

Education in the Context of Public Archaeology: Theory, Method, and Evaluation of Archaeology Education at The Hermitage

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"Archaeology – the knowledge of how man has acquired his present position and powers – is one of the widest studies, best fitted to open the mind, and to produce that type of wide interests and toleration which is the highest result of education."

-William Flinders Petrie (1904)

The practice of archaeology has always had an educational component. From the antiquarian scholars of the nineteenth century, who produced beautiful volumes of their finds and lectured throughout the country, to academic archaeologists, who teach undergraduates and graduate students, archaeologists have educated a variety of audiences. Yet, it has only been within the last few decades that education has become thought of as an ethical responsibility for archaeologists (Lynott and Wylie 1995). Perhaps it is this institutionalization by professional organizations, such as the Society for American Archaeology and the Society for Historical Archaeology, which has led to such tremendous growth within the emerging field of "public archaeology."

As public archaeology has been increasingly viewed as a field unto itself rather than as an "add on" (McGimsey and Davis 2000:5) to archaeological practice, there have been great strides and even greater growing pains within the archaeology education community. Public archaeology is becoming more professionalized, but, at the same time, the field is suffering from the difficulties of forging a new identity. Even the name "public archaeology" is something that is not accepted by all of its practitioners. For many, that term still references cultural resource management or archaeology done in the "public interest." But, as we forge a new identity that moves away from archaeology outreach and towards archaeology education, it is time to evaluate the practice of "public archaeology" as yet another sub-discipline of archaeology.

Within the archaeological community, practitioners of sub-disciplines, such as historical archaeology, have successfully drawn upon a diversity of perspectives both within and outside of archaeology to achieve a "maturity." While remaining grounded in our anthropological tradition, public archaeologists must become conversant in several other fields to reach a true professionalization of this emerging sub-discipline. This paper attempts to draw from the rich literature in education and museum studies to situate the practice of public archaeology as a sub-discipline with its own theories and methods, which will allow practitioners to not only achieve a set of goals but also evaluate that achievement.

Educational Theory and Method

It would be impossible to summarize the rich literature in educational theory within this paper. With that said, it is possible to provide an outline of the three interrelated components of educational theory. Any educational theory requires: 1) a theory of knowledge; 2) a theory of learning; and, 3) a theory of teaching (Hein 1998:16). Depending on which theory of knowledge one may accept, one can develop a theory of how people learn. Having thus situated the interrelated questions of "what is knowledge" and "how do people learn," one can decide how to teach, that is, develop a pedagogy.

Theories of knowledge can be split into two broad schools of thought. As stated by Dewey (1938:1), "The history of educational theory is marked by opposition between the idea that education is development from within and that it is formation from without." That is to say that either knowledge is something that is actively constructed by the learner (idealism) or knowledge is something that exists outside of the learner (realism). As with any dichotomy, this division is overly simplistic. In reality, the division between idealism

and realism is better represented as a continuum with the extremes being the belief that reality only exists in the minds of people on the one hand and the belief that “reality” and/or “truth” exist in the world independent of people on the other. Most archaeologists would agree that there is a reality or real world “out there.” Indeed, our entire discipline is based on *material* culture. However, this reality is only perceived and interpreted through a person. The person constructs meaning from that world. This is the essence of the argument that data do not exist “out there,” but instead are created through our observations of what we consider evidence or perhaps even in our decision as to what constitutes evidence in the first place.

Following from these two theories of knowledge, Hein (1998:21-25) suggests that there are two theories of learning, which also fall on a continuum between two extremes. The extremes in this case are the notion that people are containers to be filled with knowledge that exists outside of them (transmission-absorption), what Freire (1993:53) rightly calls the “banking concept of education,” and the notion that people are actively involved in the construction of knowledge (constructivism). It is important to realize that a proponent of either theory does not necessarily prescribe to an idealist or a realist theory of knowledge (Hein 1998:23). It is possible for a teacher to believe in a “true” or “real” history yet have students learn about that history through actively constructing their understanding with primary sources and artifacts. It is just as valid for that same teacher to follow a transmission-absorption theory of learning and present a series of “facts” in a bit-by-bit fashion for memorization. Yet, it should be apparent from my previous discussion of how I believe an individual constructs meaning from a real world that I propose the use of a constructivist theory of learning.

As Hein (1998:34) suggests “If we accept modern theories of learning, then we inevitably need to accept the constructivist position on the theory of knowledge at least to some degree. *That people make their own meaning out of experience appears to be a phenomenon of nature (not just a theoretical construction)* [emphasis added].” Furthermore, as a theory of learning, constructivism more closely approximates how individuals want to learn about the past. Individuals would rather be active participants in the creation of historical understanding rather than passive receptacles of knowledge that has been created by others (Bruner 1996; Rosenzweig and Thelen 1998). Davis (2005:24) also suggests that if you believe that “history is made ... a constructivist view of learning not only embraces this notion, it is grounded in it.” For this reason, constructivism is particularly attractive to practitioners of Critical Theory, who would like students to question “fact” as one contextually situated understanding rather than as the only “reality.” “Fact” is not assumed a priori but constructed from evidence. For these reasons, I agree with Davis (2005:25) that a constructivist approach to archaeology education is the most promising.

Following from the two continua presented above (realism to idealism and transmission-absorption to constructivism), Hein (1998:25-36) argues that four pedagogies may result: “didactic, expository education,” “stimulus-response education,” “discovery learning,” and “constructivism” (Figure 1). For the sake of brevity, I will combine these pedagogies in relation to the theory of learning to which they correspond with a transmission-absorption theory of learning resulting in didactic, expository education and stimulus-response education and a constructivist theory of learning resulting in discovery learning and constructivism. While didactic, expository and stimulus-response education differ on whether “objective truth” is being learned, both pedagogies represent very traditional educational situations in which a teacher organizes a subject into lessons and those lessons are taught to students who then memorize the information. In contrast, discovery learning and constructivism create an “active learning situation in which learners have the opportunity to manipulate, explore and experiment” (Hein 1998:38). This type of pedagogy is often described as “hands on,” but it is crucial to remember that these learning situations must not just be physical but also mental, hence the more refined phrase, “hands on, minds on.” These learning situations also disrupt the traditional dichotomy between teacher and student, creating what Freire (1993:61) terms “teacher-students” and “student-teachers.”

