Themata 5 E-learning Archaeology, the Heritage Handbook

© University of Amsterdam, Amsterdam 2012

E-learning Archaeology

the Heritage Handbook

Marjolijn Kok
Heleen van Londen
Arkadiusz Marciniak (eds.)

Table of Contents

CASE STUDIES
See dvd in the back sleeve of the book

E-learning resources in the vocational training system in archaeological heritage *by Arkadiusz Marciniak*

Introduction

Archaeological heritage constitutes finite and non-renewable cultural resources of humanity and is hence an important element of holistically understood cultural heritage. Its significance is ever increasing in many domains far beyond activities undertaken by professionals working in heritage offices and formally responsible for its protection and management.

Over recent years archaeological heritage has become an intrinsic element of sustainable development and spatial planning projects undertaken by local administrations of different kinds. It also plays a vital role in the tourism industry sector and is supported by local, regional and national bodies. Archaeological resources are also an important element in practical activities such as those of the construction engineering sector, including building railways, roads, water systems and the like. A significant number of professionals from these sectors need access to the dynamically expanding body of knowledge about different aspects of archaeological heritage. Hence, there is a growing need and demand to develop and upgrade the vocational skills of these various groups.

Moreover, recent decades brought about dynamic changes in the field of archaeological heritage in Europe, which additionally increased the demand for properly trained professionals, including heritage officers, decision-makers and experts at different levels. In these circumstances, the development of a professional vocational system is required to equip those of limited access to the newest knowledge, whose qualifications need updating, as well as to young people who have no qualifications whatsoever. This will secure the preservation of precious and finite heritage and integrate it with the life of local groups by valorising its significance in sustainable development. A thorough understanding of archaeological heritage requires a set of efficient and flexible training tools in a form that is accessible to various social sectors. Hence, vocational training is of key importance in order to meet the needs enumerated above. Databases of e-learning resources and efficient training solutions are the perfect tools to support this didactic process.

The vocational training system in archaeological heritage was developed over recent years. It was largely possible thanks to two large international projects under the Leonardo da Vinci scheme. The first project *E-learning as a tool of knowledge transfer in the field of protection and management of archaeological heritage* took place in the years 2007-2009. This was a starting point in making the exchange of the best practices and innovative solutions in this field possible and formulating training curricula in the domain of archaeological heritage that could cover most of the relevant issues of today's Europe. The ultimate goal was to provide the newest knowledge to those whose qualifications need updating, in addition to students who have no qualifications. The curricula should be as universal as possible to consolidate the European cooperation in education and training in the sector. In particular, its major purpose was to design, develop, test, assess and implement innovative solutions in developing and upgrading vocational skills in these groups at the European level.

In order for the innovative and complex training curricula to be successful and far reaching, a set of new educational tools had to be available in an easily accessible form to various categories of users. E-learning solutions were chosen as the most efficient tool supporting the didactic process (see also Collison et al. 2000; Horton & Horton 2003; Politis 2008). The basic advantage of this mode of content delivery is that training can take place at any time and in any place. This will meet expectations of various dispersed groups with limited time and logistic constraints. As no e-learning training in the domain of archaeological heritage has ever been completed yet, it was necessary to develop and implement a new methodology of transferring knowledge from the conventional to the e-learning format, as well as a training methodology. The project eventually resulted in the creation of a multimedia e-learning course composed of fifteen interrelated modules, which were then used for the training process in the project partners' countries.

The first Leonardo da Vinci project laid down solid foundations for the construction of a flexible vocational training system in archaeological heritage. Building the system itself was necessary for it to be flexible, efficient, and easy to use. It should have the form of a complex, easily adaptable, reusable, interoperable and user-friendly database of e-learning resources (content repository). This was the main objective of the second Leonardo da Vinci project: *Vocational training system in archaeological heritage based upon e-learning resources*, which was completed in the years 2010-2012. The project eventually also included entering all of the available e-learning data in the domain of archaeological heritage into the database, the elaboration of a coherent methodology of course-

making using this database, the expansion of new training curricula to address diverse target groups and the production of e-learning modules out of the database resources, conducting trial training among different groups, and the evaluation of usefulness and efficiency of various e-learning courses among them. The major advantage of the system is that the materials are available in a range of different languages. As of today, the materials are available in English, Spanish, Polish, Latvian, and partly in German. The system also provides an easy and flexible option of translating the didactic content into all kinds of other languages.

