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DC BOX
DIGITAL CURATOR TRAINING TOOL BOX

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Enriching Heritage through Digital Curation

Practice and Training Handbook

EDITORS Ramona Quattrini || Carlos Smaniotto Costa || Catarina Patrício

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ENRICHING HERITAGE THROUGH DIGITAL CURATION. PRACTICE AND TRAINING HANDBOOK

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EDITORS

Ramona Quattrini, Carlos Smaniotto Costa and Catarina Patricio

CONTRIBUTORS (ALPHABETICAL ORDER BY SURNAME):

Agapiou, Antonia ‖ Angeloni, Renato ‖ Clini, Paolo ‖ Dantas dos Reis, Isabel ‖ de Luca, Daniele A. ‖ Djordjevic, Andjela ‖ Frontini, Alessandra ‖ Gasparini, Massimo ‖ Geraldes, Ricardo Martins ‖ Ivanova, Olesya ‖ Mariotti, Chiara ‖ Nespeca, Romina ‖ Nikolic, Olivera ‖ Patricio, Catarina ‖ Quattrini, Ramona ‖ Smaniotto Costa, Carlos ‖ Stefanelli, Cristina ‖ Vasic, Bata ‖ Vasic, Iva

LAYOUT OF THE BOOK

Isabel Dantas dos Reis
Iva Vasic

ENGLISH PROOF READING

Antonia Agapiou

IMAGES

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Museum of Ponisavlje (Republic of Serbia)

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The DCBox Training Approach

The DCbox Training Approach

Chapter 4.1

Cristina Stefanelli, Ramona Quattrini

Based on the results achieved (and presented in previous chapters) through the research on the emerging needs in the field of digital curation, DCbox developed a training approach to support the development of the necessary skills identified as key to becoming a Digital Curator.

The DCbox full learning experience foresees:

- an online open course on digital curation
- a living LAB to develop prototypes under the academic supervision of teachers and trainers and
- a traineeship in relevant organisations and institutions (mainly museums) in order to assess if the prototype is satisfying the needs of the organisation and of its target groups.

The online course **"Supporting the Digital Transformation of Museums. The DCbox approach"** aims to encourage the competence building of museums curators and students interested in cultural heritage-related careers in the field of digital transformation.

The course provides training on how digital transformation can enhance the offer of cultural institutions (museums, archives, etc.) and supports current and future experts in exploiting successfully all the potential of digital technologies and tools.

The course is available in English at https://moodle.dcbox.eu and was piloted by 28 students from the partner universities between March and October 2023. The course, enrolled the students in the following Higher education courses: Digital Cultural Heritage; Building Engineering and Architecture; Tourism; Engineering and Architectural Representation and Drawing; Management of Cultural and Natural Heritage inUrban and Rural Environments; Architecture; Educational Sciences and Arts; Computers Animations, Computer Graphics, Multimedia and Computer Design.

DCbox adopts the Bloom's Taxonomy (Bloom et al., 1956) as a pedagogical framework for the definition of learning objectives and outcomes. The taxonomy, first published in 1956, places educational goals into specific categories to enable a better assessment of learners:

