

Erasmus+/ KA2
(Strategic Partnerships for
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DELTA: Digital Excavation through
Learning and Training in Archaeology
2019-1-EL01-KA203-062875
<http://www.project-delta.eu/>



DELTA
Digital Excavation through
Learning and Training in Archaeology

POLICY RECOMMENDATIONS AND GOOD PRACTICES

Masaryk University



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Erasmus+ Programme
of the European Union

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1. Introduction

DELTA (Digital Excavation through Learning and Training in Archaeology) is a project funded by the Erasmus+ Programme of the European Union, Key Action 2: Cooperation for innovation and the exchange of good practices, strategic partnership in the field of education, training and youth. The project aims to design and develop an innovative, open and blended course that combines the physical space of the excavation field and the digital space (virtual excavation, online learning) with the aid of new technologies to train students in digital competencies and the use of new technologies in Archaeology. DELTA is a transnational joint project of four partners - Hellenic Open University (Greece), Università Degli Studi Della Basilicata (Italy), National and Kapodistrian University of Athens (Greece) and Masaryk University (Czech Republic).

Project DELTA designed and developed a course that combines the physical space of archaeological excavation with the digital space of online learning. DELTA integrates the excavation site as an instructional tool in the classroom-based instruction on Archaeologists using digital means. The course was delivered via blended learning using an online platform and tutors and on-site learning sessions. The project focuses on developing digital competencies so that young and future archaeologists maximize the academic return on investment (ROI of education), become more resilient, increase their creativity and efficiency and acquire adaptive career competencies. The project is focused on applying open-source software to emphasize the collaboration and data exchange between institutions and individuals and minimize the financial costs of acquiring the software. The DELTA course familiarizes learners with the basics of these software and their application into the research, communication of research results or educational purposes. The DELTA course was delivered in English and is translated into the national languages of the participating project partners.



2. Evidence and analysis

2.1 The EU policy regarding the intersection between archaeology, culture and education

The Europe 2020 strategy establishes Information and Communication Technologies (ICTs) as a core element for five of the seven flagship initiatives to promote growth in the European Union: the European Platform against Poverty and Social Exclusion, An Agenda for New Skills and Jobs, Youth on The Move, and the Digital Agenda for Europe, and the Innovation Union. The Europe 2020 Strategy and related flagships promote ICTs to tackle social inclusion, from young people using ICTs to improve life chances, raising the skills and working conditions for workers in general, and building an industry capable of delivering solutions for the challenges of health and demographic change. The digital literacy of the workforce remains one of the key challenges for the adoption of technology within cultural organizations (https://ec.europa.eu/regional_policy/en/policy/what/glossary/e/europe-2020-strategy). Digital qualification is one of the eight key competencies for lifelong learning identified by the European Union. The need to acquire digital skills, work with them and use them to pass on knowledge is further exacerbated by the wave of the COVID-19 epidemic. In addition, however, we see an apparent increase in the relocation of users in all areas of human activity to the digital space, within some respects up to seven times as many media as possible in five years (UNESCO 2022, p. 94, Table 3.1 <https://unesdoc.unesco.org/ark:/48223/pf0000380474>). In this regard, the most common problem is the lack of resources in the countries and the inability to respond in a timely manner to emerging trends (UNESCO 2022, 91). However, our project offers an easy and effective way to keep pace with the accelerating world at a minimal cost. The DELTA project develops a modular blended course on digital competencies and 21st-century skills, up-skilling archaeology students.

The DELTA project fully meets many European policy objectives in cultural heritage. Enhancing digital skills and their use in the cultural



and heritage sector is a prerequisite in Digitizing and preserving Europe's cultural heritage online for universal access¹ (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=legisum%3A10_1). At the same time, the DELTA project corresponds with: International cultural relations – an EU strategy, specifically reinvigorating and promoting cultural heritage, which eventually attracts tourism and boosts economic growth (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=legisum%3A4298957>). The acquisition of skills in the DELTA course is an essential prerequisite for meeting the above objectives and fully complying with the forthcoming EU legislation for the coming periods: Digital Education Action Plan 2021-2027 Resetting education and training for the digital age (<https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vlcis37do mym>).

2.2 The DELTA course and its impact

Although there has been a considerable increase in the adoption of digital applications in archaeological excavations over the last two decades, the application of digital educational tools in the excavation training of Archaeology students has not made commensurate progress. Consequently, it is still challenging to integrate the physical space of archaeological excavation into Archaeology curricula with

¹ In Italy, there is the Central Institute for the Digitisation of Cultural Heritage, hereinafter referred to as the "Digital Library" (Art. 35 DPCM 2 December 2019 n.169), which takes care of the coordination and promotes programmes for the digitisation of the cultural heritage under the Ministry's responsibility. To this purpose, it draws up the National Plan for the Digitisation of Cultural Heritage, supervises its implementation, and expresses a mandatory and binding opinion on any initiative of the Ministry in this sector.