The users of the vocational training system in archaeological heritage

As archaeological heritage is getting increasingly important and relevant in many domains of contemporary life, the need for receiving updated knowledge in this field goes far beyond that of heritage professionals. The presence and significance of archaeological heritage in contemporary societies is ever increasing in many domains far beyond activities undertaken by those working in heritage offices and formally responsible for their protection and management. Hence, a deep understanding of archaeological heritage by professional groups that have to deal with its various aspects in their work is crucial. Accordingly, this requires a set of efficient and flexible training tools to be created in a form that is accessible to them, and which addresses their diverse needs. The vocational training system is designed in a way that will meet expectations and requirements of different potential users from a range of sectors as well as graduate and extramural students interested in this field of expertise. These include museum staff, school teachers, administrative staff, planners, architects, civil engineers, forest rangers, among others.

The training vocational system can also serve professionals in the sector of archaeological heritage protection and management. For heritage professionals, the knowledge acquainted during the training could be later efficiently implemented into their own professional practice. They are usually employed in local branches of the heritage sector located in provincial capitals, while their branches are placed in smaller cities. Understandably, the group is largely dispersed and is characterised by varied access to the newest knowledge in the field. At the same time, this group is very active professionally and hence, the methods of vocational training need to combine efficiency of the learning process with their obvious time constraints.

Thanks to the training vocational system, students gain access to a body of knowledge produced by leading experts in the field in Europe, making it possible to recognise the most

appealing issues in the domain of protection and management of archaeological heritage across Europe. This will considerably enrich their qualifications in the job market. The didactic materials available in this form are particularly suitable for graduate and extramural students. This is especially important as archaeological heritage is becoming the backbone of contemporary archaeology and the broadly understood heritage sector creates the majority of archaeological jobs today.

During the construction of system solutions designed to handle the training needs of users with different levels of competence and expectations, it is necessary to select models capable of providing greater flexibility in running training courses with similar themes. In a situation where target groups are spatially dispersed and have significant time constraints, training should be run in a remote mode through the Internet, using e-learning solutions. This approach gives the opportunity to offer training for groups of homogeneous training needs but geographically dispersed. This kind of model also facilitates time management in the implementation of training. Remote training can be organised through a range of different modes. For the training to be effective, it is necessary to take into account the different needs of target groups and to guarantee a high quality of teaching. It is also important for the training to be implemented using electronic teaching materials, which will be adapted to online learning.

The structure of didactic materials – content repository

The database of e-learning resources (content repository) in the field of protection and management of archaeological heritage produced in the second Leonardo da Vinci project is available at *www.e-archaeology.org/contentrepository*. Its major functionality is a capacity to create e-learning tailored content based on the owned content to meet needs of different trainees. Moreover, it enables content authoring by individuals without IT competence overcoming the previously existing constraints. In the past, for the training program to be modified, because for example the need to remove specific batch of material or broaden the discussed issues, the assistance of e-learning authoring experts was needed.

Flexible content authoring is possible thanks to Web Content Repository software that enables the storage and processing of e-learning content in a SCORM standard. Its availability in this format shall facilitate:
(1) adaptability – the ability to tailor instruction to individual and organizational needs, (2) accessibility – the ability to access training components in many locations, (3) durability – the ability to withstand technological developments and changes without costly redesign, reconfiguration or recoding,

(4) interoperability – the ability to take training components developed in one location with one set of tools or platform and use them in another location with a different set of tools or platform, and (5) reusability – the flexibility to incorporate training components in multiple applications and contexts.

From the educational viewpoint, a particularly important is the availability of mechanisms enabling the authoring of teaching materials through the compilation of the available didactic materials. This solution allows the construction of a training curriculum to fully correspond to the training needs of any group of trainees. Then, in order to support the training needs of the group, e.g. by expanding the training program or focusing on the chosen issues, such flexible authoring mechanisms make it possible to construct teaching materials of the available didactic content.

The didactic materials prepared to meet individual needs of any target group can then be used in the training process. In particular, the system is able to conduct remote training via the Internet. It is carried out through the assisted e-learning model, i.e. in the model in which training is performed asynchronously, the source of knowledge is the e-learning content, not the teacher, and the role of teachers is to support and monitor learning. The training is carried out using e-learning content in the form of multimedia and interactive solutions (see J. Marciniak 2009, 2012).

