THE POTENTIAL AND THE CHALLENGES OF THE OPEN WEB IN THE DOCTORAL JOURNEY: THE GOAL ORIENTATIONS OF ITALIAN AND UK PHD STUDENTS

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Introduction

The current PhD candidates are increasingly expected to act as "doctoral researchers" rather than as "doctoral students". Challenged by pressures coming from globalization process and knowledge economy, the PhD candidates are in fact required to develop self-entrepreneurial skills, in order to define their own research projects and even to craft any future job positions inside or outside academia (Cornelissen, Simons & Masschelein, 2007). Alongside, they are provided with unprecedented opportunities to draw advantages from the ensemble of the Web 2.0 tools and services, embedding a potential for enabling at an individual level new forms of knowledge creation and knowledge circulation and distribution across academic contexts (Cobo & Naval, 2013). In other words, the PhD candidates are supposed to build on the pervasiveness of social media and ownership of digital devices to take "greater agency in the creation of their learning contexts" (Luckin, Clark, Garnett et al., 2010, p.74), as well as academics of all ranks are subject to techno-cultural pressures (Veletsianos & Kimmons, 2012) to experiment new participatory behaviours across digital venues. However, the actual uptake of the Web 2.0 tools and social media by the doctoral students is still controversial (e.g. James, Norman, De Baets et al., 2009; British Library/JISC, 2011; Esposito, Sangrà & Maina, 2013; Petre, Minocha & Barroca, 2014), whilst some discussions related to opportunities and drawbacks of social media for the PhD students have recently been sparked (e.g. Coverdale, 2012; Zhu & Procter, 2012).

Considering these emergent issues, we hold that the new learning scenarios for doctoral education should be more permeable to the emerging forms of knowledge production and distribution and should look at the current self-organized practices in the digital by doctoral researchers as an informed basis to critically innovate research training. In particular, focus of this paper is on the dispositions of the PhD students toward the open Web, as arising from the free comments received in the initial, exploratory online questionnaires delivered across three Italian and one UK universities. We have highlighted some commonalities and differences in the perceived benefits and drawbacks of social media adoption, building on the open comments released by individual Italian and UK participants in the respective e-surveys. More importantly, we have applied data triangulation across diverse contexts, according to the

grounded theory principle of the constant comparative method: this approach has also allowed us to scaffold the identification of a set of PhD researchers' Goal Orientations toward the open Web. This paper underlies the assumption that the investigation of the self-organized student experiences in the digital is the necessary premise for shedding light on the new scenarios of personal ecologies (Andrew & Haythornthwaithe, 2011) of people and resources in the open Web as emergent forms of e-learning in higher education (Ellis & Goodyear, 2009). In the following sections, we firstly provide an overview of the applied methodology, then we summarize the main findings under the empirical categories of Benefits, Criticalities, Inhibitors and Individual Perspectives; finally, we discuss the conceptual categories of the PhD students' Goal Orientations. As final remarks, we suggest some hints for further research.

Methodology

The open comments considered in this paper were received during an exploratory e-survey, generating two non representative samples of 653 Italian and 44 UK PhD students: the dataset is comprised of 533 unique comments for the Italian version and 94 for the UK version. The related contributions vary from one single word to entire paragraphs and are related to the group of survey questions focusing on the perception of the potential of the open Web in broad research activities such as research project management, data collection, networking, dissemination, keeping up to date and online construction of one's own academic profile. The comments received from the two samples of respondents were grouped in two respective files and separately analyzed, starting from the Italian sample's data set. The coding activity has followed the typical process of grounded theory data analysis (Gibson & Brown, 2009), where an initial data-oriented approach is subsequently complemented by a more concept-oriented analysis. The initial data-oriented phase has generated four main empirical categories: Benefits, Criticalities, Inhibitors and Individual Perspectives. The subsequent phase has embedded an abductive logic, where we have combined the achievements arising from empirical data and our theoretical interest in gaining insights about the capacity of the PhD students of acting upon or being acted upon the open Web. In this endeavour, we have re-aggregated the codes subsumed under the aforementioned categories, in the aim of drawing the conceptual categories expressing the prevalent attitudes of the PhD students toward the open Web: Pioneering, Coping, Waiting for the mainstream, Rejecting.

