Digital Papyrology and the ENCODE Project
(XXXth International Congress of Papyrology 25-30 Jul 2022 Paris)

H. Essler, M. Fogagnolo, M. Legnini

ENCODE - an acronym for Bridging the <gap> in ancient writing cultures: ENhance COmpetences in the Digital Era - is dedicated to the now urgent need to fill the gap that exists in academic education between highly specialised humanistic competences in the field of study of ancient writing cultures of Europe, Asia and Africa and digital competences[1]. For 'digital skills' we intend, in this context, not only the skills necessary to use available and ready-made digital infrastructures and resources, but above all the skills needed to actively work on digital data, producing them from scratch and/or reusing them in creative forms. The starting objective is, therefore, relevant to University-level education: to meet the learning needs of graduates in the field of highly specialised digital skills applied to the study of the ancient scripts of Europe, Asia and Africa, through innovative teaching modules. At the same time, the project aims to strengthen the collaboration between academic education institutions and heritage institutions, which is crucial when dealing with the ancient written heritage of Europe and the Mediterranean Basin. The tools that the project is producing and making available will be functional both for university teaching and self-training by academics and as support services for the institutional stakeholders.

The digital training of graduates in the classical disciplines and the definition of new specialised professional profiles also intend to promote collaborative, participative and intercultural digital approaches to the written heritage of antiquity, in the broad area encompassing conservation and curatorship, textual and cultural data extraction, analysis and visualisation, with the main aim of reconnecting written artefacts to their cultural contexts of origin.

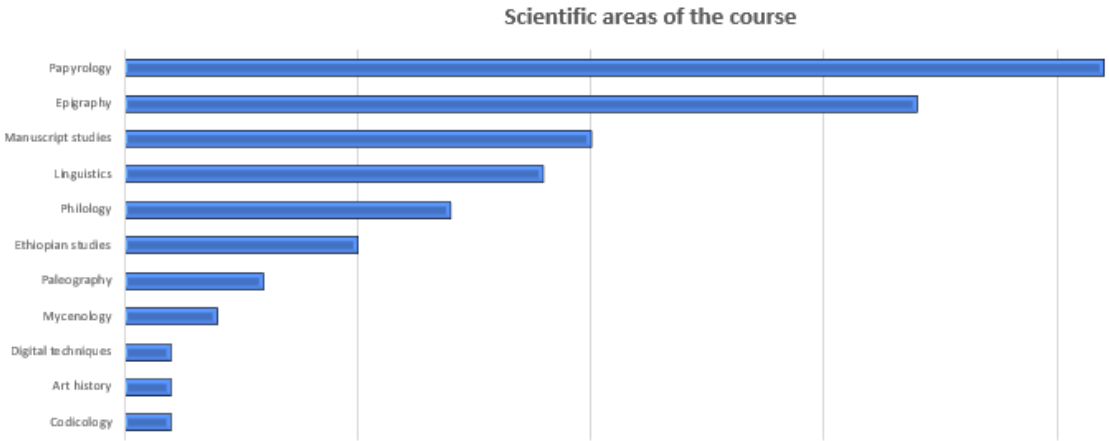
This paper aims to trace the process leading to the organisation and running of one training activity organised by the ENCODE project: in keeping with the main topic of the International Congress of Papyrology, we will base our analysis on the ENCODE Digital Papyrology Workshop organised by the University of Parma (24th-27th May 2022); this is not the first training activity organised by the project, but it could offer a valuable example as it was preceded by several other ENCODE training activities that provided useful tools for a more effective organisation.

The choice of the partner responsible for this activity fell on Parma as the project members were able to offer their competent expertise in the papyrological field. Underlying the identification of the content of the workshop and its structure, however, is also the preliminary identification of digital needs, carried out through the analysis of feedback questionnaires distributed to trainees from previous ENCODE workshops on digital skills applied to ancient written cultures. This analysis is

[1] Project Summary Erasmus+: https://erasmus-plus.ec.europa.eu/projects/search/details/2020-1-IT02-KA203-079585

part of the first Intellectual Output (**IO1**) of the project, which consists in the production of two reports: the first one (B. Breuer, *Report on digital competences, learning outcomes and best practices in teaching and learning*, 2022) is based on an international survey disseminated in July 2021 among students and academic staff and aimed at describing and evaluating previous transnational training experiences dedicated to the transmission of digital competences applied to ancient scripts; the second one (M. Fogagnolo, *Hands-on Workshops*, 2022) collects the answers to questionnaires given by students who had participated in workshops and other training activities organised by ENCODE or associated partners in cooperation with ENCODE since October 2020[2].