ICCD (Central Institute for the digital implementation) achieves the homologation of methodologies by elaborating data structures, regulations, terminological tools, guidelines that represent the national standards for the cataloguing of archaeological and cultural heritage. Publications of a scientific, disciplinary nature outlined the historical landscape of cataloguing or set out the founding principles of cataloguing archaeological data according to ICCD standards (archaeological records like stratigraphic units).

<https://www.beniculturali.it/ente/istituto-centrale-per-la-digitalizzazione-del-patrimonio-culturale-digital-library>



that of the university classroom. The impact of the limited use of digital educational tools became even more apparent during the recent COVID-19 pandemic, which created severe problems in conducting face-to-face excavation training in both the classroom and the excavation site. Within this context, integrating these two through the digital “space” of online training is the main objective of project DELTA (Digital Excavation through Learning and Training in Archaeology), a transnational project funded in the context of Erasmus+/KA2 EU programme. Through the DELTA project, students of Archaeology will improve their subject knowledge and develop digital and 21st-century skills.

Like other cultural professionals, archaeologists need to upskill and be trained in new methods and tools to manage, document, preserve, and promote the findings during and after the excavation field. The nature of the rapidly changing labour market landscape means that archaeologists, as cultural professionals, must embrace the practice of upskilling throughout their careers. The project DELTA seeks to respond to crucial questions such as: What are the needs of archaeologists? How can these young cultural sector professionals encounter the digital challenges in the digital era? How can digital platforms be effectively used in modern archaeology? How important is digital literacy? Are current University curricula competent enough to result in a digitally confident professional?

Desk research and online surveys were conducted among participating institutions in partner countries (Papadatos et al. 2020) to answer these questions. Its goal was to specify the content of the course according to the needs expected by the community, especially universities and potentially other institutions dealing with cultural heritage.

The online survey showed that universities offer students in bachelor’s and master’s programs courses dedicated to excavation and, to some extent, the use of digital technologies. However, these courses are often not satisfactorily related to the rest of the university curriculum. The questionnaire was aimed at students and professionals in archaeology, museology and related disciplines.



Altogether, 100 participants responded to the questionnaire, of which 78% were from the university and the remaining 22% from cultural heritage management. During their study, 75% of participants completed field practice, but only 33% of participants were taught the application of digital tools. However, during their day-to-day practice, 75% of professionals in cultural heritage use digital technology. So, there is a discrepancy in the real needs and the implementation of digital technologies during the teaching. In this regard, the DELTA course significantly overcomes this problem by offering a blended learning experience with interactive learning materials and a dedicated online platform.

The evidence from the Desk Research Questionnaire, in particular, provided a thorough picture of the archaeological curricula in the three participating countries, concerning:

- higher education courses on Excavation Methods and Techniques.
- the use of digital applications in Archaeological Excavations.
- the use of digital educational tools in courses about Excavation Methods and Techniques.

In all three participating countries, the archaeological curricula include many courses on Archaeology, Excavation and Field Methods and Techniques. However, it became clear that BA studies in the Czech Republic are more focused on archaeology since they consist almost exclusively of archaeology courses. In Greece and Italy, the curricula also include other courses on related subjects, such as History, Ancient Literature and Classics.

On the other hand, the archaeological curricula in these countries include compulsory practical training in Excavation and Field Methods and Techniques, with varying duration, usually between 10 and 21 days. Furthermore, of particular importance for the DELTA project is that in all educational excavations, the use of digital tools is the norm, and students are trained in applying these digital tools in the field. In Greece, however, the application of digital tools in excavations and the training of students is a relatively recent phenomenon.



This research provided the necessary evidence for designing and developing a blended training course that combines an online platform with face-to-face and on-site learning in a joint excavation; we adopted the ADDIE model (<https://educationaltechnology.net/the-addie-model-instructional-design/>) in the course design. In addition, the online piloting of the course allowed participating Universities to discuss the integration of digital applications in Archaeology education and make suggestions for future actions, particularly within the context of the recent pandemic and the problems it created in students' excavation training.

