

## INTERWEAVING DIGITAL NARRATIVES WITH DYNAMIC ARCHAEOLOGICAL DATABASES FOR THE PUBLIC PRESENTATION OF CULTURAL HERITAGE

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ABSTRACT

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This paper describes a project that is currently being carried out in collaboration with the Interactive University of UC Berkeley in which a relational database comprising the contexts, materials, observations, and interpretations in visual, numerical and textual format from Neolithic excavations in Turkey (Çatalhöyük) and Yugoslavia (Opovo) provides the basic architecture for a series of hyperlinked "vignettes". The vignettes comprise an interface on the Internet through which a multi-generational and multivocal public can explore and respect and contribute to cultural heritage. They are guided through the exploration of real data and can contribute dynamically with their own interpretations. The emphasis here is on multiscale interpretations including those at an intimate scale, which are followed through and evaluated through the fictional narrative genre. The aim of the project is to create an interface, that seamlessly guides, and provides access to, primary archaeological data in a way which is neither intimidating nor mystifying, but which engages the user and encourages critical enquiry, responsibility and the use of the imagination in the creation of heritage places by lifelong learners.

The Dig OpChats project is a collaborative enterprise at the University of California, Berkeley between the Archaeological Research Facility, the Interactive University (Outreach initiative) and the Multimedia Authoring Center for Teaching in Anthropology (MACTiA).<sup>1</sup> The project began in 2002, but was the outcome of a previous collaboration in 1999 in which we had designed teaching modules for 6th graders around primary research data at Çatalhöyük for 6th graders (12 year-olds) and an after-school project in digital storytelling and archaeology.

### THE CHALLENGE

The project focuses on the creation of interactive digital learning objects from two archaeological sites that are both sites where I have conducted excavations: Çatalhöyük and Opovo. Both are Neolithic, that is, early agricultural settlements. Opovo is a 6,000-year-old village in Yugoslavia distinguished by burned wattle-and daub houses. I directed archaeological excavations here in the 1980s (Tringham et al. 1992). During the early 1990s the data were digitized post-excavation, from which was created the Chimera Web (Wolle and Tringham 2000).

The Chimera Web is a hypermedia web that was designed to be a public interface and guide to the primary data but - until the current project - never succeeded in this aim. The problem was in the underlying architecture, which was in a variety of formats, including 4th Dimension. At that time these formats were difficult for an amateur like myself to integrate with a dynamic web interface. And I did not have the resources - or even desire - to farm the problem out to specialists in Silicon Valley.

The second site, - Çatalhöyük - is 9,000 years old and characterized by mud-brick houses, some with painted plaster walls, with burials under the floor (Hodder 2000). The hou-

ses were rebuilt one on top of the other so that their debris accumulated to form a mound. Since 1997, I have been directing the BACH team (Berkeley Archaeologists at Çatalhöyük) in the Çatalhöyük project (<http://www.mactia.berkeley.edu/catal/default.html>), whose overall director is Ian Hodder (<http://catal.arch.cam.ac.uk/catal/>). Along with the reflexive methodology, we have advocated open access to the primary data of the excavations through the Internet (ref). In practice "open access" has been conceived of as sharing data with other archaeologists. If you look at the Çatalhöyük database on the web-page (<http://catal.arch.cam.ac.uk/catal/database/main.html>), this is not exactly user-friendly. The user needs to know what to search for in the database in terms of Building, Feature or Unit number, There is no guiding interface on line that links to this database. A more public and popular interface for Çatalhöyük was developed through the Science Museum of Minnesota Mysteries of Çatalhöyük web site (<http://www.smm.org/visitorinfo/nowshowing/Mysteries.html>), but this is not directly linked to the archaeological database.

The challenge in both cases, therefore, has been to give the public access to the raw data of archaeological excavations in a way that neither overwhelms with the amount of data nor mystifies with the hidden meaning of the data, yet does not simplify the complexities of the data and their interpretation.

