11

The past in the future: e-learning, multimedia and archaeological heritage in the digital age *François Bertemes & Peter F. Biehl*

Abstract

Archaeology and archaeological heritage management are undergoing a revolution, with doing and presenting the practical work and theoretical questions regarding what knowledge is communicated and how the specialist community and the public is engaged in this knowledge production and knowledge transfer. Multimedia technology and the internet have also inaugurated a new chapter in the way archaeology and heritage management is taught. But although the past ten years have witnessed a dramatic increase in archaeological digital projects around the world, we have to acknowledge that there are major shortcomings in transmitting of this knowledge to our students, the specialists and the public alike. E-Learning offers the tools and methodology to remedy this and to help to producing and communicating sustainable archaeological knowledge about our threatened cultural heritage. This paper discusses ways how e-learning and multimedia can help to serve both communities and contribute to a sustainable development of archaeological heritage in Europe in the digital age. As such, it outlines how multimedia can be applied in teaching and practicing archaeology from online-teaching platforms to excavating, analyzing, processing and interpreting the past as well as communicating and popularising archaeology to the public.

Introduction

On the background of the continuing financial crisis and the cuts to public funding it has become pivotal to better 'communicating archaeology' to the public (Biehl 2005: 240; see also Hamilakis 2001: 5). The best way to popularise, popularization as a key strategy to engage with the public via media (Biehl 2005: 244 – 247; Daum 1998: 25; especially Brittain and Clack: 30 – 31),

archaeology is via multimedia. It's easy to learn, inexpensive, efficient, powerful and fast. The best way to start such an endeavour in archaeology is to study the theory and practice how to use multimedia in the classroom as well as in the field. The students have to get acquainted to the process of transporting their acquired knowledge to archaeologists/heritage manager *and* to the public. They have to understand the potentials the new tools provide for popularising archaeology but they also have to be aware of the dangers embedded in these processes.

The use of multimedia in museums and heritage management services is currently taken for granted. Therefore, the procurement of an overall media competence in future archaeologists should already have been achieved during academic studies and ideally already during undergraduate studies.

Multimedia in Archaeology

Multimedia (and hypermedia) are hot topics these days and around the world, archaeologists are increasingly taking advantage of them to enhance their research. This began in 1997 with the influential Special Review Section on 'Electronic Archaeology', edited and introduced by Sarah Champion (Antiquity 71, 1997, 1027 – 1076). We can differentiate among six different domains in electronic/digital archaeology or the so-called 'E-Archaeology': First, the World Wide Web itself, second, electronic publishing (journal and monographs), third, electronic communication groups, forums and lists, fourth, electronic archiving (server and cd-roms and dvd's), fifth, e-learning and e-teaching and finally sixth, the application of hyper- and multimedia in archaeology (Biehl 2002: 147). But as much as they like applying new technology, few archaeologists are interested in reading about it. After all, they say, new media really belongs to the world of computer programmers, graphic designers and commercial managers. Archaeologists may use some of its tools, but its relevance to archaeology is minimal and it has nothing 'directly' to do with archaeology. Or does it? In the past decade, we can witness that far from being marginal, technology is rapidly sliding to the center of archaeology (see publications such as Kamermans and Fennema 1996, Altekamp and Tiedemann 1999, Barceló *et al*. 2000, Lock and Brown 2000, Lock 2006, Richards and Robinson 2000, Morrison, Popham and Wikander 2000, etc.). New media is revolutionizing both practice and theory as well as methods of engagement, publicity and media relationships in archaeology. With its speed and simplicity of explanation, new media can

– in fact, has already begun to – alter the way we as specialists view our work (Myrup Kristensen 2007: 73). It has also shifted the way the public regards archaeology (Biehl and Gramsch 2001, 271 – 273).

The terms *multimedia* (and *hypermedia*) and *new media* emerged in computer science circles in the 1980s (For an excellent introduction to the subject and stringent definitions see Steinmetz 2000, especially 695 – 742). Multimedia refers to the integration of graphics, sound, video, and animation into documents or files. The files are then linked in an associative system of information storage and retrieval. It is especially through hypermedia that the archaeologist can engage with the public and students in a much more powerful way: files contain cross-references called hyperlinks that connect to other files with related information. In a way, you can consider them very smart footnotes that lead you through an endless maze of information. By using hyperlinks, users can move – or as the computer scientists say – 'navigate' from one document to another through these associations. Hypermedia is structured around the idea of offering a working and learning environment that parallels human thinking – that is, an environment that allows the user to make associations between topics rather than move sequentially from one to the next, as in an alphabetical list. Hypermedia topics are thus linked in a manner that allows the user to jump from subject to related subject in searching for information. If the information is primarily in text form, the document or file is called hypertext. If graphics, video, music, animation, or other elements are included, the document is called a hypermedia document. The potential of this new media was quickly understood and seized by businessmen, media outlets and academics. In the humanities, George Landow and Theodor Nelson have done some of the most extraordinary and pioneering work (Landow 1992, 1997, Nelson 1981, 1987).

