

The Digital Curator Between Continuity and Change:

Developing a Training Course at the University of Turin

Maurizio Vivarelli*, Maria Cassella**

Department of Historical Studies*
University Library System**
University of Turin
Turin

maurizio.vivarelli@unito.it; maria.cassella@unito.it

Federico Valacchi

Department of Education, Cultural Heritage and Tourism
University of Macerata
Macerata

valacchif@unimc.it

Abstract—The paper tackles with the challenges and the opportunities to establish a training course for digital curators in an Italian university, namely the University of Turin. The authors give a broad perspective of the role of the digital curator who is a figure that adds to the technical, communicative, managerial and legal skills the ability to embed these skills in more complex cultural ecosystems, which regulate and define the mechanisms of production and communication of the cultural heritage.¹

Cultural Heritage, digital curator, information professionals, professional training course, libraries, archives, museums.

I. THE INFORMATION PROFESSIONALS EVOLVING SCENARIO IN ITALY

In Italy the scenario in information professionals (librarians, archivists and museums specialists) is fast evolving. Some key drivers of this change are the huge impact on professions of the technology (the digital paradigm) and a growing trend to a cultural and political interoperability.

In the last ten years the digital paradigm has fostered the evolution of new professional roles. Some of these roles emerge from an evolution of the traditional LIS disciplines: the electronic resources librarian, the knowledge manager, the metadata librarian, while others are more interoperable and share their competencies with other information professionals: i.e. the repository manager, the data specialist, the digital curator.

In Italy the need to explore skills and competencies of these new information professionals has also fostered a political convergence. In 2010 in Piedmont the regional sections of the three associations representing the information professionals (ANAI, ICOM, AIB) founded the MAB (Musei, Archivi, Biblioteche) a political regional coordination of the

three associations. The scope was to promote discussions on topics interesting the three professional associations, to foster interoperability at political level and common strategies for the future of the information professionals.

One year later the MAB became a national permanent coordination. Key goal of the national MAB is to explore the prospects of convergence between the institutions and the professionals belonging to archives, libraries, museums.

Another key driver in the evolution and future change of the information professionals scenario in Italy is the recent approval and publication at December 2012 of the law “Disposizioni in materia di professioni non organizzate” which aligns the Italian legislation to the European framework defined by the Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications.²

II. DIGITAL PROFESSIONS AND DISCIPLINARY TRADITIONS

The theme of the so-called convergence between archives, libraries and museums is not born only from the comparison between the professions, but has a long and complex history, which passes through various stages, and which is rooted in founding moments of European cultural history of the modern age. To recover the traces, at least the most recent ones, it is necessary to begin the route at least from the early sixteenth century, when, in the context of the recovery of the classical arts of memory, grafted in magical and symbolic elements that characterize the rediscovery of the thought of Ramon Llull, they begin to take shape the first traces of those who, many centuries later, would be characterized as the “disciplines” related to the organization and management of cultural heritage. In the large, shaded and opaque context of the *historia literaria*, and the tensions arising from the search for

¹ The authors share together the contents of the article. In particular, it is to be attributed to Maurizio Vivarelli paragraphs 2, 4, and 6, to Maria Cassella paragraphs 1, 3, 4, and 5; to Federico Valacchi paragraph 4.

² Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32005L0036:EN:HTML>.

universal models for the organization of knowledge (from the *Bibliotheca Universalis* by Conrad Gesner to the *pansophia* of John Amos Comenius, the search for the universal languages of John Wilkins and George Dalgarno until the *clavis universalis* of Gottfried Wilhelm Leibniz), the second sixteenth and seventeenth centuries are covered by a swarm of practice, trial and error, research, of the most diverse nature, which have as their object on the one hand the general principles of the organization of knowledge, and on the other the organization of the books and documents in which that order is manifested.

