

**S22 Teaching archaeology in the digital age. UISPP official session***Karsten Lambers, Hans Kamermans*

This session builds on a well-received session at the 2015 conference in Siena, Italy, in which the topic of teaching was addressed for the first time after many years at CAA. As the Siena session showed, teaching archaeology in the digital age entails various challenges, e.g. to integrate new topics into proven degree programs, to employ new learning environments, to adapt degree programs to the requirements of rapidly changing labor markets, and not least to bridge the Digital Native / Digital Immigrant divide between teachers and students. These challenges are currently met in a variety of different ways and contexts. In many countries, digital archaeology as a teaching topic and/or digital teaching aids in archaeology degree programs are not yet widely common. Focusing on higher education teaching (undergraduate, graduate and continuing education programs), this session is intended as a forum for practitioners mainly from universities who design, implement and evaluate degree programs in archaeology that focus on digital archaeology and/or employ digital teaching environments for educational purposes. The aim is to exchange ideas and experiences and to give examples of good practice in order to encourage new approaches to teaching archaeology in the digital age.

**S22-01 Dynamic process, static document. How to solve the teacher's baffling problem?***Alexis Gorgues, Florent Comte*

As Lewis Binford noticed a long time ago, the main issue when dealing with archaeological data is to understand dynamic processes (the way Ancient societies worked) through the use of a basically static documentation, i.e. the material record. As an archaeology teacher, one of us (AG) could observe that it is in no way easier to try to explain dynamic processes to students by using only a static graphic support (some PowerPoint slides) which is the standard practice in French academic teaching. To explain site formation processes, for instance, only through some slides, and armed with a marker and a blackboard, is possible, but will be time (and energy!) consuming and can be pedagogically poorly effective. This observation brought us to conceive dynamic pedagogical supports intended to be used in a context of direct interaction with the students. These supports were indeed animation videos, often based on real case studies. Their topics were quite diversified: the first we made was about site formation processes, another one allowed to explain how to draw a stratigraphic section and what phenomenon it allows to describe. One of the most successful is about archaeological sites detection. The constitution of the funerary record was also considered. This initiative took place with a very limited financial support. Yet, students' feedback is very positive, and the pedagogical efficiency of the teaching is improved: more complex ideas can be effectively transmitted in fewer times. In this presentation, we propose to show some of these videos as well as to present the comments made by our 2nd year undergraduate students, who are our main "target", in order to demonstrate the combination of digital technology on the one hand and old-fashioned, direct archaeology teaching can give convincing results.

**S22-02 ArGO. Archaeological Geocaching Online. Teaching and learning archaeology with geocaching***Michael Remmy*

Digital media has influenced the viewing and learning habits of students for the past decades. At the same time teaching habits in archaeology have not changed to the same extent: frontal teaching and lectures are often seen as best practice. Therefore teachers in universities should also apply new methods and didactics to their curriculum to engage students in diverse learning settings.

One approach is ArGO (Archaeological Geocaching Online) - an e-learning tool for students of archaeology that is currently being developed at the Archaeological Institute and the Humanities Computer Science at the University of Cologne. The main goal is to design virtual geocaching quests that students have to solve by using mobile devices on an archaeological site. On the one hand this allows the students to use their expertise in digital media while learning archaeological facts. On the other hand new impulses are given through the change of the learning environment and the use of self-organized learning. Currently, students of both institutes are developing a prototype of this tool in a seminar. The topic is the Roman city of Cologne (Colonia Claudia Ara Agrippinensium). In different groups the students are researching various aspects of a Roman city (e.g. infrastructure, politics, religion) and find ways to transfer archaeological information into virtual caches. These caches can consist of tasks and games. Teaching methods such as clustering, project learning and evaluation of the different project sections are used to get the best possible learning outcome. A accompanying website documents the progression of the seminar and backs up all results including the code of the tool.

The final results of the seminar will be the foundation for further developments of ArGO. A user-friendly Gui for teachers and a basis layout of different tasks and games are the goals for a following seminar. The prototype of ArGO will be tested in summer 2016.

### **S22-03 When I was a child, I wanted to be an archaeologist. What about now? A French case study**

*Anne Moreau, Sylvain Badey*

The development of digital technologies in archaeology brought up changes in the way of practicing archaeology, since the apparition of computers and even more with the internet. In the last few years, we have seen a multiplication of free software and the global movement of open data and open access involves a larger free diffusion of tools and data. This digital evolution has several consequences such as the erasure of the previous barriers between the different activities of the archaeological process (topography, archaeology, drawing...). On the one hand, it's a way of developing individual skills but on the other hand, it's shaking up the archaeological world: formerly, the skills and the tools used were linked to a well-identified activity or job. Currently some of the new tasks of the archeological process-related to the new technologies involved - are spread over several contributors who developed skills by themselves most of the time.

Three observations can be made:

- this situation is increasing the gap between the self-educated archaeologists and those who have more "traditional" ways of working
- we need to redefine the jobs in order to propose, if necessary, a better sharing of the tasks and a better identification of the skills
- we need to think about the training in archaeology taking the new skills needed into account.