Archaeologists, too, have responded and every year, more multimedia tools are being used in our publications, documentation and communication with colleagues. The transition is remarkable and is allowing us to collect, process, store and disseminate archaeological data with never-before-achieved speed, facility and accuracy (Biehl 2002: 148).

But more than technical wizardry, new media offers stunning epistemological and theoretical potential for archaeologists and their engagement with the public and students. Since hyperlinks work with the same sort of roving associations made by the human mind, using hyperlinks actually facilitates learning and understanding (Keil-Slawik 1997, Fritsch 1998, Wydra 1999).

They move with the user, instead of forcing him/her to follow a preordained pattern. They also transform the static into the dynamic. For instance, instead of seeing a drawing of a plan of a house with cooking pots, tools and rubbish strewn about, a student could be shown a whole environment, complete with sound and movement. If a student is interested in learning more about the pots, s/he could just click on them on an e-learning platform to get more information. Or, if s/he wants to know what the rubbish is, s/he could be presented with a variety of possible theories, some of which may be contradictory. The paths are not only multiple, they are interrelated. When looking at a text, the user – who could be an archaeologist, a student or simply a curious reader – does not have to read everything from start to finish. S/he can follow her/him own interests and even participate in the interpretation of a site, monument or object.

Communicating Archaeology

But what else can multimedia do to better communicate archaeology? Let's start with the way archaeology is published. Martin Carver has recently laid out how 'open access' will dramatically change the way archaeology will be published and communicated in the near future (see Carver 2007). But still, the vast majority of archaeological texts is published 'traditionally' in paper form in journals or books and count on passive readers. The author has the sole voice and the texts usually do not incite the reader to think about new ways of reading or thinking about archaeological data. In hypertext, on the other hand, the reader is forced to make choices and decisions and to become implicated in the construction of an account or interpretation of textual and visual material. In 'hypertext archaeology' the reader can click and move out of a text and search for references within a global network of information. The widespread availability and low cost of digital information flow also allows us to disseminate and communicate easily across international borders.

Since they shift points of entry and viewpoints, new information technologies raise significant problems of authorship and control (Carver 2007: 140 – 141). Archaeological site reports have increasingly become collaborative, and new technology allows a radical extension of this process. Placed on the web or in some interactive hypertext environment, a site report can be continually commented upon and its original integrity can be enhanced. It can also be lost. As the autonomy and fixed nature of the text disintegrate, the

author has less mastery and control over the message, some even speak of 'the death of the author' (Hodder 1999).

In the end, there can be as many understandings and interpretations of a text and data as there are users/readers and writers. Applied to the web site of famous excavation sites such as Çatalhöyük or Troy (www.catalhoyuk.com, www.troia.de), this could open up completely new trajectories for doing archaeological research as well as engaging with the public. For instance, we could link databases, house plans and stratigraphies and the material culture found in them with re-constructions or with personalized diaries of the excavators. This would not only bring a new dimension to learning via e-learning about the find, but would also provide a solid record of how data was collected and teamwork experienced. The data of the excavation report could also be linked to an interactive bibliography, where one could get current as well as past research studies on the site and any related ones. The bibliography and the report could be linked on the e-learning platform to a virtual reality reconstruction of the site. That site could then be hyperlinked to texts relevant to the discussion that appear in scientific journals and the press. Even a technology-skeptic must admit this would be a profound accomplishment and teaching/learning tool as well as a completely new way to popularize archaeology.

In summary, archaeological publications based on hypermedia, such as e-books, e-journals, website publishing and books with multimedia cd-roms or dvd's promote and facilitate *multivocality* and can easily integrated in an e-learning platform. Like hypertext and hypermedia, multivocality functions on the premise that fragments can be linked in such a way to form a comprehensive whole. As such, it emphasizes the past as dialogue rather than monologue. Many voices share in the conversation, rather than one unified 'us' voice. Hypermedia technologies are, therefore, better suited than linear publications for engaging with the public and to better communicate with other archaeologists in analyzing and interpreting archaeological data. The same is true in the knowledge transfer to archaeology students via e-learning platforms.

