Collaboratory for GIS and Mediterranean Archaeology (CGMA) Project Report
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DePauw University
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DePauw University received the Mellon Foundation grant for the CGMA (Collaboratory for GIS and Mediterranean Archaeology) Project at the end of March 2002. In the first full year of the grant (AY 2002-2003) we developed a prototype of the CGMA database and the web delivery system, which we are calling MAGIS: Mediterranean Archaeology GIS, and we created the undergraduate seminar on GIS and Mediterranean Archaeology. Those efforts laid the foundations for AY 2003-2004 when we integrated the undergraduate seminar and internships into the CGMA Project. Over the past year we have: taught the undergraduate seminar for the first time, held our annual board meeting in the fall 2003 (with student participation), hired two work study students in the spring 2004 and four interns for the summer 2004, and we have completed the programming for the CGMA database. Drs. Foss and Schindler also presented the CGMA project at one international and two national conferences.

The Undergraduate Seminar, Fall 2003

Dr. Foss taught the CGMA undergraduate seminar for the first time in the fall 2003. We had 12 students enrolled, three from each of the four participating institutions. The class met twice a week for two hours and was taught using the Course Delivery System (CDS) developed by the ACS Technology Center. There are three components to the CGMA seminar: introductory lectures on survey archaeology and GIS, a practicum carried out at each institution, and individual research on survey projects in the Mediterranean. The CGMA board meeting was held in the middle of the semester and all the students and faculty attended.

The student evaluations and a peer evaluation (by Professor Anne Harris in the Department of Art) of the course demonstrate its success (appendices 1 and 2). Dr. Foss found ways to use the on-line structure of the course to everyone's advantage, often breaking up the class period with lecture, group work done off-line, and student reports. We are attaching the final syllabus for the course as well as sample class outlines from the CDS (appendix 3). For their practicum, each campus designed and implemented a survey project, including the construction of a basic GIS. DePauw and Wooster students surveyed local cemeteries, Rhodes students studied the location of faculty offices relative to the classrooms where they teach, and Millsaps students conducted a cultural resource management project for their campus. During the fall meeting at DePauw, the students were given an introduction to the Arc GIS software package, so that they could build their GIS when they returned to their home campuses.

For the individual projects students at each campus took a region of the Mediterranean: DePauw (Italy), Wooster (Greece), Millsaps (Balkans), Rhodes (Central Europe). The students on each campus then subdivided their territory and researched archaeological survey projects in their individual regions. Some of these projects were more successful than others. The students working on Central Europe and the Balkans, for example, found it difficult to pursue the bibliography for those regions because most of it is published in European languages. Italy

presents similar problems, although there is enough material in English that we were able to make some headway there. Most surveys in Greece, on the other hand, are published in English.

Throughout the semester as well as during the board meeting, the faculty members and students engaged in many discussions on the nature of metadata and in particular what categories of metadata we wanted to collect for the CGMA project. The students thus contributed a great deal to the construction of the CGMA database.

Second Board Meeting Fall 2003

Participants in the fall meeting included the five CGMA faculty members (P. Foss, R. Schindler, M. Galaty, N. Kardulias, and K. Morrell), the students enrolled in the course, four board members (H. Haskell from Southwestern University, N. Rauh from Purdue University, A. Fulekia, and N. Abraham from DePauw University), the CGMA programmers (B. Wilkerson and A. Iliev), and some guest faculty from DePauw University (T. Cope and S. Wilkerson from Geosciences and T. Hall from Sociology). The primary agenda item for this meeting was discussion of the trickier components of the meta-database. These included how to enter chronology (either by period or calendar years), how to account for differing map qualities used on survey projects, what methodological categories to include, and how to categorize topography and geology. On the first day of the meeting we broke into groups and each group took a different issue. All of the faculty members were impressed with how actively the students participated both in the small conversations and in the larger group discussions. By the end of the day, we had found solutions to many of the data problems.

This meeting also gave board members an opportunity to discuss the actual implementation of CGMA via the Internet, means of publicizing CGMA's existence and of encouraging scholars around the world to enter their projects in the database, and possibilities for collaborations with other organizations (see below). During this time the students were given an introduction to Arc GIS by Prof. Tim Cope of DePauw University. Arc GIS is the leading commercial GIS software and, although CGMA is using GRASS in its own delivery system, we wanted to start the students with an application that is easier to learn, and for which there is widespread support.

The Meta-database and Programming

At the beginning of AY 2003/2004, we installed our new Apple Xserve server, which we call Hecataeus after the Greek geographer of the early 5th century BC. The server has a Raid Array 7-disk backup system, named after the Pleiades (the Seven Sisters – the Greek ones, not the American women's colleges). This system is now serving the CGMA Project web pages, the CGMA databases, and it serves as an archive for project documentation.

In 2003-2004, through DePauw University's technology internship program (ITAP – Information Technology Associates Program) we hired a student programmer, Alexander Iliev. Alex has put in a tremendous effort on the meta-database. He taught himself MySql last summer and had a prototype of the meta-database running by the Advisory Board Meeting in the fall. Beth Wilkerson and Alex have continued to work together all year on the meta-database. In May and June 2004 they are completing the debugging and plan to 'release' it at the end of the month.