This context includes mnemotechnical studies of Giordano Bruno, who in *De umbris idearum* (1582) modified and innovated the concepts of 'place' and 'image', which is no longer static, but strongly dynamic, to describe the relationships that correlate the different types of information. Similar objectives, for example, characterize the activity of the French humanist Christophe de Savigny, in the sixteenth century, who in his work *Tableaux accomplis de tous les arts libéraux* [...], processes one of the first encyclopedic models in which the relationships between the different partitions of knowledge are represented in a reticular way, thus overcoming the symbolism of the tree as an unitary element of integration and of the the usual hierarchical models based on dichotomy.³

Only at a much later date, as mentioned, it outlines the whole profile of the current disciplinary traditions, which were then grafted onto the profiles of the professions. As for the archives, in an extremely schematic and synthetic way, the chronological details of this process can be identified between 1794, when the French Convention, with the Law of 25 June (7 Messidor II) affirms the principle of 'advertising' of archives, reorganized under the same law⁴, and in 1928, the year in which the scholar of archival science Eugenio Casanova systematizes the disciplinary field of its relevance in the treaty *Archivistica*. Library science, in the contemporary sense, begins to define its scope in the first place between 1808 and 1829, a period in which the Benedictine monk Martin Schrettinger began to use the term 'Bibliothekswissenschaft' (*Versuch eines der vollständigen Lehrbuches Bibliothekswissenschaft* 1829), until *Handbuch der Bibliothekswissenschaft* of 1834. This marks the 'science of the library', a term translated as 'bibliothéconomie' by Léopold Auguste Constantin Hesse in 1839.⁵

Museology, finally, is formalized disciplinary action in its most application primarily since 1948, so connected to the establishment of the ICOM. International Council of Museums (<http://icom.museum/the-organisation/history/>), to the more precise definition of the scope of activities carried out in 1977

by the International Committee for Museology (IFOCOM).⁶ Beyond the eighteenth century museological tradition (taken in *Museographia* of Caspar Friedrich Neickel 1727), museology finally acquires the character of an applied science that deals with the museum as a permanent institution that acquires, preserves and communicates the material evidence and Intangible Heritage of Humanity for study, education and enjoyment.⁷

Following the gradual definition of the disciplinary fields, also for reasons related to academic policies, researchers (widely examined in the book by Peter Burke *A Social History of Knowledge. From Gutenberg to Diderot*, Cambridge, Polity, 2000) have strongly defended the "borders" of the same disciplinary fields.

The interest of disciplinary communities gradually established, in the complex dynamics thereafter, is oriented mainly to discuss and motivate the differences rather than to consider the commonalities. This occurred in particular for relations between archives and libraries, particularly contrasted by a debate that involved, from the first half of the last century many scholars including Giorgio Cencetti, Guido Battelli, Armando Petrucci, Piero Innocenti.⁸

Over the past few years, and in this scenario highly eventful, the world of documentary institutions has continued to be invested by profound changes in various capacities related to the spread of digital technologies and of new models of representation of information in a digital environment.

Here it can be useful limit to pointing out that, in a context certainly very problematic, can be differentiated the positions of those who believe that it is right to provide elements of continuity between pre-digital and post-digital traditions, and instead the positions of those that are oriented more strongly in the direction of change, considering that the management and information processing by computers in itself can be considered the basis on which to found a new disciplinary tradition which, if not altogether different from that classic, give value first (if not exclusively) to the differences. In the context of these changes are located the tensions that generally invest the debate on the identification of the contents which should focus on the training of operators of the archives, libraries and museums.

In this sense, in the meantime, we can say that there is no miracle recipe, which is magically able to iron out all the difficulties; however, for this reason, it may be reasonable to assume that the correct way may lie in a sort of middle ground

⁶ See *Key Concepts in Museology*, 2010.

⁷ See Lugli, 1992.

⁸ Cencetti, 1939; Cencetti 1973; Battelli, 1962-1963; Petrucci, 1964; Innocenti, 1994.

³ See Serrai, 1977.

⁴ See Brenneke, 1968.

⁵ See *Guida alla biblioteconomia*, 2008.

in which, in principle, are equally legitimate the different types of requests and issues, historical, theoretical and technical applications.