How archaeology is presented to the students as well as the public can also be enhanced and improved by hypermedia in a variety of ways, including virtual reality demonstrations and the use of narrative. It took a lot of years of struggle, but archaeologists today have grown accustomed to thinking of the past as something not wholly real. We now accept that the past is at least

partly defined by how we reconstruct it and is therefore artificial and 'virtual'. This is true of all elements, from our data catalogues to our site reports to modern research topics involving landscape. New technology allows us to produce digital information for which we can easily change the font, size of letters or lay-out to enhance or emphasize our point – or merely to study specific data more efficiently. What we then create is a virtual representation, not the real artifact, monument or landscape. We have also shifted our focus from specific 'monuments' such as graves, settlements or hoards, to looking carefully at how monuments and landscapes were perceived by the people using them (Biehl and Gramsch 2002, 121 – 123). By employing 'virtual/digital archaeology' we can re-construct these monuments and landscapes and better study them as a whole (Barceló, Forte and Sanders 2000).

In addition to creating a more visual vision of the past through virtual re-constructions, we have also begun to make the past livelier by introducing narratives about peoples and individuals. This is a hot topic, but many archaeologists regard this practice with skepticism, believing it moves too close to the realm of fiction. Certainly, the technique is useful, but to date, we have not found a way of convincingly embedding it in our work. Narratives can be dangerous when they attempt to provide sweeping stories about large migrations of prehistoric peoples. They are at their most useful, however, when they are applied to the 'lives' of individuals, as Ruth Tringham does in her hypertext account of Opovo (Tringham 2007).

Although it is fragmented, hypertext is grounded in linearity. There is almost always a 'menu' to which the user can continually return, and there are buttons directing a user to 'click here' or 'start here'. And, although the user can choose what direction s/he goes, s/he certainly follows some sort of path through the hypertext environment. In this way, the past is experienced as a network or a map, rather than a one-dimensional road (see also Holtorf 2000, http://citdpress.utsc.utoronto.ca/holtorf/index.html).

Hypermedia also fills another gap in recent theoretical discussion – the profound need for more 'critique'. A user can read a text side by side with critiques of the text simply by pressing a button. Or, a user can call up a text along with the data supporting it, or compare reports of stratigraphical relationships to field photographs or videos. Clearly, this adds dimension ('reflexivity') and depth to our ability to scrutinize each other and ourselves. One of the biggest problems in easing multimedia into archaeology has less to do with the medium than the users, as has been pointed out. In the article

'Cyberspace/Cyberpast/Cybernation: Constructing Hellenism in Hyperreality', Yannis Hamilakis says 'the representation of archaeological production on the Internet is a phenomenon which has barely been touched upon. To date, most archaeological discussion seems to treat the Internet simply as a technological device' (Hamilakis 2000: 257). He adds, 'the links between antiquity/archaeology and cyberspace is a topic which has not been explored in any systematic way. Yet the issue has important implications for the nature of the archaeological process in the present and the notion of archaeological authorship, as well as for the construction of archaeological knowledges' (Hamilakis 2000: 243). Clearly, we need to work harder at integrating technology into our thought-processes and work styles and powerful databases are here the key.

'In years to come, communication in archaeology is going to take a number of new forms – some predicted, some that we cannot yet know' (Harding 2007: 130). Harding is also right when he predicts that 'the public's appetite for archaeology is not going to die out' but also that 'we have the duty to make sure that it is fed with interesting stories that remain authoritative… There are always going to be discoveries to fascinate and inspire; our task is to make sure they are treated professionally in every respect, from unearthing, through post-excavation study, to publication – and dissemination to both specialist abd non-specialist audiences' (Harding 2007: 130). This module tried to demonstrate that training in the methods of engagement and media relationships are crucial to achieve this goal and in fact easy to undertake with multimedia technologies.