The analysis of the first report reveals that Papyrology ranks first among the disciplines linked to the ancient cultural heritage in terms of number of workshops on digital competences. Despite this, the digital encoding of papyri using Leiden+ and an active use of the Trismegistos platform rank high among the needs highlighted by the survey participants. Additionally, in the ENCODE workshops of Bologna (January 26-29, 2021) and Leuven (November 3-5, 2021), which contained sessions on Leiden+ and Papyri.info but were not specifically dedicated to papyrology, it was recorded that 17% and 23% of participants respectively expressed the need of acquiring competences in the field of digital papyrology (Leiden+) and content creating in existing databases (Trismegistos)[3]. This significant information led to the planning of the first workshop entirely dedicated to digital papyrology, organised by the University of Würzburg (February 14-18, 2022). The workshop, *Papyrology for non-specialists*, aimed to provide a general introduction to instruments of digital papyrology (Papyri.info and other databases of digital papyrological editions) and to teach publication tools for digital papyrological editions. The feedback from this workshop revealed that there is a demand for more advanced skills in the field of Papyrology: the data from the questionnaire filled in by the participants in Würzburg shows that the participants wish to develop more advanced skills in digital papyrology (fig. 2).



(fig. 1, from B. Breuer 2022, Figure 14)

[2] On the reports, see: https://site.unibo.it/encode/en/outputs

[3] See Fogagnolo 2022, 15 n. 21.

(fig. 2 from "Feedback Questionnaire Papyrology for non-specialists. ENCODE Winter School Würzburg")

It was therefore decided to design the following Training Event as a more advanced Digital Papyrology workshop, which would take a more in-depth approach to the digital skills introduced to the participants of the previous Würzburg experience. This would also provide the opportunity to produce and test advanced training modules to add to the ENCODE Database for future reuse.

The *ENCODE Digital Papyrology Workshop* held in Parma (May 23-27, 2022) was planned accordingly, involving many partners and associated partners, experts in the field of Digital Papyrology and with previous experience in similar training events. Additionally, it was decided early on to turn the Parma workshop into the first ENCODE training event held entirely in presence, as the ongoing pandemic had made it impossible to do so until then. The workshop was advertised on the ENCODE website and through the ENCODE mailing list, as well as on other related mailing lists.

The programme of the workshop was drafted on the basis of the needs assessed by the reports and noted by the trainers and organisers in prior experiences: the aim was to provide a thorough training in encoding papyri on the Papyri.info platform and with the Leiden+ conventions, from the very basics of digitization to more complex issues of linguistic and philological variants, while also presenting the broader use of markup languages in the encoding of ancient written artefacts and introducing the use of platforms of linguistic annotation, specifically of papyri (namely PapyGreek).

The increasing difficulty of the topics covered in theory was matched by the increasing complexity of the papyri to be digitised in the hands-on training sessions. Following each day's theoretical lessons and hands-on sessions, guest lectures were scheduled with the intent of providing an introduction to topics and tools close to the workshop's main programme, such as other indispensable tools (*e.g.* the Trismegistos platform) and different applications of technologies studied in the workshop. The trainers and guest lecturers were invited on the basis of their expertise in the workshop's topics and in a number sufficient to guarantee a good trainees-to-trainers ratio, making sure that all trainees could receive constant and personal guidance in the hands-on training sessions.

The training materials were selected in coordination with the Papyri.info editorial board, who also kindly provided assistance and feedback in the days of the workshop: the trainees had the opportunity to submit their work to the boards and get it approved or rejected in a matter of hours, sometimes minutes; if any issue arose for which the digitised edition was rejected, the trainees got to discuss the needed corrections with the editors and resubmit, thus experiencing the workings of the entire editorial process. On the first day only, fifty new documentary texts (*i.e.* the entirety of O.BirShawish)

were submitted by the participants; about the same number of medical papyri were digitized in the following two days, for a total of close to 100 items created during the workshop by the twenty participants.