The theme of change brought about by the spread of digital technologies must therefore be addressed, in terms of training, with restraint and caution. First, in any type of curriculum for the training of operators devoted to the planning and / or implementation of these information environments, must be guaranteed an adequate presence of general cultural skills, mainly of historical-literary and therefore, in a broad sense, humanistic. On this cultural basis must then position an equally strong culture of each discipline, within which to ensure the understanding of how, historically and culturally, principles have been developed and then, from them, have developed technical applications. Finally, the last level of this metaphorical pyramid must necessarily be located technical and managerial skills.

Because of this complex set of reasons it becomes essential to acquire the permanent conviction that the operators of archives, libraries and museums, now and in the future, should ensure the ability to orient themselves in the many problems of complex and continuously changing information scenario. In this sense, in terms of definition of a new curriculum, the answer can not only consist in strengthening of the technological skills, whose proper knowledge must, however, for obvious reasons, be guaranteed. In this sense we are oriented reasoning carried out to design the outline of the course at the University of Turin, in seeking a meeting point of intersection between technology and disciplinary traditions.

III. THE DIGITAL CURATOR: A NEW INTER-DISCIPLINARY ROLE TO "CURATE" DIGITAL ASSETS

In the last twenty years the huge development of digital libraries has fostered the need to develop and educate new skills and competencies in Library and Information Sciences. New professional roles have emerged to cope with the management of digital libraries.

Some of these roles stem directly from the traditional principles and skills of librarianship, i.e. the electronic resources librarian, the knowledge manager, the metadata librarian, whereas other roles, i.e. the repository manager, the data manager, the copyright specialist and, last but not least, the digital curator are more interoperable and share their competencies with other kind of information professionals (e.g. archivists and museum specialists).

The term "digital curation" was first used at the "Digital Curation: digital archives, libraries and e-science seminar" sponsored by the Digital Preservation Coalition and the British National Space Centre held in London on the 19th October 2001. The British seminar also fostered a cross-sector dialogue among archivists, librarians, data managers, information specialists each of them bringing their practical experience on

curation and preservation of digital assets (Beagrie & Pothan, 2001).

Despite the publication of manifold studies e.g. Swan and Brown, 2008, Dallas and Doorn, 2009 and the establishment of national research centres on digital curation e.g. in UK where in 2004 the JISC established the Digital Curation Centre and in Greece where in 2007 the Athena Research Centre funded the establishment of the Greek Digital Curation Unit, to date there is still no unique definition of digital curator, its skills and competencies.

This difficulty in identifying the role is basically due to the fact that responsibilities in digital curation can apply to a diverse range of employment characteristics and roles (Pryor, Donnelly, 2009)

Initially digital preservation was seen as the strategic aspect in the digital curation. Later on the term "digital curation" has been increasingly used to refer to the maintenance of big research data and other digital materials over their entire life-cycle and over time for current and future generations of users (Beagrie, 2006): from the creation to the preservation and storage till the idea of re-use of digital assets and research data, both digital born and digitalized.⁹

Currently the concept of digital curation also includes the idea of added value to the management of digital materials,¹⁰ e.g. through metadata enrichment. It also involves the concept of a community of practice and of shared learning for different professionals.

Due to the growing mass of digital assets in research centres, universities, archives, museums and libraries, the role of digital curator is now slowly consolidating in many cultural institutions and research centres as an inter-disciplinary figure with a solid subject domain background, mixing skills of data curation and digital preservation.¹¹

Currently the concepts and the ideas arising from the maturation of the digital curation as an autonomous discipline allow us to interpret the digital curator as an interoperable role with a blend of traditional principles and LIS domain skills and competencies and skills belonging to other specific non-LIS domains, including both technical and interpersonal skills, i.e. management and communication skills, knowledge and expertise in copyright issues and licensing, ICT skills.

⁹ See the Digital Curation Lifecycle Model <http://www.dcc.ac.uk/resources/curation-lifecycle-model> .

¹⁰ In digital curation digital material is regarded according to a holistic approach and include cultural digital assets, raw research data and all other kind of material created digitally

¹¹ In the biological sciences the term curation has also frequently been used to refer to the maintenance and publishing of databases. It was indeed originally implicitly digital.

The DigCurV European project closing up in 2013 whose goal is to establish a vocational training for digital curators in Europe will hopefully bring a clearer definition of digital curator and its skills.

