsible for designing their own project, including their research question or hypothesis, as well as identifying a study population, constructing an assessment tool (such as a questionnaire), collecting and analyzing their data, and formulating summaries and conclusions. Projects were presented to the class and faculty as PowerPoint presentations. Among other topics, student researchers have looked at how mixed heritage individuals create uniquely personal "racial" identities, how people match physical characteristics to perceptions of professional achievement and potential academic success, how males and females categorize people in dissimilar ways and how international students perceive diversity differently than American students.

## **Seeing Perceptions Change**

In initial class meetings students were assessed with questionnaires to determine their thoughts about human variation. In particular we wanted to see if their perceptions were representative of historical "race thinking," or the folk knowledge that says humans form concrete biological entities representative of races, that physical characteristics can be linked to behavior and IQ, and that so-

called racial characteristics like hair texture, skin color and nose shape are inherited as a unit.

To determine whether perceptions may have changed as a result of the content of our course, we conducted testing prior to the course and after its completion using t-tests, the traditional statistical method for answering such a question. Paired pre- and post-assessments of 20 true or false and multiple choice questions were available for 88 students from five different classes. We composed questions that would gauge biological knowledge about human variation gained during the course and scored the answers as correct or incorrect based on that perspective. Using a paired t-test to establish the magnitude of differences between pre- and post-test scores, we found a significant variance between the mean scores on the pre- and post-assessments, ( $p < 0.01$ ).

Four questions on the pre- and post-assessments that demonstrate shifting perceptions about the biological nature of human variation were tested individually using paired t-tests. A value of one designated an answer consistent with the course content; a value of zero designated an answer that was inconsistent.

True or false—“Genetic and physical characteristics can be used to divide the human population into different racial groups” (pre-test mean = 0.40, post-test mean = 0.95 showing significant change,  $p < 0.01$ ).

True or false—“Human races are real biological entities” (pre-test mean = 0.57, post-test mean = 0.93 showing significant change,  $p < 0.01$ ).

Multiple choice—“Race is a biological term that can be applied to a) humans, b) plants and animals, c) both a and b, d) none of the above” (pre-test mean = 0.10, post-test mean = 0.53 showing significant change,  $p < 0.01$ ).

Multiple choice—“Genetically, which set of characteristics is transmitted together? a) eye color, hair color, hair texture, b) skin color, nose shape, lip thickness, c) height, cranial capacity, body shape, d) none of the above” (pre-test mean = 0.08, post-test mean = 0.51 showing significant change,  $p < 0.01$ ).

### **Providing Data for Critical Thinking**

The study presented here underscores the need to inform students about the science surrounding human diversity—that internal and external physical differences are found along a continuum and that there is greater diversity within groups called races than between them.

Given the results of pre-assessment tests, we feel it is essential to offset stereotypical thinking about human physical variability. Students have remarked that they were not previously presented with content pertaining to the biological nature of human diversity, confirming our supposition that there has been an important omission in their educational experience. Now, having completed a science-based course on human diversity, students question the logic behind a constant barrage of media, government and institutional identification of people through racial terms. We are encouraged by the fact that students leave our course struggling with these issues.

Race as a social construct cannot be merged with scientific data about human variation. Our aim is to create awareness that these are two different factors, hoping that the science provides students with a means to objectively evaluate social, economic and political issues pertaining to human variation. This may be one of the most effective educational tools to combat racism.

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