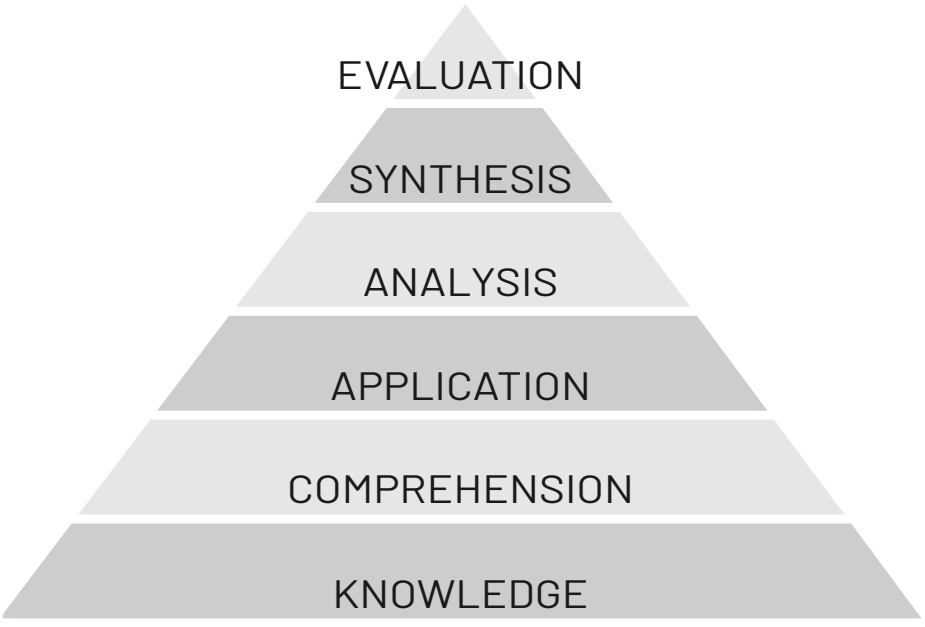

Fig 4.1 - The Bloom Taxonomy (Bloom et al., 1956)

In the pyramid, basic skills lie at the bottom, and more advanced ones are set at the top. As students progress, they make their way to the pinnacle. Whilst initially developed to enable assessment, Bloom's taxonomy became used by teachers and trainers to define the curriculum, design learning objectives and outline classroom activities. In 2001, a revised taxonomy was published (Armstrong, 2010), featuring the following changes:

Category names changed from nouns to verbs to reflect that learning is an activity.

Switched position of the two top categories with creation (creating) reaching the top of the pyramid (and of the learning hierarchy).

Introduction of the idea that each level of the pyramid (representing a knowledge dimension) can be broken down into four degrees of knowledge: factual, conceptual, procedural and metacognitive.

