Preface

The book, *Research 2.0 and the Impact of Digital Technologies on Scholarly Practices*, is intended to provide a comprehensive and cutting-edge collection of research studies enlighting specific aspects of the academic practices enabled by the digital age and leading to the configuration of Research 2.0 as emergence of research in transition. Researchers investigating changing academic practices, research policy makers and doctoral education stakeholders are the main target audience of this book. Moreover, doctoral and early career researchers will find in this edited collection update information about the changing scenarios of work practices and conventions in academia and will benefit from concrete and varied examples of social media uses for research purposes and the related implications for career development.

Research 2.0 (alternatively named Science 2.0) is said to describe “the ongoing evolution of the modus operandi of doing research and organising science” (European Commission, 2013), where the availability of low cost Internet infrastructures constitutes a key enabling factor of emerging research practices at individual and collective level. However, the umbrella term of ‘research 2.0’ refers more to the occurring tensions rather than to a precise definition and approach of research work practices in the digital age. The impact of the ‘digital’ on research practices in academia is twofold: it is systemic and infrastructural on the one hand, and emergent and personal on the other hand. In the last two decades, researchers have in fact increasingly built their expertise, conducted and disseminated their inquiries across digital environments (Houghton, Steele & Henty, 2003). Digital infrastructures have promoted ...

... *new facets of knowledge generation (wikis, e-science, online education, distributed R&D, open innovation, open science, peer-based production, online encyclopaedias, user generated content) and new models of knowledge circulation and distribution (e-journals, open repositories, open licenses, academic podcasting initiative, etc.).* (Cobo & Naval, 2013, p. 53, emphasis in original)

They have contributed to produce new forms of e-research (Anandarajan & Anandarajan, 2010) and networks for scientific collaboration (Juan et al., 2012; Diviacco, 2014). The digital infrastructures have worked as catalysts of new data-driven and data-intensive research projects (David et al., 2008; Deepwell & King, 2009) and as a consequence have fostered a convergence between scientific and humanistic research domains (Borgman, 2007), fostering information-intensive, distributed scholarship, as well as a more collaborative, interdisciplinary approach (Borgman, 2007). The evolving digital landscape constitutes one of the key factors that are shaping “academic tribes and territories” (Trowler, Saunders & Bamber, 2012) in the 21st century, transforming academic practice and knowledge characteristics of disciplines in higher education.
On the other hand, the slow but increasing uptake of Web 2.0 tools and social media services by individual researchers (e.g. Seaman & Tinti-Kane, 2013; Lupton, 2014) has introduced emerging ‘networked scholarship practices’ (Veletsianos & Kimmons, 2012), where digital networks play a role in enabling the construction of unprecedented forms of academic writing, scholarly reputation, peer review, research collaboration and even alternative metrics of scholarly production. New academic practices are enabled across informal venues, such as literature searching and commenting, informal writing and peer reviewing, social networking and online profiling, peer-production, user-generated content and participation of non specialized contributors, that researchers are experimenting across diverse subject areas and academic contexts.

The individual researchers experiencing networked activities in the open Web are also exposed to an extended culture of sharing, beyond the discipline- and institution-bounded conventions and constraints (Pearce, Weller, Scanlon et al., 2010). This opportunity may lead researchers to put in practice the concept of ‘open science’ (Nielsen, 2011), where published papers, alongside with bibliographies, works in progress, commentaries, lab annotations and even the same research data are variously shared both with specialized and non specialized audiences. The emergent nature of these perspectives also suggest to consider reflections on the ethical and legal implications of these new research frontlines, the competences undepinning the new ways of producing, curating and disseminating knowledge (Cobo & Naval, 2013) and the needs for adapting research training to the challenges of the digital age (Carmichael & Burchmore, 2010; Veletsianos, 2013; Ranieri, 2014; Trinchero, 2014; Gorela & Biroslavo, 2015).

This book is particularly concerned with the strand of impact above defined as ‘emergent and personal’, considering the extent to which new generations of information and communication technologies (namely Web 2.0 and social media services) are affecting the individual researchers’ scholarly practices and suggest new ethical issues and research training needs. Thus, focus of this book is on emerging scholarly behaviours, where the dimensions of “digital, networked and open” (Weller, 2011) scholarship are seen as complementing/competing phenomena of the current transition toward research 2.0 approaches and where we need to reconceptualize “academic practice in terms of its technologies of communication” (Lea & Goodfellow, 2009, p. 3).

This book specifically considers the individual-based uses of those personal information and communication technologies (ICTs) spreading in the last decade, named as Web 2.0 tools (O’Reilly, 2005) and facilitating new forms of content production and socialization for leisure, professional and academic activities.