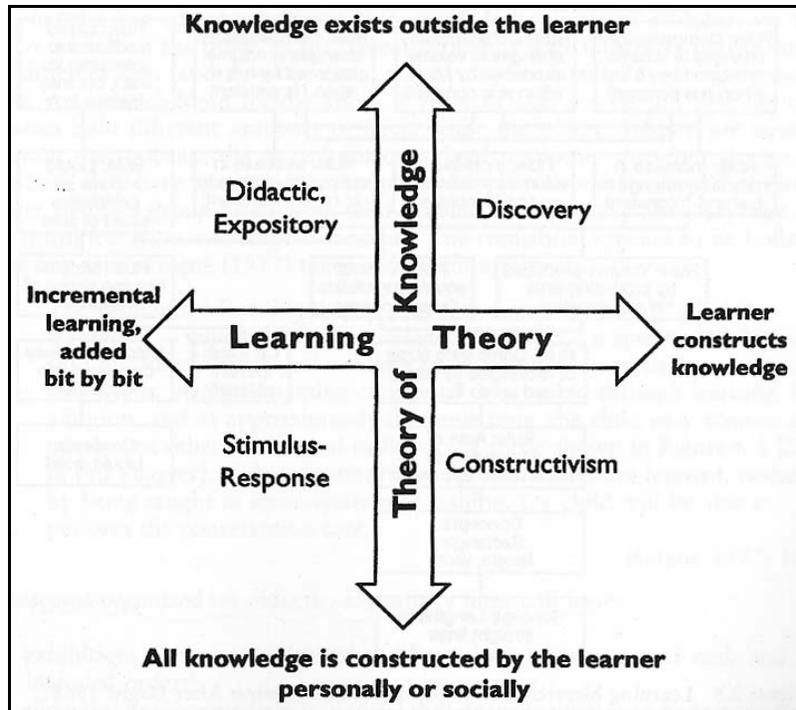


Figure 1. Four possible pedagogies represented in relation to theories of knowledge and learning (Hein 1998:25)

Archaeology education especially lends itself to creating these types of learning situations. And, for that reason, I strongly advocate pedagogies that prioritize a “hands on, minds on” approach guided through dialogues created between “teacher-students” and “student-teachers.” This approach is in direct contrast to the “banking concept of education,” which as Freire (1993:54) suggests is based on the following premises:

- the teacher teaches and the students are taught;
- the teacher knows everything and the students know nothing;
- the teacher thinks and the students are thought about;
- the teacher talks and the students listen – meekly;
- the teacher disciplines and the students are disciplined;
- the teacher chooses and enforces his choice, and the students comply;
- the teacher acts and the students have the illusion of acting through the action of the teacher;
- the teacher chooses the program content, and the students (who were not consulted) adapt to it;
- the teacher confuses the authority of knowledge with his or her own professional authority, which she and he sets in opposition to the freedom of the students;
- the teacher is the Subject of the learning process, while the pupils are mere objects.

So, the challenge becomes how to create such learning situations while avoiding the pitfalls of “banking” education. By using a materials-based discipline, such as archaeology, we already have an instant ability to develop “hands on” curricula. However, as I will discuss later, it is crucial that we remember the “minds on” component as well. Many archaeology educators have a tendency to simply *teach archaeology* rather than *teach through archaeology*. As will be discussed in the next section, the goals of public archaeology should not be to teach the practice of archaeology. This is where public archaeology or archaeology education differs significantly from educating archaeologists. We are not trying to create the next generation of archaeologists, but instead, to use archaeology as a tool through which to teach a variety of lessons. I believe that this is how we can be assured of creating programs that are “hands on” AND “minds on.” But, to achieve this goal, we will need to educate ourselves in methods that will allow us to become effective “teacher-students.”

One of these methods that I want to touch upon briefly is known as “scaffolding.” Following from the idea that “all learning is built upon previous learning, not just of the individual, but of the entire society in which that individual lives” (Falk and Dierking 2000:43), psychologist Lev Vygotsky and his student Alexander Luria developed a notion of “social mediation through language ... [which] stressed the central role of social communication in the development of children’s thinking by conceiving of children’s learning as taking place within the ‘zone of proximal development’” (Falk and Dierking 2000:44). This “zone” is the point at which a child does not have the ability to independently solve a problem with their own knowledge base, but can solve the problem with assistance, guidance, or collaboration with a teacher or peers. It is within this “zone” that the social mediation process of “scaffolding” allows for learning to take place. I argue that this type of learning is applicable to adults as well.

Within any learning situation, the “student” possesses an internalized set of processes and ideas, which Vygotsky termed “intramental.” As the “student” reaches their “zone of proximal development” in trying to solve a problem and create understanding, a “teacher,” with their own set of “intramental” processes and ideas, may provide guidance and assistance that provides support, or “scaffolding,” for the development of an “intermental” knowledge, which is constructed through dialogue between the “student” and “teacher.” This new “intermental” knowledge may then become part of the “intramental” knowledge of both “student” and “teacher.”

Falk and Dierking (2000:37-38) provide an excellent example of such a learning situation within a museum context. In their example a father and daughter are viewing an exhibit on the size of different animal hearts. The father asks if the daughter knows the size of her heart since the display does not include a human heart. The daughter does not. So, the father begins a series of questions:

“Well, do you think it is bigger or smaller than this elephant’s heart?”

“Silly,” the girl answers, “It’s smaller.”

“Ok,” says the father, “that’s right. Is it bigger or smaller than this cow’s heart?”

“Smaller.”

“Is it bigger or smaller than this dog’s heart?”