After the workshop, the organisers identified and systemised the skills acquired by the participants: to do this, they relied on the description of the humanities and digital competences of two international frameworks, CALOHEE e DigComp2.1, specially adapted to the specific contents of the workshop (fig. 3 and fig. 4). The same frameworks were also the basis for the international survey distributed among students and teachers and for the competence questionnaires of the workshops previously organised by the project (**IO1**). The humanities and digital competences activated by this workshop include:

Dim. 2: Text and Context	2.1 Source identification. Identify relevant historical data, problems, people, places 2.2 Source retrieval. Metadata cataloguing practice 2.3 Source analysis. Transcription, critical edition and interpretation 2.4 Contextualization of source production and transmission. Preservation history/historical context
Dim. 3: Theories and concepts	3.1 Working with theories and methods
Dim. 4: Interdisciplinarity	4.1 Placing history in the context of the sciences 4.2 Working with methods of other social sciences and humanities
Dim. 5: Communication	5.1 Linguistic abilities 5.4 Digital communication

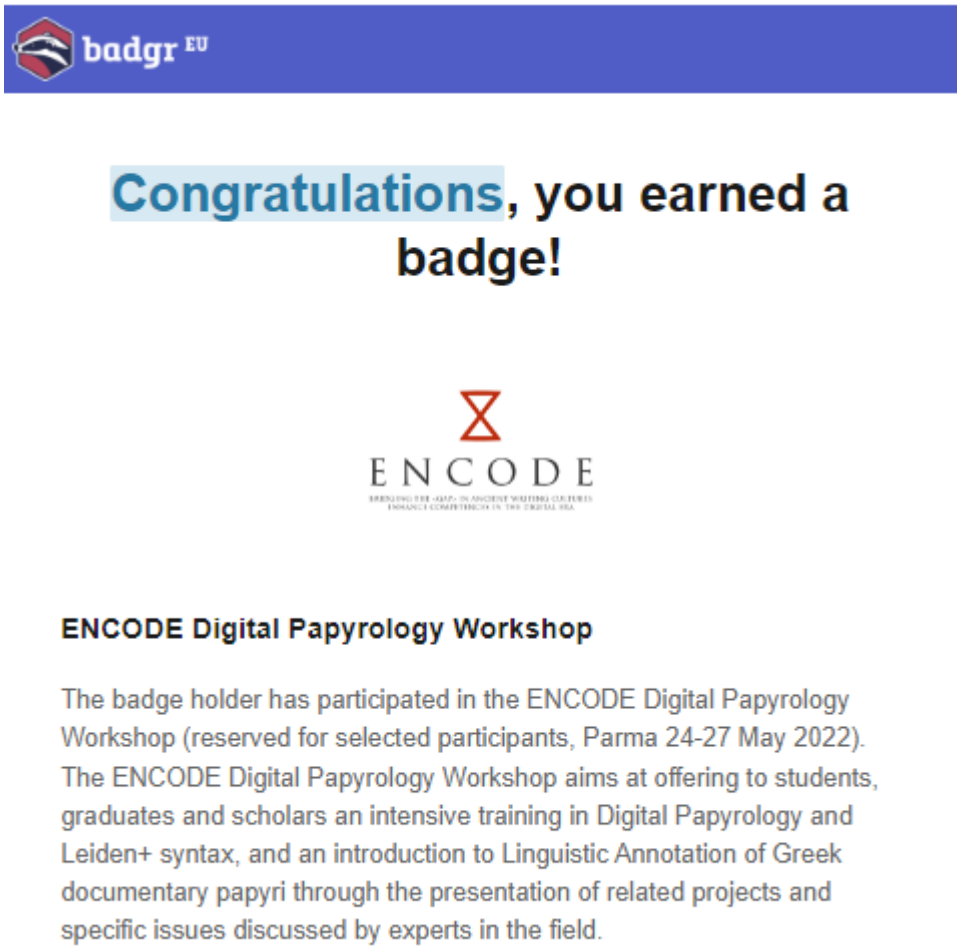
(fig. 3 from CALOHEE adapted to the ENCODE Digital Papyrology Workshop)