Didactic materials in the domain of archaeological heritage (see details below) available in e-learning format are uploaded into the system and then made available for use in the form of smaller entities relevant to teaching according to the nomenclature of the Universal Curricular Taxonomy System (UCTS). E-learning content is stored in a content repository in the form of learning objects and the logical grouping of larger units of material is substantially consistent.

The vocational training system in archaeological heritage constructed in the project has a hierarchical structure composed of a range of categories of the so-called Processable Units (PUS) of increasing degree of inclusiveness. These include unit, module, and curriculum. The smallest components of e-learning content, i.e. the learning objects are not recognized as a PU but comprise an important element of the system. Hence, the content repository is to be understood as a database and a single authoring tool that helps find the necessary learning content and to construct new content via a drag and drop mechanism. These components of the SCORM compatible content can be further processed, i.e. integrated in the form of training curriculum. Such ready to use packages can be downloaded from the system and then uploaded to any LMS compatible platform to run the training.

The Learning Object (LO) is the smallest didactic element. It refers to a coherent piece of knowledge or relevant case study. The availability of e-learning content in the form of LOs is a very flexible solution making possible to (1) sort out existing resources, (2) describe them in a systematic manner, and (3) open up a possibility of constructing an infinite number of e-learning training curricula out of existing resources. In particular, it facilitates a simple and easy re-usability of the didactic content and its adaptability to the reformulated training goals for diverse target groups by collating a coherent set of LOs to complete the task. Altogether, there are approximately 800 LOs in English (c. 4000 in all languages – Latvian, Polish, Spanish, and partly in German, Norse and Turkish) in the current content repository.

A Unit is defined as the smallest didactic component. It contains a well-defined and coherent body of knowledge and provides means of its verification. The didactic content presents in the form of unit cannot be further divided into smaller elements as this jeopardizes its didactic coherence and relevance (albeit it may still convey important piece of information). From the technical viewpoint, the unit is composed of a range of learning objects under one heading. As of today, there are ca. 175 learning units in the content repository.

A Module is defined as a coherent set of didactic materials covering complex but coherent issues. It is composed of a number of learning units that are internally integrated and present different aspects of the issue in question. Altogether, there are approximately 68 modules in the current content repository. However, the availability of modules in a SCORM system provides a technical means for their re-use to serve a range of different didactic needs.

A Curriculum is a set of well-designed didactic materials tailored for the need of different trainee groups. From the technical viewpoints, a curriculum is composed of a number of modules. The content of these curricula is constructed in such way as to meet needs and expectation of each such group as well as their competencies and different training intensity. The system makes possible to construct curricula of different duration spanning from 2-3 days to 6 months. Altogether, there are 15 curricula in the current content repository. They are directed to different users including professionals in the field of archaeological heritage, museum staff, local administration staff, school teachers, engineering sector, etc.

The current content repository provides advanced searching engine of the available didactic materials. All content in

the form of processable units and learning objects were tagged based on the wordnet-based ontology in addition to the standard SCORM metadata. A semantic search using tags make searching repository significantly easier and much more efficient. The database of e-learning resources, along with a coherent methodology of building up potentially endless e-learning modules and curricula out of it, may serve as an ultimate resource for the production of wide range e-learning courses targeting different audiences. More importantly, the construction of database and its availability in a SCORM format will facilitate its further expansion and enlargement.

The content of didactic materials

As mentioned above, the major objective of the e-learning trainings conducted within the Leonardo da Vinci project was to get a group of trainees acquainted with the most appealing issues in archaeological protection and management across Europe and provide them with practical solutions in their implementation. For heritage professionals, this knowledge is meant to be efficiently implemented into their own professional practice. Students get access to a body of knowledge produced by leading experts in the field in Europe making it possible to recognise the most appealing issues in the domain of protection and management of archaeological heritage across Europe. Museum staff, local administration, teachers and other groups get to know the significance of archaeological heritage for city planning, landscape policies, sustainable development, construction of regional identities, and the like.

The didactic materials available in the form of the content repository cover a broad range of the most pertaining issues of archaeological heritage in contemporary Europe. They are thoroughly presented in the book in the form of 23 modules with accompanying case studies (see also A. Marciniak 2009; A. Marciniak & J. Marciniak 2011).