“Bigger,” she says, “because I’m bigger than Scamp.” [Scamp is the family beagle.]

... “So,” says dad, “Isn’t it interesting that your heart is smaller than the cow’s heart and bigger than Scamp’s heart, because you are in between the size of a cow and a dog like Scamp?”

“Yep,” says the girl.

The father then asks: “So, show me how big your heart is.”

The little girl then holds up her hands and says about this big, fairly accurately indicating the size of her heart, a size between that of the cow and the dog.

In this example, the father is providing the scaffolding that is needed to support the daughter’s “intramental” knowledge and problem solving. In essence, she is coming to a new understanding on her own with the guidance of the father. You can truly see a relationship of a “teacher-student” and “student-teacher” in this example as the daughter is aided by information from her father and the father in turn learns more about how his daughter understands the world. In the end, this “intermental” knowledge has led to new “intramental” knowledge for both participants.

Goals of Archaeology Education

Having defined a theory of knowledge, theory of learning, and pedagogy, it becomes necessary to ask ourselves, “What do we want to teach?” We must take this question very seriously. There has been a great failure among practitioners of public archaeology to not create focused learning objectives. Without defined objectives, we cannot evaluate our success or failure in pursuit of our goals.

In the past, the goals of public archaeology have largely been to benefit archaeology rather than the public. As codified by the Society for American Archaeology’s Principles of Archaeological Ethics (Lynott and Wylie 1995:23), public education and outreach requires archaeologists to:

- 1) enlist [the public’s] support for the stewardship of the archaeological record;
- 2) explain and promote the use of methods and techniques of archaeology in understanding human behavior and culture; and,
- 3) explain archaeological interpretations of the past.

From the perspective of an archaeologist, all of these goals are laudable. We are stewards of resources that we need help from the public to protect from pothunters as well as non-conservation-minded archaeologists. And, we should explain our methods, techniques, and interpretations to the public. But, these principles create a power relationship between archaeologists and the public in which archaeologists are producers of knowledge and the public are consumers of the same knowledge. Furthermore, we presume that archaeology and archaeological knowledge are unquestioningly beneficial commodities. Tilley (1989:113) states that “the reduction of the public to consumers establishes their powerlessness in relation to the past.” In the end, we do not empower the public through archaeology education, but instead, we empower ourselves through the public. As institutionalized by the SAA, public archaeology is a practice of self-interest.

There is a significant difference between *teaching about archaeology* and *teaching through archaeology*. For too long, we have equated the emerging field of public archaeology with the former. While there is definitely a place for *teaching about archaeology*, I argue that this is not public archaeology per se, but rather a form of either outreach, which is focused on advocacy, or professional development, which is focused on educating the next generation of archaeologists. Public archaeology uses archaeology as a teaching tool. In this way, practitioners of public archaeology *teach through archaeology*. But, the question still remains, “What do we want to teach?” And, another question follows from this one, “Why use archaeology to teach it?”

Defined as a practice that *teaches through archaeology*, public archaeology has the power to teach important lessons that are an absolute necessity in a functioning democracy. The first and most important lesson that public archaeology can teach is critical thinking. By drawing upon reasoning grounded in the natural sciences, archaeology provides an excellent vehicle through which to teach the important distinction between “evidence” and “conclusions.” The roots of critical thought lie in the recognition of the distinction between the “real world” and our “interpretations” of that world. This may in turn lead to the formation of a “critical consciousness” or *conscientização*, in Freire’s (1993:17) native Portuguese, which is the ability to critique a “false perception of reality,” to recognize the world as “no longer something to be described with deceptive words,” which empowers both “student-teachers” and “teacher-students” to continually pose the question, “Why?” (Freire 1993:67).

While critical thinking within an educated citizenry is essential to a functioning democracy, cultural relativism is of equal importance. Drawing from our anthropological roots, archaeology can teach an understanding and appreciation for cultures past and present. While people are almost always fascinated by how “different,” “strange,” or “weird” the material culture of others may be, we have the opportunity to teach them that even though an object may be unfamiliar to them, it may serve a similar purpose to something with which they are

familiar. This recognition is the first step towards looking beyond cultural difference to see others as part of a single human family.

With the twin goals of teaching critical thinking and cultural relativism, public archaeology becomes a powerful tool for change within a democratic society. But, with such an ambitious vision, we must ask ourselves, “Why archaeology and not some other discipline?” The answer to this question is rather simple. Archaeology is fun. It captures the imagination of the general public. It creates an instantly engaging learning environment. Archaeology “takes advantage of human curiosity as the ultimate tool to motivate learning” (Davis 2005:123). Yet, we must keep in mind that having a good time does not necessarily mean that an individual is learning. We need to remember the “minds on” component of our “hands on” activities. For this reason, we must create learning objectives from the goals that we hope to attain. We must also evaluate our programs to assess if we have achieved our objectives.

Evaluation of Archaeology Education

A review of the immense body of literature in education and museum studies concerning assessment and evaluation is beyond the scope of this paper as well. However, it is possible to outline some important considerations for any sort of evaluative exercise. First and foremost, evaluation cannot be undertaken without the creation of learning objectives. All too often “archaeologists work with the public because they are required to do so but there are often no expectations regarding actual learning outcomes” (Davis 2005:17). Even some archaeologists who work with the public by choice fail to take the endeavor seriously enough to develop a curriculum with objectives, outcomes, and assessment. If public archaeology is to emerge as a true sub-discipline of archaeology, the first step towards that professionalization will be archaeologists becoming archaeology educators, who are not only conversant in educational theory but also implement educational best practices.