The Web 2.0 tools technically refer to a varied and ever evolving cluster of cloud-computing software tools and services being developed in the last decade and distributed by interconnected virtual servers across the web. They provide basic free access and use to end users, have simplified and consistent navigational features, are cross-platform and everywhere accessible through smart phones and any mobile computing device. However, these technologies also underly the concept of ‘read/write Web’ inherent to Web 2.0, where the users have the opportunity to become players in the construction of Web 2.0 because they can ‘write’ content rather than only ‘read’ it, as in Web 1.0. In this sense, Wikipedia can be considered as the primer of that ‘architecture of participation’ and ‘user-generated content’ claimed among the “powerful ideas” of the Web 2.0 (Anderson, 2007). Social media (also indicated as social software or social networking sites) can be considered as a subset of Web 2.0 services (Dabbagh & Reo, 2010), particularly characterized as enablers of social interaction through the individual-led creation of online networks. Specifically, social network sites are described as:
Web-based services that allow individuals to 1) construct a public or semi-public profile within a bounded system; 2) articulate a list of other users with whom they share a connection; 3) view and traverse their list of connections and those made by other within the system. (boyd & Ellison, 2007, p. 211)

General purpose sites such as Facebook or Twitter or research-focused social network sites such as ResearchGate or Academia.edu are examples of this kind of services. In fact, social media have been seen as the most relevant and popular innovation (Beattie, 2011) introduced by the Web 2.0 whose services currently results to be permeated by multiple opportunities for social networking beside the collaborative content production. Thus, along with the digital infrastructures, the ensemble of the Web 2.0 tools and services is said to have a potential both for enabling at an individual level new forms of knowledge creation and knowledge circulation and distribution across academic contexts.

In fact, these new forms of socialization of knowledge production and dissemination have been variously discussed as ‘digital scholarship’ (Weller, 2011), ‘networked scholarship practices’ (Veletsianos & Kimmons, 2012) and ‘social scholarship’ (Greenhow & Gleason, 2014). Such modes of scholarly communication in the Web 2.0 ecology are said to overcome the boundaries of academia by creating spaces for interaction and participation among professional scientists and amateurs (Lievrouw, 2010). This kind of new technologies is also claimed to enable a growing overlap between networked modes of learning and working in academia (Weller, 2011; Scanlon, 2014; Veletsianos & Kimmons, 2012). This potential convergence prompts a rethinking of popular conceptualizations of scholarship (Boyer, 1990) towards a focus on ‘co-creating learning’ as a transversal and constitutive dimension of doing research and teaching (Garnett & Ecclesfield, 2011, 2012). The modes of learning and interacting in the Web 2.0 ecology are said to be the emergence of a “seismic shift in epistemology” (Dede, 2008, p. 80), enabling a permanent peer review approach, that makes the open Web “resemble to an academic world” (Haythornthwaite, 2009) and fosters more fluid interrelation between e-learning and e-research approaches. However, this stance contrasts with the view of specialism in scholarship of the various disciplinary areas (Goodfellow, 2014), and their differently horizontal or hierarchical ‘modes of knowledge production’ (Gibbons, Limoge, Nowotny et al., 1994) that are more or less resilient with respect to change work practices. Furthermore, such claimed evolutions in academic scholarship are in fact said to be still ‘emergent’ and can be better understood within an ecological framework of “digital scholarship resilience matrix” (Weller, 2011), in which both conservative motifs and drivers of innovation should be identified at governmental, institutional, disciplinary and individual level. Thus, considering as a whole the contentious field of the digital academia, the attention in this book is drawn to the different angles from which it is likely to capture at least a partial understanding of these changing scholarly practices.

Within such frame, this edited book has attracted unprecedented and relevant studies on the changing research landscape, providing a range of themes illustrating the contextual scenarios, some international views on digital scholarship, examples of emergent scholarly practices and some perspectives on researcher’s personal development through social media use. The section focusing on the contextual scenarios of Research 2.0 spans from the arising of alternative funding mechanisms aiming to widen access to research work, to the impact of openness on scientific publishing industry, to the emergent needs for information and data literacies and the renovating educational and support role of the libraries. The section on the international perspectives opens up to the consideration of the still controversial uptake of the concept of ‘digital scholarship’ across diverse academic contexts and traditions; it draws attention to the different views in Northern and Southern academic worlds about the traditional metrics of reputation and the opportunities of openness and provides the reader with one of the still rare large
scale investigations about academics’ social media uses in a national context. The section on the emergent scholarly practices presents studies on how PhD researchers self-organize their digital engagement in Web 2.0 and social media for scholarly purposes, on how academics adopt specific tools, such as YouTube and Twitter and how they use Google search engines. Finally, the section on the likely impact of digital technologies on researcher’s personal development sparks reflection about the need for improving digital content curation strategy, about the opportunity for rethinking the nature and modes of academic writing, taking cue from current experiments of social media writing groups and proposes a reflection about the growing overlapping between academic identity and researcher’s digital identity.

