An Open Learning Format for Lifelong Learners' Empowerment

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INTRODUCTION

Open learning and lifelong learning (LLL) are not new concepts in research literature (Brügelmann, 1975; Coffey, 1988; Kent, 1987). Anyhow, the current fervid debate is on the need for disruptive education at the light of the fundamental technological and societal changes that have occurred in recent decades (Stevens & Kirst, 2015). The whole life course is being reworked. Open, lifelong and ubiquitous learning, cloud computing and smart city frameworks are the pillars of the change that is replacing the traditional education and work models and transforming the way crowds of people learn, communicate, collaborate, teamwork, produce value and growth for the entities of which they are part (Leone & Biancofiore, 2015).

Education systems are urged to meet the growing demand for personalised learning paths, and individuals are driven to acquire awareness, tools and competences towards personal learning goals.

In particular, emerging practices with social semantic computing technologies and research findings signal the need for more personal, social and participatory approaches that foster learners in co-producing learning resources, rather in managing the learning process as a whole, and in pursuing personal life goals and needs. Indeed, learning occurs increasingly for the most part outside the traditional formal situations, especially for adult lifelong learners (European Commission/ EACEA/ Eurydice, 2015).

In this regard, over the last years highlighting on the shift from formal to informal eLearning through knowledge management and sharing has been placed. Growing attention has been paid to Personal Learning Environments (PLEs) as an effective framework for lifelong learners, and to the need of integration of formal and informal learning. Formal teaching spaces are defined within Learning Management Systems (LMSs). Spaces agreed in informal learning communities, instead, are to be used by social software. They are aimed to build networks of virtual identities and to define PLEs of dynamic contents, based on continuous accesses, validations, dialogic exchanges. ELearning 2.0 has mediated the shift from formal to informal eLearning, from LMSs, which are organisation-centred spaces that overlook individual differences and potential, to PLEs as emerging learner-centred spaces.

A wider and wider range of open source and free learning applications on the web are offering lifelong learners powerful tools to construct and characterise their own PLEs.

Technologically speaking, this change of perspective manifests in a learning web where information, activities and relations are distributed across sites and web-based learning applications, of which social networks have become a key factor. Consequently, knowledge management becomes an issue, and personalisation requires the support of adaptive mechanisms and of semantics applied to social components.

This work presents the updated version of *SSW4LL (Social Semantic Web for Lifelong Learners)*, an adaptive, modular, flexible and integrated learning format which has been devised to support the characterisation of adult lifelong learners' PLEs by implicit and explicit tools of personalisation, in a learner-centred framework (Leone, 2013; 2014; 2015). The *SSW4LL* system,

the technological architecture, is presented as a whole made up of components of formal and informal learning environments: Moodle 2.9 integrated with an adaptive mechanism (conditional activities) and some tools of Social Semantic Web (Semantic MediaWiki 2.3, Diigo and Google+), respectively. The *SSW4LL* format was successfully validated during the course *SSW4LL 2011*.

BACKGROUND: PERSONALISATION IN A LIFELONG LEARNING VISION

Over time a great amount of theories and definitions of personalisation of learning have been produced. The expressions *personalised learning*, *personalising learning*, *individualised learning* have been coined to characterise and support with different emphasis the basic common view that each learner should be able to choose a tailored learning path, in order to meet personal needs, interests and abilities (Bentley & Miller, 2004); to promote both independence and dependability (Downes, 2007); to enhance social skills and sense of responsibility toward others (Pankhurst, 1922; Keller, 1968); to improve creative, intellectual, social and moral growth and develop personality fully (OECD, 2006; Rogers, 1983).

As the activator of economical, cultural and social growth of the knowledge society, the individual should be seen as an active, responsible and self-motivated learner, a co-author of the script that determines how education is delivered (Knowles, 1970; Leadbeater, 2004), often with extensive use of technology in the process; briefly, a lifelong learner (Leone, 2010; Martinez-Pons, 2002; Zimmerman, 2002).

The emphasis in relation to personalising education is that learning is inclusive, lifelong and therefore reaching beyond the traditional confines of schools (OECD, 2006).

Personalisation is thus a strategy aimed at designing, implementing and supporting learner-centred institutional practices (Maharey, 2007), and at drawing on wider resources for learning beyond formal education, by creating new flexibilities to meet new demands (Bentley, 2005).

In this regard, Leadbeater's model of surface and deep personalisation (Leadbeater, 2004), where the student steadily progresses from consumer to producer behaviour, calls attention to a great deal of crossover with PLEs.

Since its appearance, the concept of PLE has posed numerous educational theories and implications (Chatti et *al.*, 2010; Downes, 2010; Leo, Manganello & Chen, 2010; Motschnig-Pitrik & Mallich, 2004; Pettenati, 2010; Wild, Mödritscher & Sigurdarson, 2008). In this research, a PLE is a concept rather than specific software, a group of techniques and a variety of tools to gather information, explore and develop relationships between pieces of information (Leone & Guazzaroni, 2010). A PLE helps to view the subject as a landscape as well as individual pieces of information; to create a personal repository of materials and relationships clustered around a unifying topic or concept; to document, reflect, communicate, collaborate. Information and knowledge reside in digital and non-digital sources. A PLE, at the same time, develops and is fed by autonomy, pragmatics, relevance, building on prior knowledge, goal-directed approach (Leone, 2009).

Certainly, the concept of PLE has challenged the existing education systems and institutions, since new forms of learning are based on trying things and action, rather than on more abstract knowledge. Thus the dicothomy LMS *vs* PLE has been transformed into models of integration (Giovannella, 2008; Leo Manganello & Chen, 2010) of formal and informal learning.

Anyhow, in relation to personalisation of learning, LMSs, the formal component of the integrated learning environment, are weak (Graf, 2007), and the management of an effective PLE requires information overload and diversity, distribution, trustworthiness and evaluation of the collection of learning resources to be tackled as critical elements.

To this end, adaptive mechanisms and Social Semantic Web can offer suitable tools of

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