A second consideration is that evaluations should be undertaken at all stages of a program. In the parlance of museum studies, this would include: front-end evaluation (or preliminary assessment) prior to the beginning of the program; formative evaluation during the implementation of a program; and, summative evaluation after the completion of the program (Hein 1998:57-60). Each stage of evaluation is slightly different in its focus and purpose. Front-end evaluations generally assess an identified audience and the audience’s attitude towards a program. This work provides essential feedback before program implementation. Formative evaluations provide feedback during the course of a program to allow for changes to be implemented as needed. Summative evaluations take place at the conclusion of a program and assess whether or not learning objectives were met. Oftentimes, it is this final type of evaluation that is the only evaluation that is undertaken for a given program. While a summative evaluation can measure the success or failure of a given objective, front-end and formative evaluations can help to assure a more positive outcome for the project.

Given the necessity of learning objectives and the importance of performing evaluations at all stages of a program, the final consideration that needs to be addressed for evaluations is the method. There is a great degree of variability in evaluations from questionnaires to interviews to cognitive maps. In the field of museum studies, it is suggested that one should remain flexible and open to the use of a wide range of methods (Diamond 1999:24). The use of different methods allows for the creation of comparable and complimentary data sets. These multiple lines of evidence can then be “triangulated” (Davis 2005:64; Hein 1998:75). For example, in a formative evaluation of a museum exhibit, it is possible to perform a movement survey in which a researcher charts the physical movement of an individual through a gallery. This survey could then be augmented by interviews of selected visitors that inquire about their impressions and thoughts as they moved through the same gallery. The combination of the two methods allows for a deeper understanding of the visitor experience. Although there are many possible evaluative methods, for the purpose of this paper, I would like to offer one promising method for consideration, concept mapping.

Concept maps were first developed by Joseph Novak and his research team at Cornell University in the 1970s as a means to evaluate science education among groups of students. Since its development, the use of concept mapping has become relatively widespread not only within the educational community, but also in business as well as software development. As described by Novak (1990a, 1990b, 1995, 1998) and Novak and Gowin (1984), concept mapping is a technique for visualizing relationships among a set of different concepts. In essence, a concept map is a visual representation of an individual's knowledge of a given concept.

“Concept maps are a type of graphic organizer than can illustrate the information an individual considers important regarding a particular topic and it also shows the meaningful relationships constructed between these bits of information. Concept maps can help clarify the small number of key ideas for both teachers and students for a specific learning task. A map can also provide a kind of visual road map showing some of the pathways we may take to connect meanings of concepts in propositions. After a learning task has been completed, concept maps provide a schematic summary of what has been learned” (Novak and Gowin 1984).

A concept map is created by providing an individual with a “focus question, that is a question that clearly specifies the problem or issue the concept map should have to resolve” (Novak and Cañas 2006). From this question, a list of key concepts that apply to the focus question should be created. That list is then ranked in order from most general or inclusive to most specific or least general. Next, the individual creates a concept map. This can be done by free hand drawing, but it is better to use Post-It notes or specialized computer software, such as IHMC CmapTools (<http://cmap.ihmc.us>), so that the individual can move concepts around to better fit with their ranking and relationships. The map may go through several initial revisions. The next step is to create “cross-links” to illustrate the relationships between concepts. “Cross-links are key to show that the learner understands the relationships between the sub-domains in the map” (Novak and Cañas 2006). When a link is created, it is important to label the link with a concise word or phrase so that the learner can explain their understanding of the link. Learners often find it difficult to articulate these links into words, but it is essential for the evaluation of the concept map. Following this step, the concept map is complete (Figure 2).

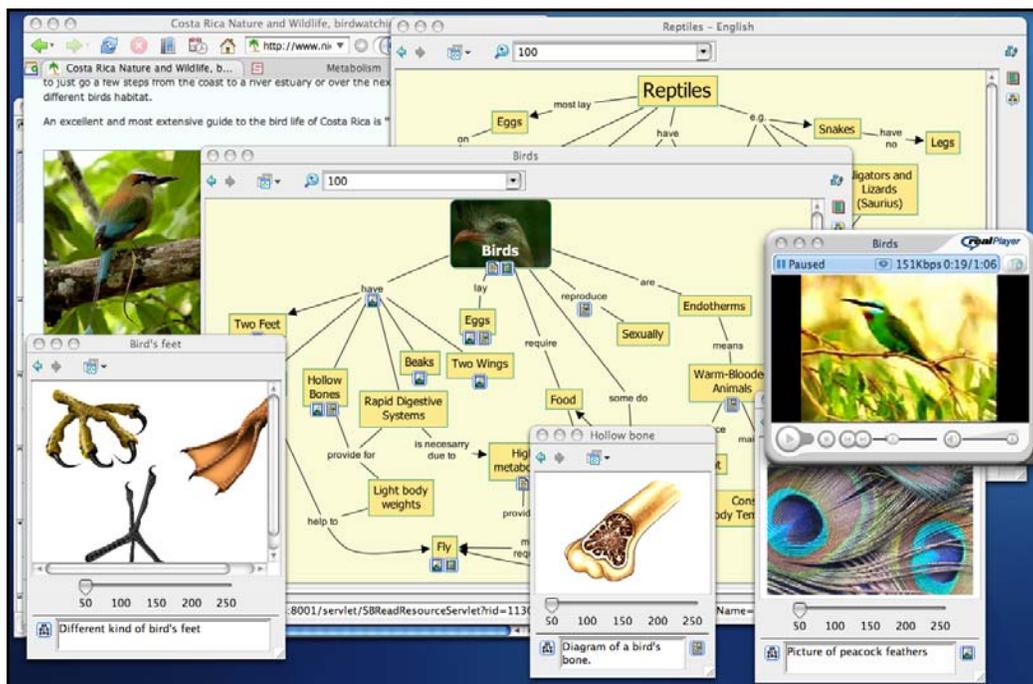


Figure 2. Concept map about birds created by high school student using CMapTools software that even allows for the addition of multimedia (Novak and Cañas 2006)

One of the important advantages of concept mapping as an evaluative tool is that it can be used for all stages of evaluation. An initial concept map can be used in front-end evaluation to better understand the knowledge base of the learner. This is essential information. “The most important single factor influencing learning is what the learner already knows. Ascertain this and teach accordingly” (Ausubel 1968). Concept maps can also be created during a program allowing for a formative evaluation of learning. Finally, and most importantly, the concept map is a powerful tool for a summative evaluation of how the knowledge of a learner has changed over the course of a program. By these means, it may be possible to create a visual representation of the process of “scaffolding” from the perspective of the learner.

