DIGITAL IDENTITY AND PERSONAL LEARNING NETWORKS (PLN) IN A PHD RESEARCHERS COMMUNITY

Nuno Ricardo Oliveira, Laboratory of Distance Education and Elearning, Universidade Aberta, Lina Morgado, Universidade Aberta, Portugal

Abstract

The Web 2.0 has been increasingly used by the academic community – teachers, students and researchers – to create, stimulate and expand learning in an informal way, even when knowledge is acquired in a formal context. The appearance of emerging environments and pedagogies has enabled the introduction and adoption of new practices and behaviours of individuals in the university academic context. In the context of lifelong learning and as a complement to formal learning, there is a new reality for the 21st century researchers – the personal learning network. This research project addresses issues related to the researchers' digital identity in the field of Online Distance Education and eLearning and their personal learning environment, researching the genesis, management and dynamics of the personal learning network of each member in a community of researchers. Within this background, this research aims to analyse how a community of researchers uses social networks to deepen their knowledge, as well as to understand how they create, manage and stimulate their social networks to acquire knowledge based on their contacts.

Introduction

With the evolution of the internet, the Web 2.0 is a platform for creating, sharing and constantly modifying content, user-centric, allowing both the interaction and communication as well as the creation of networks. This evolutionary phenomenon changed some fundamental aspects in how individuals act and behave in the Network: how to connect, interact, share information, make purchases, socialise, learn and work. In this context, there are several emerging environments that define new practices and behaviours of the individuals. It is also in this framework that the Web 2.0 has an increasing use by the academic community – teachers, students and researchers, to create, stimulate and expand learning informally, even when knowledge is acquired in a formal context. It is also relevant to mention the importance of digital literacy by the members of the academic community, which enables, among other actions, the creation of networks of social connections, which, in turn, allows a collaborative learning in an open network.

Collaborative learning through a network of social connections depends on a correct use of the digital media by researchers (Castells, 2001). In this sense, there is a tendency to optimise learning with the use of digital technologies at the disposal of the individual, through the network. The evolution allows an awareness of the need to promote new forms of learning, collaboration, and dissemination of the work developed, as part of their digital presence, both at a personal level, as well as an academic and professional level (Costa & Torres, 2011). The use of digital media and sharing in the same spaces allows the construction of a Digital Identity. There is an increasing presence of the researcher in the spaces of the web, where they do research and share knowledge, through social networks, blogs, wikis and other appropriate spaces for sharing. This process does no longer depend only on the researcher him/herself, but on the whole network of individuals that make up the network and that interact with them. It is, thus, each one's responsibility to manage their presence in online spaces, both public and private (Alexander, 2008; Cranor, Reagle & Ackerman, 1999; Warburton, 2010; Esposito, 2013a; 2013b).

In short, the evolution of technology creates new challenges to education and researchers, as we nowadays live increasingly networked. The network is composed of individuals who are part of our everyday life, who we share interests, resources, thoughts, links, insights and jokes with, among many other things, but the most important thing is that they enrich our professional, academic and personal life. This sharing is taking place, most of the times, through social networking and Web 2.0 tools, which motivate and facilitate the edition, simulation, reviews, sharing of text, sound, image and video, by promoting and valuing the Personal Learning Environment (PLE) and a networked learning (Mota, 2009b), enabling a social learning which is collaborative and open, through their Personal Learning Network (PLN) (Brown, 2002).

This study intends to research a community of researchers, in order to analyse how they use social networks to deepen their knowledge, how they create, stimulate and sustain their social network, to get knowledge from the contacts they establish.

The PLN of a community of researchers

The present study thus seeks to contribute to the understanding of how a community of researchers builds, maintains and nurtures their personal learning network, in a useful way to their learning process. In other words, how the PLN can be the means for the researcher to disclose his/her identity in the network.

As an effective contextualisation of the problem, the study involves the analysis of three concepts: digital identity, personal learning environment and personal learning network. It seeks to answer the following main question: How does the researcher create, manage and stimulate his/her digital identity to build a Personal Learning Network (PLN)?

This main question is intended to address the following objectives:

- to identify the PLN of researchers in the research community, in order to identify how they handle its construction, management and dynamics;
- to identify the researchers' digital identity;
- to define how researchers identify and create the online relationships in their PLN;
- to identify the structural factors that enable collaborative learning through the PLN.

