TEACHING HIGH SCHOOL ANTHROPOLOGY IN THE DIGITAL AGE

by Carolyn Gecan

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Imagine 30 high school juniors and seniors engaging in a discussion of human evolution on the first day of the new unit. All have opinions on the topic. All know about the "Big Bang," Darwin and survival of the fittest. A few can explain the concept of punctuated equilibrium. All are veterans of our school's ubiquitous ninth grade biology course and several have taken AP Biology too. They have already completed a short writing activity based on these questions about human evolutionary history: "What do I know for sure? What do I think I know? What would I like to know?" They share writings in small groups, then share group conclusions with the class. The results? Semester after semester "What do I know for sure?" has been the category with almost nothing in it. No one, it seems, would be willing to stake a semester grade on what they already know "for sure" about the evolution of humanity!

When I developed my school's one-semester anthropology elective twenty one years ago, I was already a veteran teacher. Immediately I discovered that resources for high school students were scarce. For example, an appropriate high school textbook for my students was non-existent. Fortunately I teach at a science and technology magnet school full of bright kids with above average reading skills. The competency of these students allowed me to use an approachable college textbook suitable for an aspiring anthropologist beginning a college major. But it was deadly dull for a high school student hoping to explore an interesting but short-term elective. Fortunately, I also discovered the anthology *Annual Editions Anthropology 89/90*, published at that time by Dushkin Publishing Group. Adding *Annual Editions Physical Anthropology* rounded out the curriculum. Lack of funding to replace the books yearly coupled with the fact that students never purchase their own textbooks in our school district meant that the *Annual Editions* quickly aged into collections of historical documents.

The early efforts at research projects and other enriching exploratory activities presented other challenges. My students used the closest venue likely to help their research, the school library. There they picked through the card catalog, explored the reference section, and looked for journals that usually were not in the library's collection. Whatever information they gleaned was almost certain to be sparse and out of date. The few anthropology-themed films then available were videotapes from state and county collections which often did not arrive in time for use during the intended unit of study. Lectures were illustrated with overhead transparencies or personal slide collections and a trusty Kodak carrousel projector. In spite of encouraging my students to be independent learners, the paucity of resources meant that they often learned the same thing at the same time.

Because of the students' general maturity and ability levels, they did have the opportunity to do some ethnographic reading not usually available to high school students. They read one or more of the following classics: Marjorie Shostak's *Nisa*, Colin Turnbull's *The Forest People*, Elizabeth Marshall Thomas' *The Harmless People*, or Napoleon Chagnon's *Yanomamo*. Through reading, writing, and discussing these books, the students' anthropological horizons were broadened.

Then as now, field trips were severely limited to one trip per semester to a destination suitable for the curriculum *and* not too far away from campus. Transportation costs, travel restrictions, and time away from other classes dictated this one four-hour trip. Our choice was between visiting the National Zoo's primates or the Smithsonian's Natural History Museum. Given the choice, the class chose apes over artifacts every time.

The Digital Age

We started with a few esoteric computer labs and rudimentary search engines in the mid 1990s. We now use powerful electronic databases accessible wirelessly from any computer in the school—and available to the students in their homes. While these advances have spurred changes across the curriculum, high school anthropology has been transformed by them. Take, for example, teaching about human evolution.

With limited access to contemporaneous discoveries as they unfolded in the field or lab, high school teachers twenty years ago depended mostly on popular press coverage of new finds. A rare fossil hominid in east Africa, a cache of stone tools, or Paleolithic butchering site, all were equally remote from our studies. The high school library subscribed to *National Geographic Magazine* but not the AAA Journal. When *AnthroNotes* arrived in the mail, I diligently photocopied any articles about human evolution for my students—and often saved the stacks of copies for subsequent semesters. I enthusiastically welcomed a class set (30 copies) of the 1998 first edition of *Anthropology Explored: The Best of Smithsonian AnthroNotes,* but continued photocopying each new *AnthroNotes* issue when it came. Now with *AnthroNotes* online, I post the link on Blackboard.com. An added bonus of the online version is that my students benefit from seeing the illustrations as crisp images in full color. The additional perks on the website encourage further exploration.

Incredibly useful searchable databases such as EBSCOHost Research, JSTOR, ProQuest Direct, and eHRAF (Human Relations Area Files) extend the reach of teacher and student alike. Though initially available only while using the school's library workstations, these tools are now accessible free of charge 24/7 from anywhere one can get WiFi. These databases provide access to some of the most recent scholarly papers on discoveries and changing theories about human evolution. Recent selections in my class included the following articles that captured the interest of my first period students as they prepared for seminar discussions. None of the students were assigned to read a particular article—each selected something that appealed to his or her interests.

- "Cooking Up Bigger Brains" by Rachael Moeller Gorman in *Scientific American*, December 2007.

