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Learning a Practice Versus Learning to Be a Practitioner: Teaching Archaeology in an Honors Context

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ABSTRACT

This paper is a case study in teaching archaeology as part of an honors curriculum. It uses the example of one course, The Legacy of Ancient Technology, and the general goals of an honors program to examine how discipline-specific knowledge can be taught to non-majors. This paper explores the differences between students learning about a field of study versus those learning to become practitioners in a discipline. It posits that courses can be successfully built from a disciplinary foundation and still serve a diverse body of honors students when seminars focus on non-foundational knowledge, collaborative learning, and a discipline’s existing attempts at public outreach.

ARCHAEOLOGY AND HONORS: SITUATING THE COURSE

The University Honors Program (UHP) at the University of New Mexico is an independent academic unit within University College, which houses a diverse array of departments like the retention-focused Freshmen Learning Communities and the student-directed Bachelor of University Studies. The College’s two missions are “to function as an academic home for incoming students and to provide an administrative structure for several important interdisciplinary programs” (University of New Mexico 2006: 579). UHP courses are meant to offer experiences not available to undergraduates in their traditional home departments and are “designed to increase opportunities for liberal arts education for highly motivated and academically committed undergraduates from all University of New Mexico colleges and schools” (University of New Mexico 2006: 589). To do this, in part, the UHP has a permanent cadre of professors tenured in Honors rather than the many and specific disciplines in which they were trained. Their courses are interdisciplinary examinations of specific topics as opposed to honors versions of standard classes. The Legacy
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of Ancient Technology is offered instead of an honors version of Archaeology 101. The instructor’s primary role is not to serve majors but to “highlight the social and ethical dimensions of [the course], as well as help students understand connections among a variety of academic subjects” (University Honors Program 2006:2). In fact, the current section of this course has no enrolled anthropology or archaeology majors, and fewer than a quarter of the students are undeclared majors who might even consider majoring in the discipline.

Students in The Legacy of Ancient Technology conduct hands-on experiments making and using technologies commonly encountered in the archaeological record. These range from firemaking by friction to stone tool manufacture, atlatl throwing, cordage weaving, and the casting and laying of adobe blocks (figures 1 through 3). The curriculum was developed by an instructor grounded in North American archaeology. Yet, as will be explained below, it is important to note that the syllabus includes a broad array of technologies tied to no single time period or geographic area. A full syllabus of this course was previously published in Honors in Practice (Lovata 2006). Briefly, the class is based on the practice of experimental ethnoarchaeology. Ethnoarchaeology is a form of archaeology through analogy. Its practitioners attempt to understand the archaeological record and the peoples who created it via the study of the contemporary manufacture, use, reworking or recycling, and disposal of material culture (Cunningham 2003:392). First-hand experiments with, and ethnographic observations of, contemporary people are meant to lend an understanding of the physical and cultural contexts in which tools operate (Stiles 1977:90). They also highlight the contrasts between contemporary scholars and both the past and present peoples they study. This process, then, exposes the ways in which knowledge is constructed. Students in The Legacy of Ancient Technology act at different times as both participant and observer. They are given the opportunity to see, and assigned the goal of seeing, the same behaviors from different perspectives.

Figure 1. Exercises in Firemaking

The semester begins with one of the most basic technologies: fire. Students initiate the exercise by forming small groups and reading selections about firemaking and the cultural impacts of fire from environmental historians and
anthropologists. Groups then discuss the texts—at this point the instructor serves as a facilitator rather than as a lecturer—and develop a plan to build and set a fire using various friction-based methods. During the actual firemaking the group divvies up responsibilities, and two or more members act as participant observers who take extensive notes. These include catalogs of types and sizes of raw materials, two to eight pages of narrative writing, a dozen or more photographs, and any number of plan drawings and sketches. As the days unfold the students use these notes to refine and experiment with different techniques of firemaking. At the end of the unit each group also uses the notes to write a collaborative paper that documents the process, forcing the students to use their own observation to consider higher-level questions about fire’s cultural impact.

In this case the assignment is as follows: The readings, especially the selections from Stephen Pyne’s *Fire: A Brief History*, document the immense power of fire in shaping the trajectory of social and natural history from both rural and urban contexts. What can your experiments tell you about the myriad of uses that fire has been put toward and the impacts it has had? Have your attempts at firestarting connected you to any basic or fundamental uses—from a functional to a symbolic or ritual force—of fire in the past?