Knowledge Production

Our assertion is that knowledge is a practice; it is knowing how to adjust to a specific social-material setting (Smith 1996; Brown and Duguid 2000). Knowledge is also performance: it is embodied in practice, not something we have, nor even something we can name consistently, but something we do (Boast and Biehl in press). Moreover, a necessary condition for the generation of knowledge is engagement with other agents, other people and other things. However, engagement involves more than perception and cognition. It involves purposiveness and interpretation – intentionality. Traditionally, the performance of archaeological knowledge tends to use two modes of representation, the interpretative and the classificatory, and there is a conflict

between these two approaches. The systematic classificatory approach denies, fundamentally, the role of an object as citation. It gives fundamental primacy to the definitive account upon which all other secondary accounts are placed. While the interpretive engages with the classificatory only as a mode of access to objects as illustrations. While archaeology has become increasingly open to grassroots access and the ability of social computing to provide for greater audience participation, an important step of re-considering object citation and representation still has yet to be fully taken.

Representation must involve a consideration of the diverse ontological frameworks associated with different expert communities who have an informed experience and interaction with the object. Archaeologists, heritage managers, cultural preservationists, curators, and, critically, the local and regional public must all interact around the object, and influence its selection, acquisition, classification, and presentation. This allows for online information systems to perform as 'contact zones', spaces which foster incommensurability and dialogues that emerge from the different traditions within which the object has traveled (Pratt 1992; Clifford 1997).

Artifacts and sites, as pieces of tangible cultural heritage, are gateways to a number of intangible, yet critically connected, practices: the telling of a story, a prayer, a song, a fary tale, the process of research, the history of the exhibition, the relation to other objects, and so on. Therefore, we wish to re-expose these intangible processes around the object, through the consideration of 'multiple ontologies'. We find this goal for the module particularly pertinent and possible in the context of digital spaces and the possibilities of Web 2.0 create new models for re-thinking representation.

Archaeological practice has been experiencing many changes over the past three decades, not least in the reorientation of recording and interpretation from a singular and authoritative account to multiple conflicting accounts (Boast and Biehl in press). However, no matter how much has been argued for a pluralistic approach to interpretation and presentation, the intellectual control over the informational core of the recording, its catalogue of objects and relations, has largely remained in the hands of the elite experts. The maintenance of the archaeologist as academic gatekeeper has been replaced by the archaeologist as educational gatekeeper. This change is clearly represented in the dichotomy between the diversity of archaeological performances in on site and off (talks, guides, school tours, and exhibitions) and the acual record. While the archaeology allows many voices to be expressed from

different experts, authorities and even the public, rarely do these voices pass beyond a local and temporary performance, and rarely are they recorded in an enduring way in the site record or monument description. Despite the numerous recent technological innovations, which encourage contributions from a wide variety of distributed groups of users, traditional archaeological recording practices persist, with narrowly descriptive structures written by a small, select group of 'expert' contributors.

Visual Representation

Virtual representation for producing and communicating archaeological knowledge has become increasingly important in the field of archaeology and heritage management in the past few decades. But it is a given fact that there are great potentials and serious dangers when using multimedia technologies such as virtual reconstructions, 3D-animations etc. to popularize archaeology (Biehl 2005; Biehl, Bertemes and Northe in press), and we will discuss two case studies to illustrate this. Visual representations reproduce knowledge whether by reproducing likenesses of objects, places or people. Recorded data, organized in a more communicable form (i.e. visualization) or by reproducing the various interpretations of archaeologists and heritage managers. Van Dyke stresses that '…visual representations are integral to the production of knowledge and scholarly authority' (Van Dyke 2006). Visual representations are often used by archaeologists and heritage managers to not only communicate information to one another, but to also make their interpretations available to the public. In recent years one way this is being done through outreach programs using digital media. It's true that computers have been used by archaeologists for a long time (see Boast 2002), highly sophisticated and fast computer graphics have been available to archaeologists only in the past two decades. The 1980s marked the beginning of its use starting with the digital production of site plans, illustrations of artifacts and the results of the analysis of archaeological data. Computer graphics are a valuable tool allowing for the representation and manipulation of large amounts of complex data and has been labeled 'virtual archaeology' (Lehtonen 2005; Virtual archaeology applications 2008, Virtual archaeological methods 2008) and includes everything from reconstructions of sites and artifacts that can be created graphically from this amassed data to virtual reality reconstructions and 3D animations. Virtual (or digital) archaeology is a powerful tool in visualizing and understanding archaeological data as well as

producing and communicating it to the public (Evans and Daly 2006: 253). It is also an educational source for the general public and students in archaeology and heritage management. Many re-creations from greatly detailed archaeological sites have been created with standard modeling, rendering, and animation techniques. Digital archaeology allows for increased rates of publication of archaeological materials through the use of the internet. Its 'open-source-knowledge' allows to quickly and at low cost (or cost-free) to produce and communicate archaeological knowledge to an international specialist community, schools and the interested public alike and even get them interactively involved in this process.