The module *Theorizing cultural heritage* written by Håkan Karlsson and Anders Gustafsson reflects and critically assesses the concept of cultural heritage, both its material and tangible form as well as non-material and intangible representations. In presenting its numerous facets it addresses its dynamic character and stresses intertwined conditions of its development in changing historical, social, and political circumstances. In particular, the module discusses relation between collective memory and cultural heritage, its constructive and fluid character as well as its political use and abuse. It further addresses different relevant issues of contemporary cultural heritage including relations with the public its role in sustainable development, relationship of cultural heritage with the recent and contemporary past, authenticity as well as tourism and entertainment. The module is illustrated by the case on

Memory use and misuse of Franco's dictatorship by Mikel Errazkin.

The module *Mentalities and perspectives in archaeological heritage management* by Marjolijn Kok and Heleen van Londen aims to discuss different perspectives in practice of heritage management in relation to landscape and planning. It stresses the increasing significance of public constituencies whose needs and expectations ought to be identified, addressed and met in the practice of heritage offices. In particular, the module advocates a need of explicit identification of the general public as an important agent in archaeological heritage policies and introduces the concept of a stakeholder. The plurality of the perspectives needs to be in place within archaeological heritage management to address the diverse concerns of numerous public constituencies.

The issues discussed in the module are illustrated by two cases studies: (a) *Altamira: management and preservation of Palaeolithic cave art* (Marcos García & José Antonio Lasheras) and (b) *Heathrow terminal 5* (Kenneth Aitchison).

The next module *Concepts of understanding – spatial valorization of archaeological heritage resources* by Włodzimierz Raczkowski provides an overview of the impact of different archaeological paradigms on the recognition and valorisation of archaeological resources as well as strategies of protection and management of archaeological heritage. Changes in the way archaeology was practiced in the past determined the development of methods applied to protect and manage archaeological heritage resources. Hence, it is widely assumed that the development of academic archaeology has significantly influenced our views on archaeological heritage and the methods applied in this field. Understanding of archaeological heritage and means of its protection evolved not only by changes in research paradigms but was also influenced by the political, ideological and social contexts in which archaeology was practiced.

The module is illustrated by three informative case studies: (a) *Stonehenge as a site and a place in the landscape* (Kenneth Aitchison); (b) *Las Medulas: Archaeological heritage management based on the spatial valorization* (Rosa Martínez); and (c) *Landscape archaeology in Midden-Delfland* (Heleen van Londen).

The next three modules presents methods of recognizing and recording archaeological resources as well as managing and analysing spatial data for the needs of archaeological heritage protection and management. The module *Aerial survey in archaeological protection and management systems* by Włodzimierz Raczkowski presents a systematic overview of aerial prospection in the practice of heritage management. It comprises also a presentation of major categories of soil

marks making possible to recognize archaeological features, major methods of aerial prospection, and methods of transferring photo images onto maps. The module stresses that the effectiveness of aerial photos depends on their integration with other non-invasive methods, especially geophysical survey.

The module on aerial prospection is further illustrated by two case studies: (a) *Aerial photography and heritage management in West-Friesland* (Marjolijn Kok), and (b) *Segeda Archaeological Area in Spain* (Juan Gregorio Rejas Ayuga).

The module *Geophysical prospection in archaeological protection and management systems* by Robert Hood (in cooperation by Arkadiusz Marciniak and Włodzimierz Raczkowski) aims to provide an overview of the techniques of geophysical survey, presents major instruments and their use. These make possible to determine the nature of the detectable archaeological resource within a specified area. The major part of the module is devoted to the presentation of a potential of various geophysical methods for heritage protection. It provides necessary hints on how to choose survey method(s) depending upon the site conditions, logistics and time constraints. The module further discusses a need to integrate geophysical survey within the planning process.

Issues discussed in the module are illustrated by three cases studies: (a) *Using Geographic Information Systems in the creation of spatial databases for the preservation and management of archaeological heritage* (Arkadiusz Klimowicz), (b) *Republican Aerodromes of the Spanish Civil War* (Ekhine García), and (c) *Geophysical monitoring in heritage management; case study of Broekpolder* (Marjolijn Kok).

A separate module *Geographic Information System as a method of management of spatial data* by Christopher Sevara is aimed at providing a brief discussion of GIS in the context of its use in heritage management practice, as well as to present a background and solid introduction to the applications and types of information for which a GIS is well suited. It stresses that the role of GIS in any given project must be well defined to become its useful component, and issues such as accuracy and resolution of a data set must be taken into account when performing analyses and interpreting results. The module presents an overview of GIS applications, especially its role in culture heritage management. It then presents core components of GIS, data types and their input, as well as their processing and management.