Figure 2. Experiments with Form and Function

Students experiment with atlatls (a type of lever-based spear thrower used in many different parts of the world) and projectiles using a process similar to, but expanded from, their work making fire. Texts about these technologies are a starting point. However, the examination of physical examples—actual artifacts, museum-grade replicas, and items built by previous classes—are also included at the beginning of the exercise. The process of experimentation itself is more formalized. Students study the general physics behind projectiles and
log the specific changes caused by different configurations of weight distribution, spear thrower morphology, and projectile aerodynamics before crafting their final atlatl and dart set. These additions allow students to explore the balance between form and function that archaeologists face when they attempt to catalog and explain material culture. Students are given the opportunity to make connections and learn first-hand how tools are shaped by cultural requirements that have little to do with optimal levels of physical performance. Finally, students are asked to produce, along with a final atlatl and dart, a written narrative of their experiments and a list of the choices they made before and during production.

Figure 3. Using Cordage to Understand Skill

Cordage is a fundamental technology that includes ropemaking, basketry, and textile weaving. Exercises with cordage offer understanding of how these technologies function as well as the chance to explore abstract concepts of skill. This exercise has three parts. It begins with the Nova episode *Secrets of Lost Empires, Inca* (Barnes 1997), in which archaeologists study contemporary Peruvian villagers—descendents of the Incan Empire—as they individually harvest grass and twist it into cordage and then come together as a group to build a sturdy rope bridge capable of supporting themselves and their livestock. Students use this experience—by first twisting small sections of grass individually and then forming groups to tie their work into larger bundles—to create a rope swing or harness strong enough for the weight of one or more people. The different observations made during these two parts are combined into a collaborative narrative and allow students to partially cross the participant/observer divide and consider the multiple views of production that Charles Keller (2001:33) deems essential. Finally, students use the remainder of their ropes to try to tie increasingly complicated sets of knots based on Tim Ingold’s (2001) ethnoarchaeological experiments with skill. They take notes on the activity that are used to write a paper on the anthropology of skill. They are asked to contemplate the role that skill plays in production and examine how skill can be learned.
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STANDARDIZED EVALUATION AND UNDERSTANDING NON-STANDARD COURSES

The University of New Mexico solicits students' opinions each semester via ICES, a fill-in-the-bubble instructor and course evaluation system. ICES yields data specific to the teacher, specific to the student, and general to the course through ratings such as: “The instructor was receptive to differing viewpoints and opinions”; “Has your ability to express ideas in writing been strengthened?” and “How suitable was the pace of the course (number of topics, depth of coverage)?” The ICES from the Spring 2006 section of The Legacy of Ancient Technology also included “Rate the value of the course content in relation to your major field of study.” The mean response to this query on a six point scale—six equals very valuable, one equals not valuable—was 3.0 with a 0.93 standard deviation. This score contrasts with the course’s three general or core ICES scores. The results for “Rate the course content” and “Rate the instructor” generated identical means of 5.5 with a 0.61 standard deviation. “Rate the course in general” averaged 5.3 with a 0.7 SD. Students clearly valued The Legacy of Ancient Technology but were generally neutral about its relationship to their particular majors of study.

There is an obvious disconnect in the ratings. This difference can be especially distressing to someone trained in the discipline-bound world of American academia, yet the difference is not as great a concern as one might imagine. Scholars like Ronald Sims and Serbrenia Sims (2006:81) note that educational institutions grounded in traditional teaching methods often fail to properly evaluate alternative coursework when they use standardized systems like ICES. The simplicity of using the same rankings for all students in all courses should be tempered by the conscientious interpretation of results based on the tangible differences in educating different majors across dissimilar disciplines and using methodologies not based on lectures. The differences in ICES scores, rather than indicating a deficiency, can be a starting point in understanding how this course serves non-majors. Courses like The Legacy of Ancient Technology teach about, and teach the value of, practices rather than training or preparing students simply to be practitioners. The course is likely succeeding when the ICES scores are this disparate because students are likely finding a value in learning something beyond their major.