Since funding is increasingly limited for both universities and heritage management, the internet becomes more and more pivotal for communicating archaeology (Biehl 2005). It is therefore necessary to produce and perform archaeological knowledge efficiently with multimedia applications so that it can be easily accessed by the public – one of the greatest resources for archaeology. Tourism is one of the worlds most powerful revenue source. Visits to archaeological sites are often greatly educational. Unfortunately, the nature of tourism is at the same time economically beneficial to not only the funding of archaeology and heritage management and the local economy, but sometimes also threatens the archaeological remains (Renfrew and Bahn 2008, 545 – 74).

One way to outreach to the public to keep its interest as well as preserve the fragile nature of many archaeological remains is through digital archaeology and the internet. The internet has greatly expanded communication networks and the distribution of educational materials. The rate at which archaeological information is available on the internet is ever-increasing. Site reports, virtual museums, digital reconstructions, and ideas are available almost instantaneously. Some even argue that the internet is increasingly becoming the most important way to publish archaeological sites because of the wide distribution of knowledge and frequency and ease of updates and new editions. The open-source quality of the archaeological knowledge on the internet provides the possibility to interactively modify, improve and redistribute the knowledge. 'The speed, range, and low cost of the internet have created new possibilities for dissemination and participation in knowledge construction and acquisition' (Hodder 1997). It allows for the opportunity of access to raw data and the ability to form ones own conclusions about archaeological materials. This has been seen as a move from hierarchical structure of interpretation to a more networked or multivocal approach.

These innovations bring with them the great potentials described above as well as serious dangers. Unfortunately, many online publications and site data are restricted in some form or another. Articles may require subscriptions to their online publications. Many of the journals that are only online are relatively small and not well-known, and well known journals of the same type, offered in print and digitally, may offer almost no free information.

Though it is a powerful tool for visualization, understanding, and communicating to the public, visual representations are biased, they encourage one particular interpretation over another (Van Dyke 2006). Levy points out that 'it is impossible to decide objectively between 'good' and 'bad' uses of the past; furthermore, there has been so much human movement, cultural mixing, and culture change in Europe that continuity from the past is a fiction' (Levy 2006). And there is a final danger with digital archaeology: its Eurocentric perspective. Not all countries offer speedy broadband connections to their universities, museums or heritage management services, not too speak from school or private households.

However, we would like to discuss briefly one case study in order to illustrate 'public outreach in the digital age' and to also discuss how archaeological knowledge is produced and communicated about online-museum collections.

Case Study Multimedia Applications at Çatalhöyük – Digital Places
An important and influential website is that of Çatalhöyük, Turkey; a significant Neolithic site discovered in 1958 in Central Anatolia and excavated 1959 – 1963 by James Mellaart and continued by Ian Hodder from 1992 (see www.catalhoyuk.com). The website features archive reports, databases, site management plans, illustrations, reconstructions, photographs, video documentations etc. This allows for analysis of the archaeological materials interested parties. The video documentation not only tracks the excavation processes but also the views of the excavators. These videos are put on the website to assure some sort of multi-vocality and have proven to be a good means to popularise the site and its archaeology on the one hand and to make it create a better understanding of it in the public on the other hand (Biehl/Gramsch 2002). Also included are lists of researchers and excavators, contact information, visitor instructions, forums and blogs to encourage open communication networks.

Çatalhöyük is a good example of the methodological turn virtual archae-ology offers for producing and communicating archaeological knowledge. The application of multimedia equipment such as video recording (Brill 2000, Stevanovic 2000, Wolle and Tringham 2000) enable a reflexive and fluid methodology at a large-scale excavation project and promote a reflexive, pluralistic and 'open' access to archaeological knowledge, and can disentangle 'the dichotomies between past and present, theory and method, interpreter and interpreted, subject and object, specialist and public, which are so troubling today' (Biehl 2002: 151). The latest trends in public outreach can also be studied at the Çatalhöyük project.

These cutting-edge and innovative projects are directed by Ruth Tringham and reach from 'remixing' (http://okapi.dreamhosters.com/remixing/main-page.html) to 'remediating' (see remediated places project: 'Senses of Places, the digital mediation of Cultural Heritage' http://chimeraspider.wordpress.com/) and 'Second Life' (http://slurl.com/secondlife/Okapi/128/128/0).