As boundaries of this new role are still blurred and involve some non-LIS skills it is legitimate to wonder if information specialists (librarians, archivists or museums specialists) will maintain in the next future a leading position in digital curation.

A great responsibility “to ensure that Library “leaders-in-waiting” are given the appropriate leadership training to equip them to operate in this data centric world” (Lyon, 2012) will obviously be placed on professional organizations (e.g. SCONUL, Research Libraries UK, Italian Libraries Association (AIB), Italian National Association of Archivists (ANAI) ...) and on higher education institutions who run a leading role in educating and training the future information professionals.

IV. DEVELOPING A PROFESSIONAL TRAINING COURSE FOR DIGITAL CURATOR AT THE DEPARTMENT OF HISTORICAL STUDIES, UNIVERSITY OF TURIN

In Italy the scenario of academic curricula for information professionals is fragmented and still evolving.

Archives and Information Science (Archivistica Informatica), for example, is a discipline that is still struggling to establish itself in the Italian educational context where it is often hard to identify with precision the exact disciplinary statute¹² and technological applications to the historical archives may be sometimes confused with the computer files themselves.

Guercio (2011) gives a dark description of the scenario of the academic curricula for digital archivists in Italy: “il quadro già difficile è ormai gravemente compromesso a seguito dell’ultimo provvedimento del ministro Gelmini [...]. Il risultato inevitabile [...] è la chiusura forse definitiva di gran parte dei corsi di laurea magistrale dedicati alle discipline archivistiche e biblioteconomiche in quasi tutti gli atenei italiani a partire dall’anno accademico 2012-2013.”

“The complex scenario is now severely compromised as a result of the last decision of the Minister Gelmini [...] The inevitable result [...] is perhaps the definitive closure of most degree courses devoted to librarianship and archival disciplines in almost all Italian universities in the academic year 2012-2013.”

Moreover the tables that regulate (and fossilize!) the educational offer of the Italian universities do not allow archival information to be dropped in the context of multi-disciplinary approach, by “relegating” *de facto* the archival

studies in the humanities area, where many of skills necessary to digital curators (e.g. management and legal skills) are not provided. This problem particularly appears when you look at libraries, archives and museums as potential and future cultural heritage and you are forced to acknowledge the paradox that courses oriented to the preservation of cultural heritage undermine its development.

A few masters currently concentrate on digital themes to train digital curators.¹³ No first level graduate course is specifically available for digital curators.

Among the few post-graduate training courses the Master in “Education, management and preservation of digital archives” (Formazione, Gestione e Conservazione degli archivi digitali (FGCAD) run jointly by the university of Macerata and the university of Padua represents a good practice.

The goal of the Master is to train professionals capable of streamlining processes in document management, by exploiting the potentiality offered by information technologies and by providing training and preservation on analog and digital archives.

The master curriculum includes 300 hours of teaching provided both in the presence and online, one stage of 300 hours in institutions whose goals and activities are consistent with the educational goals of the master and 900 hours of personal study.

The master includes disciplines that belong to disciplinary area of archival, computer science and law.

Beside the educational framework the Italian scenario is further complicated by the lack of a recognized career path for digital curators. Indeed this is a problem that this specific role shares with manifold other professional roles which support the development of the digital libraries, archives and museums.

Due to this uncertain scenario, both in education and in profession, and in order to accomplish a growing demand in Piedmont for specialized professional figures able to manage the digital complexity two of the authors, both working at the university of Turin, conceived to set up a professional training course for digital curators at Department of Historical Studies of the University of Turin.

We felt the need to define a curriculum that recognizes the complexity of the changes and aims to define the profile of an information professional whose skills are based on the technical and operational capacity to interpret the nature of the information content present in the documents of libraries, archives and museums, and then to transfer in the digital

¹² See Valacchi, 2007

¹³ Among the others it is worth citing the international master on digital libraries run by the university of Parma.

environment the wealth of relationships and connections related to the various types of cultural objects. According to this perspective, the project is focused not only on the synchronic dimension of the production of digital objects and their metadata, but extends to a diachronic view and perspective that can integrate and connect the different contexts, historically and culturally determined, that ensure the persistence of communication values of libraries, archives, and museums in the digital context.