Three specific decisions were made with the expectation of generating these results: a commitment to non-foundational knowledge; a choice to use collaborative methods; and a leveraging of the shift toward public outreach within the discipline of archaeology. It is hoped that understanding these decisions both explains The Legacy of Ancient Technology and suggests a model for other courses that operate across and outside academia’s traditional disciplinary structure.
NON-FOUNDATIONAL KNOWLEDGE: THE COURSE’S PRIMARY GOAL

The Legacy of Ancient Technology is based on experiment and observation. However, it also explicitly recognizes the gaps between past and contemporary peoples. The relationships between what students do in the course and how people might have behaved are not simply one-to-one. There is no intention for students to produce broadly authentic, in-context re-enactments of the past. The students differ from the fictional graduate student Eggers in Adam Johnson’s (2004) popular novel of academic archaeology, Parasites Like Us. Eggers attempts to live apart from the modern world and use only North American Pleistocene era technology—stone tools, hide-covered shelters, gathered rather than cultivated foodstuffs, and baths in the nearby river—in a rote repeat of the past. In contrast, these real honors students are conducting discrete experiments in decidedly modern contexts. They, unlike Eggers, are considering the multiple ways in which things could have been, and were, done and the possible reasons why. These students are not just learning previously defined information. They are learning about the differences between past and present. They explore the difficulties in generating understanding when looking back into history or prehistory rather than glossing over them with a sheen of re-enactment.

In essence, The Legacy of Ancient Technology is structured to produce non-foundational knowledge. Kenneth Bruffee (1999:84–85) explains that non-foundational knowledge is “less likely to address questions with widely agreed upon answers such as those of spelling, sums, where Washington camped, and what Hamlet said” and is “more likely to address questions with arguable or ambiguous answers.” Non-foundational knowledge is generated through resisting authority genuinely and constructively. It is generated by students doubting and testing out for themselves the “answers, methods for arriving at answers, even the questions that are asked” and then “learning to come to terms with those doubts and live with them” (Bruffee 1999:86). Through this process students are active in learning a practice in order to understand how information is, and was, constructed rather than training to become a practitioner who uses knowledge only in a prescribed manner. Education researchers like Mary Hamm and Dennis Adams (1992:127) find this type of knowledge significant because:

The various disciplines are not natural entities; rather, they are useful frameworks created to make sense of a part of the world. As such they are the artifacts of a particular culture, refined to serve a useful function at a particular point in time. Pushing beyond these artificial limits is often more productive than reaching for the most convenient discipline-based conclusions. In the real world there is usually a need for multiple interpretations and building bridges between subjects.
Of course there are impediments to teaching non-foundational knowledge. Most significantly, students have to be re-enculturated in the complicated act of asking questions (Bruffee 1999:14). Realigning the balance between professor and student requires the student to take on more responsibility. The fictional graduate student Eggers is at an advantage in this regard because, once he has surveyed the state of the discipline, he generally knows when he is mirroring the defined path of a North American Paleoindian and when he is not. In contrast, a student in The Legacy of Ancient Technology is required to consider the multiple technologies and techniques visible in the entire archaeological record—judging each as a possibility, not as a given. That this course is taught as part of an honors program helps the student shoulder the increased responsibility. The UHP’s goals and the structure of this specific course, including the fact that it is not just a harder or more intensive version of another course, are made very explicit when students are accepted into the program. The sense of difference these explanations generate primes students for alternative teaching methodologies. Moreover, getting students to work together collaboratively, instead of always depending on their professor for direction, helps them adjust to the change.

**COLLABORATIVE METHODS: A WAY TO TEACH NON-FOUNDATIONAL KNOWLEDGE**

The success of The Legacy of Ancient Technology in serving a range of majors is due, in part, to the connections made between ethnoarchaeology and collaborative learning. In collaborative learning, students work through problems and exercises together while the instructor acts as a facilitator rather than as a lecturer who tells them what they need to know (McKeachie 2002:194). Collaborative learning works well in higher education for many reasons, including the cognitive value of students’ putting material into their own words and having to explain it back to their peers (McKeachie 2002:193–194) and the relative safety of presenting ideas, which might be half-formed or even wrong, to social equals instead of teachers who reside above them in the university’s hierarchy (Hamm and Adams 1992:67). But collaborative learning is perhaps most valuable because it also drives non-foundational knowledge. Bruffee (1999:89) explains that in collaborative learning “teachers tend to trust college and university students to govern themselves in a context of substantive engagement, conversation, and negotiation,” and, thus, “this emphasis on self governance has its source in one of the important goals of collaborative learning: to help adolescents and adults acknowledge dissent and disagreement and cope with the difference.” This process allows students to begin to doubt and test out information for themselves. Collaborative exercises force students to interact with other people and confront conventions and viewpoints that often contrast strongly with those held in the communities to which they already belong (Bruffee 1999:144). Working with others pushes studying beyond the rote to the non-foundational.
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Hamm and Adams (1992:68) note that collaborative learning can be especially useful at facilitating non-foundational knowledge in science and math courses because students are required to seek out the data they need and actually use science and math as a starting point instead of a recall-based add-on. Students in The Legacy of Ancient Technology work almost exclusively in collaborative exercises and appear to be using science in this way. The exercises (detailed in figures 1 through 3) are assigned as group work, but they become truly collaborative undertakings when the students are allowed to experiment with different techniques that might lend different insights into the past. For example, in the atlatl and dart exercises the students are not just told how the physics of projectiles work; instead, they test the principles involved by considering different aerodynamic and structural configurations, then deciding for themselves how to integrate their findings into a finished project.