Another key advantage is that a concept map provides both qualitative and quantitative data. The map is written in the words of the learner and shows their knowledge of a given concept. This data can be evaluated in a more qualitative manner. Yet, the concept map can also be “quantified” by placing “scores” on the number of key concepts listed, the complexity of the hierarchy developed, and the amount of cross-links created. The quantification of concepts maps has been successfully demonstrated by Davis (2005) in her work at Crow Canyon Archaeological Center. Concept mapping provided a critical source of data regarding how students understood the Pueblo past and how those understandings changed as a result of the education program at Crow Canyon.

Although there may not be a single correct way to evaluate archaeology education programs, it is crucial to keep in mind that evaluations should be performed at all stages of the program and that a triangulation of several sets of data should be used. The work of Davis (2005) provides an excellent example actually focused on archaeology education. In the course of her research, she conducted front-end, formative, and summative evaluations using concept maps, ethnographic interviews, and survey questionnaires. The data was analyzed through the use of triangulation. As Davis (2005:64) states, “The value in amassing a large amount of data, and from different sources, is that it provides multiple ways to examine and verify research findings and, thus, helps establish both validity and reliability.”

Yet, given the constraints of many archaeology education programs, we are sometimes unable to produce such large data sets to evaluate our programs. That said, it remains crucial that we develop programs with specific learning objectives and that we attempt some form of evaluation to assess our success or failure in meeting these objectives. With that in mind, I would like to offer three differing examples of programs undertaken at The Hermitage in the summer of 2007.

Learning Situations at The Hermitage

The Hermitage is a 1,120-acre National Historic Landmark, which consists of President Andrew Jackson’s entire antebellum plantation. The site includes numerous original buildings as well as archaeological sites, which date to Jackson’s occupation of the property. Archaeology was first undertaken at The Hermitage in 1970. However, the first research-oriented archaeology was not accomplished until Samuel D. Smith began several years of fieldwork at the museum in 1974. In 1988, Larry McKee was hired as The Hermitage’s first Director of Archaeology and, from 1988 to 2006, the Hermitage Archaeology Department was engaged in field excavation every year. Over the course of 38 years, more than 800,000 artifacts have been recovered at The Hermitage. These artifacts represent one of the largest and most important collections of material culture from a single enslaved African American community in the world.

The summer of 2007 marked the first time in nearly twenty years that the Hermitage Archaeology Department did not undertake excavations on the property. “Exhibit digs” were extremely popular and volunteer participation in excavations was always high. In fact, The Hermitage became quite renowned for having excavations open to the public. However, with a considerable backlog of artifacts that had not been thoroughly analyzed, it was difficult to justify the controlled destruction of another archaeological resource at

the museum. When we made the decision to place a moratorium on field excavation, many museum staffers assumed that archaeology would disappear because (sarcasm added), “archaeology IS excavation.” Trying to directly confront this misconception of archaeology, we were faced with the challenge of continuing archaeological programming while, at the same time, discontinuing excavation.

To meet this challenge, we created three programs with differing audiences, objectives, and mechanisms for evaluation. The creation of these different programs allowed for a test of different methods with which to approach public archaeology. The first program was an archaeology field laboratory, which was created to keep an archaeological presence on the Hermitage landscape. The second program was a guided tour of an extant original slave quarter conducted by the Director of Archaeology. The final program was an archaeology summer camp, which had been previously established at the museum, but was completely revamped when we decided to halt excavations. Each of these programs presented unique challenges and opportunities for archaeology education and each varied in terms of its success.

Outreach versus Education: An Archaeology Field Laboratory

For nearly twenty years, archaeology has had a presence on the Hermitage landscape. “Exhibit digs” have been quite popular programs for visitors as well as volunteers. In fact, the first question that museum staffers receive from many return visitors during the summer is “So, where are you digging this year?” Since excavations were halted at the museum, we needed to find new ways to keep archaeology visible at The Hermitage.

Our current priority project is analyzing and cataloguing over 800,000 artifacts into a new database that will eventually be posted online through the Digital Archaeological Archive of Comparative Slavery (DAACS). We initially considered having laboratory tours. However, it was apparent that the tours would not provide a comparable visibility for archaeology at the museum as in years past. We opted instead to open an archaeology field laboratory in a prominent area on the museum grounds.

The archaeology field laboratory consisted of a twenty-foot by ten-foot tent inside of which we set up three folding tables to create a U-shaped workspace, which visitors could approach from all sides. We also hung a large banner on the tent, which read, “Hermitage Archaeology: It’s not what you find but what you find out” (Figure 3). We located the tent directly in front of the “Triplex,” which is a non-extant brick slave cabin located behind the Hermitage mansion. During the 1930s, the Works Progress Administration (WPA) built another structure directly on the original foundation of the Triplex. This building has since been demolished, but its foundation, which approximates the foundation of the slave cabin remains as a visible feature on the museum grounds and is interpreted with a sign.



Figure 3. Archaeology field laboratory banner

The location of the archaeology field laboratory was chosen for several reasons. First of all, this area receives a great deal of visitation given its proximity to the mansion. This location was ideal given that we wanted to reach a broad audience, which included all visitors to the museum. Second, we are currently analyzing and cataloguing artifacts that were recovered from the Triplex in 1993. We thought that having this direct connection to the place of recovery would approximate the archaeological “discovery” process. We

emphasized this idea in our promotional materials which read in part, “Come see the many fascinating finds that are revealing more secrets about the lives that the enslaved forged for themselves in spite of their bondage. It is all the fun and excitement of archaeology without the dirt and sweat!”