Digital identity

In a society that lives increasingly networked and in constant online interaction, it becomes necessary to have an awareness of digital presence. In the context of this study, the researchers mark their digital presence through their sharing, collaboration and dissemination of their work through the social network(s). Through the network and what is shared, each person will disclose their digital identity. Oliveira and Morgado (2014, p.469) assert that "the digital dimension of identity is understood as the total information about the individual, from credentials that allow access to the closed system, to the representation of the complex "I" in an open digital space[16]". The concept of Digital Identity is recent and derives from the practices that individuals have been developing on the network. It's an important element because it is the reflection of the personal, academic and professional life of the researchers.

The digital presence of researchers is a process that does not depend only on researchers themselves, but also on how they create their network, in a participatory manner through sharing and collaboration or simply by receiving what members of their network share. Thus, researchers must know how to manage their presence in public and private online spaces, and this represents another skill acquired by digital literacy (Oliveira & Morgado, 2014). The digital presence is considered by some authors (Costa & Torres, 2011; White, 2008) in the dualist perspective of the "self", by its dynamics and presence, with the possibility of considering the "self" as a visitor or resident (White, 2008).

Personal Learning Environment

The fast development of Web 2.0 tools creates new challenges for education and research, as we nowadays live in a network. With this reality emerging environments arise, which are ubiquitous for the development and exploration of a true Personal Learning Environment (PLE).

The concept of Personal Learning Environment (PLE) appears for the first time in 2001, in a text by Olivier and Liber (2001) entitled Lifelong learning: the need for portable personal learning environments and supporting Interoperability standards, whose authors integrate the institutional context of learning with a peer-to-peer model that should be focused on a personal and lifelong learning (Mota, 2009b). Since that date, there have been a few studies on the topic and even in 2010 there was a conference focused on PLE, with the aim of creating a space for researchers and professionals to exchange ideas, experiences, research around the development and implementation of the PLE, including the design of environments, as well as

sociological and educational issues, their effectiveness and convenience as informal learning spaces. Since 2010 this conference is annually held. According to Gallego and Chaves (2014), there are few studies on PLE, with the majority of texts/papers being submitted to The PLE Conference, the number of theses on the topic is even scarcer.

Since it is a recent concept, the definition is not yet consensual among the community of researchers. In the diversity of definitions that were developed around the concept of PLE, there are, however, common elements and one may consider that there is a degree of unanimity when it is stated that it is an environment controlled by the individual, based on diversified digital resources, associated with a given space, requiring an identification of the individual (i.e., to access certain features, an individual/personal register will be required), promoting lifelong learning. This allows the individual the ability to increase or decrease the number of resources at their disposal for learning, and finally another common element is that it consists of a social software that enables the interaction among a network of contacts (Johnson, 2008).

The PLE has emerged in recent years through open platforms and research work has recognised the importance of informal learning through social software and by successive recognition of the importance of the update in the perspective of lifelong learning (Adell & Castaneda, 2010; Castaneda & Adell, 2013; Mota, 2009a).

According to several theoretical studies, the PLE allows the individual to continually update their knowledge, in a prospect of lifelong learning (Gallego & Chaves, 2014) and, therefore, it is, at the same time, a demand and a need in a world that is constantly networked and where technology is used in everyday life. Thus, the individual uses a set of tools for communication and interaction in various tasks, activities and situations, in accordance with their needs and to be the actor of a learning, be it formal or informal.

Castaneda and Adell (2013) describe the PLE as being composed of three dimensions and interrelated tools:

1. reading tools and strategies, in which the sources of information provide certain information in the form of object or artefact;

2. reflection tools and strategies - this space refers to environments or services where one can transform information (places to write, comment, review, recreate and publish);

3. relationship tools and strategies: the environments where there is a relationship with the other individuals and where learning takes place.

Personal Learning Network

The Personal Learning Network (PLN) is the social dimension of a Personal Learning Environment. For Castaneda and Adell (2013) the PLN emerges as a relationship tool and strategy, which consists of environments where the researcher relates to others and that by means of this relationship, feedback and interaction that may exist, there is a production of knowledge, and therefore there is a network of learning.