Below a detailed description of what each chapter can provide in terms of critical thinking and fresh empirical research. All the chapters were selected through a two-steps peer review process, supported by experts in the field, who also played a role as members of the Editorial board or as contributors in this edited book.

Chapter 1 contributes to redefine the notion of scholarship in the digital age and provide theoretical foundation to the idea of ‘social scholarship’. It builds on empirical research on social media practices in academic conferences to illustrate the related scholarly activities performed by academics in discovery and teaching dimensions of their academic work. In this endeavour, it demonstrates how scholars use digital tools to change the nature of academic life. Discussion identifies affordances and challenges of social scholarship: among the former there are promoting publications and ideas, collaborating and connecting with other researchers, disseminating information. Among the challenges the authors highlight themes such as transparency, open access and privacy, copyright issues, digital preservation, problems in promotion and tenure process.

Chapter 2 provides the readers with an historical overview of the recent evolution of the scholarly communication sector and in particular of academic publishing market. The changes occurring in scientific publishing industry are illustrated, where new actors, services and modes of publishing are at work, enabled by new review processes, online citation indexes and the spreading of social media venues. The recent, pervasive role of open access has activated a wider distribution of scientific contents through a range of technology-driven channels, such as learning platforms, online degree services, medical databases, specialized online libraries, healthcare platforms and even simulation and training software. This phenomenon co-exists besides an increasing concentration of commercial players, that have responded to these trends, often acquiring some of these new services. The authors discuss the controversial situation of the disruptive innovation introduced by the open access movement in academia, the lasting influence of traditional commercial publishers and the conservative approach of the institutions in evaluating scientific knowledge and reputation.

Chapter 3 has a focus on the opportunities and challenges of the highly complex information environment where the researchers happen to carry our their work. This data-intensive context requires that researchers increase their critical awareness in order to be key players in the dynamic transformations of research landscapes. They need to scaffold their skills to face information overload, personal information management, issues of credibility and intellectual property and building online identities and acquire specific academic, digital literacies, such as data curation, data management and quality and data citation. These needs calls for new professional training and services provided by the research libraries, that traditionally support researchers in their work. Libraries are expected to re-design their educational and advisory services to support new forms of exploitation, distribution and maintenance of inquiry methods and research outputs.
Chapter 4 draws our attention to the evolving set of funding mechanisms that work as drivers or enablers of Research 2.0. The chapter starts from the consideration that the infrastructures underlying data-intensive and data sharing research embed the key values of Web 2.0, such as openness, peer evaluation, collaborative knowledge production, intervention of proactive users in the research process, inquiry as perpetual beta. Alternative funding mechanisms are creeping along the logic of ‘publish or perish’ and open up to new actors, beyond the exclusive role of the governments and to a wider set of research outputs, beyond the mere paper publications. Crowdfunding, philanthropy and open mechanisms are discussed - building on real cases - as emergent and complementary against the highly competitive project-based funding mechanisms, that are overarching and lean on excluding potential new researchers from funding, because of an excess of bureaucracy, rigid top-down setting of research priorities and lack of openness in the selection process of beneficiaries.

Chapter 5 offers an in depth review of the international literature on the concept of digital scholarship, defining new forms of professional academic practices linked to the changing cultural, social and working context of the digital age. The aim is to draw a shared understanding of the concept, that results to be instantiated with reference to the digital infrastructures supporting e-research, to the changing scholarly practices and to the opportunities and challenged of openness. In particular, the conceptual dissertation is carried out in comparison to the discourses underway in the Latin-American academic context. The authors concur that so far the term digital scholarship has not been theorized in the region, although interest and specific concerns are emerging in the field of application of digital technologies to scholarship of teaching.

Chapter 6 is founded on a conceptual framework and on case study research in South Africa and outlines a discussion about the different developmental perspectives of Northern and Southern academic contexts, in the tension between being compliant to the rules of traditional impact factor’s metrics in evaluating scientific production and the imperative (in particular for emergent academic contexts) of applying open access for augmenting the visibility of the research outputs. The authors stress the need for contextualizing scholarly communication practices according to the types of research projects and the diverse phases of research cycle. The case of University of Namibia provides hints to identify signals of changes at individual levels, whether the uptake of Web 2.0 venues and modes seems to be difficult, bound up as it is with existing patterns of gate-keeping and reluctance to academic exposure.

Chapter 7 presents one of the still rare large-scale survey researches accounting for frequency use and use modes of social media for scholarly communication, drawing a self-reported study from a sample of Italian academics of diverse ranks. The survey takes into account a number of socio-demographics variables such as gender, age, years of teaching, academic title, and field of knowledge. In alignment with previous research, results show that social media are timidly entering Italian academic life and that the most common tools are research-based or generic professional social networks. Main motivations to use social media in scholarly practices are related to self-development, increasing visibility, maintaining and widening networks. Gender has a low impact, whilst the more age decreases, the more use frequency increases. Furthermore, the digital behaviour is differently shaped according to the disciplinary sectors: this represents one of the threads for future research to be developed.