We strongly believe that digital curation is a complex activity that a single professional role cannot perform. As a matter of fact digital curation is a staff performed activity where automation process combine with a deep knowledge of the nature of the information resources. It also involves a greater share of responsibilities (Beagrie, 2006).

Therefore our aim by conceiving this training course was to educate information professionals able to communicate and work in team with ICT specialists and computer scientists, both internally and externally, to better perform documents digital curation.

The rationale to establish a digital curator training course at the university of Turin was the need to develop competencies and skills to support some library digitization projects and a long-term sustainable strategy for the digitization plans of the university of Turin libraries.

Particularly in November 2012 the university library system launched a customized access platform for digitalized assets, namely DigitUnito,¹⁴ by implementing the open source software Omeka.¹⁵ Omeka is a Content Management System conceived by the Roy Rosenzweig Center for History and New Media - George Mason University. Omeka offers manifold advantages to user community: e.g. it is OAI-PMH compliant,¹⁶ allows both the use of the Dublin Core simple and extended and of MODS, it is easy to implement and user-friendly to use for data entry. Different themes allows the customization of the interface and a very active user community supports the platform development.

The launch of the DigitUnito platform has obviously created at the University of Turin a rising demand for archivists and librarians who are well trained to apply the latest tools and methods to effectively manage and preserve material that is converted by university libraries to digital form.

The decision to launch the training course is also consistent with the expectation that according to the United States

“Occupational Outlook Handbook”, 2010-11¹⁷ Edition digital curation will increase by 23% between 2008 and 2018, which is much faster than the average for all occupations.

V. THE UNIVERSITY OF TURIN DIGITAL CURATOR COURSE CURRICULUM IN THE FRAMEWORK OF THE DCC CURATION LIFECYCLE MODEL

As the University of Turin digital curator course is mainly addressed to information professionals (librarians, archivists, and museums specialists) we preferred to set up a training course rather than a master, being the first more flexible in organization and structure.

Whilst specifically aimed at information professionals, we believe the course can represent a valid postgraduate educational experience for first level graduates in cultural heritage too.

Consistent with the complexity of the digital curation experience we conceived a curriculum course of 600 hours, of both teaching and personal work, modulated into six sections, i.e. :

1. The document in the transition from analog to digital;
2. The culture heritage and the digital perspective;
3. Metadata, standards, and tools for digitization projects;
4. Communication in the digital age
5. Preservation in the digital age
 - 5.1 Access rights, licensing, public domain, and orphan works in digitization projects
6. Case studies

We conceptually conceived the course referring both to the DCC Curation Lifecycle Model, the reference model developed by the Digital Curation Centre which provides an overview of the lifecycle stages required for successful digital curation (Higgins, 2008), and to the lesson learned from the digitization projects of the University of Turin.

Goal of the first two sections of the course is to root the figure of digital curator in the cultural heritage memory, by linking historically memory traditions and digital innovations. As a matter of fact educating information professionals and students of cultural heritage to work in digital curation requires a broad vision in cultural heritage beyond the silos of libraries, archives and museums towards the convergence of the subject-disciplines and of a wide variety of data in both physical and virtual forms.

In this context it is extremely important that “[information professionals] and students of cultural heritage informatics (who include digital curators) learn to respect both the physical and the digital, to manage, value and preserve a wide variety of formats, to identify connections, to evaluate and

¹⁴ <http://www.omeka.unito.it/omeka/>

¹⁵ <http://omeka.org/>

¹⁶ This function is performed through the Omeka plug-in OAI-PMH Repository. The list of Omeka plug-ins is available at: <http://omeka.org/add-ons/plugins/>

¹⁷ <http://www.bls.gov/ooh/>

select systems that suit the needs of their institution best, to appreciate and create relationships among materials, and to imagine and implement the merging of contexts and the provision of access.”¹⁸

The third section of the course is devoted to teaching metadata sets, application profiles, standards and tools necessary to support the development of the digital libraries: basically DC, TEI, MAG, METS, and XML, the repositories and the interoperability concept. This section is aligned both with the action “Description and representation information” and with the action “Community watch and participation” of the DCC Curation Lifecycle Model.