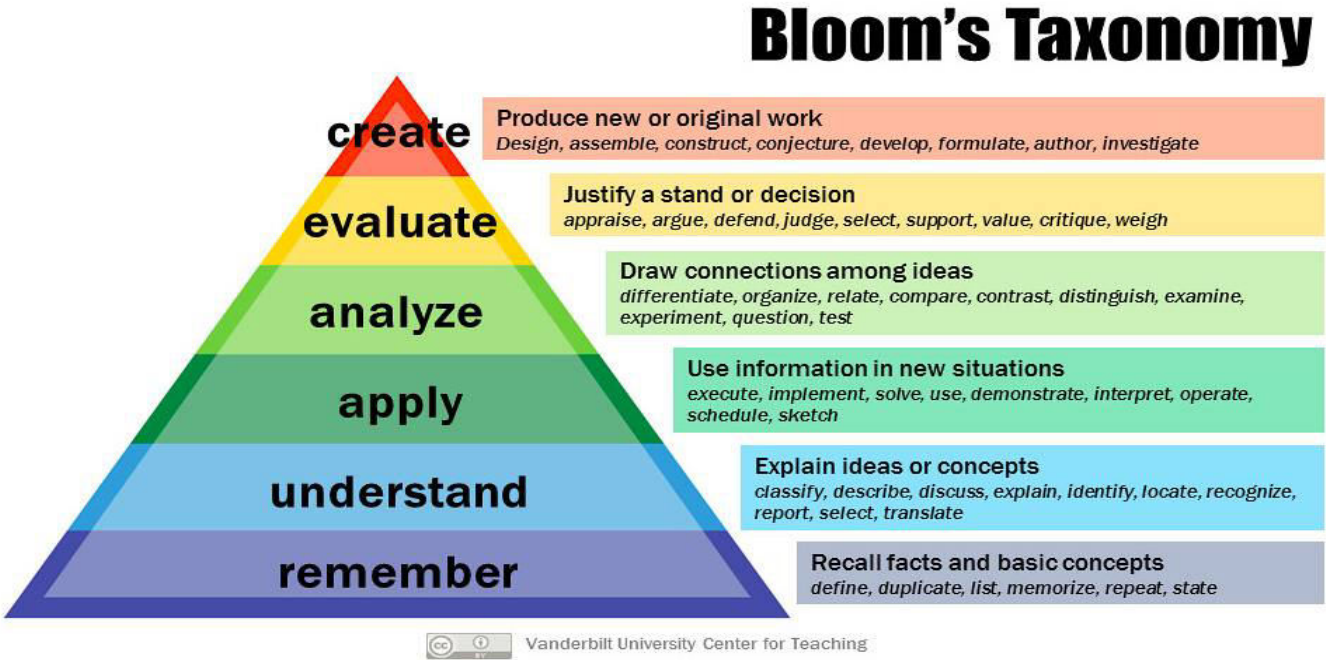

Fig 4.2 - The Bloom Taxonomy Revised

In promoting an integrated approach to our DCbox course design, including the importance of aligning the learning outcomes with the teaching and learning activities developed and the techniques used for feedback and assessment, we aimed for the online course to create a significant learning experience for those involved.

The list below presents an overview of the competencies that the course aims to support:

Ability to:

- describe what digitisation of Cultural Heritage is
- determine the main digital curator's skills
- define some technological innovations for museums
- process data and deliver accurate results
- assess and evaluate Cultural Heritage Projects
- manage Digital Cultural Heritage taking particular account of international and European guidelines and rules
- guarantee the interchanging and preservation of Digital Cultural Heritage using the Open Formats
- use marketing principles and strategies
- to preliminary design a museum website
- manage and adapt Digital Cultural Heritage to the EN and ISO standards
- conceptualise and develop a simple applications for cultural field

Capacity to:

- optimise 3D data for different kind of purposes
- develop good strategies for the cataloguing and information management of Digital Cultural Heritage

- model data using the Entity-Relationship (ER) and the Enhanced Entity Relationship (EER) Models
- define and evaluate the best XR solution on some real cases
- draft the most common assessment questionnaires
- conduct a simple survey on a museum application
- use planning and data collection skills according to the most appropriate methodology
- master different methods for reality and non-reality-based 3D modelling

Being aware of:

- the main Extended Reality technologies for Cultural Heritage
- 3D modelling related projects exploiting active (3D scanners) and passive sensors (DSLR cameras)
- the importance of Organisation and Management in developing and running innovative information systems
- the framework of digital dissemination for the Cultural Heritage

See bellow a complete overview of the competencies related to each module.

The following criteria were adopted concerning the access, delivery and assessment of the online course during its piloting phase:

1. The course is delivered as a MOOC (Massive Online Open Course) on Moodle.

2. Addressing a broad audience (students/professionals) active in different fields (Engineering, Humanities, ICT, Architecture, Arts), the course is organised in areas and modules as shown below. From a sustainable perspective, this structure allows in the future for flexible access to the relevant modules one may want/need to acquire missing competencies and knowledge, paving the way for the delivery of micro-credentials with this course.

AREA A DIGITAL TRANSFORMATION OF CULTURAL HERITAGE	**Module 1** Digital Transformation in Cultural Heritage
AREA B ADVANCED 3D DIGITIZATION	**Module 2** Digitization **Module 3** 3D Modelling and data Implementation
AREA C POLICIES AND DIGITAL DATA PRESERVATION	**Module 4** Policy rules and licensing **Module 5** Digital Data Preservation
AREA D DIGITAL ACCESS: UNIVERSAL DESIGN AND VIRTUAL EXPERIENCES	**Module 6** Communication and marketing strategies in Cultural Heritage **Module 7** Virtualisation **Module 8** New frontiers in Cultural Heritage

3. Although designed specifically for students and/or professionals in the field of Arts, Engineering and Architecture, the course is open to anyone interested; it has no access requirements.

4. Two kinds of learners are foreseen: those being part of the pilot phase (having access to the online course and related tutoring and assessment services) and those who have access to the online course but not to tutoring and assessment. The first group is defined as "Qualified" students, the second were defined as "Self-Enrolled". Qualified users can have access to the Activities: practical tasks planned to test the concepts explained during the lessons.