Competence area 1: Information and data literacy	1.1 Browsing, searching and filtering 1.2 Evaluating data and information
Competence area 2: Communication and collaboration	2.1 Interacting through digital technologies 2.4 Collaborating through digital technologies
Competence area 3: Digital content creation	3.1 Developing digital content 3.2 Integrating and re-elaborating digital content
Competence area 5: Problem solving	5.1 Solving technical problems 5.3 Creatively using digital technologies 5.4 Identifying digital competence gaps

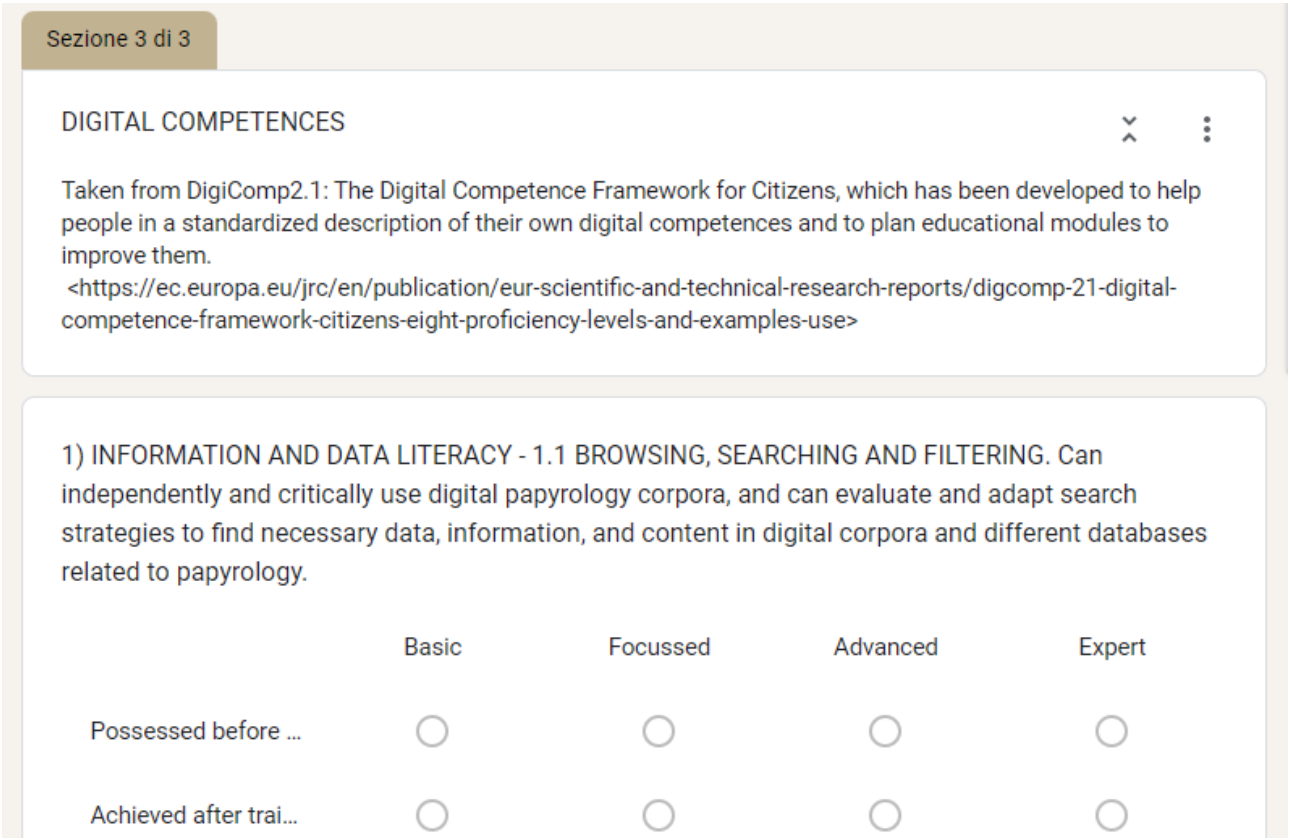
(fig. 4 from DigComp2.1 adapted to the ENCODE Digital Papyrology Workshop)