### THE DIG OPCHATS PROJECT

The goals of the Interactive University in the collaborative Dig OpChats Project were very different - and in many ways much more ambitious - than ours had been in the previous public interfaces of the Çatalhöyük and Opovo projects. The Interactive University were interested in taking our<sup>2</sup> experience with public web-based interfaces of archaeological research to another level of dissemination and to use it as a pilot for the dissemination and archiving of university facul-

ty research to the public. Their primary interest was K-12 and higher education audiences - hence the heavy use of education language in the project. We have since become more inclusive to reach public audiences in museums, continuing (lifelong) education, and other contexts, because it is politically a wise thing to do (the aging of the American public) and (for us as archaeologists) because we hope it encourages the larger public to take responsibility for cultural heritage.

The initial goals of the project were:

- To explore the process of transforming faculty research into learning materials for K-12 and other public audiences
- To record the process so that it seems less intimidating and mystified to the content creators (faculty researchers) who should participate actively in creating the digital archive and its interfaces
- To safeguard the data for sustainable long-term re-use and archiving.

In the last goal - the safeguarding the data for sustainable long-term re-use and archiving - I have been especially inspired by a couple of recent articles that stress strategies to ensure the long-term sustainability and survival of the databases. The first is by Julian Richards (Richards 2003), who stressed the importance of open source access to ensure the use and re-use of digitized primary archaeological data for archiving and for keeping the data alive. Thinking about dissemination is as important as thinking about digitizing. The second is by Stephen Downes (Downes 2003), who has advocated for a distributed network of learning objects and their metadata - open access rather than the "silo model". Both these authors recognize the importance of a flexible networking dissemination of digitized data rather than a centralized silo that stores the data. They also both advocate the interoperability of different systems of database architecture, rather than reliance on proprietary architecture created for specific sets of content.

With this in mind, the technical goals of the Dig OpChats project included

- Embracing the technical dimensions of database interoperability (ensuring the framework is ODBC compliant)
- Striving for open architecture in the project framework
- Exploring the conversion from FilemakerPro-XML (the Dig OpChats database system) to additional learning standards in XML formats (e.g. METS/IMS) enabled by the - Scholar's Box (see below).

In our first understanding of the project, this meant in practice that we would build web-ready interfaces based on archaeological data from my research at Opovo and Çatalhöyük. The interfaces that we created would be designed to give multiple audiences access to real-world archaeological databases, and they would be open-ended to the extent of encouraging an expandable web of investigation taking the learner in many different directions as well as provide opportunities for public feedback.

In order to make this project feasible, we have focused on a couple of the enormous array of possible themes suggested

by the data. These are themes that could bring both sites together and are both of current interest in my own research - an important motivation if you are to get faculty researchers to do this kind of work (Tringham 2000). Most researchers - like myself - are not enamored of the kind of work that enters into the realm of textbook writing. And I believe that specific research themes can be of interest to public audiences and do not have to be shared only with professional audiences. In addition, it is a pleasure to think of ways to express your current research to non-professional audiences. And the results and feedback can be extraordinarily constructive. The two themes that were chosen are

- How history and historical places are constructed in the modern and post-modern world
- How the material world and ritual performance (especially around domestic architecture) is used - and was used in the past - to create a sense of place and its continuity

Much of the research at Çatalhöyük focuses on the burial of the dead under the houses as a way of creating a continuous place. One interpretation of the Opovo burned houses suggests that this was done deliberately as a means to creating a continuity of place.

The progress of the project starting in April 2002 may seem to have been straightforward but it was very much a non-linear process. We started with the problem of the public interfaces, because that had always seemed to me the primary importance - how to present what we do to the public. We focused on creating the interface as vignettes as our initial "deliverables". A "vignette" was defined as a "web-based presentation, similar to "learning artifacts" or "learning objects" comprising media plus text to illustrate a point, a concept, a lesson - a 1-2 minute non-linear narrative, linked to other vignettes around a theme and/or site. You could think of it as a kind of postcard. Vignettes have metadata associated with them (for indexing, searching, and transferability across digital environments). But the same problem that I had faced in the Chimera Project started to emerge: how in practice were we going to link the interface to the database? It was halfway through the year that it became clear we had this the wrong way round. Rather than developing interfaces that would be "linked" to the databases, the interfaces needed to grow out of a database architecture that was designed for them, that would act as a bridge to the archaeological project databases that were designed for professional "in-house" exploration of the data.