Still, documentation is one of the most important aspects of archaeology, including the listing of artifacts, mapping locations of sites, and positions and contexts of the artifacts within the strata. In order to create a detailed representation of an archaeological site or artifact, detailed measurements, observations, and collections of data need to be accumulated (Lehtonen 2005). The Total Station increases the speed at which finds and features can be recorded allowing for a much greater number of finds to be recorded in a smaller amount of time. This speed increases the accuracy and thorough-ness of excavations.

Archaeology often depends on archival data obtained by other archaeologists, or researchers in other fields. This can cause differences in the way things are documented including measurements units and language of data. Often databases are selective, and even when they are assessable, they may differ in size, format, or structure. Databases that have been compiled separately and are controlled by museums, government agencies as well as individuals and universities may have been created on different computer platforms (Snow *et al.* 2006). There is a voluminous of unpublished literature consisting of limited distribution reports and so-called grey literature that has been mainly produced commercial excavation firms and government agencies. As well as images, maps, and photographs embedded in museum catalogues and archaeological reports both published and unpublished.

Protocols are needed because of the confusion caused by modern political boundaries nevertheless irrelevant when talking about prehistoric, early historic or environmental contexts.

With the advancement of computer technology, virtual reality renderings have brought data to life. The Minnesota State University's E-Museum des-cribes VRML or Virtual Reality Modeling Language, as allowing archaeologists to convert 2D digital elevation models of sites using GIS data into 3D 'full color, photorealistic models that can be interactively explored' (Virtual archaeological methods 2008). 'GIS is a computer based set of procedures for storing, manipulating, analyzing, creating , and displaying spatially referenced data' (Davis 2005). Modeling allows for easily viewed and distinguishable stratigraphic layers and the relationships of those objects found within the strata (Uehara *et al.* 2001).

Virtual excavations use a computer tablet along with a GPS unit. It allows visitors to the site to see what the site would have looked like in the past, connecting far greater on a level of understanding a site with barely any visible signs of the past human presence. People can see a site in its original state, they can change their perspective, view the site without degradation by natural or human processes, and it can be viewed by a much larger number of people through the use of the internet (Uehara *et al.* 2001).

Computer programs aid in artifact assemblage by 'finding adjoining pieces in a large collection of irregular fragments by comparing their shapes' (Da Gama Leitao 2001).

Documentaries are also very important tools utilized in communicating archaeology to the public. They can be viewed on tv as well as through the internet (Van Dyke 2006). 'As an excavation progresses, the archaeologist never sees more than a single reference frame. As portions of a site are uncovered, they are recorded as data and a new reference frame is revealed while the first is forever destroyed by virtue of the second being revealed. By modeling the data, both artifacts and the matrix of associated soils, rocks, floral, faunal and other documented finds, the researcher can essentially paint a motion picture of the excavation' and the past (Applications 2008).

Conclusions – Contextualizing Knowledge Production
and Communication

At the end of this paper we present not so much a conclusion or summary as a postscript. The case study raises several issues that have always been there,

but have been largely neglected. The need for information in narrative form and the power of diverse contextualization of 'digital places' (excavation projects) and 'digital objects'. This suggests two major stages of access:

The first stage is the importance of understanding how to present digital places and objects to multiple publics. Though this is not a study of semantics, semantics are not, in themselves, a useful way forward for public outreach of archaeological knowledge. Semantics, and the Semantic Web, start from the assumption that syntax is the bridge between ontology and epistemology. The module presented here suggests that understanding requires a consensus and participation from those using the information. That the relevance of the digital places and objects arises not from the semantic designation of the place or object, nor from its role as an illustration of some definitive story, but from a context of use. That the context of these rich representations must be made apparent, and that through this dialog with diverse images, accounts, and descriptions, others can begin to construct a meaningful understanding of these objects, sites and practices. It is also through the process of meaningful use that others can begin to expand these understandings.

The usual response to this need has been to create interfaces to the information. Much of Web 2.0 operates on this assumption, with some real success. Provide users with a platform for interaction and use, and leave them to do it. However, this ignores the problem of context. Web 2.0 offers a space for exploring the power of appropriation and re-use of digital places and objects, but this must be extended to consider the ability to contextualize and engage local and vernacular accounts of digital places and objects from diverse communities. Future research shall continue to probe these critical issues and enable digital performance to serve as environments that support the generation, representation and transfer of archaeological knowledge in, by, and for diverse communities.

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