The analysis of acquired competences and learning outcomes is useful to produce several instruments. Participants will earn a certificate of attendance and an open badge provided by the issuer ENCODE and hosted by the international credentialing platform Badgr.com (fig. 5). The open badge contains a

detailed description of learning outcomes, acquired competences and contents of the workshop, which can be included in the curriculum vitae of the participants or shared on the main social networks. In order to monitor the learning of participants, a competence questionnaire (combined with a feedback questionnaire) has been produced and built on these humanistic/digital competences (fig. 6).



(fig. 5 Open Badge ENCODE Digital Papyrology Workshop)

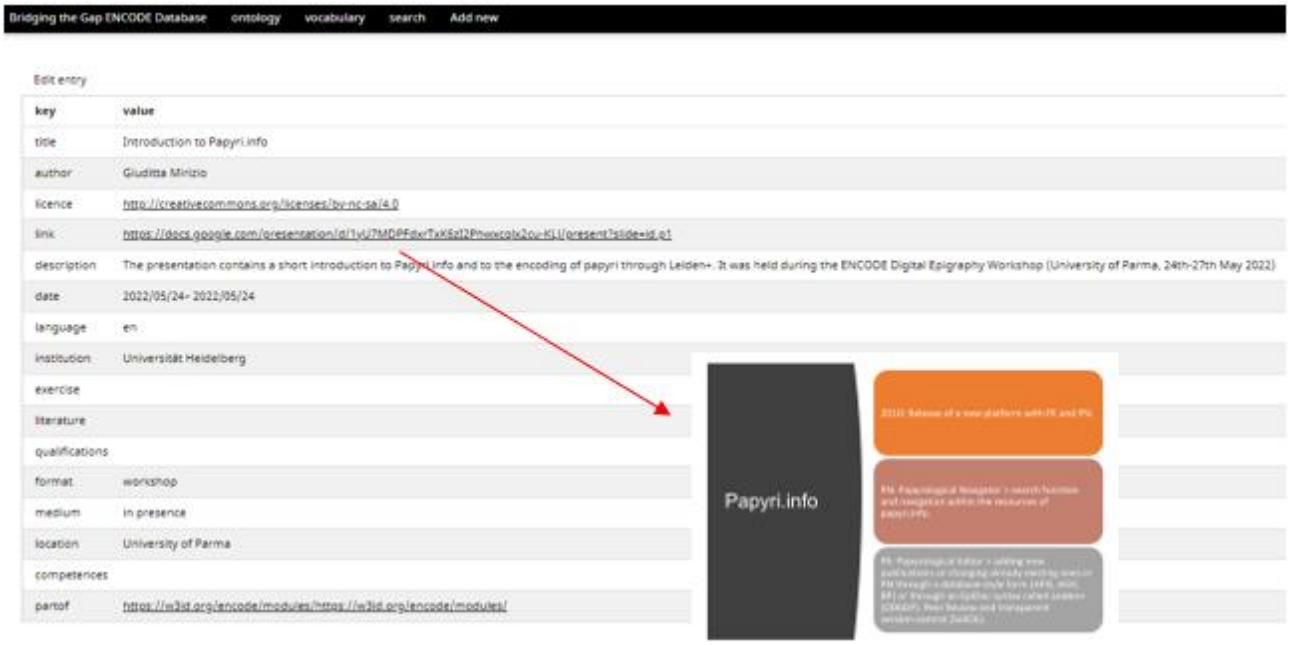


(fig. 6 Competence Questionnaire, ENCODE Digital Papyrology Workshop)

The certification of competences can also be useful for participants in the future in order to make them more spendable in the labour market. The sixth Intellectual Output (**IO6**) of the ENCODE project aims precisely to respond to the need to connect graduates with stakeholders/employers by creating a platform, in which the former will be able to describe the humanistic and digital competences they possess (including open badges and other certifications) and the latter to search for the profile corresponding to their needs and to disseminate occupational opportunities in the field. At present, the platform on which to host the community has yet to be identified: the ENCODE team is in contact with the GoTriple platform and the connected social network Trust Building System. Currently, the community is operating through the involvement of experts and stakeholders in the Multiplier Events organised by the project and the use of a mailing list, which communicates upcoming ENCODE events and to which one can register by accessing the website: https://site.unibo.it/encode/en/agenda/epidoc-workshop/community.