#### THE VIGNETTE GUIDES

Thus from August 2002 we started to focus on creating the Dig OpChats database system that would form this bridge and make the archaeological databases more accessible. Using FilemakerPro 6, there have been several iterations of the logical and technical structure of the interoperable Dig OpChats database system. The vignettes comprise an interpretive expression that is built from assets (various forms of media), texts, and numerical data that reside within the Dig OpChats database system. Keywords and other metadata (including the source of the media and texts) are used to cate-

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gorize the vignettes and link them to their related data, and to other Dig OpChats vignettes.

The Scholar's Box that has been developed by Raymond Yee of the Interactive University has become the pivot for multiple users to search not only the Dig OpChats database but any accessible interoperable database (such as the California Digital Library). The search starts with the vignette (which becomes essentially a guide to the search), and ends with the re-use of the components in a contribution that is fed back into the database by the user (<http://interactiveu.berkeley.edu:8000/IU/News#continued>).

The vignettes illustrated in the CD version of this paper focus on the Neolithic site of Opovo. Each vignette has a contextual multiscalar timeline and a contextual menu that leads the user to the vignette-guides. The CD version of the paper illustrates the relationship of one vignette to another, as well as the database components that create the vignettes.

Each vignette also has a fixed menu:

- "Things" leads to different categories of materials we excavate, how they are recorded and examined: images, VR movies, numerical data, reports on material analyses, links to materials, use-life of things, ethnographic analogies.
- "Places" leads to large places, the sites and their landscape context; and about more intimate places from the individual houses whose histories we investigate to pieces of furniture (features) inside the house. It leads to images and movies, Quicktime VR movies, landscape reconstructions, GIS data, provenience records, Harris matrices.
- "People" leads to the archaeologists, to tourists, to imagined prehistoric people, including the individuals we excavate as burials and many others. It leads to audio and video interviews with archaeologists, images and movies about excavating, recording, interpreting and analyzing, team organization, special jobs, diaries, how we get to where we work, where we come from.
- "Narratives" are the macroscale narratives that archaeologists write about (pre)history as well as more intimate interpretations of objects and places, and fictional narratives; narratives take the form of published texts, diaries, stories, reports, syntheses, quotes, and thoughts.
- "Activities" are exercises, classroom assessment techniques, assignments, quizzes, role-playing games related to the vignette.

The prompt "Feedback" leads to a significant aspect of the Scholar's Box/Dig Opchats Project - the idea of vignettes inspired or related to a Dig OpChats vignette can be created by the user and added to the Dig OpChats database. The model for such user contributions to a database was recently piloted at University of California, Berkeley in a course on European Archaeology taught in Spring 2003 in the Multimedia Authoring at the Multimedia Authoring Center for Teaching in Anthropology (MACTiA) (<http://www.mactia.berkeley.edu>).

In this course many of the ideas of re-usability of data and feedback and user-contribution that will become part of the Dig OpChats interface has been piloted. A Filemaker database of archaeological sites with associated images is the starting point for student contributions. They do research from suggested sources in the library and Internet and then select images from the database and write text that draws together the images into a specific theme (such as "cultural heritage"). Their contribution is created using a variety of possible templates, media-rich, text-rich, equal media and text). The student contributions are similar to the vignettes of the Dig OpChats project. Links are made to other student contributions about the same theme, or site, or by the same author. This is how we envisage the "Feedback" part of the Dig OpChats Project.

It is this aspect of the Dig OpChats Project will ensure the re-usability of archaeological data and the engagement of users in its re-interpretation and re-configuration that, we believe, will keep archaeological places, things and people alive in a global and local society.

<sup>1</sup>In using the word "our" and "we" in this paper, I am not referring to myself as the professorial "we", but mean essentially myself in collaboration with my archaeological colleagues at UC Berkeley, including Margaret Conkey and Rosemary Joyce, and especially Michael Ashley-Lopez.

<sup>2</sup>The project team comprises Professor Ruth Tringham (ARF): the creative director, archaeological content provider, Isaac Mankita (IU): the producer and administrator, Michael Ashley-Lopez (MACTiA): archaeological database designer and media director, Raymond Yee (IU): technical director and developer of the Scholar's Box, with David Greenbaum (IU director).

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