The PLN is defined by the connections that the researcher establishes through the means available and at their disposal, with the purpose of improving mutual learning, through feedback, ideas, documentation, new contacts, thus building a network of learning and acquisition of new knowledge.

The social Web is characterised by individual participation and interaction in various spaces and emerging environments by sharing, registration in databases, be they bank-related, institutional or social networks, blogs, discussion forums, that allows the development of a digital identity on the web (Warburton, 2010). Social software, in an educational context, consists of making applications available, at the level of communication and interaction among individuals and/or group, by promoting the production of knowledge and its sharing with the community.

For some authors, among them Margaryan, Nicol, Littlejohn and Trinder (2008) and Warburton (2010), with the development of the Web and the importance given to the social Web, the existence of a network identity is a phenomenon impossible to avoid. The knowledge and the ability to search for, evaluate, create, share information and synthesise are increasingly important.

Thus, the characteristics of the Web 2.0, which motivate and facilitate the proliferation of tools that allow you to create, edit, simulate, comment, share text, sound, image and video, are tools that give value to the Personal Learning Environment (PLE) and to a learning network (Mota, 2009b), i.e., that enables a collaborative and open social learning through their Personal Learning Network (PLN). The PLN of each researcher allows them to have access to knowledge and experts 24 hours a day. Richardson (2013) proposes six steps to build a PLN and states that its value lies on commitment and maintenance of the interactions created. Of the six steps we stress: choosing a topic of interest that one would like to share; having a Twitter account – because this tool allows you to create great learning networks with experts; searching for blogs on topics of interest and follow them through RSS feeds; interacting with experts through direct tweets or through comments on their blogs; sharing only what is useful for your network; and finally, you should maintain regular sharing, comments or contributions, because only then your network will be able to expand. The PLN is intended for the researcher to learn and, thus, improve their practice, in a networked environment (Castaneda & Adell, 2013; Costa, Keegan & Attwell, 2009; Costa, 2010). It can be said, according to Costa (2011), that the PLNs are crucial to create interactions among individuals

through the use of Web 2.0 tools. The practice of nurturing a PLN online contributes to the emancipation of the self.

For Castañeda and Adell (2013), the PLN is integrated in the PLE, because with the technological and social advancement, the tools, processes and activities that enable one to share, reflect, discuss and rebuild with other knowledge, encourage and nourish this exchange and the acquisition of knowledge. The authors reiterate that the PLN is configured by the activity that each individual has and the tools that allow them to connect to others, through their publications, their shared experiences, or the direct relationship with their network. The PLN requires a range of skills related to their identity in online spaces where they are present and connected to. In this sense, while the individual builds, expands and manages their PLN, they must develop a greater and better awareness of their own personal and professional identity, because only with a strong identity can they strengthen the network that supports a large part of their learning. Personal networks are a set of relations through which people are part of social structures. Their configuration refers to the set of characteristics of the people that make up their personal network. In this sense, the PLN is informative about the social value of the researcher's network and the diversity of social spaces where they learn (Castañeda & Adell, 2013).

In short, the main elements that characterise the relationships developed between the members of the network are reciprocity and trust, which encourage the exchange of information with the aim of learning. The PLN describes habits of informal learning and creates opportunities for learning through relationships and interactions. They are not social networks, since the incentive to participate in them is in learning. They are referred to as the sum of social knowledge and connections that help people create their own environment for autonomous learning. Throughout their network, each individual serves the needs of personal learning, which is not limited by collective objectives.

Methodology

The research that has been developed in this field of study consists of quantitative and qualitative methods, depending on the research questions we want to address and the data that are sought (Morais & Neves, 2007). The models and tools that will be developed in this research as part of the methodology involve the combination of the two research paradigms (quantitative and qualitative) through a questionnaire survey, social network analysis (SNA) and a semi-structured interview.

The target audience of this study will be the researchers who are members of the community of the doctoral programme in Education, specialisation in Distance Education and eLearning at Portuguese Open University.

Initially, a questionnaire will be applied to the research community, in order to characterise their profile and define the features of their "Digital Identity", as well as to understand its importance and influence in networked learning, to describe their PLE and study how their PLN is created, maintained and nurtured.