The GIS module is illustrated by three case studies: (a) *Visibility and topography in Neolithic Falbygden, southwest Sweden* (Tony Axelsson); (b) *GIS for heritage management by public authorities: Barcelona and Region of Murcia* (Rosa Martínez), and (c) *Integration of non-invasive methods – the*

example of the Archaeological Record of Poland (AZP) _ 2 program in Great Poland (Arkadiusz Klimowicz).

The module *Images of the past* by Håkan Karlsson and Anders Gustafsson aims to discuss how images of the past are created and valorised by using elements of archaeological heritage. It presents the role of these images in creating and maintaining local and regional identities. Accordingly, archaeological heritage is presented as being a real fact and invention at the same time. This is illustrated by a critical and ethnographical comparison of how the World Heritage listed rock carvings in Tanum, Sweden and Val Camonica, Italy are managed and made accessible to the public. Both cases show how these contemporarily embedded and constructed narratives lead to specific ways of managing, organizing, presenting these places to the public.

The next module *Cultural biography of landscape* written by Marjolijn Kok & Heleen van Londen discusses the metaphor of the cultural biography of landscape and its use as a tool for sustainable development. A biography of landscape, as an invented image of the past, proved to be a useful tool to serve the value of sustainable development. The module discusses how this metaphor refers to the life history of landscape and its personification as well as stressing its narrative quality. It concludes by presenting Historic Landscape Characterisation as a good alternative approach.

The module is exemplified by two case studies: (a) *How Historic Landscape Characterisation is used in the UK* (Kenneth Aitchison) and (b) *Igartza: Cultural biography of historical urban landscape* (Rosa Martínez).

The module *International conventions and legal frameworks* by Arkadiusz Marciniak is a systematic overview of international conventions and charters in the domain of conservation and preservation of cultural heritage prepared by the world (e.g. UNESCO or ICOMOS) and European (mainly Council of Europe) bodies over the past fifty years. They provided guiding principles towards defining an appropriate response to the pertaining issues of their time. The module discusses their impact upon education and practical solutions in the domain of protection and management of culture heritage as well as their role in shaping the national policies in this domain and forcing governments to recognise their responsibility for the conservation of cultural property. The module is supplemented by a presentation of the Lausanne Charter by Arkadiusz Klimowicz.

The module *Sustainable development in archaeological heritage sector* prepared by Marjolijn Kok and Heleen van Londen discusses how the concept of sustainability has recently been translated into the cultural field. In particular, the module presents how, under the pressures of globalisation

and general economics, cultural diversity was recognised as being under threat. Hence, in order to maintain cultural diversity it is necessary to actively engage with the management of the landscape in a sustainable manner. This module delves into the concept of sustainability and the way in which it applies to cultural resources as well as presents how this new framework affects the practice of heritage bodies. The module starts by presenting the general idea of sustainability and goes on to the specificities associated with cultural sustainability. It also discusses the role of archaeologists as providers of information and the context of decision making within the democratic framework of policy-makers and executors. It then discusses their role in the planning process and the development of landscape.

The module is illustrated by a range of case studies. These include: (a) *The concept of sustainable development as an archaeological heritage management strategy* (Arkadiusz Klimowicz), (b) *Environmental assessment (EIA) and wind power in Sweden* (Håkan Karlsson and Anders Gustafsson), (c) *Sustainable research programs* (Rosa Martínez), (d) *Drentse Aa* (Heleen van Londen), and (e) *Environmental assessment in UK archaeology* (Kenneth Aitchison).

The module *Management cycle and information systems in archaeological heritage sector* by Andris Šne discusses a range of practical issues directly connected with management of archaeological heritage. It provides a thorough overview of the entire management cycle including documentation and registration, archiving, evaluation, protection/conservation, interpretation/synthesis, and communication (presentation and maintenance). It further discusses how these subsequent stages are related to a range of legislative issues and public concerns. The module focuses more on the management of particular sites than on landscapes. The theoretical context of management policies is provided by reference to the Netherlands and Sweden while a range of practical issues refer to the situation in Latvia.

The module is illustrated by two case studies presenting practical managerial solutions. These comprise (a) *The Rose Theatre* (Kenneth Aitchison) and (b) *Praileaitz* (Rosa Martínez).