Chapter 8 explores the self-organized activities undertaken across Web 2.0 and social media services by individual PhD researchers in their doctoral journey. Building on an international, interview research, the chapter reports the narratives of doctoral researchers about their often ephemeral but in places sophisticated uses of a range of digital venues and services, where the most practiced academic tasks are related to updating, networking, disseminating research, discussing research issues and pursuing personal
development. The results suggest that complex negotiations occur between technology and practice, where the tension between the need for supporting existing tasks and the attempt for expanding opportunities for personal development is always at work and prefigures an approach to digital engagement always on the move rather than fixed in personal attitudes.

Chapter 9 builds on an extensive literature review and on interview data to discuss the multiple uses of a particular social media tool, Twitter, among academics, focusing on its adoption as a research instrument, maintaining professional networks and improving personal development. Findings lead to consider changes in enacting scholarly practices as new ways of working, the strategic or non-strategic use of social media, and the development of unprecedented networks of academics and other professionals. The study of Twitter uses enlights the diverse ways of constructing and exposing one’s own identity as academics. In the context of being on social media, being an academic is in fact practiced, networked (both collaborative and cooperative), and individual.

Chapter 10 treats a still underresearched topic. It reports a large-scale survey study undertaken across 12 UK universities and aiming to explore academics’ use of YouTube videos for research and leisure. Academics appear to be generally intensive users of YouTube videos in their everyday life, but show interest also in watching videos for inquiry reasons. Constraints such as lack of time and expertise, intellectual property and copyright issues discourage most of them in the transition from passive toward active use of YouTube for academic activities. However, findings also reveal that receiving social media training and peer recommendations, being engaged in teaching commitment make academics more likely to post videos on YouTube also for professional purposes.

Chapter 11 investigates the allegation that popular online search engines Google applies algorithms to personalise search results and therefore yielding different results for the exact same search terms. This alleged ‘filter bubble’ is specifically considered in relation to Google Scholar. An exploratory experiment conducted with nine keywords and a survey carried out to investigate scholars’ search behaviours were undertaken. Whether research participants show to choose Google Scholar (together with Google) as the main search engine, the alleged filter bubble is only dimly observable. However, junior researchers may be more prone to be encapsulated in a localised bubble of search results, and need to be aware of the impact their academic level may possibly have on their search results using Google Scholar.

Chapter 12 discusses content curation as one of the key competences of researchers 2.0 and provides an application of this strategy to support the conference backchannel through social media. Content curation implies the interiorisation of search strategies, capacity to net-navigation, collecting, organizing, citing and (with added-value) sharing of research resources and results. Content curation can contribute to scaffold fundamental skills for digital, networked and open research enterprises, to build an academic reputation, to face information overload and thereby to enhance personal and professional development of scholars and/or researchers. Alongside, the attendance of conferences by young scholars constitutes an invaluable opportunity to practice content curation, dissemination of research and networking.

Chapter 13 focuses on the emerging phenomenon of social media writing groups in academic contexts. These experiments combine the discipline, mentorship, and peer support of face-to-face writing groups, with the convenience, global reach, and interdisciplinary networks of social media. Building on case study research, the chapter examines the purpose, use, outcomes, and challenges of a social media writing group for academics. The positives and the limitations drawn from the empirical case highlight the need for further developing these forms of online training along with a focus on a new way of thinking about writing, communities of practice, networking, and the nature of academic work.
Chapter 14 considers the notions of personal learning network (PLN) and digital identity as applied to the doctoral researchers and highlights the need for them to acquire a set of skills related to the construction of digital identity as researchers 2.0. Given the context where these new scholars happen to operate, the fact that researchers build, amplify and manage their PLN, leads to the development of a deeper and better awareness of their own personal and academic identity. Through discussing the evolution of concepts, theoretical frames, tools and practices in the digital age, the author achieve to describe the phases of the building process of researchers’ digital identity: authentication, which allows the validation of the personal identity on the digital system; content, which is shared by investigators within their networks through the digital media that allows them to communicate and interact with others; presence, which is validated by the sharing and dissemination of published content; the creation of profiles on the social web; and finally the participation of each element in online spaces where they have a profile.

This book was developed with the excellent contribution of a plurality of authors, who helped to start mapping the uncharted territories of Research 2.0 and its players, researchers 2.0, from a range of theoretical and empirical perspectives. This work is now offered to the feedback of the readers, hoping to provide them with hints for discussion and further research and policy action.

REFERENCES