A second phase will be carried out using a Social Network Analysis methodology, to obtain a representative group of each edition, in the number of three representatives per edition. This SNA will be performed based on the answers given by researchers to the questionnaire, specifically on the issues addressing the Web 2.0 tools used and the social networks where they have a predominant activity, delimiting a Digital Identity in this space with greater interaction with its members. After this selection, the social networks of the selected researchers will be analysed through a suitable SNA software, such as: Gephi, NodexL, "R", Netlogo or others. This analysis will take place during a month, to enable the understanding of interactions, creation and promotion of the network. For this purpose, each researcher will be requested to collect a data file from the chosen social network, that will later be analysed in one of the abovementioned SNA programmes, in order to create a graph of the network and be able to read and understand it. To assist this reading and understanding of graphs on the networks of each researcher, a semi-structured interview will then be carried out. The interview will be made to the group of the nine selected researchers, with the objective of deepening some themes addressed in the questionnaire and the collection of data from their PLN. The collection of data from semi-structured interviews will be performed via Skype or Hangout, recorded and later made available in writing. Given the large volume of data that is expected, all stages of the present research will make use of devices and software tools for data analysis and treatment, both qualitative and quantitative, in accordance with their specific characteristics. Thus, we anticipate that data will be treated and analysed using SPSS (Statistical Package for Social Sciences), Nvivo and spreadsheets.

During the Social Network analysis, free tools will be used. There are several tools, each with unique features, and therefore it will be necessary to test each tool, bearing in mind the objectives of this research. The most appropriate software will be selected depending also on the social network to analyse, such as: NetDraw, Ucinet, Gephi, GUESS, NodeXl, NetLogo, "R", among others.

Conclusion

Whether in the educational context in general, as well as in online distance education and in particular in the context of Open Universities internationally, there are no studies with the same objectives we propose for this research. There are also few studies that focus on the personal learning network (PLN), in the perception that from the network of contacts emerges a platform in which interaction and communication (conversations and dialogues) can occur, allowing non-formal learning.

Learning is usually associated to a formal context and institutional platforms, but in the digital age, where there is a strong participation in the web and researchers seek to connect among them and with experts in their field of interest, learning at an informal level can be promoted. Thus, the contribution of this study is to understand how researchers create, maintain and nurture their personal learning network (PLN), so that they can use it for the learning process (and research) as well as to understand how the PLN can promote the disclosure of the researcher's digital identity.

References

1. Adell, J. and Castañeda, L. (2010). Los entornos personales de aprendizaje (ples): una nueva manera de entender el aprendizaje. In M. Roig Vila & R. Fiorucci (eds.), *Claves para la investigación en innovación y calidad educativas. La integración de las tecnologías de la información y la comunicación y la interculturalidad en las aulas. Stumenti di ricerca per l'innovaziones e la qualità in ámbito educativo.* La tecnolo. Marfil – Roma Tre Universita Degli Studi.

2. Alexander, B. (2008). Web 2.0 and Emergent Multiliteracies. In *Theory into Practice, 47(2),* (pp. 150-160).

3. Brown, J. (2002). Growing up Digital. In *USDLA Journal, 16(2).*

4. Castañeda, L. and Adell, J. (2013). La anatomía de los Ples. In L. Castañeda & J. Adell (eds*.), Entornos Personales de Aprendizaje: Claves para el ecosistema educativo en red,* (pp. 11-27). Alcoy: Marfil.

5. Castells, M. (2001). *La galaxia Internet,* (p. 302). Barcelona, Spain: Areté.

6. Costa, C. (2010). Lifelong learning in Web 2.0 environments. In *International Journal of Technology Enhanced Learning, 2(3),* (pp. 275-284).

7. Costa, C. (2011). Educational Networking in the Digital Age. In M. Thomas (ed.), *Digital Education: Opportunities for Social Collaboration,* (pp. 81-99). Palgrave Macmillan, UK.

8. Costa, C.; Keegan, H. and Attwell, G. (2009). Cartoon planet: Micro-reflection through digital cartoons - a case study on teaching and learning with young people. In *Romanian Journal of Pedagogy, 7(9),* (pp. 112-128).

9. Costa, C. and Torres, R. (2011). To be or not to be, the importance of Digital Identity in the networked society. In *Educação, Formação & Tecnologias,* (pp. 47-53).