Reflecting the online survey and desk research results during the development of the DELTA course resulted in a high overall rating (4.25 out of 5). The majority of participants (96 %) recommend the course to their classmates or colleagues. The DELTA blended course fully or almost entirely met the expectations of 76 % of participants. The ISP in Marathon was rated 4.65 out of 5. Overall, students rated the course as highly useful for acquiring digital skills and their application in practice.

3. Policy implications and recommendations

3.1 Recommendations for transferability of project results

- **Presentation of the impacts of the DELTA project to cultural institutions, demonstration of the benefits of the project**

After the piloting of the DELTA course, blended learning was introduced to representatives of educational and cultural institutions, whose employees can further transfer the project results. The course is complex and modular. Therefore, each institution or individual interested in the course can use and apply what is necessary, incorporate it into the existing system or adapt it according to the needs of the institution or individual.



- **The possibility of effective presentation at minimal cost**

The course can be successfully used not only for the needs of universities, which often have the necessary equipment (see 3.2) but also for lifelong education and training of staff or professionals in cultural heritage institutions. Anyone interested in acquiring and developing digital skills can complete the course independently. The course is especially beneficial for experts in museums, galleries and other institutions in the cultural heritage sector because professionals trained in digital skills can further transfer this knowledge in a way that is attractive for the public. Especially museums and other cultural heritage management institutions lack proper funding. Therefore, the selection of appropriate software and hardware is of utmost importance. The DELTA course is beneficial because it focuses on using free and open-source software.

- **Supporting new and existing employees in acquiring digital skills**

By implementing the recommendations (fully or partially) above, we can achieve a significant shift in the training of students and improve the skills and knowledge of current employees. The DELTA project thus can improve competencies in the presentation of scientific results to the public, better transfer the theoretical knowledge to practice and enhance the competitiveness of individuals in the labour market.

- **Acquiring new experienced lecturers**

Universities, as a cornerstone of education, they often have the appropriate equipment and experts. However, the main issue is the number of lecturers and their ability to cover the various topics more in-depth. It would be necessary to find ways to increase the number of staff in both educational and cultural institutions that help co-create cultural values for the public.



- **Translation of teaching materials into national languages, for better acquisition of the necessary skills**

For its further application and use, it is appropriate to recommend a translation of course materials into the national language of the participating countries to adopt the DELTA course into the institutions' curriculum. The English version of the course supports the international adoption of the DELTA project. However, for users who deal with the topic for the first time, it is appropriate to study materials (handbook, self-produced videos and presentations) in their native language to understand the content properly. We believe that a combination of English and national language is a key to mastering the course.

- **Building a positive relationship between students and lecturers, which can help attract more people interested in the issue**

The feedback of DELTA course's participants is essential for successfully disseminating the knowledge gained within the DELTA project. Students who have completed the course can best evaluate its benefits. They can recommend the course to classmates and successfully build on it and expand the ideas and knowledge gained during the course.

3.2 Recommendations to education providers

- **More unifying the way digital skills are taught across countries**

The vast majority of course participants were satisfied with its form and implementation. The desk research results (Papadatos et al. 2020) show that teaching associated with digital technologies during the educational process is still relatively unsystematic in all participating countries. However, the DELTA course can be included



in the curriculum of almost every institution. Thus, it can provide its graduates with essential information to increase their awareness of current trends and strengthen their competitiveness in the market. The DELTA course has the potential to be a fundamental unifying element for teaching digital skills worldwide. Given the project results, education providers should sufficiently support the implementation of the course into their curriculum. It is ideal to assign supervision over the project's performance to a person/persons who have at least a basic overview of the course or part of the course to transfer the course into the university curricula to their (language and technical) environment.

3.3 Recommendations to policymakers

- **Providing adequate hardware for cultural and local institutions**

The DELTA project is based on open-source software. Therefore, its implementation entails zero to very low input costs. It can enhance the networking and educational process in cultural management, the protection of cultural heritage and local institutions (e.g. municipalities). By promoting open-source software, stakeholders can set a significant unifying direction in the education and presentation of cultural heritage for the general public and thus support a shared cultural awareness and identity. The DELTA course can be included in any curriculum or programs in existing institutions. Both future graduates and current employees can acquire the necessary digital skills and use them effectively in their activities. Due to the low cost of software, the main requirement is adequate hardware. Therefore, it is important to provide cultural and local institutions with adequate equipment, with the necessary parameters.



- **Adequate number of professionals in the cultural sector**

The second necessary requirement is to ensure an adequate number of capable professionals in the cultural and educational sectors. Cultural institutions often face underfunding, are unable to pay capable staff, and they go to work in other sectors. If the presentation and protection of the common cultural heritage is to be successful, it is necessary to improve the working conditions of employees in the cultural sector and motivate capable people to use their energy and skills to serve culture and our society as a whole. Therefore, it is also necessary to improve the salary conditions of employees and streamline the possibilities of obtaining grant funds.