Ethnoarchaeology itself is well suited for collaborative study. This is, in part, because students come to the course with a broad range of experiences in both understanding the past and performing the physical activities required to make and test different technologies. For instance, during the firemaking exercises students who had never before started a fire—even with matches or a butane lighter—have been paired with former Boy Scouts and people who annually used firestarting bow-drills in Native religious rituals. The more experienced individuals do not monopolize the exercise nor skew the equality between peers—results that Wilbert McKeachie’s (2002:193) research also confirms. Those with previous experience do not dominate the group because the instructor does not privilege their skills or define their techniques as the only or correct way of doing things. Their firemaking is most often based on prescribed or foundational information tied to very specific social situations and specific cultures or subcultures; it is only one among the historically and geographically broad range of examples that archaeology has cataloged and on which this particular seminar is based. The instructor’s role as facilitator includes pointing out these facts and deflating narrow claims to power. The professor helps students see that there have been different ways of doing things and, then, consider why these differences exist.

The experimental aspects of ethnoarchaeology, in which behaviors are both observed and experienced, also further collaboration. Charles Keller (2001: 33, 42–43) has highlighted the differences between a practitioner’s and a non-practicing observer’s insights into the use of material culture. For instance, artisans or craftsmen observing another tool user might recognize the nearly invisible remnants of training and planning that preceded production (Keller 2001: 37), or they might be able to identify the minute adjustments and modifications that allow people’s repetitive actions to appear mechanically rigid (Keller 2001:38–39, 43). A non-practicing observer might be better able to explain the technoscientific underpinning of an activity or identify the different steps of a multi-step process while the practitioner can be biased by training and traditions or is often too absorbed in the task at hand to break it...
into components parts (Keller 2001:42). Students enrolled in The Legacy of Ancient Technology are required to move back and forth between the roles of participant and observer. Some exercises—like those with projectiles (figure 2) and cordage (figure 3)—begin with the hands-on study of artifacts or artifact replicas (such the handling and measurement of atlatls) or with viewing ethnographic films (including, for instance, a group of contemporary Peruvians harvesting grass, twisting it into cordage, and stringing up a rope bridge). These exercises end with a shift in roles—from outside observer to practitioner—as students eventually craft darts themselves and attempt to twist fibers into ropes of their own. Other exercises such as those with firemaking (figure 1) require substantial note taking and assign the role of recorder to more than one individual. After fires are successfully set and extinguished, the group has to then negotiate different accounts of the process—including multiple sets of notes as well as the unwritten observations of those who actually rubbed sticks together—in order to collaborate on a final written narrative. Each exercise approaches the subject slightly differently, but each focuses on aspects of collaborative learning.

PUBLIC ARCHAOEOLGY: TAKING ADVANTAGE OF DISCIPLINARY STRUCTURES THAT FACILITATE NON-FOUNDATIONAL KNOWLEDGE

Ethnoarchaeology allows students the opportunity to collaborate in the learning process and pursue non-foundational knowledge. However, there are also larger trends within the field of archaeology that instructors can turn to for support when they, like professors in the UHP, are faced with a class of non-majors. Academic archaeology is increasingly cognizant of its relationship with the non-professional world and the ways the public uses, shapes, and controls prehistory. Public archaeology is gaining prominence within the discipline, and archaeologists are increasingly turning to careers that lie outside academia. Even professionals in academic posts find that their work involves substantial interaction with the public. Lawrence Moore (2006:33) has studied the organization of American archaeology over the last hundred years and has concluded that the field is at the beginning of a cycle in which public archaeology is replacing an older “Cultural Resource Management” paradigm in which archaeologists produced information primarily for professional decision makers. This shift is changing those who teach archaeology, how it is taught, and to whom it is taught. Dean Snow (2000:v–vi) has observed, “Many of us [archaeologists] still aspire to educate the next generation of professoriate, but we recognize that some of them will follow other paths” while “even if those of our students who do replace us in academic posts do not require new program structures, surely their students will.”