- "The Evolution of Human Skin and Skin Color" by Nina G. Jablonski in *Annual Review of Anthropology,* 2004.

- "What Finnish Grandmothers Reveal about Human Evolution" by David Biello in *Scientific American,* July 2007.

- "Natural selection and the elusiveness of happiness" by Randolph M. Nesse, published online August 2004 by The Royal Society.

- "The role of climate in human mitochondrial DNA evolution: A reappraisal" by Chang Sun, Qing-Peng Kong, Ya-Peng Zhang in *Genomics* 2007.

A relatively recent phenomenon, the blog, has greatly enlivened the classroom scene. Blogs maintained by scientists working in the field or by individuals reporting on new scientific discoveries allow students to become directly involved or to observe lively exchanges among scientists. By going to *ScienceBlog,* for example, one can read about Ardi, the *Ardipithecus ramidus* skeleton found in 1994, but now making a new set of waves in the world of paleoanthropology. What opinions are scientists posting about Ardi and the latest claims being made about the bones? To observe scientists' excitement or hear their words first hand, students can watch on-line interviews about new discoveries—at any time day or night that suits the students' schedules.

Whereas once we looked at pictures of ancient hominid skulls and skeletons painstakingly transferred to overhead transparencies or slides—the library only possessing one copy of any particular publication—we now search entire websites devoted to advancing our understanding of human evolution. At Google Images, for example, my students can view photos of Ardi's teeth, bones, and skull. In addition they can find a diagram showing Ardi's possible place on the human family tree, a map of where she was found, and so on. If I want my entire class to view these images simultaneously as we discuss them, I turn on my Smart Board which is linked to my laptop. The computer image is shown on the Smart Board by a ceiling-mounted projector. As a result, I have a giant touch-screen computer that I can manipulate in every way identical to what I can do on my laptop—except that the screen is visible to the entire classroom. A student can use the Smart Board to navigate the class to other images by clicking and dragging as would be done on a laptop with a mouse.

Once I lectured about archaeological dig sites and showed slides with a Kodak projector. Now my students take virtual field trips to remote and wonderful sites via

the Web. Creating a web tour of reputable photo sites or by posting my own Power Point presentation on Blackboard.com, I can send my students to the Afar region of Ethiopia where Ardi was found or to the legendary site not far away where Donald Johansen found Lucy. In a matter of minutes, they or I can cut and paste images of both skeletons for a side-by-side comparison in a Power Point presentation. Stone tools can be seen *in situ* or in the hands of a scientist who has removed them from the dirt.

A very popular element in the evolution portion of the course comes when we briefly study non-human primates. Although we do visit the National Zoo to see the primates first hand, in the classroom we have access to many more animals and places. We can "visit" another continent to see the animals in their natural habitats thanks to *National Geographic* video feeds such as one online showing "new bonobo ape population discovered" that was posted in 2007. At another site, Primate Info Net (http://pin.primate.wisc.edu/av/vocals/) students can listen to over 80 vocalizations of an extensive number of lemurs, monkeys, and apes. These sound files can greatly enhance a student group Power Point presentation!

In spite of these and many other enhancements to teaching high school anthropology, the Digital Age imposes special burdens as well. Too many students are content with the fastest and most efficient source for gathering information to get an assignment finished: Wikipedia. While gathering so much information in one location might have positive aspects, it does not help today's young researchers develop research skills and critical thinking. In fact, it does just the opposite. A few clicks, students spot the desired information, copy, paste, finish. No questions asked, not to mention the problem that they may have just plagiarized material without thinking about what they have done. Moreover, with so many sites available to them worldwide, students need to learn the difference between crackpots and reliable scientists just as much as they needed to when their sources were library books, encyclopedias, and hard copies of journal or magazine articles. Modeling good search techniques for students and helping them recognize reputable sources is vital to their education.

When using online data, opportunities for plagiarism and misappropriation of files and information abound. Although a student may excel at manipulation of data and pictures to make an amazing Power Point presentation, judging accuracy must be only part of the teacher's evaluation of the work. The necessity of asking questions about sources, having students show their research paths and focusing on whose words they used is a vital part of instruction in the Digital Age. Teaching students how they can obtain permission from owners of web-based data can help them become responsible consumers and users of such information.

I am fortunate that I have remained in the teaching profession as long as I have. Now with my students often placed in the role of guide, I'm exploring the transformative potential of podcasts, blogs and wikis. The revolution in curriculum wrought by the Digital Age advances have retooled my course and refreshed my teaching in ways I could not have imagined more than twenty-one years ago. Learning in a Digital Age classroom is an enriching, communal experience for student and teacher alike. When confronted by the many questions for which I have no answers, I am as excited as my students are to search online for information and answers—and all the new questions that arise from those answers. I hope future changes in technology continue to make teaching high school anthropology as exciting for the next generation of teachers as it has been for me.

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