- **Continuous support of mutual communication between universities and sharing of their experience**

Under the European policies, further integration and cooperation are needed between the Universities across Europe to improve the quality and effectiveness of their curricula and methods of excavation and the introduction of new technologies in the archaeological sector. The Higher Education Institutions that participate in the project will enhance their offer to young archaeologists, as University students, enabling them to cope with a massive introduction of technology in this sector.

4. Conclusions

The DELTA course was created in collaboration with four universities from three countries (Greece, Italy, Czech Republic). The DELTA platform (<https://mooc.cti.gr/delta.html>) provides the learner with a basic overview of the possibilities of using digital technologies in research and presenting cultural heritage to the general public. The course was created in response to the incoherent teaching of digital technologies in participating countries. The course is designed in both English and national languages to be used in any of the participating countries of the DELTA consortium. The DELTA course can become a



flagship in implementing digital skills in cultural heritage management.

The online survey and desk research provided the necessary evidence for designing and developing a blended training course that combines an online platform with face-to-face and on-site learning in a joint excavation; the ADDIE model was adapted in the course design. In addition, the online piloting of the course allowed participating universities to discuss the integration of digital applications in Archaeology education and make suggestions for future actions, particularly within the context of the recent pandemic and the problems it created in students' excavation training.

A combination of the online course with face-to-face activities and ISP created (1) an opportunity to exchange digital experience in archaeology not only between cooperating institutions. Thus, the DELTA project was not only an educational tool, but it integrated people studying and working at different institutions, providing an insight into the educational and scientific conditions. (2) The DELTA project is an excellent opportunity for students to familiarize themselves with digital applications and integrate them into the field practice. (3) The DELTA project provided a platform for the interaction of students and tutors, thus creating an effective communication tool. The project needs continuation to develop this line of teaching.

Therefore, we propose new editions of the DELTA project to be implemented in future. It will help update the content and monitor educational needs from a longer perspective. The DELTA+ project might focus on creating a course that will develop more advanced digital skills from which would benefit professionals in preventive or commercial archaeology and museum workers for more advanced ways of presenting cultural heritage for the public.

The high demand for training in digital skills and no possibility to meet personally during the global coronavirus pandemic highlighted the importance of blended learning and the DELTA course itself. The COVID-19 pandemic has caused serious problems in conducting



traditional teaching. The search for new ways to prevent such unexpected situations has supported the importance and benefits of the DELTA project. The global response to COVID-19 has impacted every way of life, touching every continent and sector, including culture and education. It became evident, more than ever, that young professionals need digital skills and competencies to cope with their excavation tasks. The COVID-19 crisis has resulted in a significant increase in online learning by adults. The training that had started as face-to-face in classroom environments has been pursued in online mode. Students are encouraged to use the time freed up by short-time work schemes to take up new training. As such, the crisis provides a robust test of learning potential online. And the DELTA course enabled its target group (Archaeology students and their educators/tutors/professors) to be equipped with essential digital skills and new tools towards documentation, preservation and communication of archaeological findings and fields.

5. Research parameters

The research consisted of a desk review of the current legislation of European Union law, policies and reports about cultural heritage and data generated within the project, which originated from the desk research and online survey (Papadatos et al. 2020; Polymeropoulou et al. 2021), as well as an evaluation questionnaire inside the DELTA platform and after the ISP.

6. Project identity

Project name: DELTA: Digital Excavation through Learning and Training in Archaeology

Coordinator: Hellenic Open University (HOU), Patras, Greece, Achilles Kameas, kameas@eap.gr

Consortium:

- Università Degli Studi della Basilicata (UNIBAS), Matera, Italy



- National and Kapodistrian University of Athens (NKUA), Athens, Greece
- Masaryk University (MUNI), Brno, Czech Republic

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Duration: September 2019 – June 2022 (33 months)

Budget: 270,799 €

Website: <http://www.project-delta.eu/>

For more information:

- Visit the DELTA project's website: <http://www.project-delta.eu/>
- Contact DELTA project by writing to this form: <http://www.project-delta.eu/contact/>
- Contact: Panagiota Polymeropoulou, Senior researcher, ppolymero@eap.gr and DAISSy research group of Hellenic Open University: info@daissy.eap.gr
- Join the DELTA project community on Facebook <https://www.facebook.com/projectdeltaeu> and Twitter <https://twitter.com/deltaprojecteu>

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