The audience for this program had the potential to include all visitors to the museum. This meant that the audience would include adults and children in family groups, tour groups, and as individuals. Generally, no more than four to five individuals visited the tent at a single time. We formed a single learning objective for the program: archaeology is more than excavation. If nothing else, our visitors were to walk away from our tent understanding that only a small fraction of an archaeologist’s job actually involves excavation. We wanted them to understand that the bulk of the work begins after the finds have been recovered. We also hoped that they would realize that archaeology is a destructive science and that archaeological resources are endangered not only from development and pothunters, but also from archaeologists themselves.

To achieve this objective, we created a workstation in the tent and allowed our archaeological laboratory technician to do her job. The tent and the banner naturally attracted curious visitors to come closer. Many visitors were cautious and quiet, not wanting to disturb the “important” work of the archaeologist. Others barged in with the classic line, “Find any gold yet?” This was particularly interesting given that there was no excavation at the site. We sacrificed productivity in our laboratory work to greet each visitor, encourage their questions, and let them know what we were doing. We used a laptop computer to show each visitor how much information is recorded for a single artifact and how important each artifact is to our understanding of the site. Most visitors were astonished at the attention paid to a sherd of broken ceramic or a rusty nail. We believe that this “astonishment” was indicative of a “zone of proximal development” for the visitors. This astonishment prompted the creation of “intermental” knowledge that “archaeology is more than excavation.”

However, due to a lack of resources, we were unable to conduct an evaluation of this program. It should be apparent that we could have conducted an evaluation either by informal interviews or perhaps survey questionnaires following a visit to the archaeology field laboratory. We hope that the astonishment which led to “intermental” knowledge between visitor and laboratory technician ended up creating a new “intramental” knowledge about archaeology. We were definitely able to create an active learning situation with a hands-on demonstration of artifacts and our database. Yet, we have no data, either quantitative or qualitative, to show that we met our learning objectives.

The archaeology field laboratory provides two important lessons. First of all, in a “real world,” situation, we may not have the resources to conduct evaluations. This does not mean that we should not continue with our educational efforts nor does it mean that we should abandon the creation of learning objectives for our programs. This example shows that each situation may demand a different tack. Even though we may not have the resources to conduct an evaluation, we can undertake every educational opportunity with the same degree of care and consideration. Secondly, the archaeology field laboratory shows an important distinction between archaeology outreach and archaeology education. The primary learning objective for this program was to *teach about archaeology* rather than to *teach through archaeology*. This is not to say that the program was less valuable. However, it is important to recognize that there is difference between an educational experience in which you learn information about a discipline and an educational experience in which you learn new ways to think about the world.

Didactic versus Constructivist Pedagogy: A Guided Tour

In another attempt to keep an archaeological presence on the Hermitage landscape, we decided to create a special seasonal tour that was held twice a week. Entitled “From Frontier Farmhouse to Slave Quarter,” the tour was led by the Director of Archaeology and focused on two extant original slave cabins, which have been subjected to extensive archaeological investigation (Figure 4). One of the cabins was the home of the Jackson Family for approximately 15 years and the other functioned as a kitchen and slave housing. When the Jacksons moved to the brick mansion, they significantly remodeled the original cabin to make it more

“suitable” as a slave cabin. Among other things, this entailed removing one story of the structure as well as all the windows, which were replaced by shutters. Needless to say, the changes that the Jacksons made to the cabin provide a great opportunity to discuss the treatment of and attitudes towards the enslaved during this period.



Figure 4. Extant slave cabins with cabin in foreground being the Jackson's original home

Similar to the archaeology field laboratory, the audience for this program was diverse. On days when the tour was given, all visitors were informed about its location and time. The tour attracted groups of two to four visitors, usually adults, and never included more than ten visitors. There was one learning objective defined for this program: *how do we understand the enslaved experience through archaeology?* In this case, we considered “archaeology” to not only include traditional archaeological evidence, such as artifacts, but also standing architecture, primary documents, oral history, etc. For instance, the extant cabins served as hands-on “artifacts” allowing visitors to experience “enslaved space.” In addition to the cabins, there also exist interpretive signs with drawings and photographs as well as archaeological artifacts exhibited in cases within the cabins. Frequently, the Director of Archaeology would bring additional artifacts from the collection for another hands-on opportunity.

Traditionally, guided tours are rather scripted experiences. In this way, these tours tend to use a pedagogy that would fall within the realm of “didactic, expository” education or “stimulus-response” education. However, in aligning our educational programs with a constructivist theory of learning, we wanted to create pedagogy that was more in line with “discovery learning” and “constructivism.” We decided to continue to use a modified script. Yet, instead of being the entire content of the tour, the script was used to create a knowledge base for all participants. In this way, the script became the formal presentation of the “intramental” knowledge of the guide. We considered this essential to create a learning situation in which all participants considered themselves equals and were willing to engage in the creation of “intermental” knowledge. Then, we created an active learning environment through the use of architectural space, artifacts, and archaeological features, such as root cellars. These hands-on materials served as the “nuts and bolts” with which we were able to construct our “scaffolds” for learning.

Approaching a tour in such a manner was a slightly frightening possibility. The success of the program primarily rested on the ability of the guide to create an active learning situation but also upon the willingness

of the visitor to engage in the creation of “intermental” knowledge. In some instances, visitors failed to actively engage with the guide despite numerous attempts at prompting their participation. When this situation occurred, the guide conducted the tour in a rather traditional manner using a “didactic, expository” pedagogy to deliver information to a passive audience. We are fairly certain that a degree of learning did occur in these instances, but, as with the archaeology field laboratory, a lack of resources prevented us from undertaking an evaluation on pre- and post-tour understandings of the subject.

However, in the majority of cases, the visitors were more than willing to engage in the creation of “intermental” knowledge. The most notable instances of this type of engagement were prompted by a single archaeological feature, a root cellar. Following archaeological excavations of the cabins, one of the many root cellars discovered was not backfilled. This brick-lined cellar was then made visible to visitors by placing a plate of glass in the spot on the cabin floor where we assumed a trap door would have existed to access the cellar. In an otherwise rustic and empty cabin, a “window” in the floor drew a great deal of attention from visitors (Figure 5). This single feature prompted numerous questions and in so doing allowed the guide access to the “zone of proximal development” of the visitor.