The fourth section deals with the topics of the peculiarity of communication issues in the web and in the group work. This section aligns more specifically with the action “Community watch and participation” of the DCC Curation Lifecycle Model.

The fifth section tackles with two main issues in digital curation:

- a. the intellectual property rights in the digital age: licensing, access rights, the issues of the public domain and of the orphan works, their impact on digitization projects;
- b. the tools, standards, and services in digital preservation particularly referring to the repository scenario (i.e. the OAIS reference model).

We decided to give a very soft technical approach to the theme of digital preservation in our course. Our main goal was to raise awareness on the challenges of digital preservation, both at national¹⁹ and at international level, among information professionals and to stress the importance of a high level of cooperation in developing digital preservation strategies.

Previous studies have shown that it is extremely difficult to train professionals on digital preservation as levels of knowledge among participants may differ enormously. Courses and events on digital preservation should therefore distinguish between information needed for librarians, archivists and managers and that required by IT professionals and developers (Casarosa, Molloy and Snow, 2011);

In whole section five refers to the action “Preservation planning” of the DCC Curation Lifecycle Model. As a matter of fact both the technical preservation issues and the metadata

rights – mainly licensing and access rights - play a relevant part in the digital preservation workflow.²⁰

Finally, the sixth section is mainly devoted to describe case studies, best practices, and territorial experiences in digital libraries, namely: Museo Torino, DigitUnito, and the BEIC Digital Library.

As internship is essential in providing both students and professionals with up-to-date and relevant digital curation knowledge and skills the course programme includes two laboratories and five internships. The first laboratory will be carried out on the scanning tools of the DigiLib LT Project, one of the digitization projects of the University of Turin,²¹ to teach the course students the digitization production workflow;

The second laboratory will be performed by using software for the image definition and for the optical character recognition and, finally, the Omeka platform.

The goal of this laboratory is to allow professionals and students to move in a seamless way in a digital interoperable environment between digital postproduction workflow and metadata description of digital objects of different origin and forms.

The five internships will be hosted in university and non-university libraries and at the State Archive of Turin and supervised by IT professionals, academic librarians, and archivists.

The University of Turin learning moodle platform will be used to upload slides and presentations and to create a dynamic learning experience with the course participants.

The course will be active from the academic year 2014-2015.

VI. CONCLUSIONS

The characteristics of the digital curator course of the University of Turin, as it is clear from the title of this paper, need consciously to be located between continuity and change. We believe that skills related to the information technology issues are not sufficient by themselves to educate professionals aware of the complexity of the information content associated with the entities which are the object of digitization. As a matter of fact information content should absolutely be preserved during the complex transition to digital.

For these reasons the course, in its introduction, examines the history and concepts of 'document' and 'collection', and shows, synthetically in relation to those topics, some aspects

¹⁸ Harvey, Bastian, 2011

¹⁹ In Italy it is worth citing the experience of “Magazzini Digitali”, a project run by the Biblioteca Nazionale Centrale di Firenze, linked to the digital legal deposit. URL: <http://www.depositolegale.it/>

²⁰ On the importance of the metadata rights in the digitization projects see: i2010 European Digital Libraries Initiative. High Level Expert Group, Copyright Subgroup, 2008 .

²¹ <http://www.digiliblt.unipmn.it/>

of the different disciplinary traditions. The understanding of the complex nature of the relationships that connect documents to the context to which they belong is therefore to be considered an essential condition so that students can realize the deep meaning of working in a digital environment: i.e. not only the ability to reproduce objects but, even more important, to build contexts that ensure the possibility to recognize the multiple perspectives of interpretation which may be associated with the digital object in itself.

The authors therefore believe that the professional figure of the digital curator should add to the skills needed to navigate the digital ecosystems the ability to embed these skills in more complex cultural ecosystems, which regulate and define the mechanisms of production and communication of the cultural heritage.

Therefore according to our point of view and to the course curriculum, the professional digital curator must be characterized by possessing, calling and actualizing Blaise Pascal significant doses of *esprit de finesse*, as well as of *esprit numérique*.

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