

## Chapter 3.12

# E–Portfolio to Promote the Virtual Learning Group Communities on the Grid

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### **ABSTRACT**

*In Vocational and Educational Training (VET), new trends are toward social learning and, more precisely, toward informal learning. In such settings, this article introduces a process — the e-Qualification — to manage informal learning on the ELeGI “Learning Grid Infrastructure.” It argues that this process must occur in a social context, such as virtual communities. On the one hand, it describes their necessary characteristics and proprieties that lead to the creation of a new kind of virtual community: the Virtual Learning Grid Community (VLGC). On the other hand, e-Qualification cannot occur without the help of a kind of user’s profile, called e-portfolio. Moreover, the e-portfolio is also a process, used to manage the Virtual Learning Grid Communities. The e-Qualification and Virtual Learning Grid Communities’ management will probably rely on the cooperation of different distributed, autonomous, goal-oriented entities, called Mobile Peer-to-Peer (P2P) Agents. Furthermore, we hope that implementing these services will decrease the lack of informal learning treatment on the grid and will become the basis for new services on the Learning Grid.*

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## INTRODUCTION

The continuous development of new technologies has brought new perspectives for more advanced and enhanced learning services. One example is the emergence of Grid computing.

According to Foster (2003, p. 1):

*Grid computing has emerged as an important new field, distinguished from conventional distributed computing by its focus on large-scale resource sharing, innovative applications and, in some cases, high-performance orientation. ... The “Grid problem,” which we define as flexible, secure, coordinated resource sharing among dynamic collections of individuals, institutions, and resources — what we refer to as virtual organizations.*

The Globus Alliance, which is a community of organizations and individuals developing fundamental technologies behind the Grid, has defined the Open Grid Services Architecture (OGSA). This is a service-oriented architecture for the Grid Model of a computing system and is the current standard for the Grid middlewares and services.

The Semantic Grid is an extension of the current Grid, in which information and services are given well-defined meaning, better enabling computers and people to work in cooperation.

According to De Roure (2003, p. 2):

*[T]he Semantic Grid is characterised as an open system in which users, software, components and computational resources (all owned by different stakeholders) come and go on a continual basis.*

According to Allison, Ruddle, and Michaelson (2002, p. 102):

*From the perspective of good educational practice an online collaborative learning environment should provide certain features for learners, like group-work support, interactive, engaging,*

*responsive, real-world input, student-centred, anytime/ anywhere.*

Those pedagogical goals imply a radical change of the technical requirements and bring forward a new design for the semantic Grid, in which “social learning” will be of paramount importance.

In such settings, the European Learning Grid Infrastructure (ELeGI project - contract IST-002205, 6th Framework Programme for RTD) has the ambitious goal to develop software technologies for effective human learning (Dimitrakos & Ritrovato, 2004). ELeGI has chosen a synergic approach, sometimes called “human centered design,” to replace the classical, applicative approach to learning. In this approach, learning occurs as a side effect of interactions, conversations and enhanced presence in dynamic virtual communities. Two kinds of learning are pointed out: formal learning vs. informal learning. According to Allison, Cerri, Ritrovato, Gaeta, and Gaeta (2005), informal learning groups are ad hoc temporary clusters of students within a single work session. Informal learning groups can be initiated, for example, by asking students to spend 2 minutes discussing a question or problem posed by the teacher. In this case, some students gather to solve the question or problem. In this way, the informal learning groups form with the only purpose to solve the posed problematic situation, and their life expectancy is limited to the work session. In VET, informal learning refers to what the user learns during the debriefings in groups.

Nowadays, there is a real lack of tools able to manage informal learning. Our major research objective is to define a process able to point out what the learner has acquired through an informal way and to guide the learner according to this new information. This process is called e-Qualification and cannot occur without introducing new suitable tools, which are the e-portfolio and VLGC.

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