Abstract
I served as a classroom instructor for a second eight-weeks class: A105 Human Origins and Prehistory. It was an introductory course, aimed at non-majors. The primary goal of the course was to teach students the foundational knowledge of early human evolution, as well as instill tools of critical analysis to challenge preconceived notions about human origins. Lectures were designed and geared around these course objectives. Surveys, classroom assessment techniques and Oncourse were tools utilized to facilitate these goals. Finally, I was fortunate enough to have two independent lines of feedback on the effectiveness of my teaching.

Introduction to Teaching Portfolio for A105: Human Origins and Prehistory

The class I served as instructor for was Human Origins and Prehistory. It is a foundational course which explores the fundamental question: what made us human? My role as an instructor was to facilitate students learning of the basics of anthropology and more specifically—the branch of anthropology that utilizes the scientific method to answer questions about what characteristics define human uniqueness within the context of evolutionary theory (see Figure 1 for more detail). As an introductory course, it was essential to assume that students had no previous knowledge of the material to be taught. In fact, an initial survey found that a majority of the class were non-majors. The class was comprised of mostly freshman and sophomores, yet a few seniors enlisted due to the need to satisfy their science credit to graduate. I followed a standard class format used in a previous A105 class for which I was an assistant instructor. This format was modeled after the text Evolution and Prehistory: The Human Challenge (Haviland et al. 2008). For specific detail on class format, see supplemental syllabus material.
Class Objectives

As outlined in the syllabus, course goals were the following:

1. Answer the question: Is evolution weak, good or strong science
2. Foster critical thinking by challenging students to understand natural selection and the nature of human diversity—both biological and cultural.
3. Answer the question: is the past remote and obsolete, or does it affect us today?
4. To get students thinking like anthropologists.

Also, to do well in the class it was important for students to grasp the foundational knowledge presented in the course materials, such as genetics, extant primates, early primate evolution, archaeological field methods and technique, early hominin evolution, archaic homo sapiens and the advent of agriculture, and finally—domestication and early complex societies.

A formal, non-compulsory and anonymous online survey was given to students to better understand the starting assumptions they held before engaging them with potentially controversial material. This was a fruitful way of identifying the teaching and learning challenges for the course. The survey was designed to yield important information about their ontological persuasion (see Figure 2). A small majority of the students were agnostic, with several representing progressive theistic perspectives. Yet, there was a large minority that held a fundamentalist ontology. This was essential information when considering how to broach the major theme of the course: human evolution. If preconceived notions were not discussed in an appropriate manner, then the probability of students grasping and understanding the material (as opposed to simply parating the material) would be substantially reduced (Nelson 1986; Nelson 2000).

Implementation of Course Design

The Oncourse forums proved to be one of the most important tools for addressing the teaching/learning challenge. Six papers were assigned as out of class required readings;
specifically, four of the papers assigned had themes which implicitly (and sometimes explicitly) targeted the teaching/learning challenge (see supplemental syllabus for details). For example, the first paper was authored by Eugenie Scott (1997) entitled: *Evolution vs. Creationism: Truth Without Certainty*. Students were required to write reflective essays, addressing questions about the meaning of the article. Also, I redesigned the opening part of the course and implemented an original lecture which essentially defines the continuum of ontology. It is essential that students have the foundational terms in their lexicon, for otherwise they have no starting point for objectively reflecting upon their understanding of the natural world. Finally, I showed a film (a PBS special) designed for pedagogical use: *Darwin’s Dangerous Idea*. It is an excellent historical enactment of Darwin’s struggle with the initial concept of natural selection, and the metaphysical implications which follow from his theory.

**Assessment**

I was fortunate to have a classroom observer from the Anthropology Department come in to assess my teaching effectiveness. Dr. Catherine Tucker gave me written comments on the lecture I gave entitled: *Primate Socioecology*. Also, Mark Scanlan, an Honors Earth Science and Astronomy Teacher at Center Grove High School, sat in during the entire semester for the purpose of becoming more informed on the issue of human evolution. He was kind enough to write an observation of the semesters teaching as well (see supplemental materials for both observations). I also utilized a classroom assessment technique to gauge the effectiveness of my teaching. The following is an illustration of that application.

**Analysis and Reflection**

*CAT example application and analysis*

1) What did you plan to do?
On the class syllabus the following was the header for my 3/23 lecture:

CAT 1: Concept bubble exercise 1
Class 3: Mendelian Genetics and Inheritance
Lecture on mechanisms of inheritance
Guest lecture: Georgia Millward (specialist in ancient DNA)
Lab: Genetic paternity assessment
CAT 2: Concept bubble exercise 2

My plans were to start the class with the concept bubble CAT to assess the student’s prior conceptual knowledge. I allotted five minutes for this. Then I was to give a lecture on Mendelian inheritance which would prove foundational for understanding the primary lessons of the guest lecture. I then wanted students to apply this in a lab exercise, where they used punnett squares to determine paternity; hoping the students would be able to apply the lecture lesson to the lab. Finally, I planned for students to then complete another concept bubble exercise to see if their understanding of genetics improved throughout the class.

1) What did you actually do in the classroom?

The beginning of the class worked efficiently. The students all created concept bubbles which expressed their prior knowledge of the class subject. Unfortunately, due to scheduling conflict, the guest lecture had to give her presentation first, before I laid the foundation. I had to adapt to the situation and constantly relate the information I presented back to the guest lecture. Otherwise, both lectures were a success and the guest lecture perfectly complimented the “traditional/foundational” knowledge of genetic inheritance, by way of showing students the modern application of that foundational knowledge. The lab was successful to varying degrees. Many students caught on quickly and applied the lecture knowledge to their assignment, while some seemed apathetic or largely uninterested in performing the lab (which may have something to do with the class now approaching 8 pm). Despite scheduling conflict and student fatigue, the
class went well and students responded to the lectures by applying their newfound conceptual understanding to the second CAT.

2) What were the results of your learning assessment or CAT?

Overall, students showed significant improvement from the first to second map. Both in pure content and the types of relationships between concepts, students illustrated much more sophistication on their second attempt. As seen in the tables presented, the first CAT had a mean of 7.4 concept bubbles, while the second CAT had a mean of 12.2 bubbles and the difference proved significant (p = 0.000). In the raw numbers of concepts or terms the students could wield they showed marked improvement. Many of the bubbles were linked by terms (i.e., Genetics led to DNA led to allele) so the chain of the initial concept grew in complexity. This was probably the most significant finding: many students improved the number of concepts they could navigate, but the nuance of each concept grew greater. Overall, the Collegium facilitated my first teaching experience and better equipped me for the teaching/learning challenges of the course.

References

Figures

Figure 1. A concept map illustrating the essential relationships within anthropology as well as the focus and priority of the class.
Figure 2. A graph which illustrates the ontological demographics of the class. A majority of the class was farther along the ontological continuum, representing the views of Intelligent Design, Theistic Evolution, or Agnosticism, yet there were also fundamentalist views represented as well.