Only CGMA staff and students will be able to enter data directly into the CGMA system. We will also have an on-line data submission form through which outside researchers can submit information on their survey projects. That data will be vetted by us before it is written to the actual meta-database. Both the data submission form and the data entry page (which can only be accessed through a secure log-in) were designed as web interfaces. We are currently in the process of writing help documentation to accompany the data forms. The meta-database will be available at: cgma.depauw.edu (see also appendices 4 and 5).

Because the students have been collecting 'tons' of bibliography over the course of the year, we decided that we needed to keep track of those resources. So Ms. Wilkerson created a separate bibliographic database that is linked to the primary meta-database (appendix 6). Now we are able to enter bibliography on survey projects even if those projects do not have an entry in the CGMA database. Ms. Wilkerson also created a system to archive digital materials. As Interlibrary Loan Systems now send most article references as PDF documents, we wanted a way to keep track of our electronic resources. The CGMA digital archive system allows us to keep track of bibliographic resources in digital form and to search articles by keyword. This archive is presently available only to the students and faculty working on the CGMA project.

After the launch of the meta-database at the end of June 2004, programming efforts will be directed towards the search tools for the Mediterranean Archaeology GIS (MAGIS). Our goal is to allow users to search the metadata either through a spatial search or a text search (appendix 7). Ms. Wilkerson has been working hard on creating the map interface for the GIS. CGMA is one of the only projects we know of that is using GRASS to serve a GIS over the Internet. Thus, Ms. Wilkerson is developing an essentially new product with MAGIS. When complete, users will be able to search for survey projects by selecting a search area on our Mediterranean base-map. They will also be able to view results either on the map or in table form. This is the last major programming task for CGMA and we anticipate that our programming efforts will taper off over the course of AY 2004-2005.

Student Work

In addition to the student participation in the undergraduate seminar, this was the first year in which students worked on the grant through work-study funds and summer internships. Two students, one at DePauw University and one at The College of Wooster, held work-study positions with CGMA in the spring semester 2004. These students continued collecting bibliography of survey projects in the regions assigned to their schools in the fall semester. They also began actually to try and collect metadata on certain projects. Although the on-line meta-database was not yet available, we created data collection sheets. These allow the students to make extra notes and to ask questions before entering the data directly to MAGIS. Our preliminary attempts to fill in these sheets also allowed us to identify problems with our categories and to add fields that we had not thought of previously.

For the summer 2004 we have four students, one from each participating institution, working on the grant. We originally planned that these students would have taken the CGMA seminar in the fall semester. However, this proved impractical as many of the seminar students were seniors who graduated in the spring 2004 and were not eligible for summer internships. We thus offered

the internships to promising sophomores and juniors who plan to take the CGMA seminar in the future. So far, the students have been very productive. At Wooster, Kate McMahon, has filled out data sheets for 50 surveys that ready to enter into MAGIS. At DePauw, Sarah Craft, has another 15-20 surveys for Italy that are ready to enter. The students from Millsaps and Rhodes, Ellen Beilmann and Tulisha Jackman, faced language barriers in the Balkans and Central Europe. In the last week we shifted their projects to focus on North Africa and the Levant. They have already made good progress in those areas. In order to collect information about surveys in areas like Central Europe (where much work is published in local, difficult-to-obtain journals), we may in future have to send representatives to speak with archaeological officials in person.

Conference Presentations and Publicity

In the past year Drs. Foss and Schindler have presented the CGMA project at three conferences. In August 2003, we had a poster at the XVIth International Congress of Classical Archaeology in Boston. This international organization of archaeologists only meets every five years. This conference presented an opportunity to publicize CGMA to the international archaeological community and the get feedback from researchers working all over the Mediterranean. At the American Institute of Archaeology (AIA) annual meeting in January 2004 we again presented a poster. The AIA awarded our efforts with First Prize for the poster session (appendix 8), an award based on scientific content and presentation. Finally, in March 2004 we gave a paper on the CGMA project at the American Association of Geographers conference in a session on 'Teaching GIS in the Liberal Arts' organized by Diana Sinton of NITLE.

In addition to conference presentations, the Indiana chapter of the AIA invited us to give a talk on the CGMA project to its local chapter at Indianapolis in April 2004.

Collaborative Possibilities

Through the CGMA project we have begun to create a relationship with the Polis Center, a non-profit GIS training and development group associated with Indiana University-Purdue University Indianapolis (IUPUI). Drs. Foss and Schindler and Ms. Wilkerson visited the Polis Center in January 2004 and Polis Center staff came to DePauw in May. We hope to pursue opportunities with the Polis Center that would allow us to exchange GIS training for DePauw faculty and students for student internships and faculty consultation on Polis Center projects.

We have also been approached by NOAA (the National Oceanic and Atmospheric Administration) on the possibility of collaboration with them. However, at the moment we have not pursued this possibility.