The findings: the opportunities and the challenges of the digital

The following sub-sections summarize the accounted Benefits, the factors that are likely to prevent (Inhibitors) or slow down (Criticalities) the uptake of new digital tools and the stated individual perspectives about the role of the digital in the doctoral journey.

Benefits

The Italian and UK survey respondents share the perception of the open Web as an efficiency-enabler, bringing practical advantages such as the more efficient organization of meetings, data collection and store, the more effective and diversified search for references, the 'speed' of the communication tasks or the important function of the 'backup service'. Among the Italian respondents the benefits stemming from the open Web are mainly indicated in terms of handy advantages, such as "practicality, breadth of coverage", "fast, efficient, large reach" and "good way to get high impact". On the other hand, the survey participants included in the UK sample are mainly characterized by a pragmatic and cautious approach, with a focus on getting any immediate reward from selected tools, and a tendency to use self-reflection to plan subsequent, specific steps in shaping one's own digital engagement.

Table 1: The most mentioned Benefits of the open Web for research purposes

The open Web enhances the research work/environment. The open Web makes the research environment richer, more dynamic and challenging, enabling additional modes for sharing research, but also potentially expanding and improving research findings by facilitating peer review.	The open Web as efficiency-enabler. Expanding possibilities for data collection; organizing data more efficiently with store and back up services; speeding communication and information retrieval.	The open Web improves contacts with co-researchers. Making it more efficient team-work, where teams are inter-institutional or inter-national.
The open Web provides a network amplifier. It is easier to informally contact and interact with experts in a defined fields, even if located worldwide or covering senior positions in academia.	Developing one's own digital profile. Curating an online academic/professional profile enables the PhD researchers to build own reputation.	

Criticalities

A range of issues emerge from the Italian and UK comments when the participants reflect on their own current digital behaviour and related constraints. For instance, the fear of being overexposed online leads to the decision of not getting "involved in online discussion" and is entangled with privacy issues (e.g. "I prefer to keep personal stuff private"), and the uncertainty about the type of audience one is likely to deal with in online venues. Furthermore, the lack of explicit legitimation is seen as crucial for a wider adoption, along with the steep learning curve implied for an advanced academic use of social networks. In particular, from the UK comments we draw the call for an appropriate negotiation of social media use with one's own supervisor or tech-savvy academic staff, in order to get some personalized advice to build a social media strategy.

Table 2: The most mentioned Criticalities in the adoption of the open Web for research purposes

Criticalities		
Reliability issues. Multiple sources embed diverse/loosely defined forms of assessment of the published materials.	**Privacy/copyright issues.** According to research settings/participants, researched individual are to be protected and data/early findings cannot be shared.	**Audience issues.** Difficult to know role and expertise of users in the open Web/opportunity to reach new kinds of audience.
Legitimation issues. The open Web practices are not still acknowledged in formal academic contexts.	**Quality issues.** Concerns related to non peer-reviewed materials, but also to a more superficial analytical focus.	**Time constraints.** Learning to use new tools implies extra work and may cause a risk in terms of attention economy.

Inhibitors

Often across the comments the small size of one's own research team or the space-bounded activities (e.g. "our daily work takes place within the university labs") are mentioned as shaping the continuity of face to face contacts among the co-researchers and thus affecting the use-value of any digitally-mediated communication in the local context. Other respondents suggest a diverse issue of digital redundancy, because the practical needs of doctoral research appear to be already satisfied by a few, 'traditional' tools (e.g. "email/Skype enough") or by well-established channels for scholarly communication. Moreover, the scant diffusion of social media across academic contexts constitutes one of the most mentioned inhibitors. Notably, some sceptical views emerge, stating that 'research work is more complex' and that the tools provided by the open Web are not sophisticated enough to be used for scholarly tasks. On the other hand, among the UK participants personal lack of expertise and individual preferences rather than contextual flaws play a role as main inhibitors in a wider adoption the open Web in their PhD activities. Moreover, always in the UK sample, the institutional library services are said to be sometimes more efficient and reliable than the open Web, for instance in enabling the retrieval of high quality content.