The French National Institute for Preventive Archaeology is a public institution. It comprises around 2000 archaeologists who realize more than 2000 operations a year. In 2011, the institute has launched an important program to promote the use of GIS. In that perspective, means have been used for the definition of a further education programs: four different programs dedicated to the use of GIS (two levels), statistics and photogrammetry are offered. Nowadays, around 600 archaeologists have been trained. But the definition of the matter of the training sessions is based on a larger reflection about the digital technologies to be integrated. Choices have to be made.

### **S22-04 Towards the integration of green and cultural heritage management. Developing content for blended learning**

*Heleen Van Londen, Marjo Schlaman, Andrea Travaglia*

The European Archaeological and Natural Heritage project (ANHER) focuses on increasing knowledge and skills for professionals working in the archaeological and natural heritage sectors in Europe. Facing social, economic and climate changes, the development and improvement of knowledge of landscape management and protection of the archaeological and natural heritage has become a necessity. Through an interdisciplinary approach to the landscape heritage, new knowledge, new methods and new policies can be developed which will improve and strength conventional approaches. The basic principle is that through a better understanding of the importance of archaeological heritage and natural heritage for the rural environment, sustainable management of the landscape can be realized.

Within the project, the six European partners develop a variety of integrated educational e-learning materials designed to treat important facets of both sectors. The project also contributes to the development of improved methods and content of higher education and vocational training in the field of heritage. The digital method ensures that education sectors can be connected to the continuous changes concerning the protection and management of archaeological and natural heritage. This includes the role of the built heritage in urban planning and local and regional heritage policy in Europe.

The project will result in European Centres of Integrated Heritage Teaching Excellence in view of preservation of knowledge, methods and policy. These centres will provide an organizational structure for continuous training and a technical infrastructure for blended learning that will benefit the various labour markets.

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### **S22-05 Archaeological education for a digital world: Case studies from the contemporary and historical US**

*Anna S Agbe-Davies*

This paper takes as its premises that 1) archaeological education extends beyond the university walls to embrace the needs of a wider public, and 2) archaeology is an integrated discipline that includes the analysis of not only material culture, but also texts and other models of human expression. The author discusses initiatives to use digital technologies and techniques to "teach" "archaeology" in the broadest sense of both words. Examples include using digital archaeological data from DAACS.org to teach analytical processes and the scientific method, the class-sourcing/crowd-sourcing of archival transcription using FromThePage.com, and building websites to teach both archaeological content and digital literacies. What some now call the digital humanities is not new to archaeology, but we will do well to embrace technological and methodological innovations in the realm of education, just as we have in our research.

## **S22-06 Digital data recording at Circus Maximus: A recent experience**

*Alessandro Vecchione, Domenica Dininno, Giulio Casazza*

Between 2011 and 2014 a stratigraphic excavation was carried out in the area of the Circus Maximus in Rome by the Sovrintendenza Capitolina ai Beni Culturali in agreement with the Università Sapienza of Rome, chair of Ancient roman city planning. The excavation and the field data recording campaign were part of a large-scale project for the environmental requalification and promotion of the archaeological remains of the Circus Maximus.

The whole area is currently undergoing restoration works in preparation for the opening for the public fruition; the excavation, carried out at the same time, focused at the beginning on the external ambulatory and on the radial rooms facing the Palatine hill; later, the area where in roman times stood the arch of Titus was dug up.

The excavation involved 50 archaeology students of the ancient topography curriculum.

While working in the educational digging the young archaeologists were trained in the use of new technologies for the field data recording: above all this activity focused on the use of photogrammetry and image based modelling.

The methodological choice was motivated by the hybrid nature of the archaeological site – an educational excavation but also a public work of urgent nature: the restoration works were urgent and this forced to speed the archeological research and, subsequently, the graphic recording of the structures and findings. Digital photogrammetry, after comparing costs and benefits, proved to be the best solution for the archaeologists's needs.

At the end of the excavation, when the archaeologists completed the data digitalisation, the need to improve the student's knowledge of new technologies during university courses was clear.

This presentation aims to share our opinion on the reliability of the methodolgy that was used, the changes it brought to the organization of the team's work and the issues related whitth the archiving and sharing of data.

## POSTER .....

### **S22-P1 Teaching GIS in archaeology: What Students focus on**

*Mar Zamora Merchán, Javier Baena Preysler*

The future of GIS applications in Archaeology is developing among current students. For that reason, the postgraduate classroom can be an appropriate laboratory in order to know how GIS must be taught to the future researchers.

Both authors of this poster, teach together “GIS and territorial analysis” subject at Master Degree. The aim of our research has been to analyze students’ preferences when using GIS. The students’ course works from five consecutive academic years have been analyzed taking into account the following aspects:

- Main work lines (research, cultural resource management, tourism);
- Spatial scale (intrasite, territory, region,...);
- Location of study areas, and their spatial distribution;
- Chronological array of analyses;
- Particular GIS application (thematic maps, viewshed, shortest path, etc.);
- Students’ background (Graduate studies).

All students followed the Master in Archaeology and Heritage at the University Autónoma of Madrid (Spain). This Master is conducted by the Department of Prehistory and Archaeology, where GIS in Archaeology teaching has been implemented since the middle of the nineties.