5. Learners will get two different badges depending on their achievements: a badge certifying participation for those learners having completed all modules or a badge certifying the acquisition of the competencies and knowledge for those having completed all course modules, quizzes and activities and being part of the pilot. The latter badge states the achieved competencies and knowledge and the number of hours spent on the course (to enable institutional recognition in terms of ECTS where possible).

As mentioned above, in some modules of the MOOC, qualified users will find practical activities designed to learn new skills with simple assignments. Those activities are not mandatory, and their submissions were supported and reviewed by "Tutors" who are DCbox team members specialised in the topics included in that exercise. Here follows the list of activities designed by the partnership alongside the competencies and the description of the activities provided to the students.

COMPETENCIES ADDRESSED BY THE ACTIVITIES

To be able:

- to process point cloud data and deliver accurate results
- to develop good strategies for the cataloguing and information management of Digital Cultural Heritage

- to preliminary design a website
- to develop a simple XR application
- to conduct a simple survey on an application.

ACTIVITIES' DETAILS

DCbox proposes along the course five different activities:

POINT CLOUDS ALIGNMENT	
TUTOR	Daniele Arturo De Luca
DESCRIPTION	In this activity the learner is guided through the workflow for point cloud alignment. A step-by-step booklet is provided highlighting all the tasks
EXPLANATION	Upload a screenshot of the clouds aligned with the report as shown in the tutorial

DIGITAL CATALOGUING TOOLS AND TECHNIQUES	
TUTOR	Massimo Gasparini
DESCRIPTION	Through this activity the learner will be able to organise a catalogue file.
EXPLANATION	Following the previous lessons this activity the learner will be able to organise a catalogue file with the mentioned examples. As subject the learner can select a heritage asset from his/her town or community that is not listed in Europeana and he/she will create its catalogue file following the structure studied. Once the file is completed, it must be accompanied by a brief report explaining points detailed in the activity.

MAKING OF A WEBSITE	
TUTOR	Ricardo Geraldes
DESCRIPTION	In this activity the learner will be able to create a website homepage by following a website tree structure that is essential to organize the information flow of a website.
EXPLANATION	Following the lessons of this module, the students will be guided through the creation of a website homepage with the implementation of one of the three essential structures to build a website: sequences, hierarchies and webs. By implementing these fundamental architectures, the students will start to organize the information workflow of the website, regarding Cultural Heritage in Museums context.

HOW TO DEVELOP A MOBILE APP	
TUTOR	Mirco D'Alessio, Daniele Arturo De Luca
DESCRIPTION	In this tutorial all the steps to develop a simple mobile application exploiting Augmented Reality will be shown.
EXPLANATION	Submit a video screen capture of the built application, during its functioning

EVALUATION QUESTIONNAIRES DEVELOPING	
TUTOR	Andjela Djordjevic
DESCRIPTION	In this activity all the steps to develop a simple questionnaire about a virtual tour will be shown. Literature containing basic rules for creating questionnaires and formulating questions will be proposed to the students
EXPLANATION	Submit the prepared questionnaire

While the DCbox MOOC serves as introductory content, its effectiveness can be further enhanced through complementary initiatives: since it was established, in the application form, that the students should be involved in a Living Lab dealing with the realisation of digital curatorial prototypes and then, or also in parallel, to spent time in cultural institutions and museums for a traineeship. These different learning experiences serve to reinforce the theoretical background. Once the designing activity is a crucial part of the needed competencies and skills, it can be learned when working with specific case studies. Thus, the main path foresees to acquire the capacity to manage a curatorial project from the design to the development as well as the capacity to set up it a real case scenario and to adapt and assess the idea and the workflow for the curatorial work to the needs of specific institutions. This approach enables participants to put theoretical knowledge into action in real-world situations, promoting a practical comprehension of digital curation practices and developing effective skills ready for the job market.