Table 3: The most mentioned Inhibitors in the adoption of the open Web for research purposes

Inhibitors		
Research work is complex / the open Web is easy. Managing a research process requires refined skills to face highly specialized tasks. The open Web appears to be generic and simplistic as a provider of tools for applying research methods.	**Current diffusion of individual-based work practices.** They are prevalent in – but not exclusive of – liberal arts.	**Current prevalence of face-to-face work practices.** Research work develops in a defined place, e.g. in a lab, and teams are small-size.
Institutional is better. Existing tools and forms of assistance – provided/suggested by the institution – already efficiently meet the practical needs.	**The open Web not yet used.** Lack of shared adoption prevents new researchers from using new tools.	**Face to face is better.** Methodological/critical discussion with supervisors, peers and other experts is thought as more productive and formative when occurring face to face.

Individual perspectives

A variety of general opinions can be highlighted from the comments regarding the value of the open Web for research purposes. A common, pragmatic approach tends to focus on specific PhD activities, such as the construction of an academic profile or a professional one. Diverse contrasting views are in play: for instance, some respondents hold that nowadays the use of the open Web in research work is inescapable and that also reluctant academics are going to adopt it; others maintain a strongly sceptical approach. In this line, the perceived need for downsizing the emphasis put on the open Web, towards a pragmatic approach to social media for research purposes is a view that Italian PhD students share with the UK peers participants in the survey.

Table 4: The most mentioned Individual perspectives toward the open Web for research purposes

Individual perspectives			
The open Web as fostering self-empowerment. Open Web providing the PhD student with diversified venues where drawing new hints from, challenging own assumptions and knowledge, refining one's own research.	**Open Web good for supporting specific activities.** More quickly learning some research skills, such as dissemination and networking.	**The open Web use is likely to increase across academia.** Prospective critical mass of academic users, better quality of resources and more expert users.	**Perspective of an ancillary use.** The open Web seen as a marginal supplement to research infrastructure and conventions, which are currently rich and comprehensive.
Individual agency matters. The open Web tools are key enablers but they are just tools: it is the individual will/engagement which is able to shape learning/research environment and find timely solutions.	**The open Web is ordinary stuff in the academic life of a PhD student.** Practices and advantages of the open Web for doctoral activities are experienced and assessed.	**Irrelevance.** Stronger than 'non pertinent' to a defined research area, the judgement of irrelevance is often not explained, but can be coupled to a belief of no potential of the open Web for research activities.	

Discussion: The Goal Orientations of the PhD researchers in the digital

The findings presented in the previous section seem to lead to the statement that social media implies more challenges than benefits to postgraduate students learning to be researchers and self-organizing their digital engagement. Against the hearsay claims on the potential of social software, the newer researchers often find the reality check demanding. As an example, these tools available in the open environments 'promise' to be fast and easy-to-use, whereas the actual time and learning curve needed for reaping any benefits from social networking activities is not affordable and is distracting from the formal doctoral tasks and deadlines. In our analysis, the accounted views can be thought in a continuum. On the one extreme there is the belief that the open Web can enhance the research environment and broaden its boundaries beyond academia, by accelerating and improving the practices of networking and

collaboration, by widening the access to traditional and emergent kinds of scholarly resources. This is said to have implications for the whole community of researchers, but also for the individual apprentice scholar, who has additional ways and venues to practice research skills. On the other extreme, there is the belief that research work is complex and rich of highly specialized tasks, whereas social media tools and environments appears to be generic, simplistic and open to undifferentiated audiences. In the middle, a range of issues are reported, varying from the concerns about copyright issues, alluding to a prevalent competitive approach in some research fields (Harley, Acord, Earl-Novell et al., 2010), to reliability issues addressing the authorship and peer review process of the resources published in the open Web. Building on these early findings, we have attempted to conceptualize the Goal Orientations (Table 5) of the researched PhD students toward the open Web for scholarly purposes.