In addition, the trainers and organisers prepared material and structured programmes that can be an inspiration in the educational planning of teachers who want to incorporate innovative pedagogies into their traditional teaching and introduce elements of digital papyrology. For this reason, partners made this material available in the form of teaching modules, basic and advanced, collected in the ENCODE Database, the result of the second and third Intellectual Output of the ENCODE project (**IO2-3**). The teaching modules have been classified on the basis of competences and the areas in which they are acquired. The database can be queried either by consulting the individual sections relating to modules, competences and focuses or through a search mask and by using facets in which different parameters (such as course format, competences, focuses, lecturers or responsible institutions) can be combined. The individual module pages are structured in different sections, which

contain basic information such as the title, author and institution providing the module, a brief description of the module itself, its format, language, competences and corresponding entry and final level and a link to the course material (if available online) or to the course or workshop programme (fig. 7).



(fig. 7 Example of a teaching module produced during the ENCODE Digital Papyrology Workshop in Parma and stored in the ENCODE Database)

Based on these modules, a MOOC (Massive Online Open Course) on the topics addressed in the project is being prepared in the context of the fifth Intellectual Output (**IO5**): the unit under the responsibility of the University of Parma and the University of Würzburg will be dedicated to outlining the ideal training path of the digital papyrologist and will contain many multimedia materials, such as video interviews, links to external resources and in particular to papyrological teaching modules of the ENCODE Database. The main purpose of the unit is to represent an inspirational tool through which users can become aware of the digital skills useful in the papyrological field and actively participate in digital infrastructures. The first chapter includes a general introduction to existing tools and platforms for Digital Papyrology, reflecting on the critical aspects of handling digital editions and on the relevance of crowdsourcing, cooperation and integration for Digital Papyrology. The second and third chapters illustrate the tools for researching and producing digital editions (including the Papyrological Editor and Papyrological Navigator of Papyri.info) and some issues and opportunities that characterise developing projects of digital editions of papyri (such as the digital restoration of Herculaneum papyri and the linguistic annotations of papyri). The final chapter, an appendix of sorts, focuses more generally and in the broader philological framework on what a digital critical edition is, with remarks on current trends and future perspectives and examples from ongoing projects.

Reflecting on how a Digital Papyrology workshop is structured can help in more efficiently designing new ones in the future, in line with the increasing demand to train more and more digital papyrologists. From the experience gained through the concrete work of organising and running a

workshop that meets the needs of its participants, the ENCODE Project is producing tools and materials that will prove useful not only to the individual learner, in a self-training context, allowing participation in digital projects, but also to teaching staff who may want to introduce innovative methods and digital resources into the teaching of traditional Papyrology, therefore contributing to bridging the gap between the papyrologist and the ever growing need for digital competences.

Bibliography

Breuer, B., *Report on Digital Competences, Learning Outcomes and Best Practices in Teaching and Learning*, Würzburg 2021

Carretero / Vuorikari / Punie, DigComp 2.1: *The Digital Competence Framework for Citizens with eight proficiency levels and examples of use*, 2017: https://publications.jrc.ec.europa.eu/repository/handle/JRC106281

Fogagnolo, M., *Hands-on Workshops. ENCODE report on digital competences, learning outcomes and best practices in teaching and learning*, 2022

Wagenaar, R. et alii, *Tuning-CALOHEE. Assessment Reference Frameworks for Civil Engineering Teacher Education History Nursing Physics*, Groningen 2018: https://www.calohee.eu/wp-content/uploads/2018/11/4.1-Assessment-Reference-Frameworks-for-Civil-Engineering-Teacher-Education-History-Nursing-and-Physics-FINAL-READER-v2.pdf