Figure 5. Root cellar exhibited within an extant slave cabin at The Hermitage

The first question from visitors was always the most obvious, “What is this?” The guide would answer, “That’s a root cellar.” Although we had instances of older visitors or visitors from rural areas being able to explain their personal experience, or “intramental” knowledge, of a “root cellar” to the group, the guide was often confronted with the logical next question, “What’s a root cellar?” One particular conversation with a seven-year-old boy and his mother provides an excellent example of how the simple prompting by one archaeological feature could lead to the creation of “intermental” knowledge.

Boy: “What’s a root cellar?”

Guide: “Well, it is a place to store roots.”

Boy: “Why?”

Mother: “Roots are food.”

Guide: "That's right. I bet that you eat roots. Can you think of any?"

Boy: "Carrots!"

Mother and guide affirm the boy's answer with nods.

Mother: "Can you think of any others?"

Boy: "Potatoes ..."

[It is obvious that the boy's understanding of "roots" meant things under the ground and since our learning objective was not about difference between roots, tubers, etc., we allowed the boy to continue with this "intramental" knowledge of "roots."]

Boy: "... onions ..."

Guide: "That's right. And, where ..."

Boy: "... sweet potato ..."

Mother: "That's good honey. Now, listen to the man."

Guide: "Now, where do you keep those roots in your house?"

Boy: "The refrigerator."

Guide: "Yep. So, a root cellar is kind of like a refrigerator. Isn't that weird?"

Boy: "Yeah."

Guide: "But, you see, if you have a hole in the ground, the dirt keeps things cool like your refrigerator."

Boy: "Oh."

Guide: "But, you know, when archaeologists dig up these root cellars, they find other stuff besides roots. Stuff like toys, tools, and medicine. Do you keep your toys in the refrigerator?"

Boy: Laughing, "No!"

Guide: "Where do you keep your toys?"

Boy: "In my room."

Mother: "Or, all over the house."

Guide laughs at mother's joke. And, while looking confused at first, the boy seems to understand his mother made a joke and he smiles.

Guide: "But, where in your room?"

Boy: "In a box."

Guide: Referring to the cabin, “Are there any boxes in this room?”

Boy: “No.”

Guide: “Well, when folks lived here, they didn’t have boxes or closets or dressers or bureaus.”

Mother: Emphatically, “Really?!”

Guide nods.

Guide: “So, the slaves stored other things in the root cellar as well. But, you know what?”

Boy: “What?”

Guide: “We found a lot of root cellars under this cabin. Some this big. Some lined with brick. Some lined with wood. Some just holes in the dirt. Most of them were very small.”

Boy: Excited, “Can I see them?”

Guide: “No. We put dirt back over them. But, why do you think that there were so many?”

Boy: “Lots of people lived here.”

[Part of the “script” included a discussion of how many people would have lived in each room of the cabin. We estimate the number at eight to ten based on the known number of slaves and the known number of living spaces.]

Guide: “You’re right. And, those people probably wanted a place to put their things. Maybe they had some things that they didn’t want anyone to know about. Do you have things that you don’t want your sister or brother to see?”

Boy: “I don’t have a sister or brother.”

Guide: “O. Well, maybe there are things that you don’t want your mom or dad to see?”

The boy looks at his mother.

Guide: “You don’t have to tell me. We will just keep it between us.”

The mother smiles at the boy and the guide.

Guide: “But, if you didn’t have any boxes or closets, you might want to dig a little hole to have your own little place to put things. It would be your place and you could hide things from your mom and dad or maybe other people. Who would you hide things from if you lived here?”

The boy shrugs.

Guide: “Remember we talked about how the folks who lived here were enslaved ... they were slaves.”

[Part of the script included a discussion of slavery and what it meant to be a slave.]

Guide: Pointing out the cabin door to a neighboring field, “General Jackson owned these folks like he owned those cows. He told them what to do and when to do it. And, they couldn’t say ‘no.’ He also could tell them what they could have and what they couldn’t have. So, the General could say if you could ...”

Boy: “Maybe hide it from General Jackson.”

The conversation between the guide, the boy, and his mother was rather typical of the learning situations created when visitors were willing to engage in the creation of “intermental” knowledge. Although we did not conduct a more formal evaluation of this program, these informally recorded dialogues provide evidence of the success of “scaffolding” as a technique with which to create “intermental” knowledge, which will hopefully lead to new “intramental” knowledge for each of the participants. In the future, we hope to use concept mapping as a means to assess these type of learning situations.

Public Archaeology in Practice: An Archaeology Summer Camp

An archaeology summer camp had been previously established at The Hermitage. The camp consisted of one half-day session in which students of ages from 8 to 14 were given a brief lesson on archaeology and then were trained in how to excavate, most notably by “excavating” chocolate chips out of a cookie with a toothpick. The students were then sent to the active excavation to participate in actual field research. Following about an hour on site, they were brought back inside to wash artifacts. Given that the primary focus of this summer camp was excavation and field methods, we faced a tremendous challenge when we decided to halt active excavations on the property.

The program was completely reassessed and reformulated using materials produced by Project Archaeology (Smith et al. 1996). Two primary learning objectives were created for the program: 1) to teach critical thinking skills through a lesson on observation and inference; and, 2) to teach cultural relativism through a lesson on how culture is essential in meeting basic human needs. Lesson plans were created using the first three chapters of *Intrigue of the Past* (Smith et al. 1996). A faux archaeological site was created. This faux site consisted of five one-by-one meter units in a checkerboard pattern with a recreated brick slave cabin foundation extending throughout each unit (Figure 6). The faux site was an exact replica of one of the five brick slave cabins that have been excavated at The Hermitage. Reproduction artifacts consistent with actual finds were strategically placed in the units and the units were backfilled with sand.