Table 5: Main Goal Orientations of individual Italian and UK PhD researchers towards the potential of the open Web for research purposes

Pioneering (IT and UK)	**Coping** (IT and UK)
The aim is attempting an exploratory attitude toward social media for research purposes rather than relying on a mere convenience approach.	The aim is gaining a bespoke and efficient support to occasional, practical needs. It deals with a reactive rather than proactive behaviours.
Waiting for the mainstream (IT)	**Rejecting** (IT and UK)
A degree of individual engagement is likely to occur whenever specific digital practices become embedded in the academic life of one's own local context. Lack of shared adoption matters.	The open Web is seen as irrelevant to the academic sphere. It does not fit the complexity of the research practices.

The conceptual analysis of the open comments has allowed us to sketch a few clusters of different individual dispositions toward the potential of the open Web: Pioneering, Coping, Waiting for the mainstream and Rejecting. In the 'Pioneering' approach the goal orientation seem to be that of using the open Web tools as spaces for constructing a tentative mode of being scholar, probably as complementary to the model suggested by the local research context. It is worth noting that in the Italian sample the Pioneering approach seems to imply an ideology-driven attitude, in which the individual feels to be part of a collective movement towards not-yet-defined ways of doing and communicating research. Otherwise, in the UK sample we have drawn a peculiar emphasis on the relevance of individual agency for future engagement in the 'digital' as the doctoral journey advances. In the 'Coping' approach the goal orientation is closer to an effort for making sense of a plenty of instruments to get on demand support to current activities. We underscore that in the UK sample a nuance of 'planning' attitude emerges, aiming at shaping a pragmatic 'day-by-day' way for coping with the open Web, as well as for experimenting new digitally-mediated scholarly practices. In 'Waiting for the mainstream' the research participants state to have the adequate flexibility and capacity to apply new practices, but only when they are well-established in their local research community. This disposition however clearly emerges only among the Italian participants, whilst in the UK sample the trustful attitude toward the institutional asset of the doctoral experience is linked to a strong sense of personal responsibility in the endorsement of the new clusters of digital tools and practices. Finally, the 'Rejecting' attitude tends to exclude the open

Web from the academic sphere, because it would not fit the complexity of the research work, that appears to be well served by a range of specialized instruments. This kind of perspective, occasionally shared among Italian and UK participants, indeed seems to shift towards a judgement of 'irrelevance' of social media, neglecting the expectations for an evolution of the open web-based technologies to better respond to scholarly needs. It can be argued that whether in the 'Pioneering' approach the goal orientation of the PhD students in their self-organized learning ecologies gets close to the goal orientation they endorse in their institution-led learning ecologies, whereas in the 'Rejecting' approach the goal orientations are likely to diverge.

Conclusions

To what extent are the PhD students motivated to track complementary or alternative digital routes in their becoming researchers? Building on selected findings drawn from a survey research, this paper has provided a snapshot of motivations and concerns characterizing the digital engagement of individual doctoral candidates. The results drawn from insiders' voices seem to suggest that the current learning scenarios provided by doctoral programs hardly consider the possible, fruitful relationship between the PhD students' self-organized forms of assistance and the institution-led research training's methodologies. The current PhD researchers involved in the study actually struggle in reaping the benefits and face the challenges of the Web 2.0 and social media, only relying on individual enterprise and occasional experiences and aiming to be somewhat supported by the local formal context. Furthermore, the article has proposed a heuristic of their Goal Orientations, mapping the prevalent dispositions toward the digital environments revealed by two non representative samples of Italian and UK doctoral researchers. We are aware that *per se* the suggested line of interpretation of the four Goal Orientations deserves additional investigation to gain insights on the contextual factors (e.g. presence of social media training, adoption of networked practices by the supervisors, etc.) affecting the goal orientations of individual PhD students researching in diverse subject areas and different national settings. In fact, we need to undertake accurate mapping of the assembling activities carried out by newer researchers by combining institution-led and self-organized opportunities in the digital environments. This can help to prefigure new learning scenarios for the PhD students where the use of Web 2.0 tools and social networks in particular can support existing practices as well as unprecedented pilots in knowledge production and distribution.