The module *Commercial archaeology* by Marjolijn Kok and Heleen van Londen discusses the relationship between commercial archaeology and archaeological heritage management. It presents the origin of commercialisation of archaeological practice in Europe as well as numerous facets and pitfalls of commercial archaeology in different European countries. These include quality and standard of work, professionalism, and ethics. It further presents an overview of introducing market principles in archaeology, in particular in relation to the planning process. It concludes by looking at different facets of commercial archaeology, which may be relevant for archaeological heritage management.

The module is exemplified by three case studies. These comprise (a) *Commercial archaeology in Spain* (Rosa Martínez), (b) *Irish commercial archaeology and road building development* (Kenneth Aitchison), and (c) *Canal Seine-Nord Europe* (Kenneth Aitchison).

The module *A single voice? Archaeological heritage, information boards and the public dialogue* by Håkan Karlsson and Anders Gustafsson discusses a range of issues related to the presentation of archaeological heritage and communication with the general public. This is exemplified by the role of information-boards at monuments and sites as a dominant method of communication with the general public in Sweden. In particular, the module presents history and socio-political context of using sign-posts/information-boards, epistemological and socio-political considerations behind the method, its contribution to the communicative and unequal relationship between the heritage management and the public as well as future possibilities of a new communicative relationship anchored in an open and living dialogue. The module is supplemented by a case study *Open for works* (Rosa Martínez).

In the module *Producing and communicating archaeological knowledge: public outreach in the digital age* by Francois Bertemes and Peter F. Biehl, the authors explore importance of multimedia technologies and the internet for the way archaeology is communicated to the public as well as means of engaging the specialist community and the public in the knowledge production and knowledge transfer. The module then presents a case of 'multimedia excavation' serving as a training ground for young heritage professionals and archaeology students. These issues are further exemplified by presenting multimedia applications at the Neolithic settlement at Çatalhöyük in Turkey and the Cambridge 'Blobgects' Project.

The module is illustrated by two case studies: (a) *Oxford archaeology database* (Kenneth Aitchison) and (b) *Archaeo-tainment* (Marjolijn Kok).

The module *Methods and engagement, publicity and media relationships* by Francois Bertemes and Peter F. Biehl discusses the importance of communication with the public, methods of engagement, publicity and media relationships. In particular, it presents an overview of strategies and methods of achieving these goals by a range different media. Knowledge production is ranging from digital field archaeology, visual representation, knowledge management, and the sociology of knowledge. The module is exemplified by a case study *Uses of web 2.0 for archaeology and archaeological heritage management* by Rosa Martínez.

The module *Introduction to archaeology for construction engineers* was prepared within the Leonardo da Vinci project *Archaeology and Construction Engineering Skills*. It provides an overview of archaeology and archaeological practice for constructional engineers. The module systematically presents major elements of the archaeological process. Its first part refers to on overall context of conducting an archaeological project and covers legal regulations and administrative practices, licensing and standards of archaeological works, basic foundations of management of archaeological resources, and cooperation between major stakeholders of archaeological heritage. The second part of the module aims at discussing elements of archaeological heritage, including types of sites, evidence for archaeological remains, different categories of portable objects as well as classification of archaeological sites. The module also discusses possible damages and threats to archaeological heritage. It then deals with the presentation of techniques used in archaeological works, in particular a range of non-invasive and invasive methods. The module presents also different activities performed by archaeologists after completing field works. These comprise the analysis of different categories of data, publications, and engagement with the general public. The final part of the module deals with the management of archaeological projects in the context of the spatial planning process. These include timescale and risk management, the role of archaeological remains in feasibility studies, application stage, as well as enabling and construction works. The module is additionally illustrated by case study on *Engineering Amsterdam Subway* by Heleen van Londen.

The module *Introduction to construction engineering for archaeologists* was also prepared within the Leonardo da Vinci project *Archaeology and Construction Engineering Skills*. It provides an introduction to the engineering projects, their major components and the basic principles of the project management and control. The module also addresses public clients' responsibility for engineering projects as well as a range of contractual and financial issues. The major part of the module is devoted to the presentation of the subsequent steps of the infrastructure process. These include the categorization of engineering soil in addition to in-ground structures and their classification in both rural and urban areas. The following section presents an overview of the stages present in the building process, including timescales. These comprise of the initial stage, followed by a design phase, construction phase and the guarantee period.