10. Cranor, L.F.; Reagle, J. and Ackerman, M.S. (1999, April 18). *Beyond Concern: Understanding Net Users' Attitudes About Online Privacy.* Cornell University Library. Computers and Society; Human-Computer Interaction. Available online at http://arxiv.org/abs/cs/9904010

11. Esposito, A. (2013a). Neither digital or open. Just researchers. Views on digital/open scholarship practices in an Italian university. In *First-Monday, 18(1).* Available online at http://firstmonday.org/ojs/index.php/fm/article/view/3881

12. Esposito, A. (2013b). The Impact of Social Media on Scholarly Practices in Higher Education: Online Engagement and ICTs Appropriation in Senior, Young, and Doctoral Researchers. In B. Pătruţ, M. Pătruţ & C. Cmeciu (eds.), *Social Media and the New Academic Environment: Pedagogical Challenges,* (pp. 342-367). Hershey, PA: Information Science Reference.

13. Gallego, M.-J. and Chaves, E. (2014). Tendencias en estudios sobre entornos personales de aprendizaje (Personal Learning Environments -PLE-). EDUTEC. In *Revista Electrónica de Tecnología Educativa, 49,* (pp. 1-22).

14. Johnson, M. (2008). Expanding the concept of Networked Learning. In the *Proceedings of the Sixth International Conference on Networked Learning,* (pp. 154-161). Halkidiki, Greece.

15. Margaryan, A.; Nicol, D.; Littlejohn, A. and Trinder, K. (2008). Students' use of technologies to support formal and informal learning. In J. Luca & E. Weippl (eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2008,* (pp. 4257-4266). Chesapeake, VA: AACE.

16. Morais, A.M. and Neves, I.P. (2007). Fazer investigação usando uma abordagem metodológica mista. In *Revista Portuguesa de Educação, 20(2),* (pp. 75-104).

17. Mota, J.C. (2009a). *Da Web 2.0 ao E-learning 2.0: aprender na rede.* Available online at http://repositorioaberto.uab.pt/handle/10400.2/1381

18. Mota, J.C. (2009b). Personal Learning Environments: Contributos para uma discussão do conceito. In *Educação, Formação & Tecnologias, 2(2),* (pp. 5-21). Available online at http://eft.educom.pt/index.php/eft/article/view/105

19. Oliveira, N.R. and Morgado, L. (2014). Digital Identity of researchers and their Personal Learning Network. In P. Zaphiris & A. Ioannou (eds.), *Learning and Collaboration Technologies. Technology-Rich Environments for Learning and Collaboration,* (pp. 467-477). Switzerland: Springer.

20. Olivier, B. and Liber, O. (2001*). Lifelong Learning: The Need for Portable Personal Learning Environments and Supporting Interoperability Standards.* Bristol: The JISC Centre for Educational Technology Interoperability Standards, Bolton Institute. Available online at http://ictlogy.net/bibliography/reports/projects.php?idp=1536

21. Richardson, W. (2013). Create Your PLN: 6 Easy Steps. In *Educational Leadership: Reflect, Refresh, Recharge, 70,* (pp. 20-22).

22. Richardson, W. and Mancabelli, R. (2011). *Personal Learning Networks: Using the Power of Connections to Transform Education.* Solution Tree. Retrieved from http://www.solution-tree.com/personal-learning-networks.html

23. Rodrigues, M. and Beefun, H. (2012). A aprendizagem social, via web 2.0, na educação e formação. In *Actas Do II Congresso Internacional TIC E Educação,* (pp. 1052-1058). Lisboa, 2012, December 2.

24. Shaffer, D.W. and Serlin, R.C. (2004). What Good are Statistics that Don't Generalize? In *Educational Researcher, 33(9),* (pp. 14-25).

25. Warburton, S. (2010). Digital identity matters. In *Journal of the American Society for Information Science and Technology, 56.* London: King's College London.

26. White, D. (2008). Not 'Natives' & 'Immigrants' but 'Visitors' & 'Residents'. In *TALL blog, Online education with the University of Oxford, July 23rd, 2008.* Available online at http://tallblog.conted.ox.ac.uk/index.php/2008/07/23/not-natives-immigrants-but-visitors-residents/