References

1. Andrews, R.L. and Haythornthwaite, C. (2011). E-learning ecologies. In R.L. Andrews & C. Haythornthwaite (eds.), *Elearning. Theory and Practice,* (pp. 144-160). London: SAGE.

2. British Library/JISC (2011). *Researchers of tomorrow: a research behaviour of 'Generation Y' doctoral students.* Second annual report 2010-2011. Retrieved from http://www.jisc.ac.uk/reports/researchers-of-tomorrow

3. Cobo, C. and Naval, C. (2013). Digital Scholarship: Exploration of Strategies and Skills for Knowledge Creation and Dissemination. In *International Conference on Internet Science Conference Proceedings,* Brussels, April 9-11, 2013. Available at SSRN: http://ssrn.com/abstract=2249794

4. Cornelissen, G.; Simons, M. and Masschelein, J. (2007). Research in Motion: Doctoral Programmes at the Network University. In P. Smeyers & M. Depaepe (eds.), *Educational Research: Networks and Technologies,* (pp. 121-135), Springer.

5. Coverdale, A. (2012). *Social media practices: benefits and risks for doctoral researchers.* Paper presented at the SRHE 2012 Conference, 4-5 December 2012. Retrieved from http://www.srhe.ac.uk/conference2012/abstracts/0130.pdf

6. Ellis, R.A. and Goodyear, P. (2009). Thinking Ecologically About E-Learning. In R.A. Ellis & P. Goodyear (eds.), *Students' Experiences of E-Learning in Higher Education: The Ecology of Sustainable Innovation,* (pp. 16-38). London: Routledge.

7. Esposito, A.; Sangrà, A. and Maina, M. (2013). How Italian PhD students reap the benefits of institutional resources and digital services in the open Web. In *INTED 2013 Proceedings of the 6th International Technology, Education and Development Conference,* (pp. 6490-6500). IATED.

8. Harley, D.; Acord, S.K.; Earl-Novell, S. et al. (2010). *Assessing the Future Landscape of Scholarly Communication: An Exploration of Faculty Values and Needs in Seven Disciplines.* UC Berkeley: Center for Studies in Higher Education. Retrieved from http://escholarship.org/uc/item/15x7385g

9. Gibson, W.J. and Brown, A. (2009). *Working with qualitative data.* London: Sage.

10. James, L.; Norman, J.; De Baets, A.-S.; Burchell-Hughes, I. et al. (2009). *The lives and technologies of early career researchers,* JISC report. Retrieved from http://www.jisc.ac.uk/publications/reports/2009/earlycareerresearchersstudy.aspx#downloads

11. Luckin, R.; Clark, W.; Garnett, F.; Whitworth, A.; Akass, J.; Cook, J.; Day, P.; Ecclesfield, N.; Hamilton, T. and Robertson, J. (2010). Learner-Generated Contexts: A Framework to Support the Effective Use of Technology for Learning. In M. Lee & C. McLoughlin (eds.), *Web 2.0-Based E-Learning: Applying Social Informatics for Tertiary Teaching,* (pp. 70-84). Hershey, PA: Information Science Reference. doi:10.4018/978-1-60566-294-7.ch004.

12. Petre, M.; Minocha, S. and Barroca, L. (2014). Digital technologies for doctoral dialogues at a distance. In *the 44th Frontiers in Education Conference,* Madrid, Spain, 22-25 October 2014. Retrieved from: http://oro.open.ac.uk/40580/

13. Veletsianos, G. and Kimmons, R. (2012). Networked Participatory Scholarship: Emergent tecnocultural pressures towards open and digital scholarship in online networks. In *Computers & Education, 58(2),* (pp. 766-774). doi:10.1016/j.compedu.2011.10.001

14. Zhu, Y. and Procter, R. (2012). Uses of blogs, Twitter and Facebook by PhD students for Scholarly Communication: A UK study. In *2012 China New Media Communication Association Annual Conference Macao International Conference,* 6-8 December 2012. Retrieved from: https://www.escholar.manchester.ac.uk/item/?pid=uk-ac-man-scw:187789