The module *Archaeology and politics* by Heleen van Londen provides an overview on how archaeology has been practiced and how it was strictly tied to the political context and embed-ded in the political discourses of the time. It discusses the relationship between archaeology and politics, in particular how archaeology has been used to serve political purposes in different historical periods. The module discusses also how images of the past served as justifications, social binds, social outcastings, cultural domination or land claims. The important role of archaeology in constructing national identity and impact of great archaeological expeditions in strengthening nationalism in different countries is also discussed. The role of archaeology in the development of national socialism in Germany, where creating a unique combination of heritage, land and ethnicity was particularly important. Archaeology also played an important role in the quest for human origins. Following the Second World War, archaeology became used as a means for creating international understanding, cooperation, and integration. This was mainly due to numerous legal initiatives undertaken by the United Nations and the Council of Europe.

The issues discussed in the module are further elaborated in three case studies: (a) *Archaeology and human rights* (Rosa Martínez), (b) *Archaeology contributions to Basque and Catalonian nationalisms* (Rosa Martínez), and (c) *Ayodhya* (Kenneth Aitchison).

The module *Public archaeology* by Monique van den Dries provides an overview of the developments that triggered the engagement with the public in various parts of the world. It discusses the emergence of public archaeology within the academic sector, traces the trajectories of its development in the United States and Europe and evaluates an impact of international regulations such as the Faro Convention and the Ename Charter. In particular, it presents different definitions of public archaeology, levels of engagement with the public, and means of engaging different constituencies. The module then presents major facets of community-based archaeology, in particular projects run by the communities themselves or in collaboration with professionals.

Different issues presented in the module are further expanded in three cases studies comprising (a) *Involving community groups in UK archaeology* (Kenneth Aitchison), (b) *Amaiur: heritage and local identity* (Mikel Errazkin), and (c) *Vikings – archaeological resources? Local people involved in heritage* (Håkan Karlsson & Anders Gustafsson).

The module *Urban archaeology* by Andrzej Gołembnik presents interdisciplinary character of archaeology and management of historic towns with complicated stratigraphically. It explores the legal and organisational framework of urban archaeology and provides an outline of its history. In particular, the module discusses various facets of urban archaeology, starting from the stratigraphy of urban sites.

It focuses on subsequent elements of the research process from desk analysis, through non-invasive prospection, excavation, post-excavation analyses, and conservation methods. An important part of the module comprises the presentation of recording methods, archiving and publication.

The module is illustrated by two case studies: (a) *Museum of London archaeology* (Kenneth Aitchison) and (b) *Merida: managing Emerita Augusta* (Rosa Martínez).

The module *Perspectives on looting, illicit antiquities trade, art and heritage* by Staffan Lundén provides an overview of issues related to looting and illicit trade of antiques and art objects. It presents the nature of destruction of archaeological sites as generated by market demand, a broader societal context of local and global power relations in which looting take place, in particular the nature of relations between the looter and the collector as well as role and responsibility of the cultural heritage professionals' in relation to the ongoing trade. It also provides examples of how museums and scholars have been involved in activities which served to legitimise the trade in unprovenanced archaeological objects and more generally how cultural heritage professionals may support the trade through their participation in the social construction of such concepts as 'art' and 'heritage'.

The module is illustrated by three case studies. These are as follows: (a) *Metal detectors in southern Spain* (Rosa Martínez), (b) *Metal detectors in Sweden. A new legal framework?* (Anders Gustafsson & Håkan Karlsson), and (c) *Baghdad Museum* (Kenneth Aitchison).

The module *Problematic heritage* by Håkan Karlsson and Anders Gustafsson tries to address the constructive nature of cultural heritage. In particular, it discusses what constitutes a part of the cultural heritage and which parts are constricted and forgotten. It further discusses the process of materialization and construction of collective memory. It presents fearsome and neglected cultural heritage. More precisely, it tackles material and immaterial remains and memories of the past that, for various reasons, have been either hard to handle since they remind us of fearful, painful and/or shameful episodes of our history, or have been neglected and forgotten since they are not considered worthwhile to remember in the future. While addressing these issues, the module presents the problems of collective memory and cultural heritage, as well as the relationship between politics and cultural heritage. Cultural heritage and the construction of collective memory are always connected to various, but concrete, political agendas. The major part of the module comprises the discussion of fearsome and neglected cultural heritage. As regards to the former, there exists a number of sites and memories that represent fearful, painful and/or shameful episodes in local,

regional or national history such as concentration-camps and other genocide sites, slave-trade stations, cold-war installations, battlefields, mental asylums, political prisons, etc. Such neglected heritage not only includes fearsome heritage, but most commonly is not considered worthwhile to remember in the future by the cultural heritage management.