In keeping with the previously established scheduling, the archaeology summer camp was conducted as a single half-day session. Participation in each session varied, but each class consisted of four to eight students, who were aged from 8 to 12 years. Some of these students had previously participated in Hermitage archaeology summer camps, which was a cause for concern as some museum staffers thought that students who had excavated the “real thing” would not be interested in a faux site. Yet, since the act of excavation was not the focus of the learning experience, this was not a significant issue. Another concern of some staff was the age appropriateness of teaching such “complex” concepts as cultural relativism. These fears were almost immediately alleviated as students showed their full comprehension of cultural relativism by telling staff, “Well, no, duh,” even before we could finish the lesson.

Given that the program only lasted a few hours, we decided that it would not be a good use of time to perform front-end evaluations and it would not be logical to undertake formative evaluations. The program instead relied on the skill of the educator to make immediate informal evaluations of the student’s knowledge base. Using the technique of “scaffolding,” the educator assessed the student’s “intramental” knowledge of a given concept or idea. The one difficulty with the use of “scaffolding” in this manner is that its success is greatly dependent upon the skill of the educator. During the program, we noted that there was a greater variability in the “zones of proximal development” of individual students. We attributed this fact to the differences in ages between students. However, this variability was beneficial to the program in that it

encouraged a more communal type of learning where students created “intermental” knowledge with their peers as much as with an educator.



Figure 6. Faux archaeological site that replicates the foundation of a brick slave cabin

Since we lacked the time to undertake a formal evaluation of the program, we needed to create an informal way to assess student learning in relation to our learning objectives. In this case, concept mapping would have been the preferred method. However, due to time constraints, we decided it would not be feasible. Instead, we used the archaeological process itself to evaluate how well the students were able to learn the critical thinking skills necessary to recognize the distinction between “observation” and “inference.”

After having a classroom lesson on observation and inference developed by Project Archaeology (Smith et al. 1996:14-18), we conducted an archaeological investigation of our faux site. Students were assigned excavation units and followed standard excavation methods rather well with little supervision. When they finished “digging,” they had to draw a map of the features in their units. Then, they went inside to analyze their finds. Students worked with their “pit partner” first to inventory their finds and then to begin to come up with ideas. The partners then collaborated with other groups to find possible cross mends for their artifacts. This collaboration led to further discussions between groups about ideas of what their finds were and what they might mean. Finally, each excavation group was required to present their findings to the group as a whole. The other groups were allowed to provide comment and feedback based on their own findings. As the students presented their findings to the larger group, the group actually used the concepts of “observation” and “inference” to critique the presentations. In fact, these important concepts became the primary way in which the group not only critiqued each other but also came to a communal consensus about their archaeological investigation. This was accomplished without any prompting from the educator.

While this approach to archaeology education is definitely not revolutionary, it seems apparent that the use of “scaffolding” allowed students to use their “intramental” knowledge to create “intermental” knowledge that then became new “intramental” knowledge. Most importantly, that knowledge was not just about

archaeology. The knowledge was actually a way of critically engaging with the “real world” and “interpretations” of that same world.

Professionalization of Archaeology Education

As the field of public archaeology continues to grow, there will be and there should be increased debate concerning the identity of this endeavor. I argue that public archaeology should become its own sub-discipline of archaeology. In this way, public archaeology would become synonymous with archaeology education and stand distinct from the related endeavors of archaeology outreach and teaching archaeology. Public archaeology would have as its primary mission *teaching through archaeology* rather than *teaching about archaeology*. The goal of this mission would be to use archaeology as a tool with which to capture the imagination, create active learning situations, and teach lessons that are critical for a democratic citizenry, such as critical thinking and cultural relativism.

In this paper, I suggested that public archaeology needs to draw from the fields of education and museum studies, which have produced a tremendous body of literature on the process of learning. More specifically, I advocated the use of constructivist theories of learning and pedagogies, which create an “active learning situation in which learners have the opportunity to manipulate, explore and experiment” (Hein 1998:38). I presented “scaffolding” as one example of a constructivist pedagogy. I also emphasized the critical importance of developing learning objectives for every program undertaken. These learning objectives form the necessary foundation for evaluative research on the efficacy of any program. Assessment and evaluation will be key components in the continued professionalization of public archaeology. In this regard, concept mapping is one technique that may prove valuable in an approach to evaluation which stresses the triangulation of multiple data sources.

The examples of programs at The Hermitage highlighted the main arguments of the paper. The archaeology field laboratory was an undertaking of archaeology outreach rather than archaeology education. Yet, we still defined learning objectives for the program and would have carried out evaluations if the resources were available. The guided tour demonstrated the efficacy of “scaffolding” as a teaching technique and also illustrated our ability to evaluate programs with limited resources by informally recording the learning process. The archaeology summer camp revealed the ability of students to create “intermental” knowledge with a teacher as well as peers and in a short time create “intramental” knowledge from that understanding. Students applied this new knowledge base to critique their fellow students’ inferences based on observations from the faux archaeological excavation. This application of knowledge provided a tremendous way to evaluate student learning through a real life exercise.

In *Methods and Aims in Archaeology*, William Flinders Petrie (1904) made the statement that began this paper: “Archaeology – the knowledge of how man has acquired his present position and powers – is one of the widest studies, best fitted to open the mind, and to produce that type of wide interests and toleration which is the highest result of education.” Over a century later, we are just beginning to understand the deep implications of these words. Indeed archaeology is a discipline “best fitted to open the mind” and “produce ... wide interests and toleration.” But, it is not in learning about the practice of archaeology that we can unleash this powerful educational potential. It is in teaching through archaeology that we can achieve this goal. And, when we reach this goal, we will no longer evaluate our public archaeology programs by how well they have met their learning objectives, but instead, we will measure our success by how well we have created an educated citizenry capable of sustaining a functioning and, perhaps even more so, a thriving democracy.

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