Interactions with the public have led numerous archaeologists to realize that the preservation of sites and artifacts, the opportunity to present research,
and the economic basis of archaeology all require an ability to positively influence a wide audience (Sabloff 1999:837). The shift toward public archaeology has produced calls for integrating fields like museum studies and education with archaeology and explicitly training archaeologists in popular writing and running volunteer archaeology programs as well as developing and reforming curricula for higher, K–12, and continuing education (Schulderein and Altschul 2000: 63). Archaeologists have responded. They have set up journals like Earthscan/James & James' Public Archaeology, assembled professional working groups including the Society for American Archaeology's public archaeology interest section, and begun incorporating ideas about public interaction into chapters and exercises of both textbooks and the general curriculum (Bender 2000; Grant, Gorin and Fleming 2002; Marie White 2000).

Past generations of archaeologists and educators have certainly recognized the value of their discipline to “the general body of knowledge that should be part of every person's intellectual acquisitions at the college level, if not earlier” (Woodbury 1963:229), but the rising wave of public archaeology is different. It focuses on more than just culture history, the attributes that define a set of artifacts, or a prehistoric sequence of events. Instead, it means to teach non-foundational knowledge. Works by archaeologists as diverse as Trent de Boer (2004) and Adrian Praetzellis (2003) explain how archaeology is done. They present different views of archaeologists conducting research, examine the choices that researchers make, and describe the different tools that might be used to uncover the archaeological record. They explore the kinds of problems archaeologists face collecting, interpreting, and presenting information about prehistoric peoples. College-level textbooks and curriculum guides are starting to emphasize the same. Various curricula direct archaeologists to teach non-foundational principles (Bender 2000:32–33) and to empower students to write for and interact with non-professionals (Marie White 2000:112–115). For example, Grant, Gorin, and Fleming's recent textbook (2002) attempts to teach skill sets that transcend the discipline rather than the facts that define it. Their text prescribes exercises that include “taking notes from contradictory sources” and ask students to consider competing claims by filling out a table with headings like “List the key points they make, What evidence do they give to support this point? Do you find the evidence acceptable? Does this point support their overall argument? How strong do you think this argument is?” (Grant, Gorin, and Fleming 2002:123).

These curriculum guides and textbooks can be used directly and can also serve as models for other discussions and assignments. For example, Susan Bender's (2000:32–33) non-foundational principles of “Diverse Pasts,” “Written and Oral Communication,” “Fundamental Archaeological Skills,” and “Real-World Problem Solving” helped shape the exercises with fire and cordage in The Legacy of Ancient Technology (figures 1 and 3). Ethnoarchaeology itself is positioned as one key skill set within a larger field. Moreover, materials written for public audiences serve non-majors well. For example, John Whittaker's
(1997) guide to manufacturing stone tools was written, in part, to appeal to the large avocational and amateur flintkapping communities. There are numerous texts on stone tools, but this book is used in The Legacy of Ancient Technology because it is structured around the interests of those learning about a practice instead of those hoping to become practitioners. It is not simply a jargon-free or dumbed-down version of the field but a guide for those who will use archaeology instead of being archaeologists. The book combines traditional lithic typologies and histories of stone tools with discussions of how archaeologists conduct research and the principles that lie behind all stone tools. Students can see how archaeologists approach their subjects, but they are also given room to explore the subject for themselves. They are shown what archaeologists do and what past peoples actually did, but they are not expected simply to re-enact. These are all valuable parts of a curriculum intent on offering non-foundation knowledge.

Finally, the growing canon of public archaeology itself provides a form of disciplinary approval for those who teach outside traditional departments, serve the needs of non-majors, and work in interdisciplinary contexts. An outward-looking, public-serving discipline validates the idea that a discipline-trained instructor has something meaningful to offer non-majors. Interdisciplinary honors organizations like the National Collegiate Honors Council and the Western Regional Honors Council and forums such as Honors in Practice are, of course, valuable to educators faced with large numbers of non-majors. At the same time, the opportunity to use discipline-specific materials and garner discipline-specific support is especially significant in institutions long divided into majors of study. For example, even though the University of New Mexico supports the UHP and tenures professors within an interdisciplinary honors context, it still relies on the approval of traditional disciplines by having outside members sit on tenure and promotion committees. Validation is easier when educators can show that they have based innovative and alternative methodologies on the field they came from rather than just the interdisciplinary environment in which they now work. Disciplinary approval is no small matter in the hierarchical world of higher education.

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