The module is illustrated by two representative case studies including (a) *Queer archaeology* (Marjolijn Kok) and (b) *Memory's graves. Exhumations of common mass graves from Spanish Civil War* (Lourdes Herrasti).

The final module *Maritime archaeology* by Andrzej Pydyn provides an overview of maritime archaeology. This sub-discipline of archaeology deals with the complex relationship between man and the sea, as well as the seaside environment. It spans from the Pleistocene exploitation of the marine environment to the study of World War II ship-wrecks. The module discusses types of maritime culture heritage including historic ships, submerged archaeological sites in the continental shelf, ports and harbour-cities, and objects deliberately placed under water ('treasures'). It then presents major archaeological maritime techniques, in particular different methods of invasive and non-invasive research. Regarding the latter, these comprise mainly acoustic methods and magnetometers. It further discusses methods of underwater excavations. A significant part of the module deals with the presentation of monitoring, protecting and managing maritime heritage. The maritime heritage management mainly focuses on research, archiving, monitoring, protection, conservatory work, as well as on the dissemination of maritime heritage on regional and national levels. The module also presents the legal framework for the protection and management of maritime heritage, including regulations concerning saving and excavating properties from the sea, and the ways of proceeding with wrecks at both national, and international levels.

The module is illustrated by four diverse case studies. These comprise: (a) *Vasa – a Swedish warship from 1628* (Håkan Karlsson & Anders Gustafsson), (b) *IJsselmeerpolders* (Heleen van Londen), (c) *Maritime archaeology* (Kenneth Aitchison), and (d) *Urbieta's shipwreck: Recuperating a 15th century ship in the Basque Country* (Manuel Izagirre).

Final remarks

The dynamic changes in Europe over the last two decades have radically transformed archaeology and means of protection and management of archaeological heritage. Heritage professionals need to be aware of these transformations in order to react accordingly to these emerging challenges in an adequate and professional manner. Designing, develop-

ing, testing, assessing and disseminating innovative solutions in developing and upgrading vocational skills in the protection and management sector of archaeological heritage at the European level is crucial. At the same time, recent developments led archaeology to become an element of sustainable development at the regional and national context, in particular closely integrated in the planning and landscape policies. These conditions require expanding vocational training of archaeological heritage beyond the professional sector. The educational system in the form of flexible and user friendly content depository can easily handle the training needs of different audiences. The proposed solutions can be used in diverse educational contexts and on different e-learning platforms, according to the resources available in institutions conducting the training. The vocational training system can significantly contribute to consolidation of European co-operation in education and training in the archaeology sector by meeting emerging challenges and demands in the field across Europe.

References

• Collison G., Elbaum, B., Haavind S., Tinker, R., 2000. *Facilitating Online Learning, Effective Strategies for Moderators*, Atwood Publishing

• Horton W., Horton K., 2003. *E-learning Tools and Technologies*, Wiley Publishing

• Marciniak A., 2009. E-learning in archaeological heritage. An example of 'Archaeological heritage in contemporary Europe' a distance learning course. In H. van Londen, M.S.M. Kok and A. Marciniak (eds.), *E-learning Archaeology, Theory and Practice*, 41-55. Themata 3, University of Amsterdam: Amsterdam

• Marciniak, A., Marciniak, J., 2011. Technology & methodology in distance learning in archaeology. A case of e-learning course 'Archaeological heritage in contemporary Europe. In W. Börner (ed.) *Proceedings of the 14th International Congress 'Cultural Heritage and New Technologies' held in Vienna, Austria November 2009*, 382-390. Museen der Stadt Wien: Wien

• Marciniak, J., 2009. Methodology and e-learning solutions in 'Archaeological heritage in contemporary Europe' distance learning course. In H. van Londen, M.S.M. Kok and A. Marciniak (eds.), E-*learning Archaeology, Theory and Practice*, 56-89. Themata 3, University of Amsterdam: Amsterdam

• Marciniak, J., 2012. Metody organizacji materiałów dydaktycznych w postaci elektronicznej zapisywanych w standardzie SCORM. Edukacja. *Magazyn edukacji elektronicznej* 1(3): 79-92

• Politis, D. (ed.), 2008. *E-Learning Methodologies and Computer Applications in Archaeology*. IGI Global: Hershey, PA